Monetary Policy Transmission: Through Money or Credit?

*Ben Bernanke**

Aspirin is one of our most effective, versatile, and widely used drugs. Yet doctors do not completely understand how this important tool of their trade works. Economists are in a similar position with respect to monetary policy. Federal Reserve actions seem to have important effects on the macroeconomy, but precisely why is one of the most poorly understood and contentious issues in economics.

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The prevailing economic wisdom traces out the following "monetary transmission mechanism": 1) the Fed adds reserves to the banking system; 2) banks create more money; 3) the added liquidity reduces market interest rates; and 4) the lower market rates and greater liquidity encourage new spending. This chain of reasoning has led to the popular focus on the money supply and market interest rates as indicators of Fed policy. But this standard "money view" has proven misleading on occasion, and recently some economists have begun to take a different perspective on how policy works.

The alternative approach emphasizes that in the process of creating money, banks extend

credit (make loans) as well, and their willingness to do so has its own effect on aggregate spending. Advocates of this "credit view" can point to a number of episodes in which the volume of bank lending seems to have had an independent impact on the economy. They suggest that the Fed keep an eye on the volume of bank loans, as well as the money supply and interest rates, when setting policy.[1]

THE TRADITIONAL VIEW IS THAT IT'S THE MONEY THAT MATTERS...

Mainstream economists see the financial system essentially as a "market for money" — a market where the public's demand for money interacts with the supply of money, which is controlled by the Fed and the banking system, to determine market interest rates. The level of market interest rates, in turn, helps determine how much households and businesses decide to spend on new goods and services. From this perspective, it is the Fed's actions to control the money supply that influence developments in the economy.

A Market for Money. According to the money view, people face a fundamental financial decision: how much of their portfolio to devote to money, with which they can make purchases, and how much to devote to the other, less liquid assets, which presumably offer a higher yield. The higher the volume of expenditures people intend to make, the greater their demand for money; the higher the interest rates on alternative financial assets, the less money they demand.

Banks supply the public with the money it wants in the form of deposits. Banks "sell" people these deposits in two ways: by making loans and by buying marketable securities. When a bank makes loans, it gives deposits to the customers it considers creditworthy in exchange for their IOUs. When a bank goes into the financial markets and buys Treasury bills or other types of securities, it gives the asset holders deposits in exchange for these claims. Supplying deposits in this way is a profitable undertaking for banks, because the interest rates they earn on the loans and securities they add to their asset portfolios are higher than the interest rates they pay on the relatively liquid deposits they issue. But the amount of money that the banking system can supply is limited, because banks are required to hold reserves in proportion to their outstanding checkable deposits and the Fed controls the available supply of reserves.

In the money view, the important thing is not how banks create money, but how much they create. Proponents of this view see financial markets settling at a level of interest rates that reconciles the public's demand for money with the supply that banks can make available. For instance, if banks can create more deposits than the public wants to hold at current interest rates, the banks can sell more deposits to the public by offering loans at lower interest rates. Alternatively, banks can offer to pay more for securities in the open market, thus bidding down the yield on these instruments.[2] Either way, banks effectively eliminate the excess supply of money by reducing interest rates.

Similarly, banks tend to eliminate any excess demand for money by raising interest rates. If banks find that they have insufficient reserves to meet the public's demand for deposits, they must reduce their "sales" of deposits to the public.

[1] An important recent statement of the credit view is given by Alan Blinder and Joseph Stiglitz in "Money, Credit Constraints, and Economic Activity," *American Economic Review* (May 1983). This approach has a long history, however, with contributions having been made by many economists. The analysis here draws heavily on Ben Bernanke and Alan Blinder, "Credit, Money, and Aggregate Demand," *American Economic Review* (May 1988).

[2] Banks hold U.S. Treasury and municipal securities, so they would be bidding up prices in the markets for these assets directly. But to the extent that market participants view all marketable assets as substitutes, all asset prices will rise together (or, equivalently, all their yields will fall together).

So they discourage the public from taking down loans by raising loan rates. Or they offer to sell securities from their portfolios to the public at lower prices (in exchange for deposits), thus bidding up yields on these instruments.

The Money View of How Policy Works. Given this perspective on financial markets, the channel through which a change in Fed policy affects economic performance is easy to trace. Suppose, for example, that the Fed wants to pick up the pace of economic activity. Its first move is to increase commercial bank reserves. The increase in reserves gives the banks the "raw material" they need to issue new deposits. But just because banks can supply more deposits will not mean that the public will automatically demand more deposits for their portfolios. Banks must sell the new deposits to the public by cutting loan rates and bidding down interest rates on other market instruments. The lower interest rates increase the amount of money the public demands.

The impact of the increase in bank reserves shows up very quickly in the financial markets. The impact on the markets for goods and services occurs more slowly, but gradually the lower interest rates stimulate spending. Consumers increase their outlays on houses, cars, and other durables. Businesses increase their expenditures for new plant and equipment. And the higher spending, in turn, increases the level of economic activity and raises GNP.

...BUT PERHAPS MONEY CAN'T TAKE ALL THE CREDIT

Proponents of the credit view do not exactly disagree with those who hold the money view. They just think that the money view does not go far enough in recognizing the pivotal role of banks (and other financial intermediaries) in the economy. The money view treats bank deposits as special because the public uses them as money. Proponents of the credit view argue that bank loans deserve special treatment, too. They emphasize the qualitative difference between a borrower going to a bank for a loan and a borrower raising funds by going to the financial markets and issuing stock or floating bonds. Taking this difference into account yields what credit view proponents consider to be a clearer picture of the transmission mechanism that links Fed actions to the overall level of economic activity.

Why Treat Bank Loans Differently? In what sense are bank loans "special"? And why should banks' decisions about how much lending to do influence overall economic performance? The answer is that banks frequently make loans to individuals and businesses who would find borrowing in the open market prohibitively expensive. Banks thus finance consumption and investment expenditures that would otherwise not take place.

The source of banks' special role is the fact that any transaction between a borrower and a lender involves costs. The lender has to collect enough information about the borrower's credit history and income potential to assess his creditworthiness. Then repayment schedules and the other conditions of the agreement must be formalized. Once the transaction takes place, the lender must monitor the borrower's performance.

Because banks specialize in such transactions, they can hold the costs of lending to a minimum. With their larger scale of operations and their expertise in lending procedures, banks can profitably supply loans at a much lower cost and hence a lower interest rate than could, say, individual private investors.

This is not to say that banks have a significant cost advantage in all types of lending. But in situations where transactions costs are high, the availability of bank loans can make the difference for a potential borrower. For example, when a billion-dollar company routinely borrows on a set of standardized terms, the transactions costs are so small that the company can offer its IOUs directly to the general public and find willing lenders at relatively low interest rates. On the other hand, if a small local firm wants to borrow a million dollars in order to double the size of its facility, the general public would probably

reckon the transactions costs to be so large that the interest rate it would require would be extremely high. In this circumstance, the firm would be forced to abandon the project—or turn to a bank for a loan. Indeed, as a practical matter, bank loans may be the only source of funds for many small firms trying to borrow.[3] Even firms large enough to issue marketable securities may seek bank loans in circumstances where they need the flexibility bank lending arrangements can provide.

In short, bank loans are special because they represent the primary source of funds in situations where the amount of information and communication needed to complete the transaction is high. And because these situations are common, at least in the credit view, banks' willingness to make loans has a potentially powerful impact on spending and the economy.[4]

A Market for Bank Loans. The money view focuses on banks' role as suppliers in the market for money; the credit view explicitly considers banks' role as suppliers in the market for loans, as well. According to the money view, the volume of deposits that banks supply helps determine the overall level of interest rates. According to the credit view, the volume of loans that banks supply helps determine how close interest rates on loans come to the rates on marketable securities.

To see how banks' decisions affect the relationship between effective loan rates (interest rates on bank loans that take account of other fees, charges, or restrictions) and open-market interest rates (interest rates on marketable securities, such as corporate bonds or commercial paper), consider the market for bank loans.

On the supply side of the market are the banks. The stock of reserves that the Fed makes available to them constrains the volume of deposits that banks can book on the liability side of their balance sheets. But they still must decide how to handle the asset side. How many loans should they hold in their portfolios? How many securities? Their decision depends on, among other things, interest rates. The wider the spread between the interest rate they can charge on loans and the interest rate they can earn on securities, the greater the share of their portfolios they will devote to loans. The upward-sloping supply schedule in Figure 1 captures the idea that the higher the loan rate, the more loans banks are willing to make, everything else, including open-market rates, constant.

On the demand side of the market for bank loans are businesses and households trying to finance their purchases of various goods and services. Some of these potential borrowers have no alternative but to approach a bank. If they do not get a loan from a bank, they do not borrow at all. Other potential borrowers have access to the open market. They can choose between taking down a loan and issuing their own securities. The downward-sloping demand curve in Figure 1 summarizes both groups' reaction to bank loan rates. The higher the rate on bank loans, the less the bank-dependent households and businesses choose to borrow, and the less the firms with open-market access choose to borrow at banks. So the total demand for bank loans declines as loan rates rise, everything else, including open-market rates, constant.

The prevailing bank loan rate is determined by the interaction of the supply and demand for loans. In equilibrium, the bank loan market settles at the loan rate that equates supply and demand, shown as ρ^* in Figure 1. Should any of the other factors affecting the supply or demand for loans change, their impact on the loan rate is registered through the workings of the loan market.

For example, Figure 2 shows the impact of a decrease in open-market interest rates. Banks,

[3]Similarly, banks (along with savings and loans) are an important source of loans to consumers.

[4]For more complete discussions of the economics of bank lending, see Christopher James, "Are Bank Loans Special?" Federal Reserve Bank of San Francisco *Weekly Letter* (July 24, 1987), and Mitchell Berlin, "Bank Loans and Marketable Securities," this *Business Review* (July/August 1987). See also Eugene Fama, "What's Different About Banks?" *Journal of Monetary Economics* (June 1985).

seeing that they would now earn a lower return on securities, are more willing to offer loans, so the loan supply curve shifts right. Meanwhile, firms with access to the credit markets, seeing that they can now pay lower rates on the securities they issue, are less willing to borrow from banks, so the loan demand curve shifts left. The combination of weaker demand and stronger supply depresses the bank loan rate. How much loan rates must fall in response to lower open-market rates depends on how sensitive banks' loan supply and the public's loan demand are to open-market interest rates.

A change in the stock of reserves that the Fed makes available to the banking system can also have a direct effect on the market for bank loans. If the Fed increases the stock of reserves, then banks will be able to create more deposits. To the extent that banks choose to use this opportunity to increase the size of their loan portfolios, the loan supply curve shifts right, as shown in Figure 3. Thus, the increase in reserves tends to reduce bank loan rates.[5]

The Credit View Better Explains How Policy Works. Taking account of the market for bank loans explains more completely the transmission mechanism through which Fed policy actions affect the economy. Suppose, for instance, the Fed decides to stimulate the economy by increasing bank reserves. With more reserves on hand, banks seek to increase deposits. If banks seek to expand their deposits primarily by buying up securities in the open market, they drive up the price of securities and drive down open-market interest rates. This decline in open-market rates works through the loan market to induce some sympathetic decline in bank loan rates, as well. But the primary impact of the policy action will be to encourage new spending by firms with access to financial markets.

On the other hand, if banks expand their deposits mostly by offering to supply more loans,

FIGURE 1

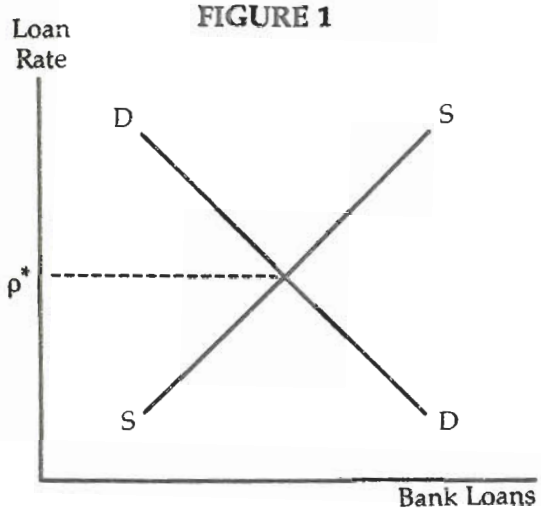


FIGURE 2

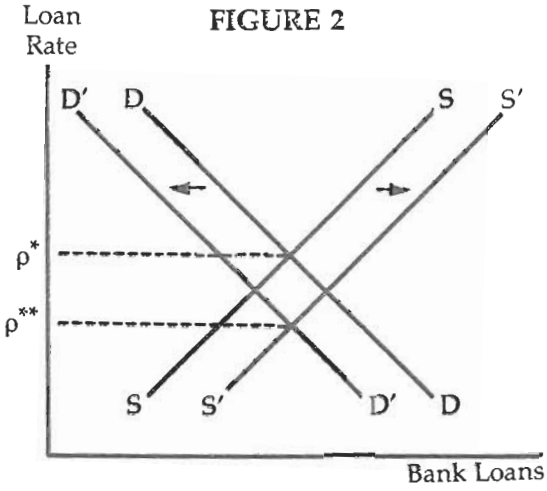
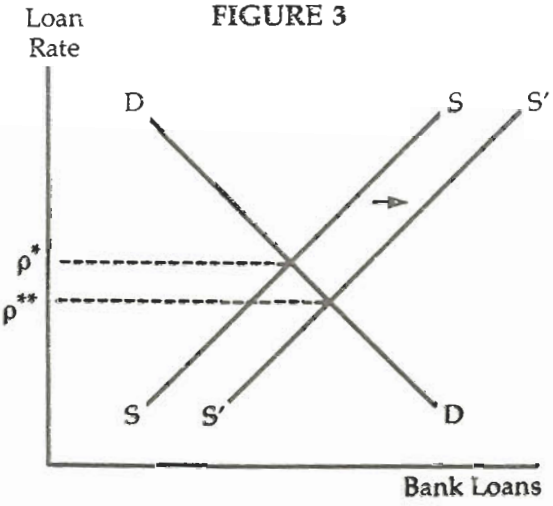


FIGURE 3



[5]In addition, the increase in reserves would reduce loan rates indirectly, through its effect on open-market rates.

the primary effect of the increase in reserves will be to depress interest rates on loans. If the lower loan rates induce some firms to borrow less in the open market, then there may be some sympathetic decline in open-market interest rates. But the dominant impact of the expansionary policy will be to stimulate new spending by the bank-dependent sector.

In short, the credit view is consistent with the money view that an expansionary Fed policy reduces the overall level of interest rates. But the credit view emphasizes that banks' decisions about how to manage their asset portfolios determine whether the policy's impact will fall primarily on open-market interest rates or on effective bank loan rates. And this, in turn, determines which sectors of the economy increase their spending most in response to Fed stimulus. (See MONEY VERSUS CREDIT IN THE IS-LM MODEL.)

IF THE CREDIT CHANNEL SHUTS DOWN, THE ECONOMY SUFFERS

Perhaps more important than the credit view's insight into what happens when the Fed changes its behavior is its insight into what happens when the banks change theirs. Suppose banks suddenly curtail their lending and decide to hold open-market securities instead. Taken literally, the standard money view predicts that the banks' portfolio shift would have no effect on the economy at all. In this view, bank loans and marketable securities are essentially interchangeable, so borrowers who had been going to a bank for loans would simply go to the financial markets and issue securities instead. Overall interest rates and the level of spending would remain the same. According to the credit view, however, this prediction is unacceptably unrealistic.

Proponents of the credit view claim that banks' decisions to curtail lending would curtail private-sector spending and depress GNP. In the loan market, banks' decisions to hold fewer loans push up the prevailing loan rate and reduce the volume of bank lending. For bank-dependent households and firms, taking down fewer bank loans means spending less on goods and services. And because the decline in bank lending depresses spending, GNP falls. In addition, the decline in spending motivates people to keep less money in their portfolios and to hold more interest-bearing financial assets. The increase in demand for these assets pushes up their prices, driving down their yields. So according to the credit view, a decline in banks' willingness to lend actually reduces GNP and open-market interest rates at the same time.[6] (See A "CREDIT CRUNCH" IN THE IS-LM MODEL, p. 10.)

A View With a Basis in History. This analysis of a fall in banks' willingness to lend is not a purely academic exercise; it is a good description of events in the United States during the downward phase of the Great Depression. During this period, widespread bank runs and financial panic caused banks to scramble for liquidity and safety in their portfolios; they reduced lending as much as possible in order to hold safe and marketable securities. The heavy demand for open-market securities drove the yields on these securities down to record-low levels, giving the false impression that financial conditions were "easy." However, prices of illiquid and risky assets plummeted, loans were difficult to get (even for the dwindling number of solvent borrowers), and spending fell sharply. All of this is consistent with the credit-based model.[7]

Economists had a more recent opportunity to observe what happens when the credit channel

[6]Again, it should be emphasized that if banks are not "special," reduced bank lending would be irrelevant; the shift would just be offset by a reshuffling of the portfolios of banks and other providers of credit, including households. Ultimately, the real economic effects of reduced bank lending under the credit view stem from the loss of valuable intermediary services that occurs when banks cut back lending.

[7]Ben Bernanke, "Non-Monetary Effects of the Financial Collapse in the Propagation of the Great Depression," *American Economic Review* (June 1983) presents this case in greater detail.

Money Versus Credit in the IS-LM Model

The textbook IS-LM model provides a good way to summarize the money-versus-credit debate. The standard IS-LM diagram is illustrated in Figure A. The IS curve shows combinations of interest rates and output levels that keep the markets for goods and services in equilibrium. Its downward slope captures the idea that low interest rates generate an increase in spending sufficient to sustain higher levels of output of goods and services. The LM curve shows the combination of interest rates and output levels that keep the supply and demand for money in balance. It slopes upward because, when output and spending are high, the demand for money is high. As a result, interest rates must be high to equate demand with the existing supply. The intersection of the IS and LM schedules shows the open-market interest rate and spending levels, i^* and y^*, at which both the market for goods and the market for money are in balance.

The standard money view of how Fed policy affects the economy is shown in Figure B. An increase in reserves by the Fed raises the money supply. At any given level of spending, the public must be induced to hold the extra money, which requires that interest rates fall. Graphically, the LM curve shifts down and to the right. So with an increase in the money supply, the economy settles at a lower open-market interest rate, i^{**}, and a higher level of output, y^{**}.

Advocates of the credit view agree that Fed policy shifts the LM curve. However, they argue that Fed policy shifts the IS curve as well, because aggregate spending depends on loan market conditions. When banks elect to increase deposits by supplying more loans, this raises the amount that bank-dependent firms spend at any given open-market interest rate; thus, the IS curve shifts right. Both of these shifts raise the level of output, but the overall impact on market interest rates is ambiguous. If LM shifts more than IS, market rates will fall; if IS shifts more than LM, market rates will rise. Figure C shows the result of an equal shift in IS and LM: output is higher and market interest rates are unchanged.

FIGURE A

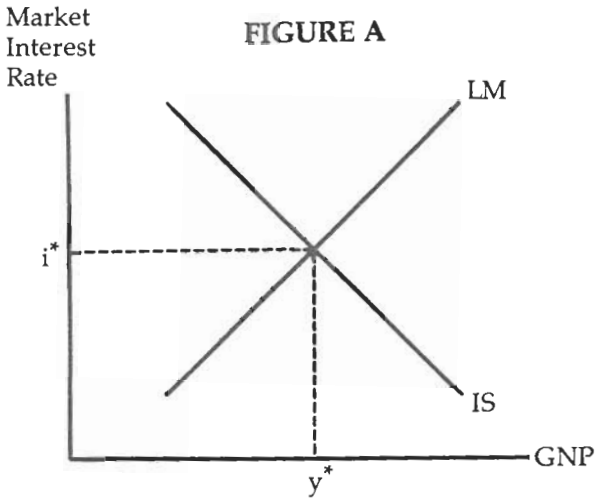


FIGURE B

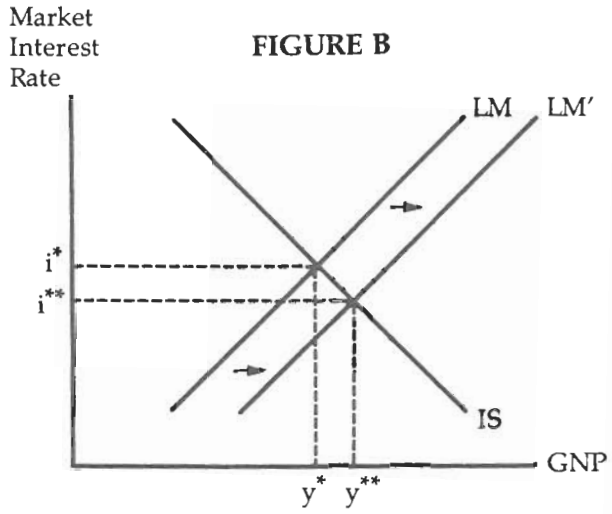
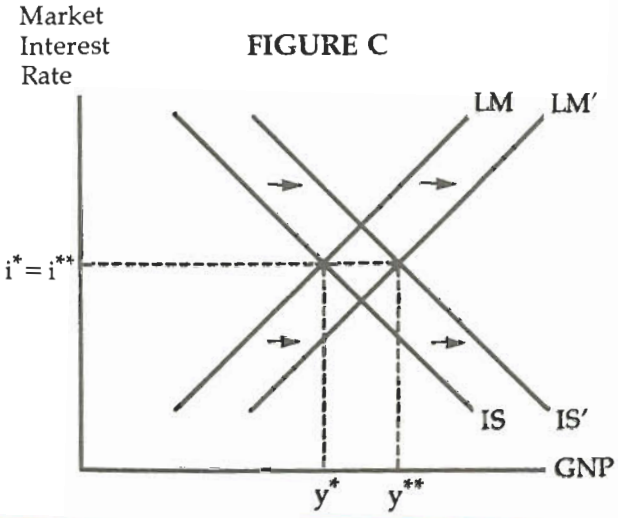
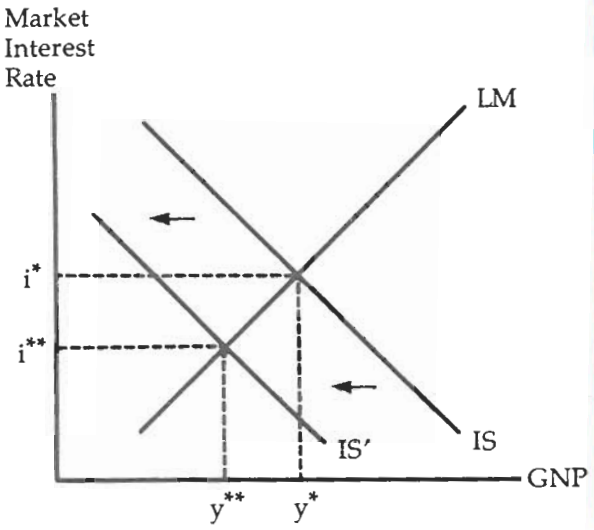


FIGURE C



A "Credit Crunch" in the IS-LM Model

The effects of a change in banks' willingness to supply loans can also be illustrated in IS-LM terms. Under the standard money view, such a change would have no effect. Under the credit view, a reduction, say, in banks' loan supplies reduces the amount of spending that is done at any given open-market interest rate. Thus, IS shifts left (see figure). Output and open-market interest rates fall. As stated in the text, this may be a good description of the early stages of the Great Depression or of the effects of credit controls.



shuts down. Early in 1980, the Carter Administration authorized the Fed to impose direct controls on consumer lending by banks, department stores, oil companies, and other businesses. These credit controls, which were designed to slow the growth of consumer credit, were part of an overall anti-inflation strategy. During the few months that the controls were in place, the contraction in the supply of bank lending and other forms of consumer credit reduced aggregate spending. The economy fell into a recession while open-market interest rates declined. Again, these results cannot be explained by the money view, but are perfectly consistent with the credit view.

CONCLUSION

The credit view's most obvious implication for the Fed is that monetary policy actions can have an insignificant impact on market interest rates and still have substantial effects on GNP.[8] And as we have seen, if banks' willingness or ability to extend credit are substantially impaired, declining market interest rates may even portend a decline in GNP rather than an increase.

Ultimately, the credit view holds that the impact of Fed policy on the economy depends both on the amount of money banks create and on how much lending they do in the process. So it is not surprising that proponents of the credit view suggest that the Fed look at both money and credit aggregates when judging a policy's impact. If both are growing strongly, then it is a safe bet that the economy is growing strongly; if both are growing slowly, then the economy is probably slowing too. But if money and credit are sending conflicting signals, then the Fed should concentrate more on controlling the supply of the aggregate that has shown a closer link to aggregate spending. And here credit may have the edge.

In recent years, the money supply has proven a very unreliable indicator of Fed policy, mainly because regulatory change has been shifting the public's demand for money so much. With the introduction of NOW accounts, super-NOW accounts, and money market deposit accounts, the public has been afforded a variety of ways in which to hold money without completely forgoing interest income. As a result, the public's demand for money has been increasing, in fits and starts, over the last 10 years. This shifting

[8]It must be emphasized that the problem alluded to here is different from the well-known problem of distinguishing between real and nominal interest rate movements.

demand for money makes it difficult for the Fed to determine the supply of money that would achieve its economic goals.

In principle, the demand for credit can be unstable at times, just as the demand for money can be. For example, a shift by firms from bank loans to open-market finance (such as commercial paper) would tend to reduce loan growth that would normally accompany a given rate of economic expansion. But there is at least some evidence that credit demand has been more stable than money demand since the deregulation process began in 1980.[9] If so, then credit should be getting more attention these days.

[9]See Bernanke and Blinder (1988) and James S. Fackler, "Should the Federal Reserve Continue to Monitor Credit?" Federal Reserve Bank of Kansas City *Economic Review* (June 1988).