

Broad Credit Measures as Targets for Monetary Policy

Over the last few years the use of targets for one or more financial aggregates has become a prominent feature of central bank policy in the industrial nations. In the United States, the Federal Reserve has made use of publicly announced targets since 1975 and has been using them internally since 1970. The kinds of financial measures central banks use for targeting purposes—often somewhat loosely referred to as the “monetary aggregates”—have included various narrow and broad measures of the money supply, measures of “central bank money” or the “monetary base” (roughly the sum of bank reserves and the public’s holdings of coin and currency), and measures of bank credit. In the United States, the Federal Reserve has used a system of multiple targets, announcing one-year growth rate ranges for three different definitions of the money supply and an associated range for a measure of commercial bank credit.

It has been suggested from time to time that the range of financial measures used by the Federal Reserve and other central banks for establishing targets is too narrowly focused on the commercial banking system and the “near” banks (such as the thrift institutions) and that the result has been insufficient attention to the overall volume of credit and too much concentration on the money supply. This article examines the case for the use of a broad measure of credit as a possible target for monetary policy in the United States. Such a broad credit measure need not necessarily be conceived as a substitute for measures of the money supply, but perhaps more plausibly as a *supplement* to the use of one or more such measures.

The choice among financial measures for targeting

purposes obviously depends on the underlying rationale for the use of such targets. Clearly, monetary policy is ultimately concerned with broad economic objectives such as the rate of inflation and the level of real output and employment. There is no intrinsic reason for policymakers or the public to prefer any particular rate of growth in any given financial measure over another except to the extent that such growth rates influence the performance of the economy itself. Since the influence of financial variables on the economy is generally believed to operate mainly through their influence on aggregate demand, the strength and stability of the relationship between various financial measures and aggregate demand is clearly a major issue in the choice among such measures for targeting purposes.

But it is not the only issue. The ability of the central bank to “control” or at least influence the behavior of the measure appears to be just as important. To take an obvious example, few doubt that the level of Federal spending is a significant determinant of aggregate demand, at least in the short run. But, since the Federal Reserve has no control over the level of Federal spending, Federal Reserve targets for such spending would clearly make no sense.

There may well be other considerations that should enter into the choice of a financial measure or measures. For example, if a particular financial measure comes to have widespread symbolic significance, it may acquire special importance simply because it may have a disproportionate impact on people’s expectations about future price and interest rate developments. Similarly, some might attach special significance to a

measure that includes major sources of funds for the housing industry. But the two broadest and most generally accepted criteria for choosing financial targets are influence over aggregate demand and controllability. These are the criteria used in this article to examine a possible role for broad credit aggregates as monetary policy targets.

Theoretical considerations in the use of credit measures as targets

Recent central bank emphasis on measures of the money supply, and the corresponding absence of emphasis on broad credit measures, probably reflects fairly accurately a general climate of opinion among economists and others that has existed to some extent throughout the postwar period and especially in recent years. Theoretical and statistical work in recent decades has tended to concentrate substantially more heavily on the market for monetary assets (*i.e.*, for currency and various types of bank and "near-bank" deposit liabilities) and on the market for bank reserves than on the market for credit. It is perhaps symptomatic, for example, that the "macroeconomic" model most widely taught in American colleges throughout the postwar period does not even treat explicitly the market for credit instruments, but instead focuses attention on the market for monetary assets. And of course the popular "monetarism" that became increasingly prominent during the 1960's also focused attention on money and, in some versions, specifically disavowed any corresponding interest in the behavior of credit. Thus, the rising interest in monetary targets over the past decade and the corresponding lack of interest in broad credit targets does seem at least partly to reflect a climate of ideas prevalent over the period.

But the existence of such a climate seems itself to need some explanation in view of the obvious importance of the credit markets. For one thing, the credit markets are clearly large relative to the market for money. In 1978, the volume of credit market instruments of nonfinancial sectors outstanding at the year-end amounted to \$3.4 trillion. This compared with a substantially smaller figure of \$1.6 trillion for the volume of "money" outstanding—even as very broadly defined to include all bank and thrift institution deposits (M_2). The corresponding figure for the narrow definition of money (M_1) was only about \$361 billion. In theoretical discussions, moreover, it is readily conceded that *all* markets must be in balance for the economy as a whole to be in "equilibrium", and thus a disturbance in the market for credit could just as well create a disturbance in the markets for goods, services, and jobs as could a disturbance in the "market" for currency and deposits. At a somewhat less abstract

level, no one really questions that the terms and conditions on which credit is extended can have a major impact on spending and real activity. Yet, despite these considerations, the credit market and the credit aggregates have generally tended to receive less attention than money. At least this is conspicuously true, as already noted, insofar as choosing intermediate financial objectives for monetary policy is concerned.

There are several possible explanations for the recent relatively greater emphasis on money than on credit both in economic analysis and in choosing financial aggregates for targeting purposes. First, even when there are no explicit policy targets for the behavior of the monetary aggregates, actions taken by treasuries and central banks often dominate developments in the supply of bank reserves and money. In looking for a major source of "outside" influences on the economy, it thus may be only natural to pay special attention to the supply of reserves and money.

To be sure, such "outside" or "exogenous" developments impinging on the economy can also originate in the credit market. While the very concept of "outside" or "exogenous" influences is certainly a bit vague, and at the least has to be regarded as relative to the particular economic model under consideration, examples of credit market developments that most people would regard as "exogenous" include financial innovations, the effects of changing financial regulations, and, indeed, perhaps any shifts in credit market psychology reflecting responses to new information bearing on economic prospects. But rightly or wrongly, such developments have in recent decades figured less importantly in most accounts of how the economy works and what sets it in motion than have "exogenous" influences operating through the government's impact on the money supply.

A closely related though slightly different reason for greater concentration on monetary aggregates is simply the assumption that these aggregates *can* be controlled by the authorities while total credit aggregates cannot, a subject to be discussed further below.

A third possible reason for emphasizing monetary aggregates over total credit aggregates may be that the latter seem to many to be far more heterogeneous than even the more broadly defined concepts of money. Thus, for example, any broad measure of total credit flows has to include all sorts of claims on a number of diverse nonfinancial sectors, such as corporate and municipal bonds, commercial paper, loans, and mortgages. By comparison, the items included in most definitions of money appear to be relatively homogeneous. To be sure, this situation could change to the extent that new nonbank, money-like instruments (such as shares in money market mutual funds against which

checks may be written) were to continue to expand and become accepted as components of at least some money stock measures.¹ But, under existing conditions, most economists and central bankers have tended to prefer to monitor the credit markets by looking at the terms and conditions prevailing in these markets—interest rates and nonrate lending terms—rather than at the *ex post* magnitude of the aggregate of claims generated in these markets.

It should perhaps be noted that, whatever the merits of these arguments for preferring monetary aggregates to credit aggregates as analytical tools and as policy objectives, these arguments do not seem to apply when the credit measures in question are defined more narrowly as measures of commercial bank credit alone. Obviously, the supply of bank credit is closely connected via the balance sheet of the banking system to the supply of money and reserves. To be sure, there may be some significant slippages between any particular measure of money and bank credit, reflecting, for example, the fact that banks have important “non-monetary” liabilities such as large certificates of deposit. But these qualifications aside, virtually everything that can be said about the relative importance to the economy of monetary shocks, about the importance of policy influences on the supply of money, and about its controllability can also be said about bank credit. Consequently, any theoretical preference for monetary over total credit aggregates would not seem to provide a corresponding basis for preferring monetary measures over bank credit measures.

Some alternative credit measures

There are probably at least as many plausible ways to measure the stock of outstanding credit and changes in it as there are ways to define “money”. One of the broadest credit measures that seems intuitively appealing is the total volume of outstanding credit extended to the domestic nonfinancial sectors.² For convenience this concept can be dubbed “total credit” even though the term is obviously not quite accurate. Thus the measure excludes credit extended to financial intermediaries because these institutions borrow only to relend to ultimate borrowers. To include credit extended to them as well as the credit they extend to ultimate borrowers would therefore represent a kind of “double counting”. The measure, however, also ex-

cludes two classes of ultimate borrowers, namely, the Federal Government and foreigners. The exclusion of Federal debt can be justified on the grounds that the Federal Government's spending is not closely constrained by its ability to raise funds in the market. It can also be argued—though perhaps somewhat less forcefully—that the volume of funds raised by foreigners in the United States capital market has only a very limited relevance for United States gross national product (GNP). Given these exclusions, the “total credit” measure reflects the level of credit extended to domestic businesses, households, and state and local governments. Similarly, *changes* in total credit over a period of time represent the flow of new credit extended to these sectors net of repayments.

An alternative credit market measure that has been proposed³ focuses, not on the volume of credit extended to the private domestic nonfinancial sectors, but instead on a partial measure of the volume of financial *claims* held by these sectors. This alternative measure includes direct holdings by these sectors of securities (other than equities), mortgages, and loans, together with their holdings of bank deposits, thrift institution deposits, and coin and currency. The deposit items in this list represent a partial measure of indirect claims against final borrowers through claims against financial intermediaries, while coin and currency can be regarded as a noninterest-bearing claim against the Federal Government and the Federal Reserve. The resulting overall measure has been dubbed the “debt proxy”.⁴

Of these two credit market measures, the total credit measure is somewhat broader, amounting to \$2.6 trillion at the end of 1978 as against \$2.2 trillion for the debt proxy. Of the latter, about 70 percent consisted of deposit claims on banks and thrift institutions and claims against the Federal Government in the form of coin and currency (M_1). In addition to these two broad credit measures, total debt and the debt proxy, it is also interesting to consider a narrow credit measure covering only commercial banks (“bank credit”) and a measure of intermediate scope covering commercial bank credit along with credit extended by the thrift institutions (“bank and thrift credit”).

Cyclical behavior of credit and credit velocity

One way to approach the relationship of credit measures to aggregate demand is simply to examine growth rates of the various credit measures in relationship to the business cycle. To do this, growth rates, over four-quarter spans, in total credit and the debt proxy were

¹ For a discussion of this subject, see John Wenninger and Charles Sivesind, “Defining Money for a Changing Financial System”, this *Quarterly Review* (Spring 1979), pages 1-8.

² This is the “stock” analog to the flow concept of “net funds raised by the domestic nonfinancial sectors” as used in the flow-of-funds accounts.

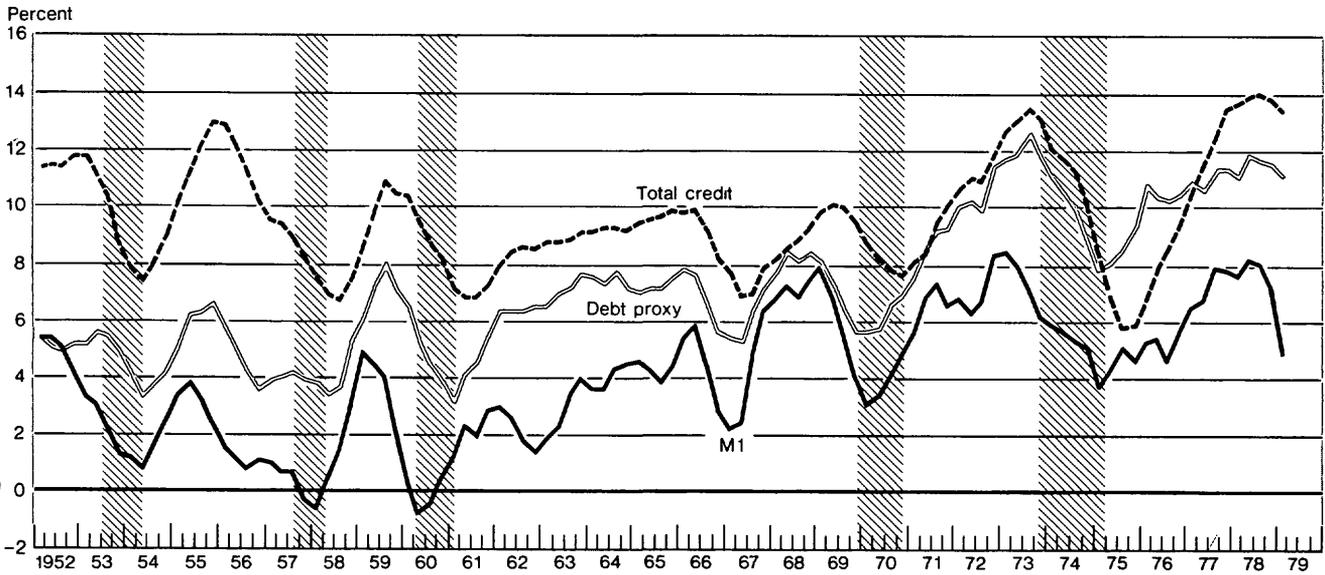
³ See testimony by Henry Kaufman before the House of Representatives Committee on the Budget (February 6, 1978).

⁴ The term is Kaufman's.

Chart 1

Growth of Broad Credit Measures and M1

Percentage changes from four quarters earlier

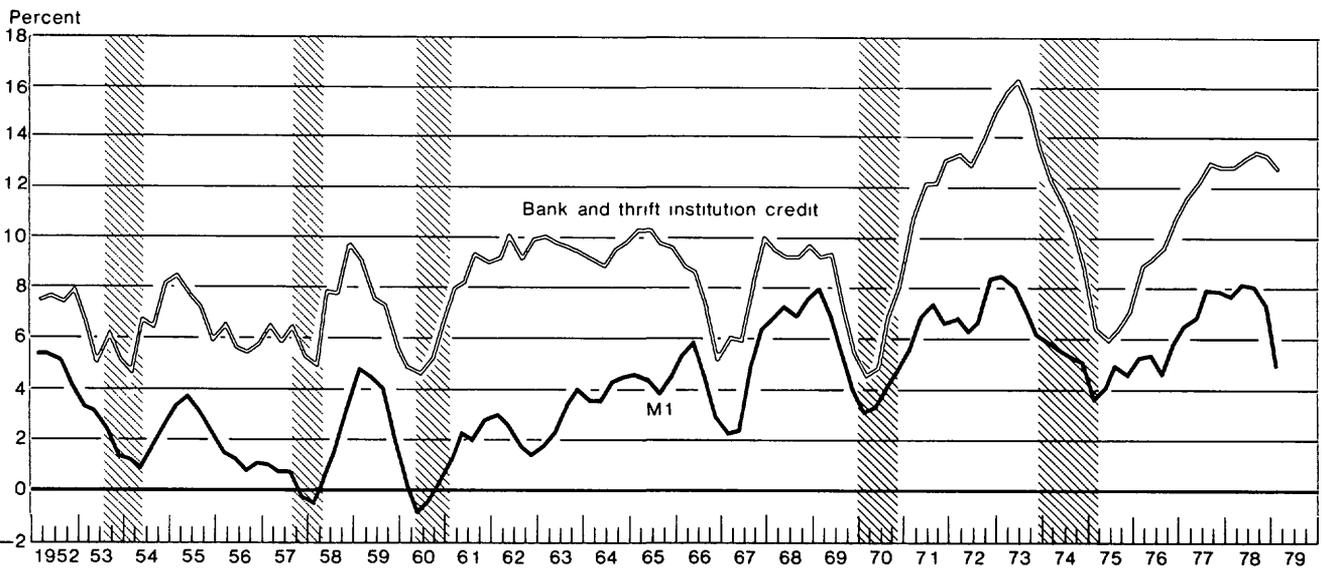


Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research

Chart 2

Growth of Bank and Thrift Institution Credit and M1

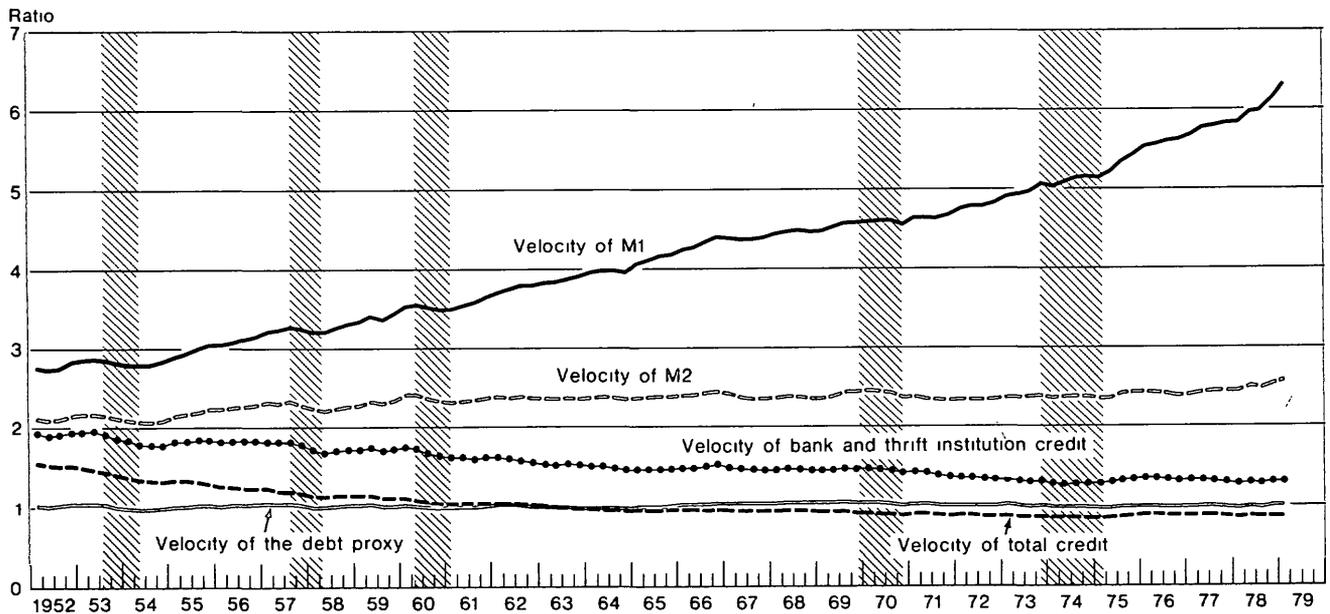
Percentage changes from four quarters earlier



Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research

Chart 3

Income Velocity of Money and Credit Measures

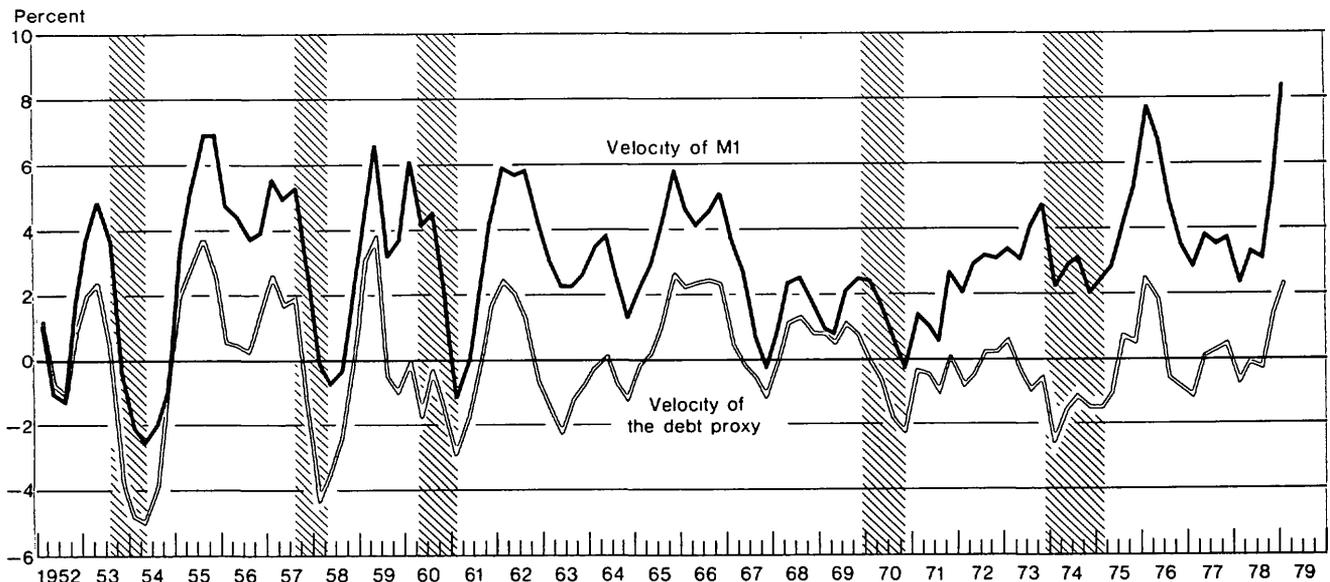


Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research

Chart 4

Velocity Growth Rates: M1 and the Debt Proxy

Percentage changes from four quarters earlier



Shaded areas represent periods of recession, as defined by the National Bureau of Economic Research

computed for each quarter of the 1952-78 period. These growth rates are shown in Chart 1, along with the corresponding growth rate of M_1 . Shaded areas indicate periods of business recession as defined by the National Bureau of Economic Research.

Reflecting their more rapid trend rates of growth over the twenty-seven years covered, the two credit growth rates have consistently exceeded the corresponding growth rates for M_1 , but the cyclical patterns of growth of the three measures are very similar. All three series show clear cyclical peaks, peaks which have almost invariably led the corresponding peaks in the business cycle. The average lead time for the two credit series at cyclical peaks was about the same. In both cases, it was somewhat shorter than the average lead for M_1 . At cyclical troughs, both credit series have tended to bottom out at about the same time as the economy itself. M_1 , however, led the overall economic revival in three out of five instances. All three financial series peaked in advance of the 1967 mini-recession, and then showed a clear-cut dip through early 1967. In short, the cyclical performance of the broad credit measures has been rather similar to that of the money supply. The four-quarter growth rate of bank and thrift institution credit (Chart 2) parallels the cyclical pattern of M_1 growth even more closely, if anything, than do the total credit and debt proxy measures.

Another obvious way to look at the relationship of the credit measures to aggregate demand is in terms of the behavior of the ratio of GNP to the dollar volume of outstanding credit—in other words, the credit analog to the “income velocity” of money. Chart 3 plots the levels of the various credit “velocities” along with the more conventional M_1 and M_2 velocities for the 1952-78 period. Most of these various velocity measures have shown a greater or lesser tendency to drift up or down over the 27-year period—with the rather striking exception of the “velocity” of the debt proxy. Over this long period, a dollar’s worth of GNP has tended to be supported by about a dollar’s worth of the financial instruments included in the debt proxy measure.

While the tendency of the debt proxy to grow roughly dollar for dollar with GNP over the period is certainly visually impressive, the significance of this phenomenon for the value of the debt proxy measure as a policy target is questionable. The problem is that the apparent long-term stability of the level of velocity can conceal considerable cyclical variability in its growth rate. And it is the cyclical behavior of the rate of change in velocity that is important in trying to gauge the short- to medium-term impact on the economy of alternative growth rates in financial measures. Chart 4 shows the debt proxy velocity measure, computed as a four-quarter growth rate and compared with the correspond-

ing four-quarter growth rate in the velocity of M_1 . Given the long-term uptrend in the velocity of M_1 and the essentially trendless character of the debt proxy velocity, the growth rate of M_1 velocity of course tends to be consistently higher than that of the debt proxy velocity. But the volatility of the two measures has been about the same and, as the chart indicates, the cyclical and subcyclical movements in the two measures have been remarkably similar. The four-quarter growth rate of total credit velocity (not charted) is also quite similar in its cyclical behavior to that of M_1 velocity.

These crude comparisons suggest that, at least as a first approximation, the broad credit velocity measures must respond to about the same influences that affect M_1 velocity and in about the same way. This, in turn, suggests that the various credit velocities might present about the same prediction problems that exist for M_1 velocity. The same conclusions are suggested by the movement of the four-quarter growth rate in the bank and thrift credit velocity—also not charted.

Regression evidence on the relationship between credit measures and nominal GNP

As indicated, one major premise of the use of long-term targets is that movements in financial variables influence, probably with a lag, movements in nominal GNP and thus prices and output. One way to examine the influence of a financial variable on aggregate demand is simply to regress current growth rates in current dollar GNP on current and lagged growth rates in the financial variable. This procedure has come into very common use over the past ten years even though it has long been apparent that interpretation of the results is fraught with difficulties. Quite apart from the purely statistical problems, experience has shown that results tend to be sensitive to such matters as the form in which the data are expressed (whether as dollar first differences or as percentage changes), the time periods covered by the statistical equations, the inclusion of other variables, and so forth. The upshot of all this seems to be that the results of such equations should be treated with considerable caution and a healthy dose of skepticism. But at the least, such equations do provide a concise summary of the historical relationship between nominal GNP as a measure of aggregate demand and the past and current behavior of financial measures that has accompanied the behavior of GNP.

Table 1 shows the results of regressing quarterly percentage changes in current dollar GNP on current and lagged percentage changes in, separately, M_1 , M_2 , and the various credit measures described earlier over the 1961-77 period and over each half of this period. The results suggest that, for the period as a whole, current and past movements in the total credit measure

"account for" a bit less of the movement in quarterly GNP growth rates than do M_1 or M_2 and that the debt proxy "accounts for" somewhat more of these movements than do M_1 and M_2 .⁵ The other two credit measures perform noticeably worse than the monetary and broad credit measures. A glance at the highly divergent results for the two subperiods, however, reinforces the warning that these results should be treated with caution. For example, the total credit measure performs quite poorly in the first subperiod (1961 to mid-1969) and quite well in the latter half of the full period (mid-1969 to 1977). Bank credit, for which very favorable results have been reported in other studies, does as well as the two monetary measures in the first subperiod but performs poorly in the later years.

In any case, it does appear that the relationship of aggregate demand to broad credit measures, especially the debt proxy measure, is roughly comparable in closeness to its relationship to the monetary measures—again a result that should not be surprising in view of the evident similarity of the cyclical performances of the credit and monetary growth rates. But the question still remains of what to make of the statistical association between current GNP movements and current and past movements in these credit measures from a policy point of view?

Probably the kinds of statistical association between GNP and credit measures suggested by these regression results have significance for choosing policy target measures only if these results can be interpreted in a "causal" sense—*i.e.*, so that one can say that, if the financial variable is made to behave in a certain way, GNP will behave in a certain way. As many econometricians have pointed out, interpretation of results such as are presented in the top half of Table 1 are loaded with potential ambiguities with respect to the existence and/or direction of "causation" of the financial and GNP movements. There are a number of possible reasons for questioning whether a correlation of current GNP movements with current and lagged movements in a financial variable implies causation

running from the financial variable to GNP. When such doubts exist, the ranking of different financial variables for targeting purposes according to their performance in such tests obviously becomes questionable.

Problems of interpretation as to "causation" could arise from a number of sources. For example, if the financial variable is used successfully by the central bank to offset other sources of change in GNP, measures of statistical association such as those presented in Table 1 would tend to be biased toward zero. Problems could also arise if the Federal Reserve tended to target interest rates and if these targets were adjusted to GNP only with a lag, thus leading to accommodative behavior of money and credit growth in the face of accelerations or decelerations of GNP growth. And, apart from central bank behavior, cyclical developments could tend to produce corresponding cyclical movements in money and credit, raising further problems for interpreting "causation" in the statistics.

This does not exhaust the list of possible complications in inferring "causation" from results such as those described in Table 1. In response to these potential problems of interpretation, a wide and increasingly sophisticated battery of econometric machinery has been unloosed in recent years—especially in the context of interpreting "causal" relationships from regressions of GNP on measures of the money supply. It is probably a fair generalization to say that, despite this effort and its growing sophistication, the results have not been conclusive. It would be impractical to attempt to repeat all the various possible tests in respect to the credit/GNP equations. Nevertheless, some of the more obvious checks are worth making.

One precaution is to look at the influence only of lagged values of the financial aggregates since the direction of causation in contemporaneous movements is ambiguous and since some of the "reverse causation" possibilities cited above seem likely to have important contemporaneous effects—*e.g.*, the possibility that financial variables accommodate to changes in GNP as a result of Federal Reserve use of interest rate targets.⁶

In the bottom half of Table 1, the change in nominal GNP is made a function of *only* lagged values of the various financial measures. Predictably, dropping the current change in the financial measures noticeably reduces their explanatory power for GNP in all cases. Indeed, the explanatory value of the total credit measure drops to zero, obviously raising very serious questions about its value as a policy target measure. The debt proxy measure, however, continues to do

⁵ Two standard measures of the degree of association of GNP growth with the behavior of growth rates in the various financial measures are reported in Table 1 and in the subsequent table. One measure, R^2 , is the square of the "coefficient of multiple correlation" (adjusted for "degrees of freedom"). R^2 measures, on a scale of zero to one, the proportion of the variation in GNP growth that can be accounted for by the regression equation on the basis of variations in the current and lagged growth of the financial measures. The second measure, the "standard error of estimate", is the square root of the average squared error made by the equation in estimating GNP growth rates over the sample period on the basis of the current and lagged growth rates in the financial measure. As is apparent from these definitions, the association of movements in GNP growth rates with current and lagged movements in the growth rates of the financial measures is the closer, the larger is the R^2 and the smaller is the standard error of estimate.

⁶ The coefficient on the contemporaneous change was indeed larger and had a larger "t" value than any of the lagged changes for all the money and credit measures examined in Table 1.

Table 1

Regressions of GNP Growth Rate on Current and Lagged Growth Rates of Various Monetary and Credit Aggregates

Variable	1961-I through 1977-IV		1961-I through 1969-II		1969-III through 1977-IV	
	\bar{R}^2	SEE (percent)	\bar{R}^2	SEE (percent)	\bar{R}^2	SEE (percent)
Current and four lagged growth rates in financial measures						
M ₁ .....	.30	2 84	21	2 29	.23	3 44
M ₂ .....	.29	2 86	20	2 30	.20	3 52
Bank credit .....	.04	3 32	20	2 31	.11	3 71
Bank and thrift credit ..	.12	3 18	06	2 50	.24	3 41
Debt proxy .....	.35	2 74	36	2 06	.36	3 13
Total credit .....	.23	2 98	14	2 38	.39	3 07
Four lagged growth rates only						
M ₁ .....	.18	3 07	15	2 37	.09	3 75
M ₂ .....	.23	2 97	20	2 31	.12	3 67
Bank credit .....	.02	3 37	22	2 27	.02	3 89
Bank and thrift credit ...	.06	3 29	07	2 48	.01	3 92
Debt proxy .....	.21	3 02	38	2 03	.07	3 78
Total credit	0	3 39	13	2 41	-.03	3 98

See footnote 5 in text for definitions of \bar{R}^2 and SEE (standard error of estimate)

Regressions relate percentage changes at annual rates in seasonally adjusted quarterly values of gross national product to current and lagged values of percentage changes at annual rates in seasonally adjusted quarterly values of the various financial measures

Table 2

Regressions of GNP Growth Rate on Lagged GNP Growth Rates and Lagged Growth Rates of Various Monetary and Credit Aggregates

Variable	1961-I through 1977-IV		1961-I through 1969-II		1969-III through 1977-IV	
	\bar{R}^2	SEE (percent)	\bar{R}^2	SEE (percent)	\bar{R}^2	SEE (percent)
One- and two-quarter lagged GNP only .....	.05	3 31	.09	2 45	-.03	3 99
Plus:						
Lagged M ₁* .....	.17‡	3 09	.18	2 34	.06	3 81
Lagged M ₂* .....	.22§	3 00	.16	2 35	.11†	3 71
Lagged total bank credit* ..	.04	3 33	.19	2 32	-.05	4 02
Lagged bank and thrift credit*	.06	3 30	.12	2 42	-.05	4 02
Lagged debt proxy* .....	.22‡	3 00	.36‡	2 06	.09†	3 75
Lagged total credit* .....	.00	3 39	.13	2 40	-.11	4 13

See footnote 5 in text for definitions of \bar{R}^2 and SEE (standard error of estimate) and footnote 8 for a discussion of the "F" test

* Lagged four times

F test for contribution of lagged financial measures significant as follows

† 90-95 percent, ‡ 95-99 percent, § 99 plus percent

All variables measured as percentage changes at annual rates in seasonally adjusted data

about as good a job as M_1 and M_2 for the period as a whole—and again, better than the monetary measures in the earlier years and worse than in the later years.⁷

But confining the regressions to lagged values only of the financial variables still does not guarantee “causal” significance to the results. Thus, for example, income changes could generate financial changes in each period, and if income changes were auto-correlated, this could create a spurious relationship even between *current* income changes and *lagged* financial changes. Consequently, in Table 2, income growth rates were first regressed on their own lagged values (line 1) and then the lagged money and credit variables were added one at a time. As indicated by the results of a standard statistical test (the “F” test), only M_1 , M_2 , and the credit proxy continue to contribute to significant additional explanatory power for the 1961-77 period as a whole after allowing for past growth of GNP itself.⁸

Taken together, the results of these various tests suggest that at least one credit measure, the debt proxy, may do about as good a job of “explaining” aggregate demand as M_1 and M_2 and that there is at least no more reason to suspect that this explanatory power is spurious than there is in the case of the monetary measures. This is a rather weak conclusion, but it may be about all that is justified on the basis of these commonly used statistical tests. It suggests, as far as it goes, that the debt proxy measure might be considered as an *alternative* to M_1 and/or M_2 targets if in fact a mutually exclusive choice had to be made between a money measure and this particular credit measure

Credit measures as a supplement to monetary measures for targeting purposes

But to pose the question of a credit aggregate measure as an *alternative* to monetary measures for targeting purposes is almost certainly to pose a false issue since past practice and the current legal framework for aggregate targeting⁹ suggests that at least *some* monetary measure will continue to be used as an aggregate

target. A more appropriate question may therefore be whether any of the credit measures appears likely to be a useful *supplement* to monetary targets.

Within the framework of the kind of regressions used in the preceding section, this question becomes one of whether credit measures appear to make an *additional* contribution to explaining movements in aggregate demand once the apparent influence of money has been taken into account. To test this proposition, lagged values of the various credit aggregates were added to regression equations already containing two lagged values of nominal GNP growth and lagged values of the growth rate of either M_1 , as in one set of equations, or M_2 in a second set of equations. The results of this final set of regression tests (not reproduced here) were completely negative insofar as the various credit aggregates are concerned. That is to say, in no case did the credit measures make a statistically significant additional contribution to explaining movements in GNP growth once either M_1 or M_2 had already been taken into account. The implications of this final set of tests thus seems to be that, if M_1 and/or M_2 is already being used as one of the variables selected for long-term targeting, there would be no particular value in adding a credit variable—at least insofar as targeting financial measures is regarded as a way of trying to produce a determinate result for aggregate money demand

The controllability issue

As suggested earlier, even if a variable is highly “exogenous” and makes an important independent contribution to explaining aggregate demand, it makes little sense for the Federal Reserve to set “targets” for it if it is not at least potentially controllable

The total credit measures would not in fact appear to be especially satisfactory targets from the point of view of controllability. There is, for one thing, a problem of timely data availability for these broad credit measures. Both the total credit and debt proxy measures are derived from the Federal Reserve’s flow-of-funds accounts and become available only once a quarter with a lag of five to six weeks. Data on M_1 and M_2 as currently defined become available once a week with a lag of a week. Both the infrequency and the delay of data availability for the credit measures could pose some problems for controllability. The relative infrequency with which the data become available means that there can be no feedback from incoming data, and therefore no plausible basis for readjusting the Federal Reserve’s short-term operating objectives in response to deviations of the credit measures from targets set for them, except once every three months. This is certainly a rather long interval. Similarly, the

⁷ It may be worth noting that when contemporaneous values are excluded, most of the explanatory power of the debt proxy measure lies in its M_2 component. Indeed, using the “F” test, the direct holdings of credit market instruments component of the debt proxy does not make a statistically significant contribution (at the 90 percent probability level) to explaining GNP movements over the period as a whole once the M_2 contribution has been taken into account.

⁸ The “F” test is a means of determining whether the apparent additional explanatory power (if any) achieved by adding new independent variables to a regression equation is larger than might be expected to arise from chance alone at some specified level of probability. In the text, the apparent additional explanatory power is said to be “significant” if the probability that it is due solely to chance is 10 percent or less.

⁹ The “Full Employment and Balanced Growth Act of 1978”, known as the Humphrey-Hawkins Act.

lag with which the credit data become available could be a problem for controllability by delaying the ability of the Federal Reserve to respond to actual performance in the previous quarter until several weeks of the new quarter had already passed. No comparable problem exists with respect to the present M_1 and M_2 concepts or with respect to bank credit.

In principle, the data problems posed by the broad credit measures might be mitigated by changes in collection procedures. Data problems apart, however, it seems clear that the aggregate credit measures could be expected to produce substantially greater control problems than do the various money supply measures. The Federal Reserve of course does not directly control even the narrowly defined money supply but must, instead, attempt to adjust its major policy instruments—especially open market operations—to bring about conditions of bank reserve availability and money market conditions that will, in turn, tend to generate the desired behavior of the money supply.

Fundamentally, there are two basic tactical approaches the Federal Reserve can use to attempt to control the behavior of the money supply or any other financial variable. One of these would be to attempt to project the path of bank reserves (or the monetary base) that seems most likely to be associated with the desired path of the aggregate. The success of this approach depends, in turn, on the stability and predictability of the “multiplier” relationship between reserves and the aggregate in question. Even in the case of monetary definitions involving only currency and commercial bank deposits, there are significant problems with regard to the stability and predictability of the relevant multipliers. It is obvious that such problems would be far more severe, if not overwhelming, where the multiplier in question connected the reserves of the banking system to some broad credit measure that involved the behavior not just of the banking system but of *all* potential lenders in the economy.

An alternative tactical approach open to the Federal Reserve in seeking to control the behavior of financial aggregates involves attempting to estimate the volume of the aggregate the public will want to hold under given conditions of aggregate demand and interest rates, then seeking to influence short-term money market rates accordingly. This approach also poses very real problems even in the case of a monetary aggregate because of difficulties in estimating what the public's demand for money will be under given conditions. But again, the problem appears likely to be far more serious for broad credit measures since there is no reason to expect any well-defined, stable

relationship between the demand for a broad credit aggregate and short-term interest rates. And indeed one econometric effort to estimate such a demand relationship for total credit and the debt proxy on quarterly data covering the 1969-77 period turned up a nonsignificant relationship to short-term interest rates in the case of the debt proxy and a “statistically significant” but nonsensical positive relationship in the case of total credit—“nonsensical”, that is, in that the total credit equation implied, if taken literally, that a tightening of money market conditions would tend to accelerate the growth rate of credit.

On the whole, it does not really seem necessary to belabor the point that a broad credit measure could be expected to be much less amenable to Federal Reserve control than money supply or credit measures relating primarily to the banks and near banks. And it seems equally obvious that the pragmatic value of setting target growth rates for a measure over which effective measures of control do not exist would be very doubtful indeed.

Conclusion

In summary, the case for adding a broad credit measure to the menu of financial measures targeted by the Federal Reserve appears rather weak. This does not mean that credit markets are unimportant, nor is it a recommendation that they be disregarded in making policy! Developments in credit markets are certainly likely to provide important clues as to the prospective behavior of the economy. But, in looking for such clues, the behavior of the various interest rate and nonrate terms in the credit markets and the behavior of credit flows in particular submarkets seems likely to prove more helpful than movements in the broad credit totals.

Perhaps the conclusion that the broad credit totals are unlikely to convey much useful additional information about the economy once monetary movements have been taken into account does need one qualification: It is based on evidence from the past. Recently a wave of innovations in the characteristics of deposits, of nondeposit transactions instruments, and of related money substitutes has complicated interpretation of the monetary measures. A continuation of this process of innovation could weaken the analytical value of these measures for some time to come. Under such circumstances, the relative usefulness of the broad credit measures as financial indicators of prospective aggregate demand might be enhanced. But, even in this case, problems of Federal Reserve control with respect to these credit measures would continue to limit their usefulness as policy targets.

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