

Defining Money for a Changing Financial System

In the past decade, major developments in this country's payments mechanism have raised the question of whether the traditional definitions of the monetary aggregates are still appropriate. Many of the changes in the form in which money is held and used have resulted from regulatory modifications designed to permit greater competition among banks and between banks and other types of financial intermediaries. These regulatory changes have allowed the development of a variety of new types of deposits. At the same time, periods of historically high levels of interest rates have increased the incentive for more efficient cash management by both consumers and businesses, resulting in the rapid growth of a variety of highly liquid nondeposit assets. The pace of such developments promises to accelerate in the future with increasing application of computer technology and electronic funds transfers. As if to emphasize the changing nature of the financial scene, conventional money demand equations, relating money balances to income and interest rates, have not been able to account for the movements in the narrowly defined money stock since mid-1974. As a result, a redefinition of the monetary aggregates is called for.

Defining the monetary aggregates appropriately is critical because these aggregates have come to play an increasingly important role in the formulation of monetary policy during the last decade. To be sure, the monetary aggregates are by no means the only guides

to policy. Developments in the credit markets, in the foreign exchange markets, in business conditions, and in prices all play an important role in policymaking. It is against the background of analysis and projection of these fundamental economic developments that the Federal Open Market Committee (FOMC) establishes annual targets for several monetary aggregates as intermediate policy goals. The FOMC also sets short-term tolerance ranges for the growth of two money definitions to guide System open market operations between FOMC meetings. As regulations change and as the financial system evolves, allowing the public to find new forms in which to hold its financial wealth, relationships among money, interest rates, income, and prices are altered as well. Without stability in these relationships, the conduct of monetary policy is greatly complicated.

As the first step toward resolving these problems, a set of redefined monetary aggregates was presented by the staff of the Board of Governors in the January 1979 *Federal Reserve Bulletin*. Some of the details of these proposals will be considered in this article. Briefly, the suggested definitions would create improved, internally consistent aggregates that can be estimated from currently available data. They solve many of the problems arising from regulatory changes by treating consistently deposits with similar liquidity characteristics, regardless of whether they are located at commercial banks or at thrift institutions—mutual savings banks, savings and loan associations, or credit unions. For example, all deposits subject to withdrawal by check or other negotiable order, whether located at commercial banks or at thrift institutions, would be counted in the narrowly defined money stock. However, the proposals do not include aggregates that incorporate

The authors would like to thank Irving Auerbach, Edward C. Ettin, Stephen Goldfeld, Richard D. Porter, and Thomas D. Simpson for helpful comments. None of the foregoing bear responsibility for the views expressed herein.

Table 1

Out-of-Sample Dynamic Errors in Projecting M_1

Quarterly average levels and growth rates 1970 to 1978

1970-Q1 to 1974-Q2		1974-Q3 to 1978-Q4					
Period	Cumulative levels (billions of dollars)	Growth rates (per cent)	Period	Cumulative levels (billions of dollars)	Growth rates (per cent)		
1970:		1974 (continued):					
Q1	0.0	0.0	Q3	-3.8	-1.3		
Q2	0.8	1.3	Q4	-6.2	-3.3		
Q3	1.3	1.0	1975:				
Q4	1.4	0.0	Q1	-11.6	-7.4		
1971:		Q2				-15.1	-4.5
Q1	0.0	-2.6	Q3	-17.6	-2.9		
Q2	0.2	0.3	Q4	-23.4	-7.3		
Q3	0.0	-0.2	1976:				
Q4	-2.7	-4.7	Q1	-29.1	-6.8		
1972:		Q2				-32.4	-3.5
Q1	-3.9	-2.1	Q3	-37.0	-5.0		
Q2	-5.1	-1.8	Q4	-39.4	-2.0		
Q3	-4.8	0.7	1977:				
Q4	-4.1	1.3	Q1	-42.6	-2.9		
1973:		Q2				-45.5	-2.3
Q1	-3.5	1.0	Q3	-46.6	-0.1		
Q2	-4.0	-0.6	Q4	-47.5	-0.1		
Q3	-2.7	2.1	1978:				
Q4	-2.9	-0.3	Q1	-48.7	-0.4		
1974:		Q2				-49.4	0.4
Q1	-2.2	1.2	Q3	-50.2	0.3		
Q2	-2.9	-0.9	Q4	-53.9	-3.2		
Average error		-1.9	-0.2	-33.3	-2.9		
Root mean squared error		2.9	1.6	37.0	3.8		

The estimated parameters of the money demand equation used to make these forecasts are shown below (t statistics are shown in parentheses beneath the coefficients).

$$M_t = .261 + .750M_{t-1} - .019R_t - .040D_t + .173Y_t$$

(53) (10.75) (6.06) (4.00) (5.46)

where

P_t = GNP price deflator

M_t = $\ln(\text{Money}_t/P_t)$

M_{t-1} = $\ln(\text{Money}_{t-1}/P_t)$

R_t = $\ln(\text{Commercial paper rate}_t)$

D_t = $\ln(\text{Effective passbook rate}_t)$

Y_t = $\ln(\text{GNP}_t/P_t)$

Estimation period: 1952-Q2 to 1969-Q4

(The equation was corrected for first order autocorrelation with $\rho = .534$.) The errors are calculated by subtracting the predicted values from the actual values without any correction for past errors

highly liquid nondeposit assets such as repurchase agreements (RPs) and shares in money market mutual funds that have arisen out of the increased emphasis on cash management in recent years. Including such instruments would raise serious conceptual and measurement problems and, as the financial system continues to evolve, new assets with similar properties may well be developed. In light of these problems, the Board staff has limited the scope of its current proposals to the deposit liabilities of banks and thrift institutions (in addition to currency). But by leaving out highly liquid nondeposit assets, the Board staff's proposals do not reestablish the ability of conventional money demand equations to track movements in M_1 since mid-1974.¹

What is money? For several thousand years, most people would have answered gold and silver. Now the answer has become more complex, and it continues to change as new assets are developed with different combinations of safety, liquidity, and interest-earning properties. It is more useful to define money by what it does than it is to list which assets should be included. Money serves as a medium of exchange and as a store of value. While most assets serve both these functions to some extent, certain types serve primarily as a medium of exchange; others, as a store of wealth. A transactions-oriented definition of money attempts to measure those assets that perform the first of these functions, while a wealth-oriented monetary aggregate is broadened to include assets that primarily satisfy the second. A great deal of empirical research has focused on estimating equations that explain the public's demand for a transactions-oriented aggregate, and prior to mid-1974 these equations were able to track movements in the money stock reasonably well.²

It is this relatively good performance in the pre-1974 period that makes the apparent mid-1974 breakdown in the ability of this conventional money demand equation to track movements in the money stock particularly disturbing. For example, in the 1970 to mid-1974 period the estimates show only a slight tendency to over-predict M_1 (Table 1). The average error in predicting the quarterly growth rate is only -0.2 percent from 1970-Q1 to 1974-Q2. In the next four and a half years, this error increases sharply to -2.9 percent per quarter,

¹ These and other results are examined in an econometric study, "Changing the Money Definitions: An Empirical Investigation", available from the authors on request

² See Stephen Goldfeld, "The Demand for Money Revisited", *Brookings Papers on Economic Activity* (Vol 3, 1973) and "The Case of the Missing Money", *Brookings Papers on Economic Activity* (Vol 3, 1976). Goldfeld's equation links money balances to income, the interest rate on three- to six-month commercial paper, and the interest rate on savings deposits. The income variable captures the transactions demand for money, while the two interest rate variables measure the yield foregone in holding money balances

resulting in a cumulative overprediction of \$53.9 billion by 1978-Q4. This poor performance after mid-1974 is due, at least in part, to changes in regulations that govern deposits at commercial banks and thrift institutions. In addition, nondeposit assets have been developed that are used for transactions purposes or that permit the more efficient management of transactions balances without much cost, inconvenience, or capital risk. These assets account for part of this large error, raising the questions of whether they are treated by the public largely as transactions balances and whether they should be included in a narrow definition of money.³

Current definitions of the monetary aggregates

The effects of regulatory changes and financial innovations are not consistently captured by any of the measures of money currently published by the Federal Reserve. These aggregates range from a narrow definition that includes only currency and funds at commercial banks used to settle everyday transactions to a far broader measure encompassing most deposits at banks and thrift institutions (Table 2). The aggregate most commonly used in economic analysis (M_1), consisting of currency in circulation and demand deposits at commercial banks, comes closest of the standard aggregates to measuring money as transactions balances. Until recently, this series contained nearly all funds commonly used for transactions purposes. As a partial solution to the development of a variety of other "checkable" deposits, ranging from share draft accounts at credit unions to savings deposits subject to automatic transfer at commercial banks (ATS), the Federal Reserve has recently begun to publish a closely related series (M_{1+}) that in addition to M_1 includes demand deposits, interest-bearing negotiable order of withdrawal (NOW) accounts and share drafts at thrift institutions, and savings deposits (NOWs, ATS, and conventional accounts) at commercial banks.

Still broader aggregates are frequently used in economic analysis by those who emphasize the role of money more as a store of wealth than as a means of payment. The most commonly used of these (M_2) comprises M_1 plus time and savings deposits at commercial banks, excluding negotiable certificates of deposit in denominations of \$100,000 or more issued by large weekly reporting banks (CDs). Deposits counted in M_2 but not M_1 , usually denoted as other time and savings deposits, consist of three distinct components: savings deposits, time deposits under \$100,000 (small time deposits), and large time deposits

of \$100,000 or more (LTDs), which do not include CDs. Savings deposits generally are readily available to the depositor, whereas small time deposits are committed for periods of time from thirty days to eight years or more. Both savings deposits and small time deposits are subject to interest rate ceilings, making deposit inflows sensitive to market rates of interest paid on money market instruments.⁴ However, LTDs and CDs currently are not subject to interest rate ceilings, so that their yields tend to move in tandem with other market rates. LTDs consist of nonnegotiable certificates of deposit and open time accounts⁵ at all banks and a small volume of negotiable certificates of deposit issued by banks other than the large weekly reporters.

M_3 contains all the items in M_2 plus time and savings deposits at thrift institutions. M_3 is the narrowest aggregate that is more or less consistent across depository financial institutions in the sense that it contains deposits with similar liquidity characteristics located at both commercial banks and thrift institutions. The addition of CDs at large weekly reporting banks to M_2 and M_{1+} , respectively, yields M_4 and M_{3+} .

Proposed redefinitions of the monetary aggregates

In redefining the monetary aggregates, the Board staff has focused on five primary problem areas.

(1) Included in the demand deposit component of M_1 are certain foreign source deposits that are held for official and semiofficial international purposes and as clearing balances for foreign banks. These deposits are held both at domestic commercial banks by foreign commercial banks and foreign official institutions and at the Federal Reserve by foreign official institutions and international monetary institutions. Balances in these accounts are not closely related to domestic transactions and thus do not seem to belong in any of the money definitions. Removal of these deposits was recommended earlier by the Bach Committee.⁶

⁴ While small time deposits generally are subject to fixed rate ceilings—until explicitly changed by the regulatory agencies, the relatively new six-month money market certificates have a ceiling rate linked to the average discount rate on six-month Treasury bills posted at the weekly auction. Banks are able to match this rate, thrift institutions can pay an additional 0.25 percentage points, until the discount rate on six-month Treasury bills exceeds 8.75 percent. For bill rates between 8.75 and 9.00 percent, thrift institutions may offer 9.00 percent, and for bill rates above 9.00 percent thrift institutions may offer the discount rate on Treasury bills, the same rate that commercial banks may offer.

⁵ An open time account is a deposit with a maturity of at least thirty days for which a certificate is not issued. These deposits are subject to thirty days' notice before withdrawal.

⁶ Advisory Committee on Monetary Statistics, "Improving the Monetary Aggregates" (Board of Governors of the Federal Reserve System, June 1976). Several other minor technical changes in the aggregates recommended by the committee have also been incorporated in the proposed redefinitions but are not discussed here.

³ For a technical discussion of this question, see P.A. Tinsley, B. Garret, and M.E. Friar, "The Measurement of Money Demand" (Board of Governors of the Federal Reserve System, 1978).

(2) Recent statutory and regulatory changes permit commercial banks and thrift institutions to offer "checkable" deposits that are not included in the demand deposit component of M_1 . Since 1972, various changes in regulations by the Congress and state authorities have extended the ability of commercial banks and thrift institutions in the New England states and New York to offer NOWs. Balances in NOW accounts are withdrawable by negotiable orders, which function similarly to checks, but interest is paid on the balances as well. These transactions-oriented balances are excluded from the current definition of M_1 and, indeed, NOW accounts at thrift institutions are excluded even from M_2 . In addition, in November 1978, revised banking regulations permitted individuals to authorize their commercial banks to transfer funds automatically from savings accounts into checking accounts, enabling

consumers to maintain transactions balances in interest-bearing accounts until actually needed. As of December 1978, there were about \$3.9 billion in NOW accounts and about \$3.0 billion in savings accounts subject to automatic transfers, relatively small amounts when compared with an M_1 level of \$361.5 billion. Also, in some states, thrift institutions offer demand deposits and credit unions allow deposits to be withdrawn by share drafts. Credit union share drafts are not included in M_1 or M_2 , and demand deposits at thrift institutions are not included in any of the current aggregates except M_1+ . The total volume of demand deposits at thrift institutions and credit union share drafts is small, but growing. All these new types of deposits tend to distort M_1 as a measure of transactions balances.

(3) Additional changes have been made in the regulations governing savings accounts. In 1975, member

Table 2

Comparison of Current and Proposed Definitions of the Monetary Aggregates

Components	M_1		M_1+		M_2		M_3		M_4	M_5
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Current
Currency in circulation	X	X	X	X	X	X	X	X	X	X
At commercial banks:										
Demand deposits*	X	X	X	X	X	X	X	X	X	X
NOW accounts		X	X	X	X	X	X	X	X	X
Savings subject to automatic transfer		X	X	X	X	X	X	X	X	X
Other savings accounts†			X	X	X	X	X	X	X	X
Small time deposits					X		X	X	X	X
Large time deposits‡					X		X	X	X	X
CDs§							X	X	X	X
At thrift institutions:										
Demand deposits		X	X	X		X		X		
NOW accounts		X	X	X		X		X		X
Other savings accounts¶						X		X		X
Other time deposits								X		X
Credit union share drafts		X	X	X		X		X		X

* The definition of demand deposits differs between the current and proposed aggregates for technical considerations such as the exclusion of deposits held by foreign institutions at domestic banks in the proposed definitions. Precise definitions and historical data may be found in the Federal Reserve *Bulletin*.

† Excluding negotiable order of withdrawal (NOW) accounts and savings subject to automatic transfer.

‡ \$100,000 or more.

§ Negotiable certificates of deposit in denominations of \$100,000 or more issued by large weekly reporting banks.

¶ Excluding NOW accounts.

commercial banks and Federally chartered savings and loan associations were authorized to make telephone transfers from savings accounts to checking accounts and to make preauthorized payments to a third party from savings accounts. Also, state and local governments in 1974, and corporations in 1975, were first allowed to hold savings deposits at commercial banks, providing a convenient way for these depositors to earn interest on funds that otherwise would probably have been held as demand deposits. These accounts are often used by smaller business and governmental units without sufficiently large amounts of funds to invest in money market instruments on a short-term basis. This is particularly true for state and local governments because state laws governing eligible investments are often very restrictive. At present, there are approximately \$15.0 billion in such accounts.

(4) Other time deposits at commercial banks and thrift institutions in denominations under \$100,000 have become more distinct from savings deposits. This has occurred not only because of increasing use of savings deposits for transactions purposes, but also because changes in regulations since 1973 have permitted higher interest rates on time certificates with maturities over ninety days while at the same time imposing substantial penalties for early withdrawal. As a result, while savings deposits have remained liquid and have become more oriented toward transactions purposes, small other time deposits have become less liquid and less transactions-oriented than in earlier years. Thus, these two types of liabilities probably should not be included at the same point in moving along the spectrum from a very liquid, transactions aggregate to a broader aggregate containing less liquid stores of value.

(5) There do not appear to be any economic reasons to separate demand, savings, or nonsavings time deposits at thrift institutions from comparable categories of deposits at commercial banks. In the current definitions, M_3 and M_5 are relatively consistent across institutions while M_1 , M_{1+} , M_2 , and M_4 are not.

To eliminate these shortcomings in the current definitions, the Board staff has proposed four new monetary aggregates that would substitute, at least initially, for the current six definitions (Table 2).

Proposed M_1 and M_{1+} : The proposed definition of M_1 equals the current definition of M_1 (currency in circulation outside banks and privately held demand deposits at commercial banks), plus other deposits subject to withdrawal by check or other negotiable order at all commercial banks and thrift institutions, together with savings subject to automatic transfer, less demand deposits of foreign commercial banks and official institutions. This aggregate is defined to include only transactions balances at depository financial inter-

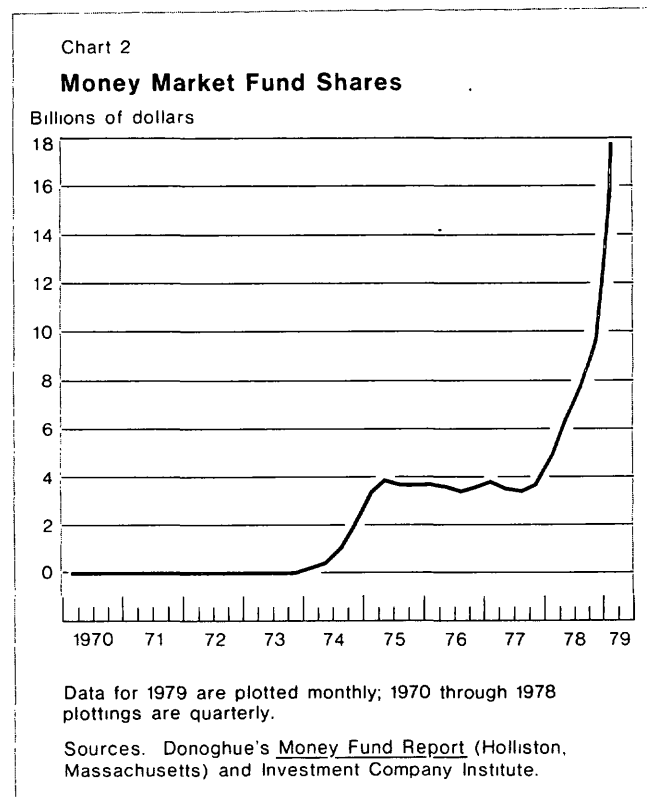
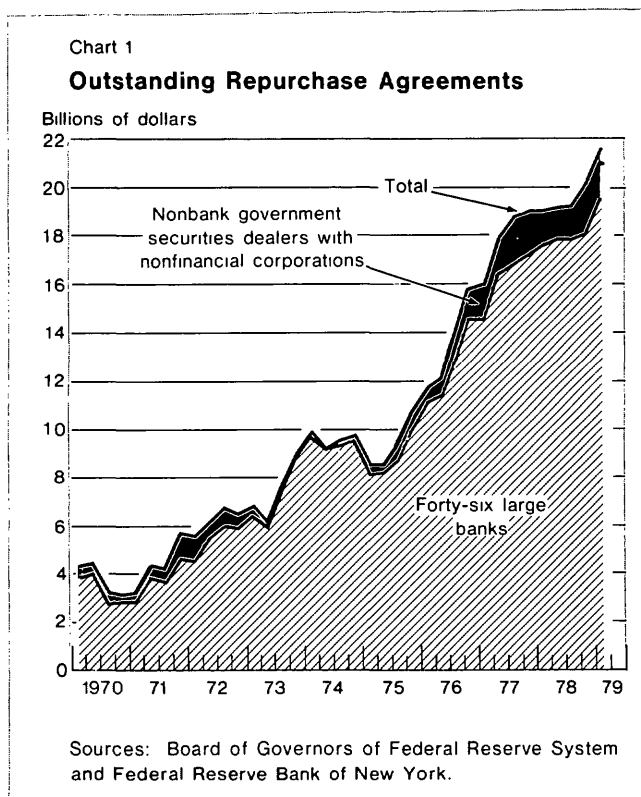
mediaries. On the proposed basis, M_{1+} would be equal to the proposed definition of M_1 together with all conventional savings deposits at commercial banks. This aggregate, however, may only be used for a limited period of time until the initial transition to ATS is complete. Unlike the other proposed aggregates, it is not consistent across institutions; it includes savings deposits at commercial banks but excludes savings deposits other than NOW accounts at thrift institutions.

Proposed M_2 : M_2 would be redefined to include the proposed definition of M_1 , together with savings deposits at commercial banks and thrift institutions. This measure includes transactions balances as well as those deposits most readily convertible into transactions balances. Compared with the current definition of M_2 , this aggregate reflects the changes proposed for M_1 , while also excluding other time deposits at commercial banks and adding savings deposits at thrift institutions.

Proposed M_3 : M_3 would be redefined as proposed M_2 plus all time deposits at banks and thrift institutions whether over or under \$100,000. This aggregate measures the deposits of the nonbank public at financial intermediaries. Besides reflecting the changes in the M_1 component, this proposed definition of M_3 differs from the one currently used by including CDs at large commercial banks. It is approximately equivalent to the present definition of M_5 (current M_3 +CDs).

The definitional changes proposed by the Board staff correct many of the conceptual shortcomings of the current monetary definitions stemming from lack of consistency across institutions and the new types and uses of deposits permitted by regulatory changes. By including deposits with similar liquidity characteristics at each level of aggregation, the proposed definitions for M_1 , M_2 , and M_3 are consistent across both commercial banks and thrift institutions. At the same time, these proposed definitions recognize that regulatory changes—which permit increased use of savings accounts for transactions purposes and which encourage lengthening the average maturity of small time deposits through higher ceiling rates for longer maturities—have given savings and time deposits distinct liquidity characteristics. Thus, it seems desirable to include savings deposits in the more transactions-oriented M_2 and to include small time deposits in the more wealth-oriented measure, M_3 .

However, it is not clear that time deposits of \$100,000 or more—both CDs and LTDs—should be treated in the same way as small time deposits under \$100,000. They have different liquidity characteristics and different responses to changes in market rates of interest. Small time deposits are subject to interest rate ceilings and have maturities of up to eight years



or more, making them relatively illiquid because of the substantial penalties for early withdrawal. In contrast, LTDs and CDs are not subject to interest rate ceilings and generally have relatively short maturities. Moreover, negotiable CDs are traded in a secondary market, making them highly liquid regardless of maturity date but also subject to capital risk.⁷ Thus, time deposits of \$100,000 or more present particular conceptual problems, and it is not clear that they belong in M_3 or in some aggregate that contains various money market instruments.

Other issues in defining the aggregates

Conceptual problems of a different sort are raised by the development of a variety of nondeposit assets, spurred by high levels of interest rates that have caused individuals and corporations to seek new ways to minimize noninterest-bearing transactions balances while maintaining liquidity. These nondeposit assets are highly liquid, a characteristic of traditional transactions balances, yet they earn market rates of interest. Chief among these are RPs, Eurodollar deposits, com-

mercial paper, and money market mutual funds. These instruments either are "checkable" or may have original maturities as brief as one day, making them close substitutes for demand deposits.

Repurchase agreements: Large corporations are able to minimize their demand deposit balances by placing excess funds each day in the short-term money market. One way to do this is by arranging an RP—a secured placement of immediately available funds in which the borrower sells securities to the lender and agrees to repurchase them at a predetermined price at a future date (often the next day).⁸ Such a transaction between a corporation and a commercial bank would convert a corporation's demand deposit asset into an interest-bearing asset that would not be counted in any of the current or proposed aggregates. Yet, since the funds can be committed for periods of time as brief as just overnight, they are still readily available for transactions purposes.

The RP market has grown very rapidly since 1970. While the total volume of outstanding RPs is not

⁷ For more detail, see William C. Melton, "The Market for Large Negotiable CDs", this *Quarterly Review* (Winter 1977-78), pages 22-34.

⁸ For more detail, see C.M. Lucas, M.T. Jones, and T.B. Thurston, "Federal Funds and Repurchase Agreements", this *Quarterly Review*, (Summer 1977), pages 33-48.

known, such transactions at forty-six major money center banks that report these transactions daily to the Federal Reserve have increased since 1970 from about \$3.8 billion to about \$20 billion. A survey in December 1977 conducted by the Federal Reserve System indicates that 60 percent to 70 percent of these RPs are arranged with nonfinancial corporations. While these banks probably represent a large part of the market, corporations may also arrange RPs with smaller banks, with nonbank financial intermediaries, or with other nonfinancial corporations. For example, nonbank Government securities dealers use the RP market to acquire funds from corporations and others to finance their positions. At the end of 1978, these dealers obtained about \$2.0 billion each day from corporations through RPs (Chart 1). Recognizing the importance of RPs as an instrument for managing demand deposits, the Board staff has proposed collecting data and estimating a series for RPs between all commercial banks and money stock holders.

Money market mutual funds: These funds permit investors to purchase shares in a portfolio of money market instruments, thereby enabling them to earn market rates of return without the large sums normally needed for direct investment in such instruments. Shares in money market funds also are highly liquid, since they usually can be withdrawn by negotiable orders—typically in \$500 minimum amounts. Despite the high degree of liquidity afforded by these shares, they are not included in any of the current or proposed aggregates. Assets of money market funds grew from virtually zero prior to 1974 to \$10.7 billion at the end of 1978 (Chart 2). In the first three months of 1979, these funds increased another \$7.2 billion.

Other liquid assets: Various short-term money market instruments such as commercial paper or Eurodollar deposits serve much the same cash management function as RPs. Eurodollar deposits, in particular, probably play an important role in the management of money balances. As the financial system continues to develop, other similar assets will undoubtedly become important.

All these instruments are potentially such close and important substitutes for demand deposits that the question arises whether some measure of them should be included in the monetary aggregates, perhaps even a fairly narrow definition. There are serious problems, however, with including them. Reported data on these instruments are not very complete. In particular, data do not allow precise calculation of RPs between all banks and nonfinancial corporations, or for that matter among nonfinancial corporations. Adequate data for short-term commercial paper and Eurodollars are not available. Moreover, to include these instruments in a definition of money, even if adequate data were avail-

able, arbitrary guidelines would have to be established, such as limiting the amount included to original maturities of one day or perhaps a few days at most. Given these difficulties, the Board staff has limited the scope of the proposed money definitions to the deposits of banks and thrift institutions. But, even if these liquid assets are not included explicitly in the monetary definitions, their impacts must still be recognized to help explain the behavior of the current and proposed aggregates. The collection and publication of more complete data on RPs, as proposed by the Board staff, should greatly facilitate such analysis.

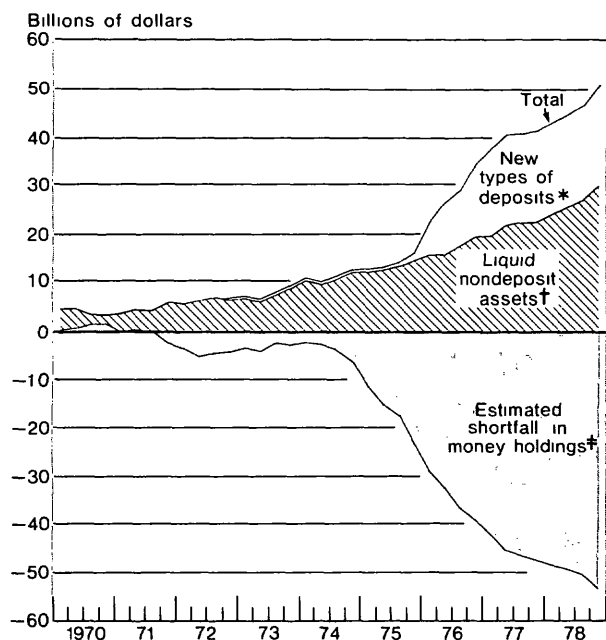
While the narrowest definition of money stresses its role as a medium of exchange, the broader definitions emphasize the store-of-value aspect of money. In this role, there are many close substitutes for the liabilities of depository institutions that are not included in the definitions proposed by the Board staff. Not only instruments of very short maturity, but also highly liquid assets maturing after several days or even weeks, merit consideration in defining the broader monetary aggregates. If the broad money stock is to be defined to include large CDs, should not term RPs, bankers' acceptances, Treasury bills, commercial paper, and Eurodollar deposits be included at some point as well?⁹

A preliminary analysis, based on available data, suggests that the increased use of highly liquid nondeposit assets could well be at least as important as the development of new types of deposits in explaining the apparent shift in the money demand function since mid-1974. For example, at the end of 1978, the total volume of the new types of deposits and nondeposit assets, shown in the top panel of Chart 3, was very close to the estimated shortfall in the public's demand for money as measured by Goldfeld's money demand equation (Chart 3, bottom panel). Prior to mid-1974, the errors from the money demand equation using the current M_1 definition were small, as was the total volume of those various deposit and nondeposit items that are close substitutes for demand balances. After mid-1974, however, the errors from the money demand equation began to cumulate to an unprecedented extent—mirrored by the increased volume of near

⁹ The question of including Eurodollar deposits in the definitions of money is important but is surrounded by particularly difficult measurement and conceptual problems. Eurodollar holdings of United States resident individuals and corporations other than banks have grown rapidly in recent years, but reliable data are not available at present. Conceptually, very short-term Eurodollar deposits are similar in many respects to RPs (although they are not collateralized). Other Eurodollar deposits, probably representing the bulk of the market, are similar to time deposits issued by domestic banks. There seems plausible reason to suspect, however, that the proportion of Eurodollars related to international rather than domestic transactions must be substantially higher than is the case for the analogous domestic instruments.

Chart 3

The Growth of Close Money Substitutes Has Mirrored the Shortfall in Money Demand



* Sum of corporate and state and local government savings deposits, NOW accounts, savings subject to automatic transfers, credit union share drafts, and demand deposits at thrift institutions

† Sum of repurchase agreements (RPs) at nonbank Government securities dealers with nonfinancial corporations, RPs at forty-six large commercial banks, and assets of money market mutual funds

‡ Post - 1969 errors from Goldfeld's money demand equation using the current definition of M1

monies, stemming both from regulatory changes and from innovations. The outstanding volume of substitutes for commercial bank demand deposits—resulting from regulatory changes that permit (1) the creation of other “checkable” deposits at commercial banks and thrift institutions and (2) savings deposits for corporations and state and local governments at banks—was only about two fifths of the magnitude of the shortfall in M_1 . But the total volume of the nondeposit assets (Charts 1 and 2) was roughly equal to the remainder.

While the new types of deposits and nondeposit

assets shown in Chart 3 present a mirror image of the estimated shortfall in the demand for money, the result is to some extent fortuitous. On the one hand, it is likely that the total amount of RPs outstanding is considerably more than the amount shown for the forty-six banks for which data are available. On the other hand, the total amount outstanding cannot be expected to represent a dollar-for-dollar reduction in demand deposits, inasmuch as some RPs are arranged for periods longer than one day and even some one-day RPs may not be perfect substitutes for demand deposits. Also, some of the increase in money market mutual funds undoubtedly has come from other sources than demand deposits and, in fact, relatively few checks have been drawn against fund shares. At the same time, data limitations preclude the measurement of some highly liquid assets that are very close substitutes for demand deposits. Furthermore, not all the reduction in money holdings resulting from cash management will necessarily be reflected in the growth of nondeposit liquid assets. Part of it may be reflected in other portfolio adjustments, such as reduced business borrowings at commercial banks or in the commercial paper market. With all these caveats, the available evidence nevertheless suggests that the monetary aggregates will continue to be difficult to forecast and to control unless allowance is made not only for the new types of transactions deposits resulting from regulatory changes but also for highly liquid assets that have developed as a result of the increased emphasis on cash management.

In summary, as a result of regulatory changes and the continuing development of the financial system, as well as some conceptual problems inherent in the current money definition, it seems appropriate to redefine the monetary aggregates. The Board staff has made a major contribution in proposing definitional changes to correct for shortcomings stemming from regulatory changes and from lack of consistency across depository institutions. The proposed definitions are restricted to the deposit liabilities of financial intermediaries and do not incorporate highly liquid nondeposit assets. There are, to be sure, serious conceptual and measurement problems with the inclusion of such assets in monetary aggregates. Nevertheless, interpretation of monetary phenomena would seem to require that account be taken of developments in highly liquid nondeposit assets. The financial system is changing continuously, and no one definition of the aggregates can be wholly satisfactory for all purposes.

John Wenninger and Charles M. Sivesind