

FOR RELEASE ON DELIVERY
Monday, November 23, 1970
Approximately 8 p.m. EST

MONETARY POLICY: THE MONEY SUPPLY

Remarks of

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at the

39th Annual Dinner Meeting
of the
Long Island Bankers Association

East Meadow, Long Island
New York
November 23, 1970

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Daily I am surprised by the sweeping statements reported in the press by economists, financial analysts, pundits, and others of what has happened, is happening, or will happen to the money supply, and what the results have been or will be on interest rates, jobs, prices, and the stock market.

My surprise arises because so many of these statements accept as facts what may be misconceptions, partially tested theories, errors, or wishes. Common themes of many of these pronouncements are the large differences in gross national product, prices, and interest rates that will result from rather small differences in the rate of growth of the money supply. The magnitudes involved, and the implied cause-and-effect relationships are frequently described with a confidence that rarely acknowledges the lack of certainty surrounding these matters.

I should like to draw your attention today to some of the problems involved in defining and measuring the money supply, and in interpreting the implications of changes in its rate of growth. I would not go so far as to point to the Bible and say that "the love of money is the root of all evil," for many economists and others interested in monetary policy, but I don't think it amiss to suggest that the love of money, to the exclusion of some other important facts and uncertainties of economic life, can result in incorrect and misleading conclusions.

Let me begin by making some statements which are in a considerably different vein than many current comments.

First, there is no general agreement as to what the term "money supply" means. Its meaning frequently varies with the user.

Second, if one believes that changes in the "money supply" cause movements in prices, output, and interest rates, and that more or less fixed relationships exist between the changes in money and the other quantities, then in recent months and years different definitions of money would yield substantially different results.

Third, similarly, even with a single definition of the money supply, predicted results can vary widely depending on whether the estimates of money used are preliminary, revised, or final and on the periods used for measuring changes.

Fourth, how much the "money supply" changes in a month, quarter, or year results from decisions of millions of separate and independent units. The Federal Reserve's influence over the money supply is indirect. The links between Federal Reserve actions and the decisions of others to alter the money supply are not fully understood. Estimates of how much the money supply will change in any period given a specific course of Federal Reserve action have a considerable margin of error.

None of these four statements imply that monetary policy does not have a considerable impact upon the economy. None imply that measures of movements in various monetary aggregates or concepts of money are not useful gauges for formulating or implementing monetary policy. There is almost complete agreement that monetary policy does affect jobs, interest rates, and prices.

What these statements do imply is that any simple assertions as to how or to what extent current or lagged movements in the "money supply" cause or may cause specific movements in the very complex economic and financial world ought to be examined with care. An understanding of the lack of accuracy in the data, theories, and analysis surrounding oversimplified causal statements should lead to a better appreciation of possible errors in the analysis of current and prospective movements in the economy.

Money supply is a helpful tool to use in guiding monetary policy. However, like many useful but complicated tools, it has great potential for being misused, to the discomfort of its practitioners, as well as the economy.

The Money Supply and the Economy

Economists are in general agreement that output, jobs, prices, and interest rates rise or fall in response to a wide variety of specific forces. Included among the factors which can alter the pace of economic activity are changes in the growth of the labor force, technological developments, changes in wage rates, shifts in desires to save and invest, changes in government taxes and expenditures, movements in money and credit, as well as expectations of what will happen to all of these forces.

While some analysts put more stress on a particular set of factors, few disagree that each of these forces has, at times, caused economic fluctuations. Not many economists accept the idea that movements in the economy can be described in simple terms or that one can predict accurately what will happen over the next month, six months, or several years from movements in a single variable such as the money supply. In fact, I know of no one who has been able to predict successfully how the money supply will change let alone how these changes will influence the major economic variables.

Yet as I read the daily and weekly press, see comments of experts on money and stock prices, bond prices, or the economy, I fail to note the same skepticism or agnosticism with respect to statements on these matters that I find in the technical literature. Simplified statements about money made to clarify examples or help in debates among theoreticians appear in entirely new contexts. In their new habitat they are surrounded by far more specificity and far fewer qualifications than in their original context. Each further remove of such statements from their origin seems to increase their certainty. That, in my judgment, decreases their likelihood of being accurate descriptions of what is happening or is likely to happen in the economy.

"The Money Supply"

Any article on money points out the diversity of elements that have served as money in the past. As our financial system has grown in complexity, the possible elements to include have expanded rapidly. Table I shows a few of the most common definitions of money currently in use. In magnitude the amounts they represent vary from the \$48 billion of currency in circulation to a total of \$674 billion if we include as money currency plus deposits at all financial institutions. Even this list leaves out what many would think of as obvious candidates for inclusion such as money orders, travelers checks, or debt created by the use of credit cards, which, to an increasing extent, is being monetized.

What you call "money" really depends on who you are and what you do. To the world's central banks, special drawing rights on the International Monetary Fund are "a generally accepted means of payment"--but not to any commercial bankers. Money can be one thing for a lawyer and another thing for an economist.

According to one school of thought, definitions should not be based on grounds of principle, but on grounds of usefulness in organizing our knowledge of economic relations. Thus, we should define as "money" that collection of private and public debt which yields the best predictions of changes in prices and nominal income or GNP.

Unfortunately for this approach, it frequently turns out that what seems like the best definition based on past periods does the poorest job in predicting the future.

Because of failures and dissatisfaction with the purely empirical approach to the definition of money, economics is full of theoretical debates as to what should properly be considered as money. Because of the well-known difficulties of any theory proving another wrong, these debates change few allegiances when it comes to preferable definitions of the money supply. Those who use the term "money supply" glibly are frequently unaware of or unconcerned with these basic differences and the impact they can have on current analysis.

Measuring the Money Supply

In Table I, columns 2-4 give the rate of growth for each of seven definitions of the money supply for the years 1967-1969. Columns 5-7 give the annual rates of growth for more recent periods.

You might expect that if the money supply described as demand deposits and currency grows at, say, 5 per cent, other monetary aggregates would also grow at or near 5 per cent. Columns 2-7 demonstrate that this is simply not the case. In 1969, for example, while demand deposits and currency were growing at an annual rate of 2.5 per cent, member bank deposits were shrinking at an annual rate of -4.2 per cent.

Even if the rates of growth are not identical, however, one might nevertheless assume that the relative rates of growth should be roughly constant. For example, we might expect that the rate of growth of currency in circulation should always bear some constant relationship to the rate of growth of currency and demand deposits. But, as columns 8-13 demonstrate, this also is not the case. When we look at year-to-year data, the rate of growth of currency fluctuates from .83 to 2.32 times the rate of growth of currency plus demand deposits. The similar ratios for currency, demand deposits, and time deposits vary from -0.61 to 2.14 even though the narrower concept makes up nearly half the second. The variance is even greater when we look at shorter periods.

Obviously, if one thinks there are close and quite exact relationships between changes in money and what happens in the economy--how one defines money is extremely important. Any forecast based on one definition of money will vary from one using another definition by the full amount of the large differences in movements among the concepts of money shown in the table.

The problems of measurement go far beyond the differences in definition. They exist within each series. The figures one sees quoted as to how the "money supply" grew over the past week, month, or quarter has an error factor (RMS) of 50 per cent or more. Therefore what should be expected to happen to some other magnitude if there were a direct causal relationship would have this great an error also.

For example, consider the implications of the fact that differences in the money supply as it was first reported for each week in 1967-69 and as it was revised early this fall had a range of minus \$1.4 billion to plus \$1.0 billion. The mean deviation was over \$490 million. In 1969, revisions of the estimated growth rate of the money supply in the first six months amounted to over 100 per cent. The difference between one well-known model's estimate during the period when monetary policy decisions had to be made and that which the model predicted from the revised data of the

COMMONLY CITED MONETARY AGGREGATES:
RATES OF CHANGE AND RELATIVE RATES OF CHANGE,
DECEMBER 1966 - SEPTEMBER 1970

	1	2	3	4	5	6	7	8	9	10	11	12	13
	\$ Billion Out- standing 9/70	Annual Rates of Change in Per Cent						Rates of Change Relative to Rate of Change of Currency and Demand Deposits					
		1967 ¹ /	1968 ¹ /	1969 ¹ /	12/69- 9/70	5/70- 7/70	5/70- 8/70	1967 ¹ /	1968 ¹ /	1969 ¹ /	12/69- 9/70	5/70- 7/70	5/70- 8/70
1. Currency and demand deposits	206.2	6.6	7.2	2.5	4.4	1.2	4.1	1.00	1.00	1.00	1.00	1.00	1.00
2. Currency, demand deposits, plus time dep.	423.2	14.1	6.5	-1.5	10.0	11.4	14.2	2.14	.90	-.61	2.27	9.50	3.46
3. (2), minus large certificates of deposit	401.8	13.2	6.0	1.8	6.7	7.2	8.3	2.00	.83	.72	1.52	6.00	2.02
4. Net monetary liabilities of the Treasury and Federal Reserve (monetary base)	82.2	6.1	6.4	3.1	6.4	2.9	5.0	.92	.89	1.24	1.45	2.42	1.22
5. Member bank deposits (credit proxy)	308.0	11.8	9.0	-4.2	10.4	14.3	19.5	1.79	1.25	-1.68	2.36	11.92	4.76
6. Currency in circulation	48.2	5.5	7.4	5.8	6.7	6.3	5.0	.83	1.03	2.32	1.51	5.25	1.22
7. Deposits at all financial insti. plus currency in circulation	674.2	9.9	8.2	0.6	8.1	n.a.	n.a.	1.50	1.14	.24	1.84	n.a.	n.a.

¹/ Measured on a December-to-December basis.

n.a. - not available

total monetary policy impact on GNP was nearly \$10 billion. Such a magnitude, in many cases, would encompass the difference between an inflationary and deflationary policy.

These revisions arise partly because preliminary data include a large number of estimates. They also arise, however, from the fact that the actual treatment by banks and other institutions of what is considered money alters over time. When the new treatment becomes obvious, either the definition must be changed or the series revised. As an example, most definitions of the money supply include demand deposits at commercial banks adjusted for certain factors. One of these factors is usually cash items in the process of collection. But the tremendously heightened activity of American banks abroad, plus the operations of their international subsidiaries such as Edge Act corporations, taken together with the activities of foreign banks and agencies in our own domestic banking operations, added to the ever-present ability of bankers to devise new techniques of making payments, have resulted in considerable problems in estimating the amounts of cash items considered to be in collection. Changes in regulations and the estimates of these items result in significant differences in rates of monetary growth.

These difficulties, plus the yearly changes resulting from re-estimates of deposits at non-member banks and re-adjustments in the seasonal factors which give us a seasonally adjusted money supply figure, should make any commentator cautious. He who points to a particular number as representing "the" money supply at any given point in time, and who then makes sweeping judgments about the direction of Federal Reserve policy and its implications for the future is bound to find that frequently he has built a fine analytical structure on shifting sands. After the next revision in data, his theories and analysis may find their foundation surely shaken, if not removed entirely. In fact, it is not at all uncommon to find that by merely substituting later data in the analysis, conclusions drawn from earlier data might be reversed.

The Usefulness of the Money Supply Concept

This critical view of what I believe to be uncritical uses of the money supply concept is, of course, not new. I and many others have spoken and written of this problem frequently in the past. I am, however, often asked whether I don't see an inconsistency between these observations and the fact that for the past five years I have even more frequently stressed the need for the Federal Reserve to pay more attention in its policy formulation and operations to changes in the money supply and monetary aggregates. [The term "monetary aggregates" simply reflects the fact that the theoretical and operational concepts of the money supply are so inexact. If for short-hand purposes one defines the money supply concept narrowly, one needs a broader term, i.e., "monetary aggregates," to reflect the other and more broadly based related concepts such as those shown in the table.]

The simple answer is, "No!" The Federal Reserve did in the past pay too little attention to movements in the monetary aggregates. The increased attention given to changes in the money supply have, in my judgment, improved the System's responses. Critical to progress, however, has been a recognition of the uncertainties in theory, in data, and in operations which surround the concept of the money supply. Past and future improvements require that these uncertainties be explicitly taken into account and not neglected or assumed away.

The Federal Reserve does influence the growth rate of money. Through its direct impact on bank reserves, on interest rates, and on expectations, the Federal Reserve influences bank credit, currency, bank deposits, bank and corporate liquidity, interest rates, and lending and borrowing. These changes in money and credit have an impact on how much the economy spends and on what. This spending together with supply conditions--including the price and wage actions of business, labor, and governments--in turn influence prices and employment.

The chain of causation and the amount of the relationships between Federal Reserve action and movements in money, in spending, prices, and employment, may be hidden in the shadows and far from clear, but experience shows that they do exist. This means that the Federal Reserve must manage its operations with the greatest possible skill to avoid the type of disasters which our and other economies have experienced too often in the past.

In formulating policy and conducting operations, paying greater attention to the money supply has many advantages. When considered in conjunction with movements in interest rates, sales, and output, attempts to use the money supply as a guide or target require that greater attention be paid to unexpected and undesired movements in the basic economy.

If operations are related to movements in the monetary aggregates, the impact of unwanted movements in the economy which become reflected in the demand for money and credit will not be allowed to lead automatically to too much or too little expansion in reserves and money. Instead, if, for example, real demand is falling, action to maintain the growth of the monetary aggregates will cause a greater fall in interest rates than would otherwise occur. This in turn will cause a counter-depressing improvement in basic demand.

At a more technical level, operations related to the money supply allow the Federal Reserve to focus more readily on the intermediate term and the longer run or lagged effects of its actions. Even though in the short run rates of change in the monetary aggregates may be extremely erratic, for the longer period it appears to be simpler to construct probable relationships between movements in the aggregates and in spending than it is using other monetary variables.

Conclusion

Let me conclude by summarizing a more lengthy paper I have written on this topic. To conduct monetary policy successfully, the Federal Reserve must think in quantitative terms. It must be clear as to where it wants to go and must specify how its actions are likely to aid in reaching those goals. In formulating its plans for operations the concept of the money supply serves a useful purpose.

At the same time, the Federal must take into account the great uncertainty which surrounds this matter. We do not have a 100 per cent accurate map of the critical relationships. We have only rough ideas as to what will happen to the monetary aggregates when the Fed changes its operations. We know even less about the relationships between changes in money and changes in spending. At any time our monetary data, on which operations must be based, have a high possibility of error. Finally, we cannot be certain as to how the other major movers of the economy, such as government, households, and businesses, will react in the period ahead.

This means that in operations we must:

- Constantly struggle to improve our data and knowledge.
- Take explicit account of the degree of uncertainty.
- Consider in detail alternative policy paths and their implications.
- Enable non-quantitative and judgmental considerations to influence decisions.
- Remain flexible at any given time in the weight given to a particular tool, theory, analytical concept, or method of operation.