

Research Department
Federal Reserve
Bank of
San Francisco

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Measuring M

Money matters, as the saying goes, and a great deal thus depends on what we actually mean by “money.” There are conceptual and measurement problems galore—and frequently the quantities measured don’t fit in with the concepts—so that the Federal Reserve must make a constant effort to improve both its theory and its statistics. But it recently got some help from a special committee of prominent economists who, from a variety of theoretical standpoints, commented on the adequacy of the System’s techniques for measuring the monetary aggregates. These include M_1 , M_2 , and all the other M ’s that Federal Reserve Chairman Burns discusses in his quarterly reports to Congress.

The advisory committee, chaired by Stanford University’s Professor G.L. Bach, was established in early 1974 after some worrisomely large changes showed up in the Fed’s annual revision of its monetary statistics. (For example, revised M_1 data for 1973 showed a 5.7-percent increase for the year, instead of 5.0 percent as originally estimated.) The worst problems arose with non-member-bank data, which—unlike member-bank data—varied considerably because they were based only on occasional (single day) call-report information. Fed statisticians began efforts to improve the data through expanded reporting mechanisms and refurbished estimating techniques, and their efforts may be enhanced further with the help of the advisory committee’s recommendations.

The committee listed seven recommendations relating to questions of measurement, definition, seasonal adjustment, and publication of the many statistical series involved. Some of these recommendations were purely technical, but the committee also got into the more interesting (but difficult) area of relating the various concepts of money to the rapid changes now taking place in the nation’s payments mechanism. Still, the committee found no one monetary aggregate clearly preferable to all others as a means of gauging the economy’s need for money and credit. “Each has its theoretical and practical strengths and weaknesses as a guide to, or intermediate target for, monetary-policy operations, and as a measure of the effectiveness of such operations.”

Three alternatives

The committee first considered the concept of “money” in terms of the “monetary base” or “high-powered money”—that is, in terms of assets that are generally used to discharge obligations and that are not the explicit liability of non-governmental entities. The monetary base—\$119 billion at year-end 1975—includes all currency outside the Federal Reserve and the Treasury, plus all bank deposits at Federal Reserve Banks. More than other monetary aggregates, it can be accurately measured and precisely controlled by the Federal Reserve. Many observers question the value of the monetary base as a measure, because of a belief that it is less reliably linked to the ultimate ob-

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jectives of policy—output, employment and prices—than most other aggregates. Nonetheless, the committee found some advantages in the use of the base, such as its relative freedom from the influence of the many financial innovations which are now disturbing the financial world.

A second possible aggregate is the “medium of exchange” concept of money, which corresponds to assets generally used to discharge debts. This means M_1 (currency plus commercial-bank demand deposits), which totalled \$295 billion at year-end 1975. There are problems of measuring M_1 , arising primarily from the necessity of estimating the amounts of money held from bank records. There are also problems of controlling M_1 , arising from changes in the ratio of currency held by the public to its demand deposits and from changes in the ratio of demand deposits to bank reserves—the latter in turn reflecting such factors as shifts of funds among different categories of bank deposits. Nonetheless, most observers prefer M_1 to the monetary base as being more closely and more reliably related to the ultimate goals of policy, although there is a growing realization that that close relationship may now be loosening under the pressure of financial innovation, such as “checkless” computerized payments and checkwriting on savings accounts.

A third possible type of measure is the “liquid asset” concept, or “temporary abode of purchasing power.” Under this concept, sellers of goods, services or financial assets hold their proceeds in this form at least temporarily, prior to converting those proceeds into media of exchange. Many observers view this concept as coming closest to capturing the essential feature of money and as having the closest relationship to final policy goals, although unfortunately it is difficult to define empirically. It can correspond to M_1 plus bank time-and-savings deposits other than large certificates as deposits (M_2 , totalling \$663 billion), or it can correspond to M_2 plus thrift-institution deposits (M_3 , totalling \$1,092 billion). Alternative possibilities include M_4 (\$746 billion) or M_5 (\$1,175 billion), which equal M_2 and M_3 , respectively, with the addition of large certificates of deposit. But M_4 and M_5 have conceptual problems, since CDs resemble open-market commercial paper more than traditional time-and-savings deposits.

Matching data with concepts

The committee argues that this is a difficult time for finding the precise empirical counterparts to the various aggregate concepts, especially in view of the host of financial innovations and regulatory changes affecting the payments mechanism under an extended regime of high interest rates. High rates have stimulated the development of NOW

accounts and other substitutes for demand deposits, given the prohibition on the payment of explicit interest on demand deposits and the inability of thrift institutions to hold demand deposits. Also, high interest rates have stimulated differentiation among deposit categories, given the differential ceilings on interest rates that may be paid on the various time-and-savings categories.

The development of CDs on the one hand, and of substitutes for demand deposits on the other, plus the differential ceilings on interest rates payable on different deposit categories, have increased the practical importance of the distinction between time and savings accounts. The distinction has become even more significant recently, in view of the requirement for relatively large interest penalties on the withdrawal of time deposits before maturity. Consequently, while savings deposits have become much more similar to demand deposits, time deposits have become more and more similar to securities.

In the committee's view, we may be forced eventually to adopt new empirical measures to correspond to the various monetary concepts. Instead of using M_2 as the measure of a "temporary abode of purchasing power," we might better use a total which adds only commercial-bank *savings* deposits to M_1 —leaving time deposits out of the

total. (Similarly, for M_3 we could just add thrift-institution *savings* deposits.) Even more appropriately, this demand-plus-savings-deposit total might replace M_1 as the "media of circulation" concept, while a broader total encompassing time deposits, CD's and money-market funds might replace M_4 and M_5 as the best measure of the "temporary abode of purchasing power."

Complicating matters further is the movement toward an increasingly "checkless" society, as exemplified by the increasing volume of purchases now made on credit cards, as well as the use of computer networks to credit (or debit) wages, salaries, and consumer purchases directly to bank accounts. Insofar as these developments merely provide more convenient and efficient means of transferring demand deposits, they do not call for any redefinition of the money supply—although they could lead to a higher velocity of circulation. But if credit cards and a checkless society largely supplant present methods of payment, it may be necessary to redefine M_1 and the other related deposit totals in a more fundamental way. So although the committee concludes that definitional changes are not immediately required, it leaves us with the implication that radical changes will eventually be required in our ideas of what we mean by "money."

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BANKING DATA—TWELFTH FEDERAL RESERVE DISTRICT

(Dollar amounts in millions)

Selected Assets and Liabilities Large Commercial Banks	Amount Outstanding 6/09/76	Change from 6/02/76	Change from year ago	
			Dollar	Percent
Loans (gross, adjusted) and investments*	88,237	- 495	+ 1,009	+ 1.16
Loans (gross, adjusted)—total	66,460	- 952	+ 652	+ 0.99
Security loans	1,599	- 917	- 774	- 32.62
Commercial and industrial	22,226	- 2	- 1,050	- 4.51
Real estate	19,932	+ 49	+ 263	+ 1.34
Consumer instalment	11,088	+ 5	+ 1,194	+ 12.07
U.S. Treasury securities	9,818	+ 370	+ 798	+ 8.85
Other securities	11,959	+ 87	- 441	- 3.56
Deposits (less cash items)—total*	88,145	- 173	+ 2,105	+ 2.45
Demand deposits (adjusted)	25,058	+ 96	+ 963	+ 4.00
U.S. Government deposits	268	- 38	- 83	- 23.65
Time deposits—total*	61,411	+ 212	+ 1,089	+ 1.81
States and political subdivisions	6,374	- 89	- 786	- 10.98
Savings deposits	25,945	- 51	+ 5,699	+ 28.15
Other time deposits‡	26,913	+ 257	- 2,439	- 8.31
Large negotiable CD's	11,625	+ 202	- 4,221	- 26.64
Weekly Averages of Daily Figures	Week ended 6/09/76	Week ended 6/02/76	Comparable year-ago period	
Member Bank Reserve Position				
Excess Reserves	- 49	166		42
Borrowings	1	11		1
Net free(+)/Net borrowed (-)	- 50	+ 155		+ 41
Federal Funds—Seven Large Banks				
Interbank Federal fund transactions				
Net purchases (+)/Net sales (-)	+ 1,110	- 378		+ 2,883
Transactions of U.S. security dealers				
Net loans (+)/Net borrowings (-)	+ 737	+ 318		+ 1,472

*Includes items not shown separately. ‡Individuals, partnerships and corporations.

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