Are Bank Loans a Force in Monetary Policy?

By Donald P. Morgan

Federal Reserve monetary policy has eased considerably over the last two years. As policymakers have increased the supply of reserves to banks, short-term market interest rates have dropped to a 20-year low. According to the traditional *money view* of monetary policy, these actions should have led to a marked pickup in economic activity. Thus far, however, the economic recovery remains notably sluggish.

The economy's sluggish response to monetary policy ease is nonetheless understandable from the standpoint of the *credit view* of monetary policy. According to this view, the force of monetary policy depends partly on the willingness of banks to lend. If banks are cautious about lending, as they have been recently, then lower market interest rates may pack a weaker economic punch than in the past.

This article examines both the credit view of monetary policy and the money view. The first section explores why bank credit, not just money, may carry the force of monetary policy. The second section evaluates some new evidence on the credit view. The third section discusses the relevance of the credit view for the current economic recovery. The article concludes that while credit channels usually magnify the effects of monetary policy, the current weakness in the banking sector may have partly blocked these channels. As a result, the credit view helps explain why the economy has remained sluggish despite a considerable easing of monetary policy.

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WHY CREDIT MATTERS

Sharp drops in bank lending have periodically staggered the economy over the last century. These episodes cast doubt on the traditional money view that only a change in the supply of money transmits monetary policy. According to the alternative credit view, changes in the supply of bank loans may also carry the force of monetary policy.

Credit crunches

Drastic declines in the supply of bank loans, or credit crunches, have punctuated economic history in America. In the past, credit crunches resulted from bank runs and from the combination of tight monetary policy and ceilings on bank deposit rates. More recently, a shortage of bank capital may have caused a credit crunch (Bernanke and Lown; Johnson).[1]

Before deposit insurance was introduced, credit crunches were often triggered by "runs" on the banking system. Depositors, hearing rumors that their bank might fail, raced to withdraw their

bank savings. But, with much of its money invested in long-term loans, the bank could not pay all of its depositors at once, often forcing the bank to fail. And because one bank invariably owed another bank money, bank failures "dominoed" across the country. The rampant bank failures halted bank lending and, with it, economic activity.

Deposit insurance eliminated bank runs after 1933, but credit crunches continued periodically. In the 1960s and 1970s, for example, tight monetary policy caused lending to drop whenever the Federal Reserve pushed interest rates above the level banks were allowed to pay depositors. Lured to higher market interest rates elsewhere, depositors withdrew their money from banks, forcing banks to cut back their lending. Crunches such as these ceased in the early 1980s when banks were permitted to pay market interest rates to depositors.

As recent events suggest, however, not even the deregulation of deposit rates has ended credit crunches. In the past several years, banks have suffered huge losses on loans to developing countries, agriculture, energy, and most recently, real estate. These losses have eroded banks' capital, while regulators have raised the minimum permissible ratio of capital to assets. The only way for many banks to increase their capital-asset ratio has been to shrink their balance sheets—that is, to sell assets, reduce deposits, and halt lending. The aftermath has resembled earlier credit crunches, only this time a capital shortage may be to blame.

These episodes provide support for the credit view, reminding analysts and policymakers that bank lending appears to matter very much indeed. Whatever the cause of these crunches, most have occurred a few months before or after the onset of recession. These crunches alone, however, are not proof that credit helps transmit monetary policy. In each episode, the growth of money also fell dramatically. So the recession attending each crunch could have resulted entirely from the decline in money.

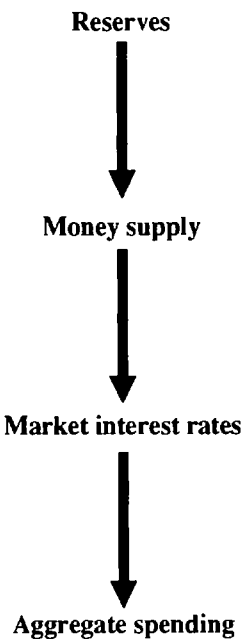
Money versus credit

Understanding the credit view requires examining the roles of both money and credit in the transmission of monetary policy. Both the credit view and the money view acknowledge a common money channel of policy. But, according to the money view, only money matters. Reduced availability of bank loans does not matter because firms can supposedly maintain their spending by borrowing elsewhere. According to the credit view, however, bank loans do matter. Many firms rely on banks for credit—thus, bank loans are *special.* If true, monetary policy may be amplified through credit channels.

In describing the two views, this article uses simple, abstract models. While these models help explain the role of money and credit in the economy, they ignore much of the complexity inherent in the actual conduct of monetary policy.[2] In addition, for ease of exposition, this article discusses the two views by focusing on the effects of a *tightening* of monetary policy. This focus is shared by most other studies of the credit view.

The money view. In the money view of the monetary transmission mechanism, the effects of tightening monetary policy take place in two stages (Figure 1). In the first stage, the Federal Reserve pushes up market interest rates by reducing the supply of money. This stage begins when the Fed sells government securities to the public in exchange for checks drawn on private banks in the economy. As the Fed debits the reserve accounts of these banks, reserves in the banking system fall relative to deposits. If reserves fall below the Fed's legal reserve requirements, the banking system as a whole must reduce its holdings of deposits. As a result, the supply of money in the form of bank deposits falls. But because the demand for money has not changed, market interest rates rise to allocate the smaller supply of money. Interest rates continue to rise until people are satisfied holding fewer deposits and more government securities.

Figure 1
The Money View of the Monetary Transmission Mechanism



In the second stage of the transmission mechanism, higher market interest rates reduce spending in the economy. Business investment on plant and equipment declines in the face of higher borrowing costs. Consumer spending also falls, particularly spending on housing and durable goods (such as furniture and cars) that people often buy on credit.

According to the money view, the transmission mechanism ends here.[3] Spending declines only because market interest rates rise, and market interest rates rise only because the Federal Reserve reduces the supply of deposits when it tightens policy. Whether banks reduce lending after their deposits decline is irrelevant in the money view. If banks do cut back on loans, firms who borrowed from banks before policy was tightened will instead borrow at similar terms in the bond market or commercial paper market. In other words, the money view assumes that firms can maintain their desired level of spending simply by switching from bank loans to other sources of credit.

The credit view. The credit view holds that bank loans are special because some firms may not be able to find other sources of credit. While large, reputable firms can borrow in the commercial paper and bond markets, smaller, less-established firms may rely solely on banks for loans.

The credit view describes a pecking order in credit markets, with firms ranked according to their size and reputation. Size is important because the credit markets require collateral to secure a loan—collateral that a smaller firm may not have. And reputation is important because, unless a lender can monitor a firm's operations, the lender must rely on the firm's history of business

decisions—a reputation that younger firms lack.

At the top of the pecking order are the largest, most established firms in the economy—companies able to pick and choose where they borrow. For example, a recent study found that manufacturing firms with plant and equipment worth more than $1 billion obtained less than 15 percent of their long-term credit from banks (Gertler and Hubbard).[4] These "blue-chip" firms can easily offset a decline in bank lending, even a crunch, by switching to the bond market or to the commercial paper market.

Beneath these blue-chip companies are companies that rely primarily on banks for credit. For example, medium-sized firms with plant and equipment worth between $100 million and $1 billion were found to obtain about 45 percent of their long-term credit from banks. Still smaller companies with less than $100 million in plant and equipment relied on banks for roughly 70 percent of their long-term credit (Gertler and Hubbard).

Among firms that rely on banks for credit, a second pecking order emerges, based on whether firms obtain a loan commitment. Loan commitments, such as a line of credit, assure firms they can borrow up to some limit for a certain period of time. Bankers indicate that an important reason firms obtain commitments is to protect themselves from a credit crunch. Yet banks appear reluctant to grant commitments to smaller, fledgling firms.[5] For example, a recent survey revealed that 60 percent of medium-sized firms with 50 or more employees had a loan commitment, while only 27 percent of smaller firms had a commitment (Ellihausen and Wolken). During a credit crunch, then, small firms without commitments may get served last or not at all. For such companies, bank loans are special.

The credit channels of monetary policy

When bank loans are special, tight monetary policy can be amplified through at least two credit channels. The *direct channel* works through the reduced willingness of banks to lend at the going market interest rate. The *indirect channel* works through the effect of higher market interest rates on banks' willingness to lend.

The direct channel. Monetary policy is transmitted through a direct credit channel if changes in bank reserves directly affect the supply of bank loans (Figure 2). As in the money view, tighter monetary policy begins when the Federal Reserve drains reserves from the banking system, which in turn forces banks to reduce their deposits. As banks reduce deposits, they must also reduce their holdings of loans and securities. To the extent banks trim their loans, borrowers who rely on banks for credit must reduce their spending.[6]

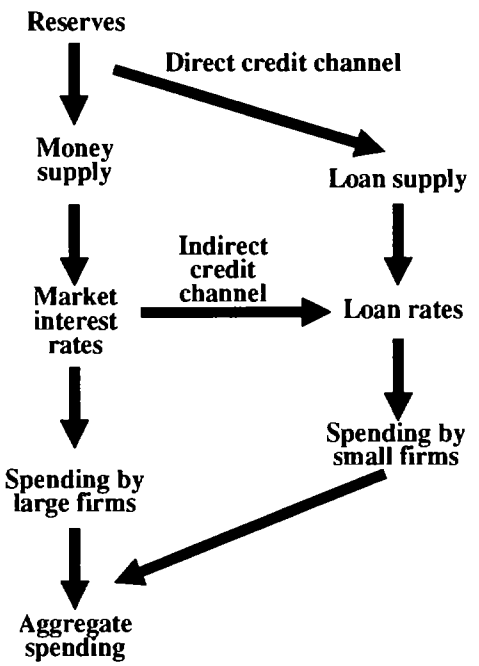
Monetary policy is amplified through this direct credit channel because spending declines more than in the money view, where borrowers are supposed to offset the decline in bank lending by borrowing elsewhere. The channel is direct because it does not depend on how much, or whether, market interest rates rise. Even if market interest rates did not rise for some reason, the reduced supply of bank loans would still reduce spending.[7] Indeed, this credit channel can operate independently of monetary policy. If banks decide to cut back their supply of loans irrespective of monetary policy, economic activity will decline.

The indirect channel. Monetary policy may also be amplified through an indirect channel. The indirect channel operates when a rise in market interest rates following a tightening in policy causes a further increase in loan rates (Figure 2).

As in the money view, when the Fed drains reserves from the banking system, market interest rates rise.[8] Thus, even if lower reserves do not directly force banks to raise loan rates, the rise in market interest rates will. In the money view, banks raise their loan rates only enough to cover the increase in their cost of funds resulting from higher market interest rates. If banks tried to raise their rates any higher, firms would simply switch to other credit markets.

In the credit view, however, loan rates rise

Figure 2
The Credit View of the Monetary Transmission Mechanism



more than market interest rates because higher rates make borrowers more prone to default. Default risk increases because higher loan rates increase a borrower's total debt burden, which, all else equal, increases the likelihood that the borrower's profits will not cover its debt payments. To compensate for the higher default risk, banks must raise loan rates more than is required simply to cover the higher cost of funds. Banks may also tighten other terms of lending, such as collateral requirements and the size and maturity of loans.

It is true, of course, that market interest rates may also increase due in part to default risk. But in the credit view, banks will raise loan rates and tighten other lending terms more than lenders in capital markets (Gertler and Gilchrist). They will do so because the default cost of bank borrowers, relative to the amount borrowed, is higher than the default cost of capital market borrowers. Default costs will be relatively higher for banks, which specialize in lending to small firms, because the administrative costs of bankruptcy are to some extent fixed.[9] In other words, for a small firm, the cost to administer bankruptcy proceedings is larger, relative to the amount borrowed, than for a large firm. Thus, an increase in market interest rates will lead banks to tighten their lending terms more than capital market lenders.[10]

The indirect credit channel of tighter lending terms at banks amplifies monetary policy because spending declines more than it would if bank borrowers could borrow under relatively easier terms in other credit markets. The channel is indirect because it operates only to magnify the effect of higher market interest rates. If for some reason

market interest rates did not rise after policy was tightened, banks would not tighten their terms of lending, all else equal.

DOES CREDIT MATTER?

In investigating whether credit matters in transmitting policy, researchers focus on three questions. Does the behavior of money and loans after a change in policy support the money view or the credit view? Do small firms respond more than large firms to monetary policy? And, does the supply of loans still depend directly on reserves?

Why money before loans?

Two recent studies have uncovered a key fact: after policy is tightened, money growth slows immediately, while loans and output slow several months later. The authors of the studies interpret this fact differently. Bernanke and Blinder (1989) take the credit view, arguing that because loans and output decline together, slower output may result in part from slower lending. In other words, policy does not reduce output until the supply of bank loans declines. Romer and Romer take the money view, arguing that because money declines before output, slower money causes output to fall. Reduced output then reduces the demand for loans.

Choosing the correct interpretation requires understanding why money declines before loans when policy is tightened. Bernanke and Blinder speculate that loans may decline with a lag because firms continue to borrow under loan commitments arranged before policy was tightened. Banks can refuse loans only to smaller firms without commitments and to firms whose commitments have expired.

One test of this possibility is to see whether the proportion of business loans made under commitments rises when monetary policy is tightened. In fact, increases in the federal funds rate, which Bernanke and Blinder associate with tightened monetary policy, are accompanied by increases in the share of business loans made under commitment (Chart 1).[11] This fact supports the possibility that credit commitments explain the lag between monetary policy and loans.

Romer and Romer, however, find evidence against this possibility. They reason that during periods of tight monetary policy, banks may refuse to grant new commitments. Thus, if loan commitments explain the lag, the amount of borrowed commitments should depend on the amount of unused commitments arranged before policy was tightened. Romer and Romer find no such relationship, however, either in general or following a monetary contraction.[12] They conclude that the lag between tight policy and slower lending does not merely reflect continued borrowing under loan commitments.

In view of these conflicting results, explaining the lag between a tightening in monetary policy and the subsequent decline in loans will require further research. Until then, it seems unclear whether the relative timing of money and loans supports the credit view.[13]

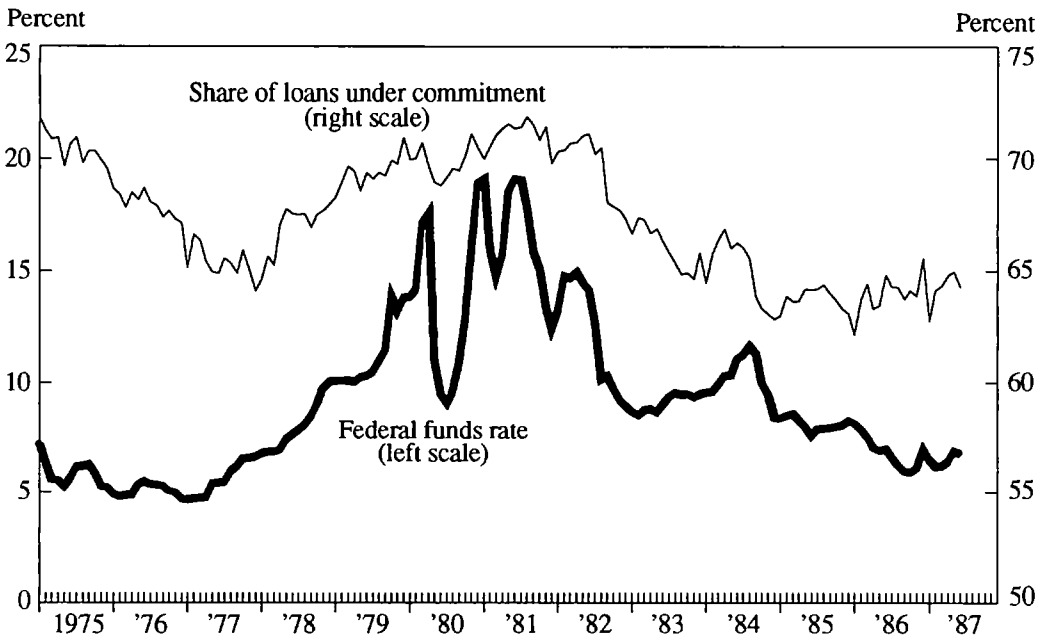
Do small firms respond more to monetary policy?

Clearer evidence for the credit view comes from recent cross-sectional studies. One study compares the sales of small firms to the sales of large firms after a change in policy. Another study compares the spending behavior of firms with loan commitments to smaller firms without commitments. These studies support the credit view and avoid the risk of interpreting (or misinterpreting) the relative timing of money and loans after a tightening in policy.

Gertler and Gilchrist reason that since small firms bear the brunt of the credit channels, they should respond more than large firms to monetary policy. To test this reasoning, they compare the impact of tight monetary policy on small manufacturing firms—firms with assets less than $25 million—and larger manufacturing firms during the period from 1959 to 1990. They find that in the two and one-half years following a change to tighter monetary

Chart 1

The Federal Funds Rate and Commitment Lending



Source: Data on the Federal funds rate and loans made under commitment are monthly and come from the Board of Governors of the Federal Reserve System. Data on total business loans, also monthly, are from the Federal Reserve Bank of St. Louis.

policy, annual sales growth of small firms was more than four percentage points lower than sales growth of large firms.

Gertler and Gilchrist then examine the source of this different impact of monetary policy on small and large firms. They find that while bank loans to small firms declined after policy was tightened, lending to large firms actually increased. This finding suggests that the supply of bank loans to small firms dried up, perhaps because they did not have loan commitments.[14]

Another recent study suggests that the availability of bank loan commitments does affect firms' behavior, providing further evidence for the credit view (Morgan). The study compares the investment behavior of firms with bank loan commitments to smaller firms without commitments over the 1980-84 period, a turbulent period covering a tightening of monetary policy in October 1979 and a credit crunch in 1980. Firms with loan commitments maintained their investment spending when their cash flow declined. This finding suggests these firms were able to borrow from the bank, or in other credit markets, to offset reduced cash flow. When firms did not have a bank loan commitment, however, their investment declined whenever their cash flow declined.[15] The dependence of their investment spending on cash flow suggests they were unable to borrow from banks to finance their spending.

Does loan supply depend on reserves?

While cross-sectional evidence supports the credit view, it does not identify the relative importance of direct versus indirect credit channels. In fact, the ability of banks to fund loans with certificates of deposit (CDs) may block the direct credit channel (Romer and Romer). Because banks can now fund loans by issuing CDs, which no longer require reserves, a change in reserves may no longer directly affect the supply of loans.[16] That is, when reserves decline banks can substitute CDs for demand deposits without reducing their lending.

Not all researchers agree on this point. Smaller, undercapitalized banks may not be able to issue all the CDs they need at the market interest rate (Gertler and Gilchrist). Such banks face a risk premium in the CD market, just as small, little-known firms face a risk premium at banks. For such banks, a loss in reserves may directly reduce their willingness to supply loans.[17] Whoever is right, it is important to note that Romer and Romer argue only that CDs block the direct credit channel. They do not dispute the indirect channel described by the credit view.[18]

The evidence marshaled above generally supports the credit view. Although evidence on the relative timing of money and loans is ambiguous, cross-sectional evidence on small and large firms suggests that credit does matter. The ability of banks to fund loans with CDs, however, may mean that credit matters primarily through the indirect channel.

A CREDIT VIEW OF THE CURRENT RECOVERY

The credit view helps explain why the economy has responded sluggishly to easier policy in the current recovery. Although credit channels should act to amplify easier monetary policy, in the current recovery these channels may be partly blocked. In particular, the combined effect of high loan losses and new capital requirements may leave banks reluctant to increase their lending.

Loan losses

A recent study examines how high loan losses at banks in a given state affect the state's income growth (Samolyk). Samolyk reasons that if banks in a state are burdened with bad loans, firms there may be short of credit, thereby slowing growth in the state.[19] She finds that from 1983 to 1990, higher loan losses in a state were generally associated with lower income growth in that state, even allowing for states' recent economic performance.

To sharpen her conclusion, Samolyk divides the sample into states with weak banks and states with strong banks, according to whether banks in a state had loan loss rates higher or lower than the national average. She finds that the rate of bank loan losses explains substantially more of the income growth in states with weak banks. She concludes that banks matter most when weak banks clog the credit channels.

Although Samolyk's sample period does not extend to the present, her results still seem to bear on the current recovery. Banks in some regions of the country, New England for example, are still staggering under high loan losses. Despite easier monetary policy, these banks may be reluctant to increase their lending, thereby dampening the recovery.

New capital requirements

While banks are currently struggling with high loan losses, they are also adjusting to stricter capital requirements. The stricter requirements reflect changes in both international and domestic banking standards. A committee of banking officials from 12 industrial countries recently endorsed risk-based capital requirements, which require banks to hold more capital against loans than against securities. U.S. bank regulators adopted this stand-

ard and independently imposed a minimum overall capital-asset ratio. Full compliance with both standards is required by the end of this year.[20]

The new capital requirements may block the direct credit channel of monetary policy. The higher overall ratio of capital to assets required under the new regulations may lead some banks to reduce their assets, both loans and securities. In that case, increasing bank reserves will not directly boost bank lending, so the impact of monetary policy will be weaker.

Basing capital requirements on risk further weakens monetary policy by blocking the indirect credit channel. In the credit view, easier policy should lower market interest rates and, in turn, ease the terms of lending at banks. Yet the risk-based capital requirements decrease banks' tolerance for risk, all else equal. Specifically, banks will have a stronger preference for securities than for loans. Therefore, easier monetary policy will ease the terms of lending by less than it did before capital requirements were changed, which diminishes the impact of monetary policy.

SUMMARY

According to the credit view, the force of monetary policy depends partly on banks' willingness to lend. A tightening of policy, for example, causes bank lending to slow, augmenting policy's traditional money channels. Although researchers disagree about whether the timing of money and loans after a change in policy supports the credit view, they generally agree that cross-sectional evidence suggests at least an indirect credit channel of monetary policy.

The credit view helps explain why the economy has responded only sluggishly to easier monetary policy. If banks are still struggling with high loan losses and stricter capital requirements, they will be reluctant to increase lending. This reluctance obstructs the credit channels, which weakens the impact of monetary policy. Of course the usual money channels are still open, so policy remains effective. The credit view merely explains why policy will be weaker and the recovery slower, if banks are reluctant to lend.

ENDNOTES

[1] Bernanke and Lown found a significant correlation between the decline in bank lending and the decline in bank capital, suggesting the sharp decline in lending near the beginning of 1990 did not merely reflect reduced demand for loans.

[2] The discussion of the money view is based on the traditional IS/LM model in which there is only one monetary aggregate. According to the model, easier monetary policy should lead to faster growth in "money" and lower market interest rates. In practice, defining an appropriate monetary aggregate is difficult. For example, the behavior of the three aggregates that have been monitored or targeted by the Federal Reserve—M1, M2, and M3—has sometimes diverged. While growth of the narrow monetary aggregate, M1, has accelerated in the last two years in response to easier monetary policy, growth of the broader monetary aggregates, M2 and M3, has remained subdued.

The discussion of the credit view is based largely on an extension of the IS/LM model in which bank loans are an imperfect substitute for other sources of credit. See Blinder and Bernanke for a formal discussion of this model.

[3] This article ignores possible wealth effects and exchange rate effects resulting from the change in market rates and the stock of money.

[4] Gertler and Hubbard obtain their data from the U.S. Department of Commerce, Bureau of the Census, *Quarterly Financial Report of Manufacturing, Mining, and Trade Corporations*, various issues. Net plant and equipment were valued in 1982 dollars.

[5] Duca draws this conclusion based on a Federal Reserve Board survey of loan officers. Kastantin came to the same conclusion after several years as a corporate treasurer. See Morgan (1989) for a discussion of the protection offered by commitments from a crunch.

[6] Unlike the money view, the credit view assumes banks will reduce their lending—not just their securities—when their deposits fall (Bernanke and Blinder 1986).

[7] Market rates would not rise, for example, if people could find perfect substitutes for bank deposits; in that case, *only* loans, not money, affect spending. Bernanke and Blinder (1988) note that market rates might even decline after policy is tightened because of the decline in spending resulting from the reduced supply of bank loans. In other words, the IS curve shifts more than the LM curve.

[8] In their version of the credit view, Romer and Romer argue that market rates rise more following a monetary contraction when bank loans are special. Banks drive market rates higher as they compete for reserves to maintain their lending, as well as their deposits. This possibility, which they ultimately reject, suggests a direct credit channel from reserves, to loan rates, then to market rates.

[9] The little evidence available on the magnitude of default costs suggests the costs are proportionately higher for small firms. For example, Warner found that in a small sample of failed railroad companies, the administration fees for bankruptcy were a larger share of the asset value of the smaller companies than of the larger companies. In a larger study of 1675 bankruptcy cases, Stanley and Girth reported that bankruptcy expenses take a very large part of the firm's assets in the smallest cases, but take a smaller fraction in the largest cases.

[10] The difference is magnified if the risk of default by bank borrowers increases more than for capital market borrowers when interest rates rise. Bank borrowers' default risk would increase more rapidly if higher interest rates lead them to engage in riskier activities to a greater extent than borrowers in capital markets. According to the credit view, such incentive problems are precisely why smaller, lesser-known firms must borrow from banks instead of in capital markets.

[11] In a separate study using a quarterly data series from 1977 to 1988, Berger and Udell also find the share of new business loans made under commitment rises when the T-bill rate increases. They questioned, however, whether the increase in the proportion was economically significant.

[12] Specifically, they found that growth in unborrowed commitments did not help predict growth in borrowed commitments one to six months later, when controlling for lagged growth in borrowed commitments.

[13] The debate in interpreting the time-series behavior of money and loans has raged for some time. King (1986) found that growth in bank loans did not help predict output, controlling for money growth. He interpreted this as evidence against the credit view. However, Bernanke (1986) challenges that conclusion on the grounds that King was merely picking up the fact that money leads output, which does not prove it causes output. More recently, Kaship, Stein, and Wilcox (1991) find time series evidence for the credit view when they discovered that the ratio of bank loans to commercial paper decreases following a monetary contraction, and that this ratio helps predict output. Using a longer time series, however, Miron (1991) found that this ratio does not always increase after an episode of tight monetary policy.

[14] They also found that sales of small firms responded more to changes in aggregate spending than sales of large firms, which they interpret as evidence of an additional, indirect credit channel of monetary policy. An initial decline in aggregate spending ultimately causes a larger decline by reducing investment of firms that rely on cash flow to finance their spending. This accelerator results from information problems emphasized in the credit view (Fazzari, Hubbard, and Petersen). The accelerator flattens the IS curve, implying a given shift in the LM curve has a larger effect on spending.

[15] Reduced cash flow reduced firms' investment spending, even controlling for sales and Tobin's Q. These results could reflect that firms without commitments could not borrow from banks (or elsewhere), or that firms with loan commitments had better access to other credit markets, or both.

[16] Banks have been allowed to issue CDs with relatively low reserve requirements since 1974. The reserve requirement was reduced to zero in 1990. The decline in reserves affects loan supply only indirectly, as banks pass on the higher cost of CDs to borrowers.

[17] Researchers also dispute this point because it assumes that banks do not care where they obtain the funds they lend. However, banks may prefer to fund their loans with transaction deposits rather than CDs, because banks can monitor a borrower's spending by observing its transactions (Fama). If a bank sees a borrower squandering a loan, it can call the loan and cut its losses.

[18] Indeed, they suggested the distinction. In particular, they suggested a scenario in which higher market rates resulting from reduced reserves is amplified through the indirect channel, culminating in a bank credit crunch.

[19] Healthy banks in other states will be reluctant to lend to out-of-state firms not well known by the banks.

[20] See Keeton for a discussion of the new capital requirements and the effects on banks.

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