Should the Federal Reserve Continue to Monitor Credit?

By James S. Fackler

The Federal Reserve decided in 1983 to use a broad credit aggregate in the conduct of monetary policy. In doing so, policymakers responded to increased uncertainty about the relationship between monetary aggregates and economic performance. This increased uncertainty, due in part to changes in the financial system over the previous decade, lowered the usefulness of monetary growth as a policy guide.

Since 1983, the Federal Open Market Committee has set a monitoring range for a broad credit aggregate, total credit. The Committee has intended to use the information on total credit, in conjunction with the behavior of the monetary aggregates relative to their target ranges, to guide monetary policy decisions.[1]

But the relationship between total credit and economic activity has proved to be somewhat unreliable. This unreliability may have resulted in part from the unprecedented buildup of government debt and from changes in the financial system. For whatever reasons, though, total credit has been sufficiently unreliable that some analysts question whether the Federal Reserve should continue monitoring this credit aggregate. Yet the Full Employment and Balanced Growth Act of 1978 requires the Federal Reserve to report to Congress "with respect to the ranges of growth or diminution of the monetary and credit aggregates." Perhaps some credit aggregate other than total credit could be used to fulfill this Congressional mandate and to help guide monetary policy.

[1] Records of the February 1983 meeting of the Federal Open Market Committee indicate that "the Committee intended to monitor total debt flows closely for whatever information they could provide in assessing appropriate responses to developments in the targeted monetary aggregates." For further details, see "Record of Policy Actions of the Federal Open Market Committee," *Federal Reserve Bulletin*, April 1983, p. 289.

"Total credit" and "total debt" are often used interchangeably by policymakers since the total of credit extended, from the viewpoint of lenders, is equal to the total of debt incurred, from the viewpoint of borrowers. For example, the Federal Reserve reports data on "Monetary and Credit Aggregates" and includes "debt" as one of these aggregates.

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The evidence in this article suggests that the Federal Reserve should consider monitoring the private credit component of total credit. The first section of the article shows that neither total credit growth nor monetary growth has been related closely enough to policy goals to serve as the sole guide for policy. The second section reviews theoretical arguments suggesting other credit measures that might be more useful guides for monetary policy than the measure used by the Federal Reserve since 1983. The third section presents empirical evidence that one such measure, private credit, would have been a useful policy guide in the 1980s, especially if used in conjunction with monetary growth.

A framework for evaluating monetary policy strategies

No monetary or credit aggregate has been closely enough related to policy goals in recent years to serve as the sole guide for monetary policy. The Federal Open Market Committee (FOMC) has thus used several monetary and credit aggregates, in addition to other variables, in the conduct of policy. Examples of alternative policy strategies from the last decade demonstrate the changing importance of money and credit growth.

The Federal Reserve has relied traditionally on a diverse set of "information variables" in the implementation of policy. An information variable is any variable that gives reliable information about the future realization of goal variables of monetary policy. If several variables provide independent information on the state of the economy, monetary policy can be conducted by using a set of information variables. The Federal Reserve changed its set of information variables in 1983 when it adopted a monitoring range for total credit. If total credit contains independent information on policy goals, then the Federal Reserve might increase the availability of reserves

if credit, along with other information variables, indicates that the likelihood of achieving ultimate policy goals would be enhanced by an easing of policy.

In the 1970s, the FOMC moved gradually toward a procedure using rates of growth in the monetary aggregates as the primary information variables. After a sustained acceleration of inflation in the late 1970s, the Federal Reserve announced in October 1979 new operating procedures for monetary policy that placed more weight on achieving monetary growth objectives, especially for the narrow monetary aggregate, M1. Nonetheless, growth in those aggregates has often fallen outside the established target ranges. One explanation for the divergence from the established ranges is that other information available to the FOMC has indicated that strict adherence to monetary growth within the ranges is no longer desirable.

By the fall of 1982, however, the usefulness of monetary growth as a policy guide had declined. In part because of financial innovation and deregulation, growth of M1 had become increasingly erratic. The stability of the relationship between monetary growth and policy goals is often evaluated in terms of the predictability of the velocity of money, the ratio of nominal GNP to the money stock. In the early 1980s, flows of funds among various types of monetary assets rendered velocity of M1 less predictable. As a result, the FOMC deemphasized M1 as a policy guide because it was felt there was no "alternative but to attach much less than usual weight to movement in M1 over the period immediately ahead."[2]

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2 Paul A. Volcker, "Remarks on Monetary Policy," *Federal Reserve Bulletin*, November 1982. The weight placed on M1 for policy purposes was lessened in 1982, and the Federal Reserve declined in 1987 and 1988 to specify a growth rate range for M1. See "Monetary Policy Report to Congress," *Federal Reserve Bulletin*, April 1987.

CHART 1

Credit aggregates and economic activity

(Ratios of selected credit aggregates to GNP)
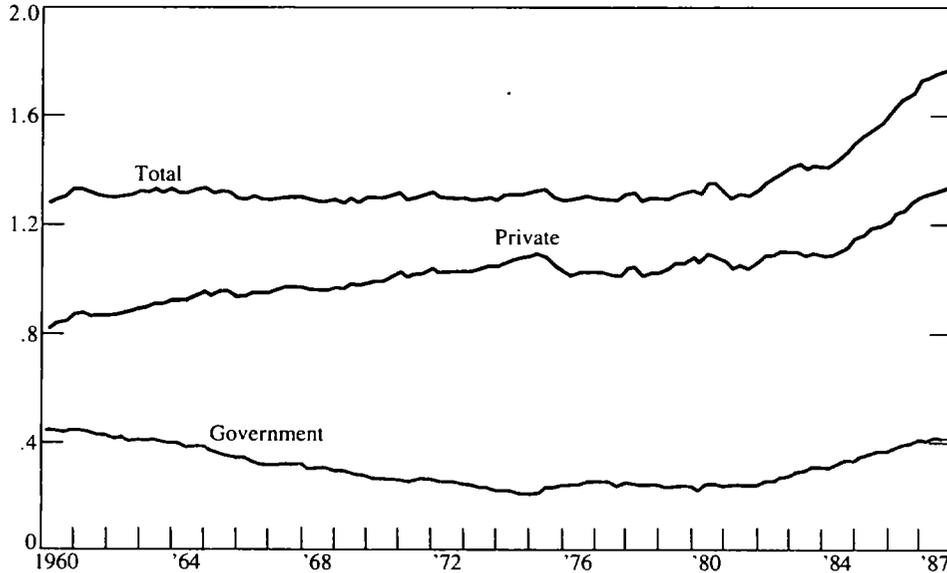
As the information content of monetary growth deteriorated, growth rates of credit aggregates became increasingly important sources of information about the economy. The credit aggregate chosen for use in monetary policy was total credit, which includes all credit market funds raised by the nonfinancial sector, including funds raised by the federal government.[3] The FOMC adopted

total credit as an information variable at its February 1983 meeting, noting that credit, "while not directly targeted, will be evaluated in judging the responses to the monetary aggregates."[4] Previously, the Federal Reserve had used bank credit in the conduct of monetary policy, but financial innovation and deregulation had also reduced its usefulness. Moreover, substantial empirical work by economists documented that total credit had borne a remarkably stable relationship to nominal GNP, the broadest measure of economic activity and thus a good summary

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[3] For example, bank credit and related aggregates have a long history of use for policy purposes. Alan Holmes noted that the FOMC included the "bank credit proxy" in its directives to the open market manager beginning in the spring of 1966. In the absence of other information, the proxy was used to confirm preliminary indications that policy was off course. "We have felt it desirable—particularly early in the month when firm data are scant—to wait for some confirmation of any suggested movement of the proxy before beginning to shade operations towards somewhat greater firmness or ease." See Alan R. Holmes, "Operational Constraints on the Stabilization of Money Supply Growth," in *Controlling Monetary Aggregates*, Federal Reserve Bank of Boston, Conference Series 1, June 1969.

Before adoption of total credit, the FOMC specified an "associated" range of growth for bank credit along with the target ranges for monetary growth. After specifying an associated range for total credit in 1983, the FOMC now characterizes the range for growth of total credit as a "monitoring" range.

[4] "Record of Policy Actions of the Federal Open Market Committee," *Federal Reserve Bulletin*, April 1983.

measure of ultimate policy goals.

Unfortunately, the stability of the relationship between total credit and GNP began to break down soon after total credit was adopted as a policy guide. As is evident in Chart 1, the ratio of total credit to GNP was fairly constant from 1960 to 1981, ranging only between 1.29 and 1.36.[5] After rising to 1.45 by the fourth quarter of 1982, the ratio began to climb to levels well beyond the previous range, reaching 1.79 by the fourth quarter of 1987. Even as the relationship between total credit and GNP was deteriorating, however, economists began to explore whether alternative measures of credit might be useful in the conduct of monetary policy.

The search for alternative credit measures

Economic theory can be useful in identifying credit measures that might help policy implementation. Recent theoretical research has identified two alternative credit aggregates that could be useful for policymakers. One area of research has focused on the potential importance of distinguishing credit obtained through financial intermediaries from credit obtained directly in the open market. The second area of research has explored whether government debt should be distinguished from private debt.

Does the source of credit matter?

Discontent with economic theories that disregard the economic implications of the sources of credit has stimulated research into more realistic models. Traditional models of the credit market and of its implications for the economy assume a single national credit market, which is often referred to as "the bond market." Such models thus do not take account explicitly of credit obtained through financial intermediaries. As a result, the important role of financial intermediaries is pushed into the background.[6]

To remedy this shortcoming, economic models have recently begun to incorporate the role of financial intermediation in determining aggregate economic activity.[7] These new models distinguish between the two basic sources of credit. Households and small businesses borrow predominantly through financial intermediaries. Such borrowing is called intermediated or "customer market" credit. In contrast, large firms often borrow directly through the bond and commercial paper markets. Because the debt is sold to the highest bidder in the open market, such credit is called "auction market" credit. The economic models that distinguish between the two types of debt suggest that the composition of total debt may have important implications for the economy.

The models also imply that the distinction between intermediated credit and auction market credit may be important for monetary policy. The incidence of monetary policy actions on various sectors of the economy reflects in part the type

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[5] The ratio of credit to GNP is the inverse of the "velocity" of credit. The inverse velocity is used in the chart for ease of presentation.

[6] For example, one standard model, the IS-LM model, assumes that money and bonds are the only financial assets and that money is the only asset that needs to be considered explicitly in understanding the financial system. This and similar models thus shed no light on the role of financial intermediaries in providing credit.

[7] Criticisms of standard models as well as models showing the importance of financial intermediaries in the economy are included in, for example, Ben S. Bernanke and Alan S. Blinder, "Credit, Money, and Aggregate Demand," *American Economic Review*, May 1988; Alan S. Blinder, "Credit Rationing and Effective Supply Failures," *Economic Journal*, June 1987; Alan S. Blinder and Joseph E. Stiglitz, "Money, Credit Constraints, and Economic Activity," *American Economic Review*, May 1983; and Karl Brunner and Allan H. Meltzer, "Money and Credit in the Monetary Transmission Process," *American Economic Review*, May 1988.

of market in which each sector obtains credit. Especially before the phaseout of ceilings on deposit interest rates, restrictive monetary policy affected the economy not only through its effect on market interest rates but also through its effect on the availability of credit from financial intermediaries. In the 1960s, for example, financial intermediaries experienced several periods of disintermediation that reduced the availability of mortgage credit, consumer credit, and credit available to small businesses. The reduction in credit available to these sectors reduced spending and thus slowed the pace of economic activity. Even now, rising market interest rates can at least temporarily disrupt the flow of credit to certain sectors of the economy. Yet more borrowers now have access to auction market credit, in part because of rapid growth in the commercial paper market. As a result, restrictive monetary policies may now have less effect on economic activity than under similar circumstances in the 1960s. Therefore, monitoring such factors as the mix of intermediated and auction market credit can provide important information for the conduct of monetary policy.

In contrast to the traditional theoretical models that did not distinguish between the various types of credit, the new theoretical models shed light on the importance for monetary policy of monitoring the channels through which credit flows to the various sectors of the economy. This line of research, therefore, has implications for whether a measure of credit that distinguishes intermediated credit from auction market credit would be more useful as an information variable for monetary policy.

Distinguishing between government and private debt

Another line of research has implications for whether a distinction should be drawn between government debt and private debt in designing

credit measures for use in monetary policy. One stimulus for such research has been the rapid growth of government debt in recent years resulting from the massive federal budget deficits in the 1980s. Unless offset by a reduction in growth of private debt, large budget deficits could distort the historical relationship between growth of total debt and growth of GNP. On the surface, it appears that the previous stability in the relationship between total credit and GNP may have resulted from offsetting changes in private debt and government debt. As shown in Chart 1, the stability of the relationship between total credit and GNP appears to have been the result of an inverse relationship between the government and the private components of total debt. During the 1960s and 1970s, the ratio of government debt to GNP generally declined, while the ratio of private debt to GNP increased.

According to one recent theory, this inverse relationship is not merely a coincidence but is rather a reflection of how the private sector perceives government debt. This theory, which is referred to as the ultra-rationality hypothesis or the Ricardian equivalence hypothesis, assumes that people perceive government debt as the equivalent of their own debt. This implies that households will have a full understanding of the higher taxes that will ultimately be required to service and retire an increase in government debt. One implication of this hypothesis is that the additional government bonds do not represent an increase in wealth to the private sector since the value of these bonds is just offset by the implied rise in future taxes. Rather, a current increase in government debt raises private saving by an equal amount so that households can meet the implied higher future tax liabilities. As a result, private spending (and the need to finance this spending) declines, so that private sector indebtedness declines with the rise in government debt. Thus, ultra-rationality by households could explain the inverse relationship between government debt and

private debt in the 1960s and 1970s.[8]

Experience in the 1980s seems to cast doubt on the ultra-rationality hypothesis, however. The rapid growth of federal debt in recent years has not been offset by a commensurate decline in growth of private debt. Instead, the trend of private debt relative to GNP has remained fairly stable in the 1980s. As a result, the ratio of total credit to GNP has increased, as is apparent in Chart 1. The breakdown in the relationship between total credit and GNP has thus spurred research into why the private sector does not seem to have behaved in the way predicted by the ultra-rationality hypothesis. The reasons offered for the failure of the ultra-rationality hypothesis include an inability of the public to understand fully the tax implications of government debt.[9]

Just as the development of new theoretical models has led to questions about whether inter-mediated credit should be distinguished from auction market credit, experience in the 1980s and the challenges to the ultra-rationality hypothesis have led to questions about whether private debt rather than total debt bears a closer relationship to GNP. The answers to these questions will shed light on what measure of credit may be a useful information variable for the conduct of monetary policy. The questions can only be answered, however, by empirical tests of which credit measure provides the most information about economic performance.

Empirical evidence on choosing a credit measure

Two types of empirical evidence that are relevant for evaluating credit measures as information variables for monetary policy are presented in this section. The first type of evidence is the extent to which the empirical analogues of the credit measures discussed above would have improved forecasts of GNP in the 1980s. Assuming GNP is an adequate proxy for the goals of monetary policy, the credit aggregate that helps the FOMC most in understanding the future course of GNP would be the most useful as an information variable. The second type of evidence is an analysis of how the most promising of the credit aggregates, private credit, could have been used together with M2 for the conduct of policy in the 1980s. Because of the limited number of observations in the 1980s, such empirical results do not provide decisive evidence on which credit

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[8] Detailed discussion of the Ricardian equivalence hypothesis is contained in Robert J. Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, November/December 1974.

It should be noted that other explanations can be given for the stability of the total credit-GNP ratio during most of the postwar period. One alternative, referred to as the "capital leveraging hypothesis," exploits the fact that most borrowing requires collateral. If assets of the private sector include both tangible assets and government bonds, then a decline in government indebtedness leads the private sector to hold additional tangible assets that can then be used to support more borrowing. Thus, private and public borrowing are negatively related. Assuming that private agents hold a stable ratio of assets to income then leads to a stable total credit-GNP relationship. Yet another explanation, the "asset demand hypothesis," assumes that individuals want to maintain proportionality between both tangible assets and income as well as between financial assets and income. Then a decline in government bonds outstanding will be associated with an increase in the demand for privately issued securities. If asset demands are interest insensitive, then a negative relationship between government and private debt will exist along with a constant total credit-GNP ratio. For a complete discussion of these hypotheses, see Benjamin M. Friedman, "Debt and Economic Activity in the United States," in Benjamin M. Friedman, ed., *The Changing Roles of Debt and Equity in Financing in U.S. Capital Formation*, University of Chicago Press, Chicago, 1982. .

[9] Additional reasons that have been offered for the failure of this hypothesis include the distortions to resource allocation at

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the margin caused by taxes introduced to finance spending and an inability or unwillingness of individuals to transfer resources to future generations. For further discussion, see B. Douglas Bernheim, "Ricardian Equivalence: An Evaluation of Theory and Evidence," in Stanley Fischer, ed., *NBER Macroeconomics Annual 1987*, The MIT Press, Cambridge, Mass., 1987.

TABLE 1

Relationships among the credit aggregates

Credit aggregate		Amount (Billions of dollars 1987:Q3)
Total credit:	Credit market debt owed by U.S. government	
	+ Credit market debt owed by private domestic nonfinancial sectors	
		8,054.4
Private credit:	Total credit	
	− U.S. government borrowing	
		6,152.8
Intermediated credit:	Mortgage credit	
	+ Consumer credit	
	+ Trade credit	
	+ Security credit	
	+ Bank and other credit	
		5,755.6

Source: Board of Governors of the Federal Reserve System

aggregate is best suited for policy. The empirical results can nonetheless suggest directions for future analysis.

The credit aggregates analyzed in this section are total credit, the private component of total credit, and intermediated credit. Detailed definitions of these aggregates, along with the summary of the relationships among them, are shown in Table 1. Total credit, the aggregate currently monitored by the FOMC, includes all credit market funds raised by domestic nonfinancial sectors of the economy. Private credit excludes federal government debt from total credit.[10] The private credit measure is included to provide evidence on whether the ultra-rationality hypothesis holds, or whether instead federal government debt is

[10] The inclusion of state and local government borrowing in "private" borrowing can be justified on two grounds. First, data suggest that the borrowing and lending of state and local governments have been about equal in recent years, with the result that the net effect on credit markets has been small. Second, the proceeds of industrial revenue bonds issued by state and local governments largely finances private economic activity.

perceived by households and businesses as being very different from their own debt. Intermediated credit, which is credit extended through financial intermediaries, is included to provide evidence on whether a distinction should be made between auction market credit and intermediated credit in evaluating the prospective impact of credit growth on the economy.

Improving forecasts with credit aggregates

A simple statistical model known as a vector autoregression is used to evaluate whether credit aggregates can be used to improve economic forecasts.[11] Alternative sets of financial variables are included in the model to determine what set of information variables may prove useful to the Federal Reserve in the conduct of monetary policy. A money stock measure, M2, is included because the Federal Reserve has for several years considered monetary growth a principal guide for monetary policy. An interest rate, the Aaa corporate bond yield, is included because interest rates are thought to influence spending on business investment, housing, and consumer durable goods. In the first version of the model, no credit aggregate is included. In the other versions of the model, however, alternative credit aggregates are included to determine whether monitoring some credit aggregate can be useful in supplementing information available from prior values of monetary growth, interest rates, and GNP. The criterion for evaluating usefulness of credit aggregates is whether they would improve the ability to forecast GNP.

The forecasting methodology corresponds to the way economic forecasts are actually made. Only data that were available at the time of the forecast are used in estimating the models. In the initial forecasting experiment, each version of the model is estimated with data from the second quarter of 1960 through the second quarter of 1981. With allowances for lags, the starting point of this period corresponds to the availability of data on the M2 money stock. The ending point corresponds to the last cyclical peak in economic activity. The estimated models are used to forecast GNP four quarters into the future. The models are next estimated with data through the third quarter of 1981, and another forecast is made four quarters ahead, and so on to the end of the data set in the third quarter of 1987. Proceeding this way produces a series of 22 four-quarter forecasts that can be used in computing forecast error statistics, such as the root-mean-square error of the forecast. The second forecasting experiment is analogous to the first, except that the initial estimation period runs through the fourth quarter of 1982. For this experiment, there are 16 four-quarter forecasts. This endpoint of estimation was chosen so that the forecasting period would begin at the time the Federal Reserve began monitoring total credit.[12]

The forecasts generated in this way show that total credit has been of limited use in forecasting GNP. For the version of the model that does not include any credit aggregate, the root-mean-

[11] The forecasts evaluated here are generated using the "Bayesian" variant of the vector autoregression (VAR) methodology. Bayesian VARs are those in which the estimated coefficients are constrained such that each equation approximates a random walk; the constraints force the coefficient on the own first lag to be approximately unity and the coefficients on other own lags as well as the coefficients on other variables to be approximately zero. For details, see Robert B. Litterman, "Forecasting with Bayesian Vector Autoregressions: Five Years of Experience," *Journal of Business and Economic Statistics*, January 1986.

Each equation in each model includes four lags of model variables, as well as a constant. All variables are used in growth rate form.

[12] Strictly speaking, the forecasts include some information which would not have been available at the time the forecasts were made. Specifically, data revisions made through the end of 1987 are incorporated into the data set. These revisions, including revisions of seasonal adjustment factors, would not have been available to the hypothetical forecaster in our example.

TABLE 2
Using credit aggregates to improve economic forecasts

Credit measure included in model	Forecast errors for GNP growth* (percent, annual growth rate)	
	1981:Q3-1987:Q3	1983:Q1-1987:Q3
(1) —	3.2	3.1
(2) Total credit	3.2	2.9
(3) Intermediated credit	3.0	2.9
(4) Private credit	2.7	2.4

*The forecast errors for nominal GNP growth are measured by the root-mean-square error of the four-quarter-ahead forecast. The root-mean-square error is the square root of the average squared forecast error. Formal statistical tests for the significance of the reduction in forecast errors are not possible for models of the type considered here.

square error, which is a measure of the average size of the forecast errors, is shown in the first line of Table 2. Shown in the first column is the root-mean-square error from a model that includes only lags of monetary growth, interest rates, and GNP itself. The root-mean-square error indicates that the forecast errors would have averaged 3.2 percentage points when used to forecast over the upcoming four quarters. The forecast errors over the shorter horizon, which are shown in the second column of the table, are only slightly less, at 3.1 percentage points.

Adding total credit to the forecasting model does not substantially reduce the forecast errors. This can be seen by comparing the figures in the second row of the table with those in the first. The version of the model including total credit does not reduce forecasting errors at all over the long horizon, and reduces the forecast errors over the short horizon only to 2.9 percentage points. These results are consistent with the visual impression from Chart 1. The breakdown in the relationship between total credit and GNP evident in the chart implies that historical relationships based on total credit are unlikely to improve

the ability to forecast GNP in the 1980s.

The results are somewhat more encouraging for intermediated credit. As is apparent by comparing the figures in the third line of the table with the figures in the first line, monitoring the amount of credit channeled through financial intermediaries would improve the ability to forecast the future course of the economy. The forecast errors for GNP are lower when intermediated credit is included in the model than when no credit aggregate is included. The improvement is relatively small, however. In both the longer and the shorter forecast horizons, the reduction in forecast errors averages only 0.2 percentage points. Moreover, use of intermediated credit is not clearly preferable to use of total credit because the forecast errors are the same over the shorter forecast horizon. Only when the 1981-82 recession is included in the forecast horizon does use of intermediated credit improve the forecast over those using the model with total credit. These results suggest the possibility that monitoring the amount of credit available from financial intermediaries may be particularly important during periods of relatively high interest rates and of declining

economic activity. Perhaps such periods give rise to questions about the creditworthiness of some borrowers, leading financial intermediaries to be more cautious in their lending practices. If so, monitoring intermediated credit may be most useful when the lending attitudes of financial intermediaries are most likely to reduce the flow of credit to certain sectors of the economy. Even if this interpretation were accurate, the empirical results do not strongly support the implications of some recent theoretical models that credit channeled through financial intermediaries must be distinguished from auction market credit.

The private credit measure is clearly superior to the others. The forecast errors from the model including private credit, which are shown in the fourth row of the table, are lower than the errors from any of the other models for both the longer and the shorter forecast horizons. Compared with the model that excludes credit aggregates altogether, including private credit reduces forecast errors appreciably, by 0.5 percentage points (or 16 percent) for the longer horizon and by 0.7 percentage points (or 23 percent) for the shorter horizon. The superiority of the model with private credit is almost as large relative to the model that includes total credit, which tends to cast doubt on the validity of the ultra-rationality hypothesis. If households and businesses truly treated government debt as their own, as implied by the ultra-rationality hypothesis, combining private debt and federal government debt into a total credit measure should lead to improvement in the economic forecasts. Instead, including government debt reduces the information value of the credit aggregate that the Federal Reserve has been monitoring since 1983.[13]

Identifying periods when private credit helps

An important specific instance can be identified in which the information from private credit could have influenced monetary policy decisions relative to those based solely on monetary growth. During such a period, private credit would fulfill the FOMC's stated goal of using a credit aggregate in "judging the responses to the monetary aggregates."

Using credit in this way is most likely to prove valuable when there is a substantial change in the relationship between monetary growth and credit growth, for it is during such periods that monitoring the credit aggregate could provide additional information about the economy. To identify periods in which the relationship between monetary growth and growth of private credit changed substantially, statistical measures are used to construct a typical range for the difference between monetary growth and credit growth. Specifically, the mean and the standard deviation of the difference between growth of private credit and the growth of M2 were calculated for each quarter using data from the previous five years. The results are plotted in Chart 2.[14] The shaded area

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case that adding money to an information set including interest rates and the proposed credit aggregates also lowers forecast errors of GNP. Thus, using money and either of the proposed credit aggregates together is superior to using only money or only credit for GNP forecasting.

It should also be noted that the interest rate plays at best a marginal role in the GNP forecasts. One possible reason is that the change in the nominal rate of interest, which is used here, inadequately captures changes in the real rate of interest, which is presumably the interest rate relevant for GNP determination. Further, the interest rate, however measured, may be more important for forecasts of inflation-adjusted GNP than for nominal GNP. Support for the importance of the interest rate when controlling for inflation is contained in James S. Fackler, "An Empirical Model of the Markets for Goods, Money, and Credit," *Journal of Money, Credit and Banking,* February 1985.

[14] A five-year horizon is used in order to capture any gradually changing trends in the relationship between money and credit growth.

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[13] The above results show that adding private credit and intermediated credit to an information set including interest rates and money lowers forecast errors of GNP. Conversely, it is also the

CHART 2

Using private credit for monetary policy

(Deviations of private credit growth from monetary growth,
  adjusted for mean and standard deviation)
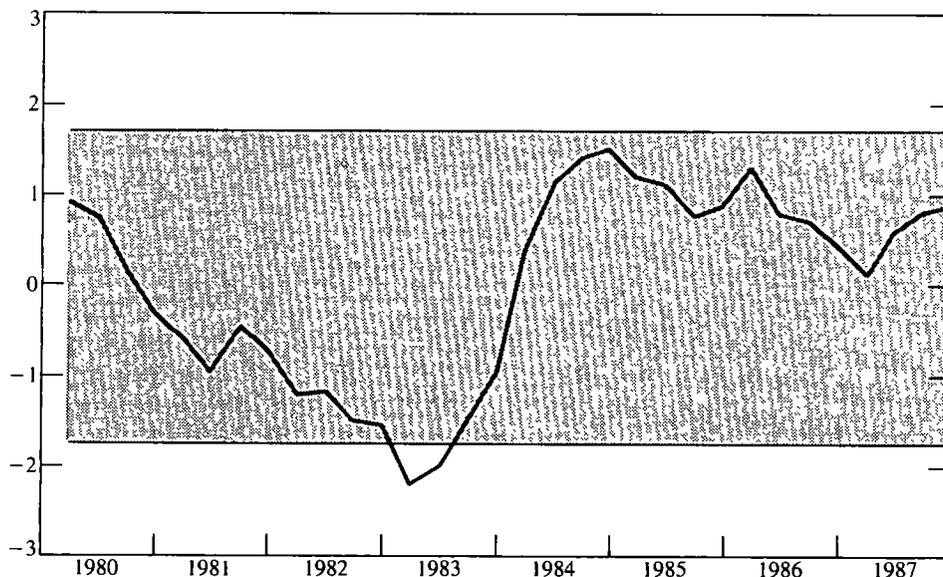
in the chart represents a range within which the growth of credit relative to money is within the normal bounds of recent historical experience. Only when the difference between monetary growth and growth of private credit falls outside this normal range is it likely that credit growth would provide significant information beyond that provided by money on the future course of the economy.

Using this approach, private credit provided important information to the Federal Reserve in the first half of 1983. The economy was just recovering from a recession that ended in the fourth quarter of 1982. Growth of M2 was extraordinarily high in the first quarter of 1983 because of the inflow of funds into money market deposit accounts and Super NOW accounts authorized at the end of 1982. In view of the portfolio adjustments being made at the time, there was considerable uncertainty regarding the reliability of

M2 as a policy guide. As indicated in Chart 2, growth in private credit did not accelerate with growth in M2. As a result, the difference in the growth rates was outside the confidence bound by the beginning of 1983. Private credit signaled that the FOMC should not adopt a more restrictive policy stance in response to the very rapid growth of M2. This signal was important for at least one additional reason beyond the uncertainty associated with M2. Inflation fell substantially between 1981 and 1984. The corresponding lowering of inflation expectations led to a downward adjustment of nominal interest rates. Uncertainty about the speed of adjustment of perceptions of future inflation to actual inflation created uncertainty about the information content of nominal interest rates. For this reason, interest rates as well as money growth rates were unreliable as policy guides. Thus, the period including early 1983 provides an interesting example of circum-

stances in which private credit can serve as a policy guide.

The signals from private credit for the conduct of monetary policy are infrequent, though. As is clear in Chart 2, the difference between credit growth and monetary growth has seldom been significant enough to warrant a change in the stance of monetary policy. One possible reason is that in periods of moderate economic growth and low inflation, conditions that have characterized the U.S. economy since early 1985, credit growth may not have much incremental information for policymakers. The judicious use of such information variables as private credit may nonetheless improve the ability of the Federal Reserve to achieve its policy goals by helping to identify those instances in which the traditional methods of implementing monetary policy are unsatisfactory.

Conclusion

Both economic theory and empirical evidence suggest that there are still reasons for the Federal Reserve to monitor credit aggregates despite the breakdown in the relationship between total credit and GNP. The first area of research, which showed the importance of the source of credit for economic activity, suggested intermediated credit as a promising information variable for monetary policy. The second area of research, which investigated the relationship between government and private debt, suggested the private component of total credit would be useful for policy purposes. The empirical evidence reported here shows that the private component of total credit contains important information on future movements in GNP. The evidence also shows that private credit contained important information for policymakers in the early 1980s when portfolio adjustments distorted the monetary aggregates. Private credit thus seems a promising candidate as the credit aggregate monitored by the Federal Reserve. The limited number of observations in the 1980s cannot, however, provide decisive evidence on which credit aggregate will be useful for policy in the future. Further research into the stability of the relationship between private credit and GNP would shed additional light on whether growth of private credit could be useful as a policy guide.

Rural America in Transition
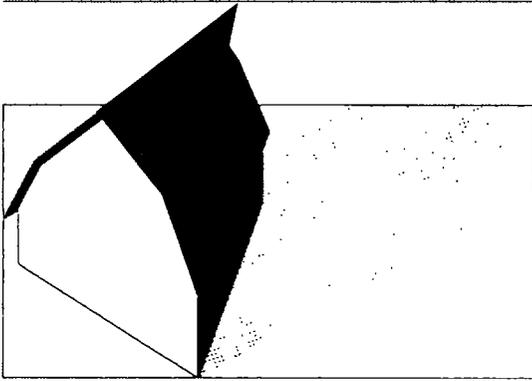
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Rural America is undergoing its most fundamental change since the 1930s. As a result of many factors, the rural economy is facing serious difficulties and many rural people and resources are undergoing a significant transition. *Rural America in Transition*, a new book by the Federal Reserve Bank of Kansas City, assesses the rural economic change and explores possible policy measures to address rural problems. The book suggests that the rural change goes far beyond the well-publicized problems of agriculture. The book concludes that rural policymakers have a fundamental choice: ease the transition that market forces are prompting or promote rural development within a carefully crafted rural policy.

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