

# Are Bank Loans Still Special?

By Sean Beckett and Charles Morris

**D**uring the recent recession, many businesses had problems getting new bank loans. Increases in problem loans, the need to raise capital, and stricter regulatory oversight combined to discourage banks from extending new credit, particularly to businesses. The weakness in bank lending to businesses, some believe, contributed importantly to the downturn in economic activity.

Those who blame the recession on weak bank lending believe that banks are the only source of credit for most business firms—that is, bank loans are special. In recent years, however, rapid growth of nonbank sources of business credit has led others to believe that bank loans have become less special. Finance companies now vie with banks to meet firms' financing needs, and commercial paper allows many firms to raise funds directly from credit markets rather than through banks. If these other sources of business credit are in fact good substitutes for bank loans, then a slowdown in bank lending is not as damaging to the economy.

This article examines evidence on whether other sources of business credit have recently become better substitutes for bank loans—that is, whether bank loans are less special than they used to be. The results of the examination suggest that bank loans are becoming less special. The first

section of the article explains why bank loans have traditionally been special. The second section examines the rise of substitutes for bank loans. The third section presents evidence that nonbank sources of credit are becoming better substitutes for bank loans.

## *WHY HAVE BANK LOANS BEEN SPECIAL?*

Business firms get credit either by issuing debt securities to investors or by taking out a loan from a financial intermediary. Loans have been the source of credit for most firms because financial intermediaries have cost advantages over individual investors in gathering information about borrowers. And banks have been the source of most loans because they have had other cost advantages over other financial intermediaries. Thus, bank loans have been the source of credit for most firms—that is, bank loans have been special.

Before making a loan, all lenders—whether investors in bonds, nonbank lenders, or banks—need information about borrowers due to the risk that the loan might not be repaid. To determine the creditworthiness of a borrower, a lender gets information about the borrower's character, financial strength, business prospects, management skill, and any other factors that might affect the likelihood of repayment. After collecting the information, the lender then decides whether the loan is worth the risk.

After a loan is made, lenders must monitor the

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*Sean Beckett is a senior economist and Charles Morris is an assistant vice president and economist at the Federal Reserve Bank of Kansas City. Dan J. Roberts, an assistant economist at the bank, helped prepare the article.*

borrower because the likelihood of repayment can fall. For example, the borrower's business prospects or financial condition may deteriorate, or the borrower may engage in activities that decrease the likelihood of repayment. By monitoring the borrower, the lender can recognize these events and can call the loan or refuse to renew it when it matures.

Most businesses obtain funds by taking out a loan from a financial intermediary rather than by issuing bonds to a number of investors. In general, businesses want to borrow more than an individual investor is willing to lend. As a result, a business must borrow from a number of investors either directly or indirectly through a single financial intermediary that pools their funds.<sup>1</sup> If investors provide the funds directly, each investor has to gather information about and monitor the borrower. In this case, each investor bears the full cost of information gathering and monitoring.<sup>2</sup> But if a financial intermediary provides the funds, the information gathering and monitoring are done only once, and each investor bears only a small fraction of the cost.<sup>3</sup> Thus, most businesses take out loans because it is cheaper to get loans from financial intermediaries than to sell bonds to individual investors.

While loans have an advantage over debt securities when information and monitoring are important, loans still need not come from a bank. Such nonbank lenders as finance companies also pool the funds of individual investors and therefore could have the same advantage as banks in gathering information and monitoring. Thus, for a bank loan to be special, banks must have some other advantage over their competitors.

Over the years, banks have generally been able to fund loans at a lower cost than nonbank lenders for two reasons. First, a large fraction of bank deposits are insured, while the liabilities of nonbank lenders are not. Since deposit insurance makes bank deposits safer than the liabilities of nonbank lenders, banks are able to attract funds at a lower interest rate than nonbank lenders (Diamond and Dybvig). Second, banks are not

allowed to pay interest on demand deposits. Since demand deposits historically have been the primary method of making payments, banks have been able to attract demand deposits even though they pay no interest.<sup>4</sup>

Banks have also had a cost advantage over nonbank lenders in monitoring a borrower's condition after a loan is made. Because borrowers typically have a deposit account at the bank that makes them a loan, it is virtually costless for a bank to observe a borrower's deposits over time. This information helps the bank evaluate the variability of the borrower's cash flows and, in turn, the borrower's ability to repay the loan (Black; Fama).

### *THE RISE OF ALTERNATIVES TO BANK LOANS*

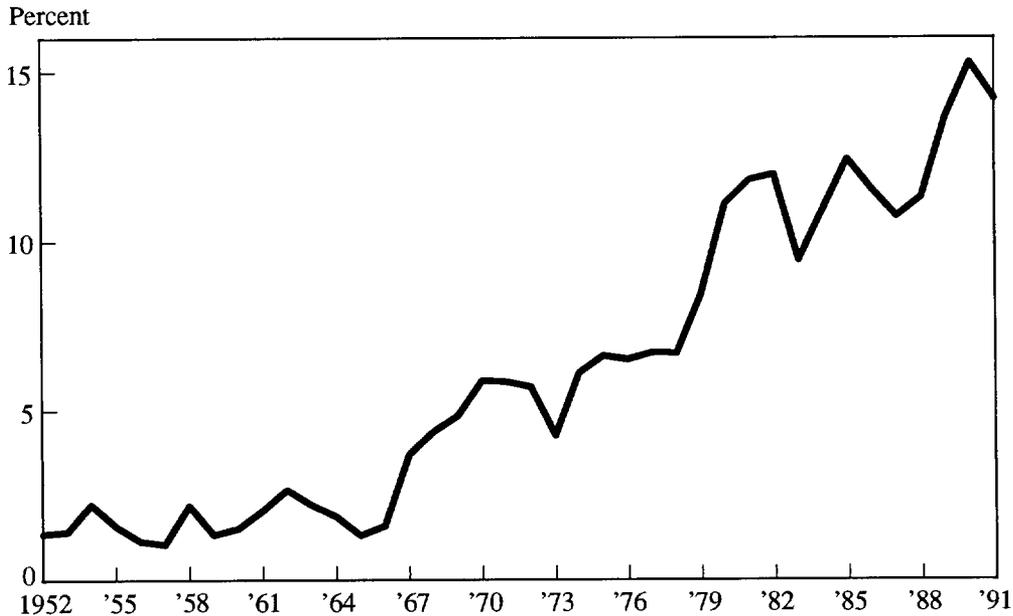
Over the past several years, banks have faced greater competition from credit markets and from nonbank lenders. These competitors have captured market share from banks by finding ways to overcome the traditional cost advantages of banks. For some business firms, these other sources of credit may be good substitutes for bank loans, but for other firms, they may not be.

#### *How do other sources of credit compete with bank loans?*

There are two alternatives to bank loans: debt securities and loans from nonbank lenders. The debt security most comparable to a bank loan is commercial paper, and the most important nonbank lenders for loans to small and medium-sized businesses are finance companies.

*Commercial paper.* Commercial paper is a promissory note that has many of the characteristics of a bank loan. It can be issued quickly, in varying amounts, and with varying but short maturities that closely match a business's needs for cash. Maturities range from 1 to 270 days, with the most common maturity being 30 days. The

Chart 1  
**Commercial Paper's Share of Business Borrowing**



Note: Outstanding commercial paper issued by nonfinancial corporations as a share of short-term business borrowing.  
 Source: Flow of Funds, Board of Governors of the Federal Reserve System.

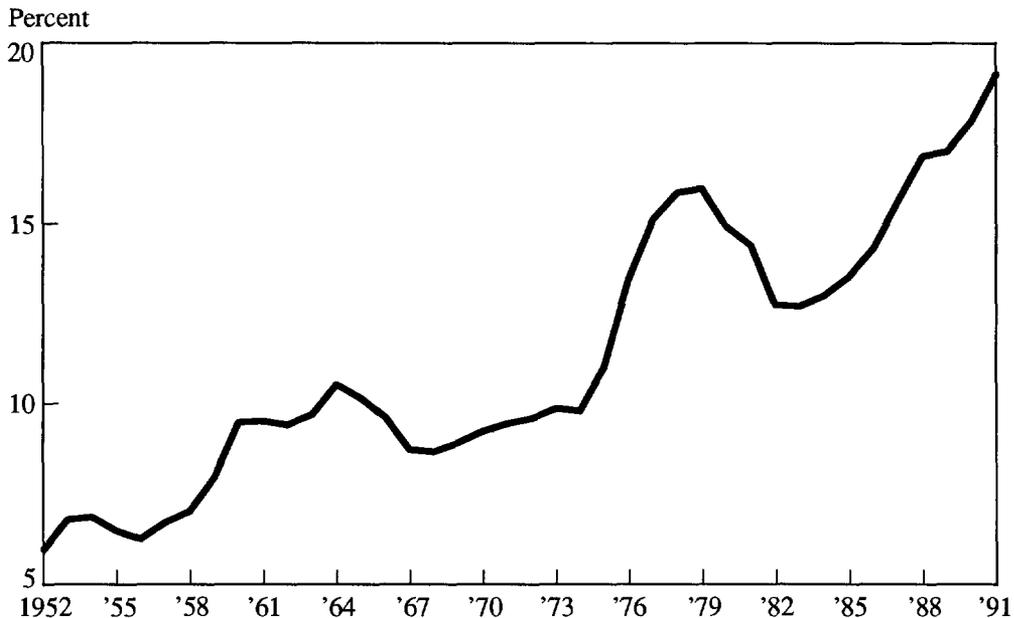
most common denomination is \$1 million. Like most bank loans, commercial paper is unsecured.

While commercial paper has been issued since the early 1800s, nonfinancial firms did not become active issuers until the mid-1960s (Chart 1). Commercial paper—which never exceeded 3 percent of short-term borrowing by nonfinancial corporations prior to 1966—has grown steadily since 1966 to about 15 percent of total short-term business borrowing today. In 1966, banks found it difficult to raise funds because market interest rates rose above regulatory ceilings on certificates of deposit (CDs). When this loss of funds forced banks to reduce their lending, corporations turned to the commercial paper market to replace the loans banks could no longer supply. Some corporations discovered commercial paper was

cheaper than bank loans and continued issuing commercial paper even when bank loans became available again.

Commercial paper can compete with bank loans today because credit rating firms, such as Moody's and Standard and Poor's, provide the information gathering and monitoring services traditionally performed by a bank. When commercial paper is issued, credit rating firms are paid to examine the issuing firm's financial health and prospects. The rating firm publishes its findings in the form of a credit rating, which summarizes the issuing firm's likelihood of defaulting on its obligation to repay the commercial paper investors. The rating firm continues to monitor the issuing firm's condition and revises the initial credit rating if that condition changes. Thus, lend-

Chart 2  
**Finance Companies' Share of Business Borrowing**



Note: Finance company loans to nonfinancial corporations as a share of short-term borrowing.  
 Source: Flow of Funds, Board of Governors of the Federal Reserve System.

ing by many individual investors is competitive with lending by financial intermediaries because investors do not individually bear the full costs of information gathering and monitoring.

*Finance company loans.* Commercial finance companies offer business loans that compete with bank loans. Finance companies typically make asset-based loans, which are loans secured by accounts receivable, inventories, or equipment. Most of these loans have a short or medium term to maturity, although loans secured by long-lived vehicles or equipment are sometimes long term. Finance companies fund their loans by issuing commercial paper.

Commercial finance companies' share of short-term business borrowing has grown over the last 40 years (Chart 2). Before 1960, finance com-

pany loans accounted for just 7 percent of short-term business borrowing. By the late 1960s, the share increased to around 10 percent. Today, the finance company share is about 20 percent.

Commercial finance companies arose because banks traditionally would not make asset-based loans. Banks believed that firms who needed to pledge collateral were not creditworthy. In recent years, however, the stigma attached to asset-based lending has disappeared, and banks now also make these loans (Compton).

Finance companies' share of business lending has increased in recent years because banks have lost some of their cost advantages. First, the introduction of interest-bearing transactions accounts in the 1980s forced banks to pay for funds formerly held in demand deposits.<sup>5</sup> Second, the share

of bank deposits held in CDs has increased. Because CD rates are typically higher than finance company commercial paper rates, the increased share of CDs has further eroded banks' cost advantage over finance companies. Third, bank capital requirements have been raised in recent years. Finally, banks must comply with a host of costly regulations that do not apply to finance companies, and the burden of these regulations has increased.<sup>6</sup>

### *Are these alternatives good substitutes for bank loans?*

Disagreement exists about whether commercial paper and finance company loans are good substitutes for bank loans. Because businesses issue significant amounts of commercial paper and obtain large quantities of finance company loans, some people argue they are good substitutes for bank loans. However, other people argue commercial paper and finance company loans are not good substitutes for bank loans because they are not available to many firms.

Commercial paper has many of the attributes of bank loans. Like bank loans, commercial paper is unsecured and has a short term. Because it can be issued quickly in varying amounts and maturities, commercial paper offers firms the same flexibility as bank loans in meeting their changing needs for cash. Thus, for firms large enough to issue commercial paper, it is a good substitute for bank loans.

For the vast majority of firms, however, commercial paper is not a good substitute because only the largest and most creditworthy firms can issue it. The most common denomination of commercial paper is \$1 million, an amount beyond the short-term borrowing capacity of most firms. In addition, small and medium-sized firms that are financially sound cannot issue commercial paper because it is too costly for them to purchase credit ratings.

Finance company loans are good substitutes for bank loans for firms that can pledge collateral.

For example, a company that wants to buy new equipment can use the equipment as collateral for a finance company loan. In addition, a firm can obtain a line of credit from a finance company by pledging existing assets as collateral (National Commercial Finance Association).

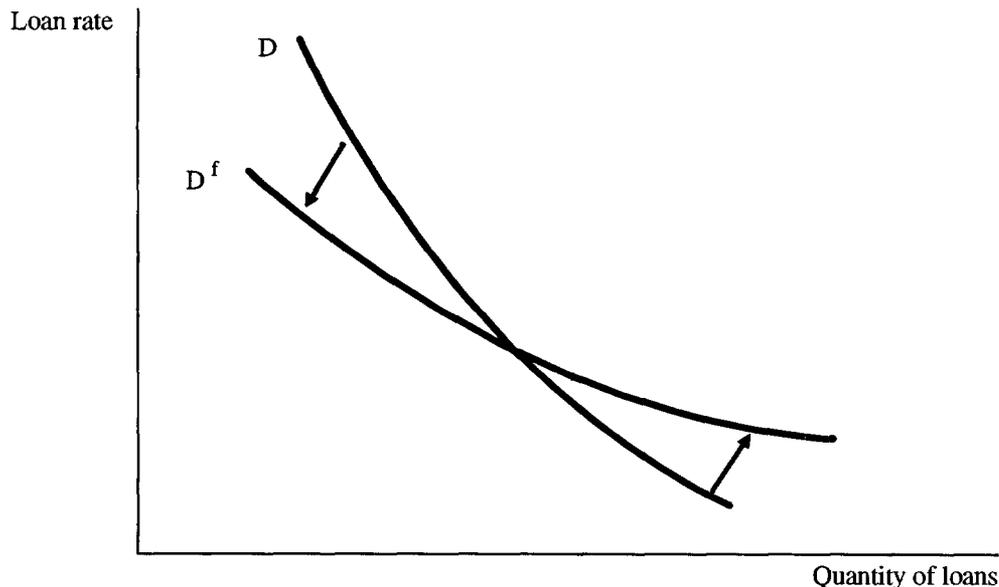
But for many firms, finance company loans may not be good substitutes for bank loans. For example, service firms hold small or no inventories and use relatively little equipment. Thus, these firms have insufficient collateral to obtain significant quantities of asset-based, finance company loans.

While many firms cannot issue commercial paper or obtain finance company loans on their own, they still can get credit indirectly from these sources. The primary source of finance for many of these firms is trade credit, the credit extended when suppliers allow customers to delay payment for delivered goods. If suppliers have access to commercial paper and finance company loans, they can offer trade credit on reasonable terms even when banks are cutting back on business loans. In this case, the firms with access to alternative credit sources transmit the benefits of these alternatives to the credit-hungry firms.

### *ARE BANK LOANS STILL SPECIAL?*

Commercial paper and finance company loans have clearly become important sources of credit for some firms, but it is not clear that these sources of credit are generally good substitutes for bank loans. One way to determine whether these sources have become better substitutes in recent years is to examine the demand for bank loans. Examining the demand for loans is useful because the demand for loans changes in predictable ways as substitutes become more available. As discussed below, the behavior of bank loans over the last 30 years provides some evidence that the demand for loans has changed as predicted. In other words, there is some evidence that bank loans are less special today than they were in the past.

Figure 1

***The Demand for Loans Becomes Flatter When Substitutes Are More Available******Substitutes and the demand for bank loans***

The demand for bank loans shows how changes in the price of loans affect the amount of loans borrowers want (Figure 1). The price of a loan is measured by its interest rate, which is shown on the vertical axis of the figure. The quantity of bank loans is measured along the horizontal axis.

The demand curve (labeled  $D$  in the figure) shows that borrowers want to borrow fewer funds from a bank as the loan rate rises. To see why, suppose a firm plans to take out a bank loan to invest in new equipment. If the loan rate rises, the profitability of the investment falls. As a result, the firm may decide to forego the investment. Alternatively, the firm may decide to finance at least part of the equipment purchase with a substitute

source of funds, such as commercial paper, a finance company loan, or internal funds. In any case, the firm borrows fewer funds from a bank.

The slope of the demand curve, which measures the willingness of firms to reduce their borrowing from banks as the loan rate rises, depends on the availability of substitutes. Specifically, the greater the availability of substitutes, the flatter the curve. The flatter curve in Figure 1,  $D^f$ , represents the demand for bank loans after good substitutes become more available. When there are no good substitutes for bank loans (curve  $D$ ), the demand curve is relatively steep because borrowers will pay whatever interest rate is required to obtain the loans they need to finance their operations. However, when good substitutes are more available (curve  $D^f$ ), firms will tolerate only

small increases in loan rates before they switch to other sources of credit. In this case, the demand curve is relatively flat, indicating small increases in the loan rate will cause large decreases in the quantity of loans.<sup>7</sup>

### *How to test for the availability of substitutes*

One way to see whether good substitutes for bank loans are more available today than in the past is to see whether the loan demand curve has become flatter in recent years. Theoretically, this could be done directly by estimating a loan demand equation and seeing whether loans have recently become more sensitive to changes in loan rates.<sup>8</sup> But good data on loan rates are not available, so an indirect approach must be taken to detect changes in the slope of the loan demand curve.<sup>9</sup>

One indirect method is to see how the quantity of bank loans responds to factors that shift the supply of and demand for loans—that is, factors other than the loan rate. Specifically, shifts in the supply of loans have a larger impact on the quantity of loans when the demand curve is flatter. In contrast, shifts in the demand curve have a smaller impact on the quantity of loans when the demand curve is flatter. Thus, it is possible to infer that substitutes have become more available if (1) the impact of supply shifts has increased over time, and (2) the impact of demand shifts has decreased over time. The advantage of this indirect approach over attempting to estimate the demand curve directly is there are good measures both of the quantity of loans and of the factors that shift supply and demand.

To understand why the impact of supply and demand shifts changes with the availability of substitutes, first consider a shift in the supply of bank loans (upper panel of Figure 2). The supply of loans will shift when factors that affect a bank's cost of making loans change. For example, higher capital requirements for banks, tighter regulatory standards on loans, or tighter monetary policy that

increases banks' cost of funds all raise the cost of making a loan. The higher cost reduces the profitability of making loans at any given loan rate. Thus, banks are less willing to make loans at any given loan rate.<sup>10</sup> This increase in costs is represented by a leftward shift in the loan supply curve, from  $S_0$  to  $S_1$ , causing the quantity of loans to fall from  $L_0$  to  $L_1$ .

As the loan demand curve becomes flatter, the same leftward shift in the loan supply curve causes a greater decline in loans. The lower panel of Figure 2 depicts the same decline in the supply of loans as in the upper panel. However, the demand curve,  $D^f$ , is flatter in the lower panel, reflecting the greater availability of substitutes for bank loans. In this case, borrowers are more willing to shift out of bank loans and into substitute sources of finance when the supply of loans declines. As a result, the quantity of loans falls from  $L_0$  to  $L_1^f$  which is a larger decline than the one from  $L_0$  to  $L_1$  in the upper panel. Thus, if substitutes for bank loans have become more available in recent years, changes in factors that shift the supply of loans cause larger changes in the quantity of loans than in the past.

A variety of factors can shift the demand for bank loans (upper panel of Figure 3). For example, if firms expect a decrease in the demand for their goods, they may trim their inventories and forego planned investment in new equipment. As a result, they will borrow fewer funds for any given loan rate. This change is represented as a leftward shift in the loan demand curve, from  $D_0$  to  $D_1$ , which causes the quantity of loans to decrease from  $L_0$  to  $L_1$ .

As the loan demand curve becomes flatter, the same leftward shift in the demand curve causes a smaller decline in loans. The lower panel of Figure 3 shows the same fall in the demand for loans as in the upper panel. That is, the demand curve shifts the same distance to the left at any given price in both panels. However, the quantity of loans falls from  $L_0$  to  $L_1^f$  when the demand curve is flatter, a smaller drop than the decline from  $L_0$  to  $L_1$  in the upper panel. Thus, if substitutes for bank loans

Figure 2  
Change in Supply of Loans

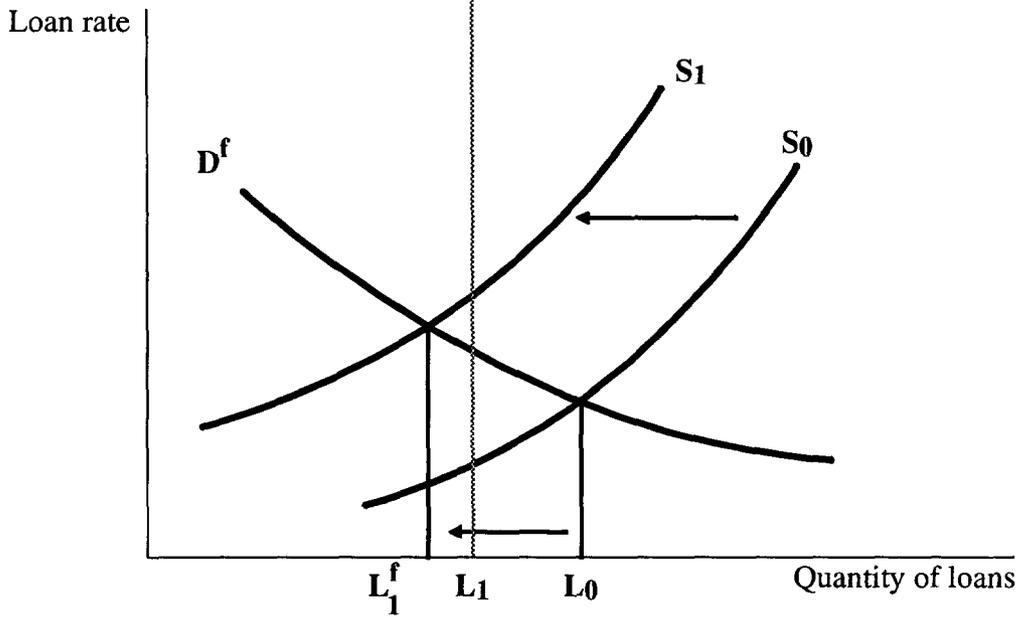
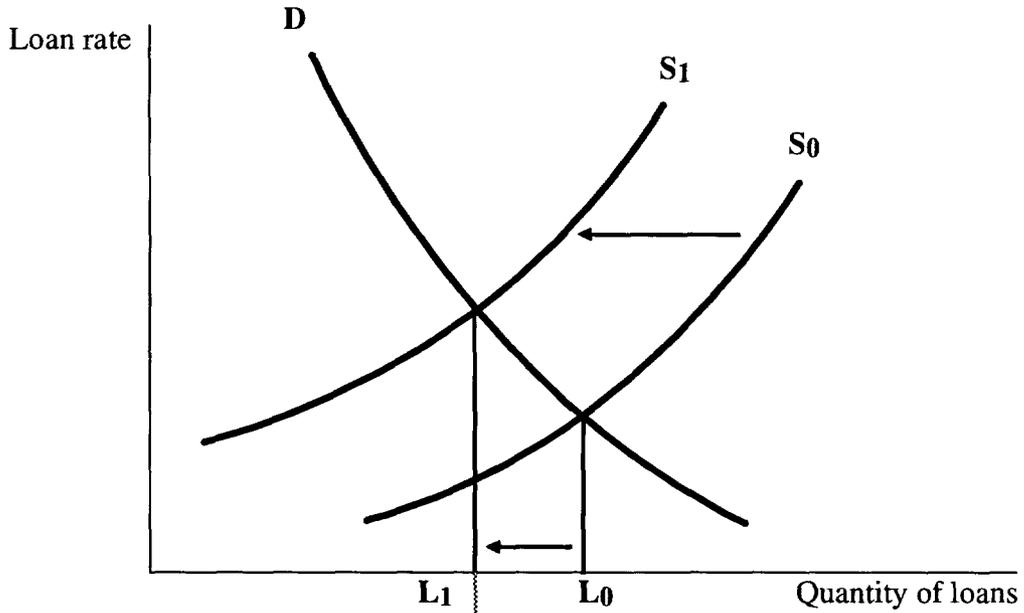
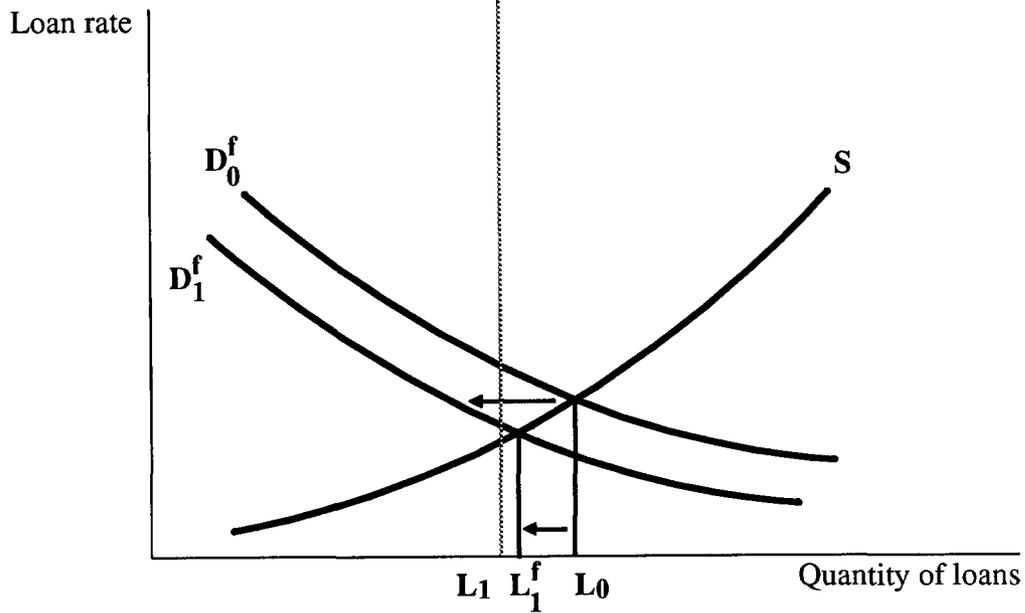
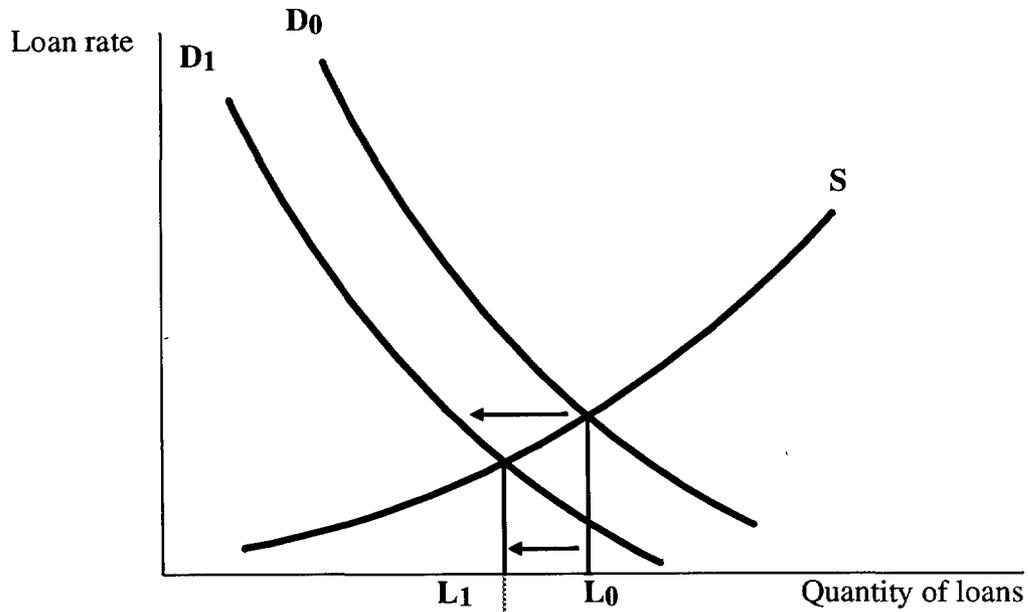


Figure 3  
Change in Demand for Loans



have become more available in recent years, changes in factors that shift the loan demand curve cause smaller changes in the quantity of loans than in the past.<sup>11</sup>

In summary, due to problems in measuring loan rates, an indirect approach must be used to determine whether substitutes for bank loans have become more available. If substitutes are more available than before, the loan demand curve is flatter. A flatter loan demand curve implies two things: (1) factors that shift the supply of bank loans have a larger effect on the quantity of loans than before, and (2) factors that shift the demand for bank loans have a smaller effect on the quantity of loans than before.<sup>12</sup>

### *Empirical results*

To see whether substitutes for bank loans have become more available in recent years, the effects of supply and demand shifts on the quantity of loans are estimated for two separate periods. The effects of supply and demand shifts are estimated by regressing quarterly observations of bank loans to nonfinancial corporations on several of the factors that shift demand and supply.<sup>13</sup> Two identical regressions are estimated—the first covering 1959 through 1976, the second covering 1977 through 1991. The estimated impacts of supply and demand shifts in the two subperiods are then compared.

Three demand factors are included in the regressions: investment, inventories, and internal cash flow at nonfinancial corporations. Increases in investment and inventories generate increases in loan demand. In contrast, an increase in internal cash flow reduces the need for external finance and thus the demand for bank loans. Therefore, investment and inventories should have a positive effect on loans, while cash flow should have a negative effect.

Only one factor—the stance of monetary policy—is used to measure supply shifts. While many other factors also affect loan supply, these other factors are difficult or impossible to observe.

*Table 1*

### *The Changing Sensitivity of Bank Loans*

	1959-76	1977-91
Federal funds rate	-.96	-1.24**
Investment	.67*	.52*
Inventories	.83	.08
Cash flow	-.41*	-.34*
<i>Summary statistics</i>		
R <sup>2</sup>	.74	.61
Adjusted R <sup>2</sup>	.64	.37
Root mean squared error (percent)	6.99	8.56
Coefficient of variation	.85	.94

Note: This table presents regression estimates of the change in the growth of outstanding bank loans to nonfinancial corporations in response to a permanent, one-percentage-point change in each of the variables listed in the table. All estimates are adjusted for inflation. Thus, on average, from 1977 through 1991, a permanent, one-percentage-point increase in the federal funds rate decreased the growth rate of bank loans 1.24 percentage points. Similarly, on average, from 1977 through 1991, a permanent, one-percentage-point increase in the growth rate of business fixed investment increased the growth rate of bank loans 0.52 percentage points. All figures are from the authors' calculations.

\* Statistically different from zero at the 10 percent level.

\*\* Statistically different from zero at the 5 percent level.

For example, the strictness of regulatory oversight cannot be measured, while measures of bank capital are not available over long enough time spans.<sup>14</sup> The stance of monetary policy is measured by the federal funds rate.<sup>15</sup> An increase in the federal funds rate, which reflects a tighter policy, reduces the supply of loans, while a decrease in the federal funds rate increases the supply of loans. Thus, the federal funds rate should have a negative impact on the quantity of bank loans.<sup>16</sup>

The choice of the date for dividing the sample depends on when the demand curve becomes flatter. But because the introduction of substitutes does not occur overnight, the shift from a steep demand curve to a flat one takes place gradually. As a result, no matter where the sample is split, estimates of the impacts of demand and supply shifts can only be averages of those impacts over the subperiod.

Estimates were calculated using a number of different breakpoints, but the estimates were not particularly sensitive to the choice of the breakpoint. The results reported in this article use the fourth quarter of 1976 as the end of the first subperiod. This was the first year in which the joint market share of commercial paper and finance company loans exceeded 20 percent, an indication that these substitutes had become more important.

The regression results are presented in Table 1. The estimated effects of demand and supply shifts are as predicted. Increases in investment and inventories increase bank loans. Increases in firms' internal cash flow reduce bank loans. Tighter monetary policy, measured by increases in the federal funds rate, also reduces bank loans. In both subperiods, the effects of investment and of cash flow on bank loans are statistically significant. The federal funds rate is significant only in the later subperiod. Inventories never have a statistically significant effect on bank loans.<sup>17</sup>

The estimates in Table 1 are consistent with the view that the loan demand curve has become flatter in recent years. The regression coefficients across the two subperiods are statistically different at the 10 percent level.<sup>18</sup> Moreover, the coefficients change in the predicted direction—bank loans react more to changes in the federal funds rate and less to changes in investment, inventories, and cash flow. For example, before 1977, a one-percentage-point increase in the federal funds rate decreased the growth rate of bank loans 0.96 percentage points on average. From 1977 through 1991, a one-percentage-point increase in the federal funds rate decreased the growth rate of loans 1.24

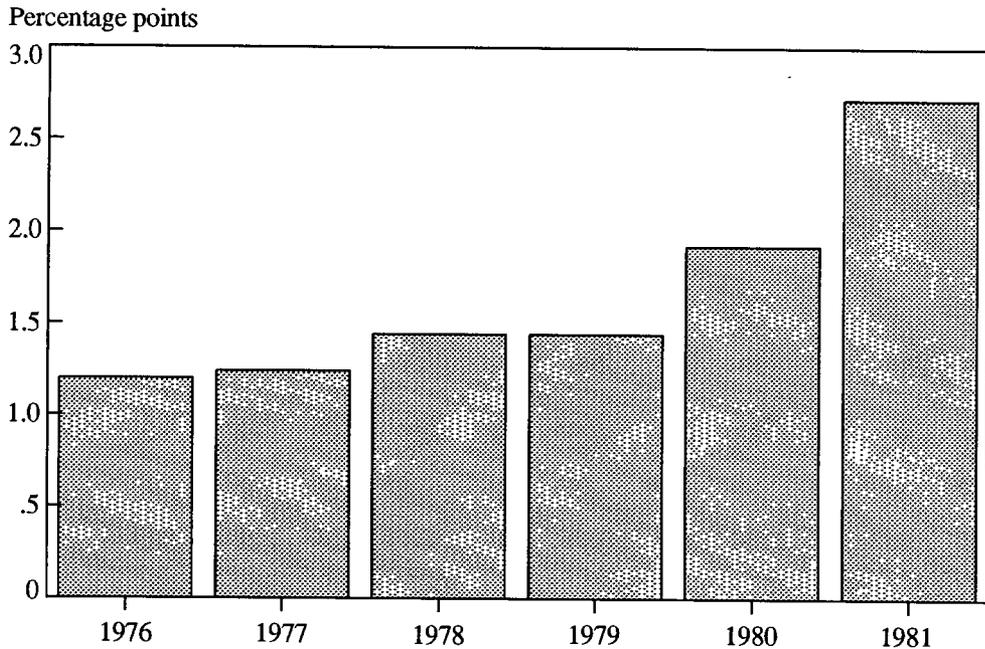
percentage points. In contrast, the effect of a one-percentage-point increase in the growth rate of cash flow on the growth rate of loans fell—from 0.41 percentage points before 1977 to 0.34 percentage points afterward. The estimates for investment and inventories display the same pattern.<sup>19</sup>

These estimates, however, should be interpreted cautiously. Although the changes in the impacts of demand and supply shifts are consistent with the view that substitutes for bank loans have become more available, the changes are generally quite small: 75 basis points for inventories, 28 basis points for the federal funds rate, 15 basis points for investment, and 7 basis points for cash flow.

One reason it may be difficult to detect a significant flattening of the demand curve is that substitutes may have become more available only very recently. As noted above, the estimates in Table 1 reflect the average impact of changes in the supply and demand factors on the quantity of loans. Thus, if the later subperiod includes many observations where the demand curve is still quite steep, it would be difficult to detect a flattening of the demand curve.

One way around this difficulty is to estimate the impact of, say, supply shifts for a sequence of samples that contain fewer and fewer observations from earlier years. The impact of supply shifts should increase when estimates are based on data that exclude the more distant past, that is, when the sample is split closer to the present. Chart 3 shows such a sequence of estimates. This chart displays the estimates of the impact of a permanent, one-percentage-point decrease in the federal funds rate for different sample periods. The first point plotted shows the estimate for the 1976-91 period, the second point shows the estimate for the 1977-91 period, and so on. For example, as reported in Table 1, the second bar indicates a one-percentage-point decrease in the federal funds rate increased the growth of bank loans 1.24 percentage points in the 1977-91 period. Note that a decrease in the federal funds rate increases the growth of loans by larger and larger amounts as the sample period

Chart 3  
*The Changing Sensitivity of Bank Loans to Supply Shifts*



Notes: Each bar shows a regression estimate of the increase in the growth of outstanding bank loans to nonfinancial corporations in response to a permanent, one-percentage-point decrease in the federal funds rate. The date below each bar is the first year of the sample period for the regression. Each sample period begins in the first quarter of the year shown under the bar and ends in the third quarter of 1991.

Source: Authors' calculations.

excludes more of the earlier data—precisely the change that would occur if the demand curve flattened over time.

### CONCLUSION

Are bank loans still special? Clearly they are. Despite significant growth in the market share of commercial paper, only a small fraction of business firms can tap this market. And for small and

medium-sized firms, banks are still the predominant source of credit.

Just as clearly, however, bank loans are less special than they used to be. The market shares of commercial paper and of finance companies have grown. And, while the evidence must be interpreted with some caution, the results of the analysis reported in this article provide preliminary support for the view that good substitutes for bank loans have become more available.

## ENDNOTES

<sup>1</sup> Several financial institutions often lend to a single borrower when the loan is very large. Nevertheless, the number of financial institutions involved in the loan is extremely small compared to the number of individual investors that are involved.

<sup>2</sup> Investors do not have to gather information about and monitor some firms that are large and well known. Such firms become well known because they pay credit rating agencies, such as Moody's and Standard and Poor's, to gather information, to monitor, and to distribute the information to the public. For these borrowers, it is apparently cheaper to pay someone to provide the information gathering and monitoring services and to use debt financing than to use bank loans.

<sup>3</sup> Of course, as long as individual investors bear the cost when a financial institution fails, investors must gather information about and monitor the financial institution. Because financial institutions are diversified, however, they are much less likely to fail than other types of firms. As a result, the costs of gathering information about and monitoring financial institutions are small. For a formal treatment of this issue, see Diamond and Williamson.

<sup>4</sup> Banks have often paid implicit interest on demand deposits by giving away "gifts," such as toasters, or by not charging for certain services. However, because demand deposits serve as a means of payment and are more liquid than virtually any other investment, the implicit interest paid by banks is probably lower than the interest rate paid by nonbank lenders for their funds. Thus, even if banks were allowed to pay interest on demand deposits, they would still be able to attract funds at a lower cost than nonbank lenders.

<sup>5</sup> Businesses are still prohibited from holding interest-bearing transactions accounts.

<sup>6</sup> While it is difficult to quantify the burden of complying with regulations, one indicator is the length of the reports of condition and income that insured banks are required to file quarterly. The length of these reports more than tripled in recent years, from eight pages in September 1983 to 26 pages in March 1992.

<sup>7</sup> If there were perfect substitutes for bank loans, the demand for bank loans would be a horizontal line. In other words, borrowers would abandon bank loans completely if the bank loan rate increased at all.

<sup>8</sup> A number of attempts have been made to estimate the demand for bank loans. Harris presents one such attempt and surveys a number of other prominent models. None of these attempts has been completely successful, and preliminary research indicated none of them was well adapted to the purposes of this article.

<sup>9</sup> The best available measure of loan rates is the prime rate, the rate banks, in theory, charge their best customers. The

prime rate, however, is an inaccurate measure of the true cost of bank loans. Most business borrowers pay some premium over the prime rate, and the premium varies with the creditworthiness of the borrower. Indeed, in recent years, some borrowers have been able to pay less than the prime rate. In addition, the prime rate does not reflect all the costs of a loan even after the premium is included. Borrowers frequently pay up-front fees to obtain or renew loans, and they may be required to hold balances in non-interest-bearing accounts as a condition of the loan. Moreover, loan contracts often contain clauses that restrict firms' actions. These clauses help banks monitor customer behavior and guard against certain types of risk-taking, but, to the extent these clauses actually restrict firm behavior, they can be regarded as a cost of obtaining a bank loan.

In addition to the problem of measuring the effective rate on bank loans, there is the problem of measuring the effective rate on substitutes for bank loans. A formal model of the demand curve in Figure 1 would measure not the bank loan rate on the vertical axis, but rather the spread between the bank rate and the rate on such substitutes as commercial paper. There are data on commercial paper rates, but no data are available on finance company loan rates.

<sup>10</sup> Under certain circumstances, higher capital standards may lead banks to reduce their holdings of safe, but relatively low-yielding, securities and increase their holdings of riskier, but relatively high-yielding, loans. See Keeton (forthcoming) for a discussion of this point.

<sup>11</sup> There is no predictable change in the impact of a factor that shifts both the supply curve and the demand curve.

<sup>12</sup> These effects would also occur if there were no change in the slope of the demand curve, but the supply curve became steeper. However, the supply curve is likely to have become flatter, not steeper, since deposit rates were deregulated (Keeton 1986).

<sup>13</sup> All estimates in this article are computed from data on nonfinancial corporate businesses to ensure that the data reflect business borrowing behavior and not the behavior of other types of organizations. The data on nonfinancial corporate businesses come from the Federal Reserve's Flow of Funds.

<sup>14</sup> Bermanke and Lown use state data to show that bank capital helps explain the recent decline in bank loans.

<sup>15</sup> From the fourth quarter of 1979 through the third quarter of 1982, the Federal Reserve used a nonborrowed reserves target in conducting monetary policy. For that period, the stance of monetary policy is measured by the growth rate of nonborrowed reserves.

Changes in monetary policy are assumed to shift the supply curve directly but to shift the demand curve only indirectly.

Changes in monetary policy affect the demand for loans only through factors such as investment and inventories. Because these demand factors are included in the regressions, the estimates of the impact of monetary policy measure shifts in the supply curve.

<sup>16</sup> In addition to the demand and supply factors listed in the text, each regression included: a constant, quarterly dummy variables, a dummy variable for the credit controls in the second quarter of 1980, lagged values of bank loans, nonborrowed reserves from the fourth quarter of 1979 through the third quarter of 1982, and the GDP deflator. All variables except the federal funds rate were entered as growth rates (log first differences). The federal funds rate was entered in levels. This specification was chosen because all the variables, aside from the federal funds rate, are nonstationary. Moreover, bank loans were found not to be cointegrated with any of the explanatory variables, thus an error correction term was not included. The current and two lagged values of each variable were included. Current values of nonborrowed reserves and of the federal funds rate were excluded because they are likely to be correlated with the error term. This specification produced normal residuals in both regressions and no strong evidence of serially correlated residuals.

<sup>17</sup> The reported significance levels are the levels from a traditional, two-tailed test. Since theory predicts the signs of these effects, a one-tailed test is appropriate. For a one-tailed test, the significance levels are cut in half. For example, effects reported significant at the 10 percent level in the two-tailed test are significant at the 5 percent level in the one-tailed test. One effect reported as not significant—the effect of inventories in the first subperiod—is significant at

the 10 percent level in the one-tailed test.

<sup>18</sup> This test is a joint test of the hypothesis that none of the regression coefficients changes between subperiods, that is, a so-called Chow test. A joint test is appropriate because all the reduced form coefficients should change if the demand curve flattens across subperiods. None of the tests for a change in the impact of individual demand and supply shift factors, however, is statistically significant.

<sup>19</sup> This discussion assumes that a given change in a supply or demand factor shifts the supply or demand curve by the same amount in each subperiod. However, in addition to causing the demand curve to flatten, greater substitution possibilities might cause demand factors to shift the demand curve by a smaller amount. Nevertheless, this would not alter any of the conclusions because, like a flattening of the demand curve, such a change would also cause demand factors to have a smaller impact on bank loans in the second subperiod.

On the supply side, such events as a reduction in the effectiveness of monetary policy might reduce the amount by which changes in the factors measuring monetary policy, such as the federal funds rate, shift the supply curve. If so, changes in the federal funds rate would not have as large an impact on bank loans in the second subperiod. In other words, a reduction in the effectiveness of monetary policy could offset the effects of a flattening of the demand curve, masking the impact of changes in the federal funds rate. Because the results indicate that the federal funds rate has had a larger impact on loans in the second subperiod, the flattening of the demand curve apparently was large enough to outweigh this masking.

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