

IS BANK LENDING SPECIAL?

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Is bank lending special? There are good reasons to ask. Absent good substitutes for bank lending, shocks to the supply of bank loans resulting from changes in monetary policy, bank capital, or bank portfolio preferences will affect the spending of bank borrowers. This implies new ways of thinking about the transmission of monetary policy. In addition to the familiar money/interest rate channel, there will be an additional "lending channel" (Bernanke and Blinder 1988). Moreover, monetary shocks will be borne by the borrowers who depend heavily on banks for loans.

In recent years, some observers have asked whether bank lending is *still* special, since banks have lost market share to financial markets and other intermediaries. For example, commercial banks' share of non-financial borrowing declined from approximately 36 percent in 1974 to about 22 percent in 1993 (Edwards and Mishkin 1994). In view of such trends, Edwards (1993) has suggested that the notion that banks are special is "obsolete."

This paper marshals theory and evidence to argue that bank lending is still special. In the first section we begin with some perspective on recent trends on business borrowing. We show that the manufacturing sector has not reduced its dependence on banks, and small firms still borrow almost exclusively from banks. Using a second data set that

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allows the identification of intermediated debt (but unfortunately not bank versus nonbank), we also show that the large majority of manufacturing firms use *only* intermediated debt, and that the employment share of such firms is large.

To explain why some firms still rely on banks and intermediaries, the next section reviews the theory of financial contracting. Initially, we follow the literature and distinguish between direct borrowing in public debt markets and intermediated borrowing. (Thus, in this section “bank” and “intermediary” are used interchangeably; a later section will distinguish between bank and nonbank intermediaries.) This theoretical literature argues that well-known, high-quality firms can borrow directly with simple bond and commercial paper contracts, while more information-problematic firms rely on short-term, secured loan contracts with complex covenants.¹ We review a variety of existing studies supporting the view that intermediaries are more efficient than direct lenders at monitoring and renegotiating these complex contracts.

In the third section we present new evidence in support of this view. First, we report regression results showing that reliance on intermediated debt varies with firm size and other common proxies for agency problems. Second, for firms that borrow exclusively from intermediaries, we show that reliance on short-term debt varies with these same measures of agency problems. Since most short-term borrowing is from banks, this evidence supports the view that bank lending is special for “information-problematic” firms.

In contrast to the second section, in which the discussion did not distinguish among intermediaries, the fourth section argues that banks differ from nonbank intermediaries—specifically, insurance companies and finance companies. We argue that because insurance companies have longer-term liabilities, they have a cost advantage in long-term lending, while the short-term liabilities of banks and finance companies make it cheaper for them to lend over the short term. Because short-term debt is a way to control agency problems, smaller, more information-intensive firms will tend to borrow more from banks and finance companies than from insurance companies. And for such firms, finance company loans would appear to be close substitutes for bank loans. But the evidence shows that finance companies specialize in leasing and lending against assets with thick secondary markets, such as automobiles, aircraft, and retail furnishings. Thus, firms with highly specialized or intangible assets may find it difficult (expensive) to substitute finance company loans for bank loans.

¹ We use the terms “low-quality” and “high-quality” to refer to the degree of information asymmetry between borrowers and lenders. This is conceptually different from risk, which in general may be correlated with quality, but is otherwise distinct.

We conclude that bank lending is still special for some business borrowers. Smaller, lower-quality borrowers still require intensive screening and monitoring by intermediaries. Some low-quality firms can borrow from insurance companies but many do not. Only firms with easily collateralized assets seem able to borrow from finance companies. For the remainder of firms, bank lending is still special, thus establishing an important necessary condition for the existence of a lending channel.

PERSPECTIVE ON RECENT TRENDS IN BUSINESS BORROWING

In view of recent claims that banks are dead, we present some evidence that banks are still vital players in the commercial lending business. We stress commercial lending because the increasing securitization of consumer loans and mortgage loans means banks can originate such loans without funding them with deposits. Smaller, information-intensive business borrowers, we argue, still depend on banks and other intermediaries for credit.

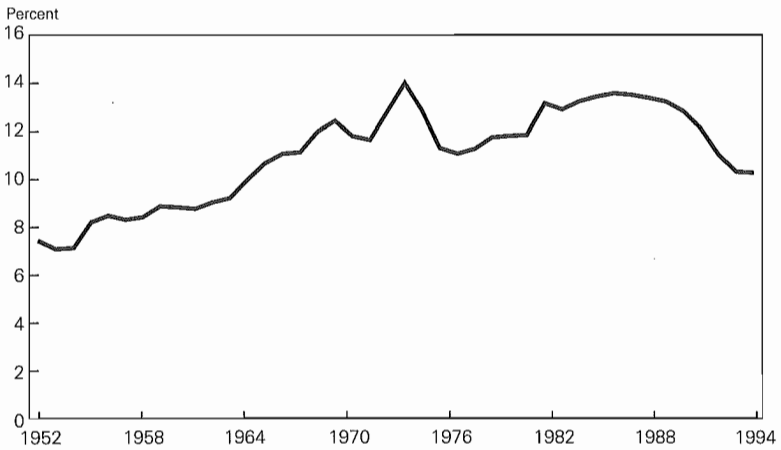
Because total indebtedness rose during the 1980s, Boyd and Gertler (1994) have pointed out that a more informative way to judge the importance of banks as business lenders is to measure bank loans relative to GDP (Figure 1). Even after the spectacular decline between 1989 and 1993, bank loans to nonfinancial business are still a larger share of GDP now than over most of the 1960s. And although it is too early to pronounce a trend, it is notable that the dramatic decline abated in 1994.

It is also instructive to measure bank loans as a fraction of nonfinancial business credit (Figure 2). These data understate business lending by banks to some extent because they exclude business mortgages held by banks. Even so, banks have provided a substantial and remarkably stable share of credit to nonfinancial business. While the share of credit from other sources shows pronounced trends over the last 40 years, the share from banks has been stable in comparison. Banks' share averaged 22 percent between 1952 and 1987 and never deviated from a range between 20 and 26 percent. Banks' share dipped below 20 percent for the first time in 1987 but it has since increased to 18.5 percent—still a substantial share and considerably more than finance companies' share. Note also that, while the share of credit raised directly in the commercial paper market has risen steadily since 1966, it is still less than 4 percent of nonfinancial business credit.

Table 1 narrows the focus to manufacturing firms. The table shows that their reliance on banks has not declined over the decade ending last year. This is notable because many observers have argued that lower information costs have allowed nonbank lenders to displace banks in lending to information-intensive borrowers. However, manufacturers'

Figure 1

RATIO OF BANK LENDING TO GDP



Source: Board of Governors of the Federal Reserve System, *Flow of Funds*; Datastream.

specialized assets and R&D intensity would seem to make them especially problematic borrowers, and they are still bank dependent.

Table 1 also shows that smaller manufacturers are especially bank dependent. In either decade shown, commercial banks held roughly two-thirds of the debt of firms with assets under \$25 million. We divided the data into only two groups, but Gertler and Hubbard (1988) document that the inverse relationship between bank dependence and size is monotonic across many size classes.

Table 1
Percent of Manufacturers' Debt Owed to Banks

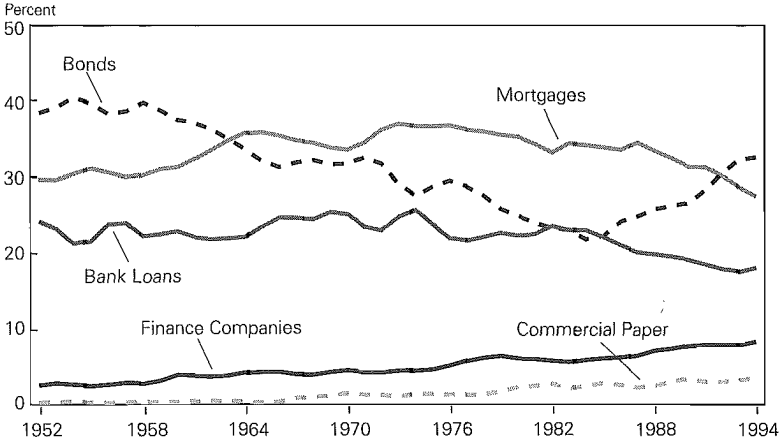
	1975-84	1985-94
All Firms	31	32
Assets < \$25 Million	62	66
Assets > \$25 Million	26	28

Note: The averages in the first column for firms greater than and less than \$25 million are for the years 1980-84.

Source: U.S. Bureau of the Census, Quarterly Financial Reports.

Figure 2

SOURCES OF NONFINANCIAL BUSINESS CREDIT



Source: Board of Governors of the Federal Reserve System, *Flow of Funds*.

The most recent survey evidence indicate that smaller firms generally—not just manufacturers—still borrow almost exclusively from banks. The National Federation of Independent Business periodically surveys its 500,000 members about their sources of funds. Banks were the source of 84 percent of the loans in 1980 and 86 percent in 1987, the latest year available (Scott and Dunkelberg 1985; Dennis, Dunkelberg, and Van Hulle 1988). The Federal Reserve Board’s National Survey of Small Business Finance (NSSBF) in 1987 tells the same story. Banks (and other depository institutions) supplied 89.4 percent of the firms with their most recent loan. Fewer than 1 percent of the firms reported that their most recent loan came from a finance company.

The aggregate data in Figure 2 might suggest to some observers that all firms are borrowing more in the commercial paper (CP) and bond markets and less from banks and intermediaries. The data in Table 2, however, indicate that a relatively small number of firms issued public debt of either type, even as late as 1992. The table divides 5,359 firms listed in the Compustat data base in 1992 into three mutually exclusive groups: firms rated for commercial paper, those rated to issue bonds but

Table 2
Reliance on Intermediated vs. Public Debt by Firms on Compustat—1992

	Commercial Paper Issuers	Bonds but No Commercial Paper	Intermediated Debt Only
Number of Firms	351	544	4,364
Percent of Firms	6.6	10.3	83.0
Employment (millions)	13.3	7.4	8.2
Percent of Employment in Sample	46.2	25.5	28.3

Note: Rows may not sum to 100 percent because of rounding.

Source: Standard & Poor's Compustat.

not commercial paper, and those with neither rating ("Intermediated Debt Only").

Only a small fraction of firms, 16.9 percent, is rated to issue either type of public debt. The commercial paper market comprises an especially select group of only 351 firms, under 7 percent of the sample. The vast majority of firms, 83 percent, borrow only from intermediaries. Although these are small firms, they are important in aggregate; they employed 8.2 million workers in 1992, or 28.3 percent of employment of all firms in the sample. Unfortunately, Compustat does not report the type of intermediary from which firms are borrowing. But it should be remembered that banks are still the largest financial intermediary in the United States.

Table 2 indicates that only a select group of firms can issue commercial paper and bonds as substitutes for intermediated debt. The simple fact is that the vast majority of firms rely exclusively on loans from intermediaries. The next section draws selectively from the literature on financial contracting under asymmetric information to explain why so many firms borrow only through intermediaries.

WHAT MAKES INTERMEDIARIES "SPECIAL": THEORY AND EVIDENCE

The theory of financial contracting under asymmetric information provides a general framework for understanding why smaller, information-intensive borrowers rely on intermediaries. To reduce agency costs, such firms submit to tight, detailed loan covenants in their debt contracts. Because the monitoring and renegotiating of these contracts is costly, however, these tasks are more efficiently delegated to an intermediary. Intermediaries' lower monitoring and renegotiation costs mean they can write covenants that entail more frequent monitoring. More frequent monitoring, in turn, means intermediaries become better informed about firms over the length of a relationship. That, we argue,

is why intermediaries—especially banks, but also finance and insurance companies—are “special,” in theory. (In the next to last section we will consider some differences between bank and nonbank intermediaries.)

In the following sections, we review a variety of evidence showing that covenants in private debt agreements are tighter and conditional on more volatile performance than those in public agreements. Even though private debt covenants are more frequently violated, intermediaries’ flexibility in renegotiating reduces the cost of financial distress. We also review the contracting view of debt maturity, which predicts that smaller, more information-problematic borrowers will choose shorter-term debt. This is because they have higher contracting costs, which make it expensive to write and enforce covenants to control all possible agency problems. We conclude with a summary of existing evidence.

Covenants, Monitoring, and Intermediation

Lenders attempt to control agency problems by imposing restrictive covenants in lending contracts (Jensen and Meckling 1976). Typical covenants restrict firms’ dividends and indebtedness and often require firms to maintain minimums of net worth and working capital. Borrowers are also required to submit regular accounting statements, which makes it relatively easy to determine if a covenant has been violated. However, because these covenants are based on noisy indicators of firms’ true financial health, more intense monitoring is needed to determine how to handle a violation (Berlin and Loeys 1988).

Modern finance theory views banks and other intermediaries as delegated monitors (Diamond 1984; Boyd and Prescott 1986). Intermediaries are more efficient at monitoring these covenants for at least two reasons. First, intermediaries are less likely to free-ride on the information production of others because they have a larger stake. Thus, the intermediary is more likely to be informed about the event of a covenant violation and more likely to monitor to determine if the violation is serious. Second, intermediaries, acting unilaterally, can renegotiate a covenant more cheaply than dispersed bondholders. Obtaining the simple or two-thirds majority vote necessary to amend a bond covenant is costly and may fail if individual bondholders hold out for a better deal (Gilson, Kose, and Lang 1990).

The theory of intermediation suggests that, because intermediaries can renegotiate covenants more easily than public lenders, the covenants in bank contracts can be tighter. In his survey of the studies of covenant violations, Smith (1993) finds that virtually all of the violations were of covenants in private rather than public issues. Sweeney (1994) finds 90 percent of the violations of private covenants were of bank lending agreements, specifically. These findings suggest that bank covenants are set more tightly.

The covenants in public and private contracts also set their conditions depending upon different types of events. Public bond covenants tend to set their conditions on events that are relatively easy to verify, such as a major change in capital structure or a rating downgrading (Crabbe, Pickering, and Prowse 1990). In contrast, private loan contracts are conditioned upon performance measures, like working capital and net worth, that are less easily controlled by managers. Sweeney finds that these two covenants are the most frequently violated. Since these covenants require more monitoring, bondholders will be less likely to impose them (Kahan and Tuckman 1993).

The violation of a financial covenant often triggers financial distress. The “anatomy” of distress described by Asquith, Gertner, and Sharfstein (1994) reveals the flexibility banks have in negotiating with troubled borrowers.² When firms missed a payment or violated a covenant, banks could restructure many terms of the contract: waive covenants, extend maturity, extend more loans, reduce the line of credit, or require more collateral. Restructuring would often entail tightening some terms and relaxing others. For example, banks might waive the violated covenant but require security against the line of credit or lengthen the maturity.

This flexibility reduces the cost of financial distress. If monitoring and contracting costs were negligible, firms with good long-run prospects would not be affected by distress; lenders would simply renegotiate the debt. Information asymmetries and free-riding by bondholders, however, may force financially distressed firms into inefficient spending cutbacks and even bankruptcy.

Gilson, Kose, and Lang (1990) find that financially distressed firms are more likely to restructure their debt (thus avoiding Chapter 11), the larger the share of their debt that is owed to banks.³ In particular, banks were much more likely to extend maturity on the loan than were bondholders. In contrast, public debt often entails exchanging the original bonds for ones with *shorter* maturities in order to prevent hold-outs. Among Japanese firms in financial distress, Hoshi, Kashyap, and Scharfstein (1990) find that those with close bank ties invest more and sell more than those without close bank ties.

Firm Stock Prices Respond Favorably to News of Bank Relationships

Banks write tight, detailed loan covenants that entail substantial monitoring. All else equal, tighter covenants also mean more violations

² In a sample of 102 distressed junk-bond issuers, banks held 25 percent of the firms' debt and almost all firms had a revolving line of credit from a bank.

³ Their definition of “banks” includes insurance companies. However, only 11 percent of the sample borrowed from insurance companies.

and hence more monitoring. Over the course of this banking relationship—with all the monitoring it entails—banks become better informed about the firm than public investors. A number of studies investigate this possibility by investigating how share prices respond to news about a firm's banking relationship.

A key finding by James (1987) is that a firm's stock price rises after an announcement that it has received a loan agreement from a bank. This contrasts with a negative (or insignificant) response to announcements of a public bond offering (Smith 1986). Subsequent event studies show the share response is larger, the closer the relationship and the smaller the firm.⁴

Some bank relationships are closer than others, of course. Loans to larger firms are often syndicated among many borrowers, both to diversify and to avoid regulatory limits. Preece and Mullineaux (1994b) point out that as the number of banks in the syndicate increases, the deal becomes more like a public bond issue, with the attendant problems of free-riding and higher negotiation costs. Consistent with that argument, they find that the stock price response to news of a bank loan agreement weakens as the number of lenders to the firm increases.

An innovative study by Slovin, Sushka, and Poloncheck (1993) examined a sample of firms that had banking relationships with Continental Illinois Bank, a bank that appeared bound to fail in the summer of 1984 until it was rescued by the Federal Deposit Insurance Corporation (FDIC). The share prices of these firms fell as Continental's prospects diminished over the early summer and then rebounded after the FDIC announced a rescue. Share prices responded only if Continental was a direct lender (signed a separate note with the borrower) or was lead lender in a syndicate, not if Continental was merely a participant in the syndicate.

Slovin, Johnson, and Glascock (1992) argue that the marginal information of a bank loan announcement is smaller for large firms because such firms are already carefully researched by public credit and equity analysts. In support, they find that stock prices of small firms increase after the announcement of a bank loan agreement, while stock prices of large firms are unaffected.

A lending channel requires that the supply of bank loans affect firm spending. Two recent studies find a link between firms' spending and the closeness of their banking relationships. Using a sample of Japanese firms, Hoshi, Kashyap, and Sharfstein (1991) show that investment by firms without close banking relationships is constrained by their cash

⁴ For example, Lumer and McConnell (1989) show that share prices increase only upon renewal of an existing loan agreement, suggesting banks become better informed over the course of the relationship.

flow, while spending by firms with close banking relationships (firms in Keiretsu) was unconstrained. This finding suggests that the monitoring entailed by a close banking relationship reduces agency problems and lowers the cost of external funds relative to internal funds. However, banking relationships in the United States cannot be as close as in Japan, where banks may use both debt and equity. Morgan (1995) argues that in the United States a banking relationship essentially means that firms have a loan commitment from a bank, and he shows that investment by firms with a bank loan commitment is less liquidity constrained than investment by firms without a commitment.

Short-Term Debt Reduces Agency Costs

In the previous section, we discussed how lenders can impose covenants in loan agreements in order to keep the option to terminate or renegotiate the loan if a firm's balance sheet deteriorates. When these covenants can be cheaply observed and, if necessary, enforced by third parties, it is desirable to attach such agreements to long-term debt. On the other hand, a borrower may be able to increase the riskiness of its assets without affecting the balance sheet ratios on which covenants are typically written. In this case, it may be more effective for intermediaries to simply shorten the maturity of the loan, thereby insuring that the loan can be renegotiated or terminated if the firm's prospects deteriorate.

A number of theories in the literature seek to explain the maturity structure of debt. Barclay and Smith (1993) identified three broad approaches based on contracting costs, signaling, and taxes. While evidence exists to support each of these approaches, we will restrict our discussion in this section to the contracting view. The contracting view argues that short-term debt is useful because it preserves the option for lenders to terminate or renegotiate a lending arrangement. This option is valued by lenders, because long-term debt creates an incentive for borrowers to increase asset risk after taking on debt.

The main testable implication of this view is that firms with severe information asymmetries and fungible assets (and therefore agency problems) will borrow more from intermediaries and will also use more short-term debt. Recent evidence is consistent with these predictions. Barclay and Smith (1993) and Rajan and Zingales (1993) estimate regressions that show a positive relationship between maturity structure and proxies for agency problems. In the next section, we extend their results by estimating a similar model that explains not only the maturity choice, but also the choice of intermediated debt.

NEW EVIDENCE ON THE DETERMINANTS OF INTERMEDIATED AND SHORT-TERM DEBT

Our discussion of intermediation and the design of debt contracts has identified two themes in the literature. First, intermediated debt dominates public debt when information problems create the need for continuous (ex post) monitoring of borrowers. Second, lenders prefer short-maturity debt when information problems make it difficult to monitor and enforce covenants. In this section, we report new empirical results that broadly support these two themes.

Using data from Standard & Poor's Compustat, we constructed a cross section of 5,108 firms from 1992.⁵ This sample covers only publicly traded firms from a number of industries, including manufacturing, mining, retailing, wholesaling, and services. Compustat does not break down firms' debt by source, but it does indicate if a firm has a Standard & Poor's rating for bonds or commercial paper. Therefore, we use "no rating" to identify firms that use only intermediated debt.⁶

To relate our qualitative measure of intermediation to firm characteristics, we use an ordered probit model in which our indicator is assumed to be a function of an underlying (latent) variable that indexes the firm's "propensity for intermediation." We denote this index by y_i^* and assume that $y_i^* = x_i'b + e_i$, where x_i is a vector of firm characteristics that determine the propensity for intermediation (more on this below). We then define a discrete dependent variable, $y_i = 3$ if the firm relies only on intermediated debt (no bonds or commercial paper), $y_i = 2$ if the firm is good enough to issue bonds but not commercial paper, and $y_i = 1$ if the firm is good enough to issue commercial paper. Following the arguments in Calomiris, Himmelberg, and Wachtel (1995), this specification assumes that the quality of commercial paper issuers is higher than that of bond issuers that do not issue commercial paper.⁷

We also use an ordered probit to model short-term debt because there are substantial mass points at zero and at one that would create

⁵ We chose 1992 because it is the latest available year for which firms have completely finished filing their annual reports with the Securities and Exchange Commission. Our sample is the same set of 5,259 firms used to construct Table 2, but we removed 151 firms that had either missing data or large outliers for the ratios used as regressors.

⁶ Our reliance on Compustat data may overstate the importance of intermediated debt by failing to identify some firms that have public debt outstanding. Though virtually all bond and commercial paper issues are rated by Standard & Poor's, some small issues are rated only by Moody's or other agencies. However, a random sampling of firms rated by Moody's indicated that the overlap is more than 95 percent.

⁷ We get similar results when we specify only two classes, but we sacrifice some efficiency.

problems for a standard regression model.⁸ We define $y_i = 12$ if the short-term debt ratio is one, $y_i = 11, \dots, 2$ if the ratio falls in deciles 10 through one, respectively, and $y_i = 1$ if the ratio is zero (we also define $y_i = 1$ for firms with zero total debt). We estimate the short-term debt model using only the observations on firms that rely on intermediated debt, so the estimated model describes the debt maturity structure given that the firm is borrowing only from intermediaries.

Table 3 reports estimated coefficients for the above models. To proxy for information and contracting problems, we use several variables that are standard in the literature. The first two rows of the table report the coefficients on size variables, where size is measured by the log of sales (a squared term is included to allow for nonlinearities). In model 1, the negative coefficient on size confirms that large firms rely less on intermediated debt. In model 2, this coefficient shows that, conditional on using intermediated debt, small firms also use more short-term debt. To the extent that size is a proxy for information problems, this is consistent with the view that short-term debt is used to cope with agency problems. Since most commercial and industrial (C&I) lending by banks is short-term, this finding is also consistent with the view that small firms rely heavily on banks.

Rows 3 and 4 report the coefficients on capital intensity, defined as the ratio of property, plant, and equipment to sales⁹ (a squared term is again included to allow for nonlinearities). This variable measures the extent to which the firm uses fixed capital in its production technology, as opposed to "soft" inputs like materials, labor, and technology. The prediction is that capital-intensive firms will find it easier to borrow from public debt markets because fixed capital, unlike technology and other intangible inputs, is more easily observed by outside investors and therefore less subject to agency problems. The negative and highly significant coefficient in model 1 shows that capital-intensive firms are indeed less likely to require intermediation. Capital intensity is also important in model 2, which further shows that among intermediated firms, capital-intensive firms are less likely to use short-term debt.

Among non-capital inputs, R&D expenditures are generally thought to create more information problems than labor and materials. We therefore include the ratio of R&D to fixed capital as a proxy for the importance of (intangible) technological capital (row 5). This variable is

⁸ Alternatively, we could have modeled short-term debt as a continuous variable with two-sided censoring. This is more efficient, but less robust. The ordered probit is sufficient for our purposes given the size of our sample.

⁹ This variable can also be viewed as a point estimate of the capital share parameter. That is, if the production function is Cobb-Douglas, then profit maximization implies that the value of capital divided by the value of sales equals the exponent on capital. The magnitude of this parameter provides a measure of the firm's capital intensity.

Table 3
Determinants of Debt Structure

Ordered probit results showing the effect of firm characteristics on debt structure. Dependent variable in column (1) is classified 3, 2, or 1, respectively, if firm has no rating, a bond rating but no commercial paper (CP), or a CP rating. In column (2) the dependent variable is classified 12 if the ratio of short-term to total debt is 1, 11 to 2 if the ratio falls in deciles 10 through 1, and 1 if total debt is zero. Standard errors appear in parentheses.

Regressors	Dependent Variable	
	Model 1: Intermediated Debt	Model 2: Short-Term Debt
1. Size	-1.077** (.131)	-.156** (.017)
2. Size, Squared	.028** (.010)	.002 (.002)
3. Capital Intensity	-.833** (.143)	-.625** (.068)
4. Capital Intensity, Squared	.142** (.035)	.090** (.016)
5. R&D Intensity	.036 (.130)	.096** (.023)
6. Investment	.314 (.218)	.565** (.079)
7. Short-Term Assets	.009 (.180)	.263** (.081)
8. Industry Dummies	(not reported)	(not reported)
9. Observations	5108	4273
10. Log-likelihood	-1528.4	-9847.3

Note: Model 2 indicates fewer observations than Model 1 because firms with public debt have been omitted.

"Size" = the log of total sales; "Capital Intensity" = ratio of fixed capital to sales; "R&D Intensity" = ratio of R&D to fixed capital; "Investment" = ratio of capital expenditures to fixed capital; and "Short-Term Assets" = ratio of inventories to inventories plus fixed capital. Industry dummies described in text.

One-tailed tests significant at the 1 percent level are denoted by **.

statistically insignificant in the model for intermediated debt, but it is positive and highly significant in the model for short-term debt. Thus, conditional on both size and capital intensity, the effect of R&D on intermediation is neutral, but R&D-intensive firms clearly rely more heavily on short-term debt.

The last two variables in the model—investment and short-term assets—are unimportant for public debt, but are highly significant in the model for debt maturity. The ratio of investment to fixed capital ("investment") is included as a proxy for the growth rate of the

firm.¹⁰ Higher investment reveals that a lower fraction of future profits will be generated by existing fixed capital (our capital intensity variable in rows 1 and 2 measures only the current fraction). Thus, the scope for discretionary use of funds is higher, causing lenders to prefer short-term debt. We also included short-term assets to proxy for agency problems because such assets are, by definition, reacquired every year and therefore more subject to risk-shifting or other value-reducing activities. Our proxy for short-term assets is the ratio of inventories to inventories-plus-capital, and the estimates in row 7 indicate that lenders indeed seem to prefer short-term debt for firms with high levels of short-term assets.

To summarize, the results in Table 3 confirm our discussion of intermediation and short-term debt. In particular, public debt markets are restricted to large, capital-intensive firms. Such firms are evidently better known and, because of their heavy reliance on fixed capital, relatively less prone to agency problems. The vast majority of firms in our sample rely on intermediated debt. For these firms, size and capital intensity help the firm gain access to long-term credit. Otherwise, small, high-tech, rapidly growing, and inventory-intensive firms tend to rely more on short-term borrowing. Recent theories of intermediation and optimal debt contracting provide a parsimonious explanation for these facts.

ARE BANKS "SPECIAL" AMONG INTERMEDIARIES?

The theory and evidence above make a good case that public debt is not a good substitute for loans from intermediaries. This section takes up the harder question of whether loans from other intermediaries—finance and life insurance companies in particular—are good substitutes for bank loans. We begin with the evidence and end with a discussion of why those other intermediaries do not provide perfect substitutes for bank loans.

Ten years ago, Fama (1985) concluded that banks must be different from other intermediaries, otherwise bank borrowers would not be willing to bear the reserve tax (since removed) on bank CDs. Economies of scope between deposit-taking and lending, he argued, give banks an information advantage over finance companies and other intermediaries. A firm's deposit history may inform banks, which tend to lend against cash flow, about a firm's credit risk. Information on deposit activity may also make it easier to monitor working capital covenants.

The idea that lending and deposit-taking are complementary is a

¹⁰ In a cross section, this is probably the best available indicator of firm's growth rate. Using several lags of sales might have generated a more accurate measure, but this would have systematically removed newly public firms that do not have data for earlier years.

venerable one, yet Petersen and Rajan (1994) are the first to provide any evidence. Using data on individual small firms from the National Survey of Small Business Finance (NSSBF), they test whether close banking relationships increase the availability of credit to firms. The strength of the relationship is measured by its length and by the fraction of debt borrowed from a lender with whom the firm kept a deposit or purchased some other financial service from the lender. They find that 64 percent of the firms have a deposit with their current lender. These relationship variables significantly increase the availability of credit to firms, which they measure by the extent to which firms avoid more expensive trade credit.¹¹

Using a subset of the NSSBF data, Berger and Udell (1994) find that firms are charged lower rates and are less likely to post collateral, the longer the firm has maintained a credit commitment with a bank. They find a stronger effect on interest rates than Petersen and Rajan (1994) because they focus on lending under commitments, which entails a relationship, and exclude loans driven largely by transactions—mortgages and equipment and auto loans, for example—that seem less likely to involve a relationship between the borrower and the lender.

Our look at the NSSBF data turned up some related evidence. Firms were asked why they chose to deal with a particular financial institution. After “convenience,” the most common reason for choosing a bank was that the firm’s owner had some sort of “relationship” with the bank. In contrast, firms dealt with finance companies primarily because they were “captive,” that is, because they had bought or leased a capital good from the same company. In sum, personal relationships were far less important a reason for borrowing from finance companies.¹²

A recent study by Becketti and Morris (1993) also bears on this discussion. Although they are agnostic about whether C&I bank loans are special or not, they find no evidence that bank loans have become *less* special in recent years. If more or better substitutes had flattened the demand curve for bank loans in the 1980s, they reason, a decline in the supply of bank loans would have a larger affect on the equilibrium quantity of loans than before. Yet they find no evidence that increases in the federal funds rate have had a larger impact on bank borrowing since 1982.

¹¹ They find that the strength of the relationship did not affect the rate charged on the most recent loan. The small effect of relationships on the interest rates, they argue, could reflect that banks ration credit through non-price terms.

¹² Event studies yield mixed evidence on whether banks are unique among intermediaries. James (1987) found that a firm’s share price fell after an announcement that the firm was replacing a bank loan agreement with a private placement from an insurance company. Preece and Mullineax (1994a), on the other hand, find a positive share price response following announcements of a loan agreement from finance companies or nonbank subsidiaries of bank holding companies.

Insurance Companies versus Banks

Like banks, insurance companies specialize in originating and holding contracts that require both *ex ante* and *ex post* information production. And like bank loans, these contracts contain covenants and collateral provisions that seek to provide protection against moral hazard, as well as to alter the allocation of proceeds in the event of default. But unlike banks, insurance companies have longer-term liabilities on their balance sheets. The fact that maturity transformation is costly makes insurance companies an inefficient source of short-term loans. The short-term liabilities of banks, on the other hand, make them relatively efficient sources of short-term loans.

Carey, Prowse, Rea, and Udell (1993) provide evidence that markets for private placements and bank loans are segmented by maturity. The private placements in their sample have a median maturity of nine years, and no private placement had a maturity of less than one year. In contrast, 67 percent of all bank loans had maturities shorter than one year, and essentially none had a maturity greater than seven years.

These facts, combined with our earlier discussion of maturity structure, suggest that private placements are imperfect substitutes for bank loans. Moreover, they suggest that banks lend to information-problematic firms for which short-term debt is optimal, while insurance companies lend to firms for which information problems are small enough to permit long-term borrowing, but not small enough to access public bond markets. Carey et al. (1993) provide evidence on this point. For a sample of firms selected from Compustat, they show that relative to bank borrowers, the median borrower in the private placement market is larger (assets of \$3.4 billion versus \$0.04 billion), is less R&D intensive (R&D-to-sales ratio of 0.038 versus 0.070), and has a higher percentage of fixed assets (42 percent versus 31 percent).¹³

A related argument suggests that short-term bank lending dominates long-term private placements when the lender wants to impose covenants based on characteristics that are observable but not verifiable by a third party. When covenants are based on verifiable characteristics, it is easier for a lender to legally declare a loan to be in default. However, when the lender can observe that the loan is in default but cannot convey this information to a third party, short-term debt will be used because it gives the lender the ability to terminate the loan (Berlin and Loeys 1988; Hart and Moore 1989). Thus, "in many cases, a short-term loan without a covenant may dominate a longer-term loan with a covenant" (Carey et al. 1993).

¹³ These variables are commonly used in the literature as proxies for information problems. For additional discussion of these proxies, see the previous section.

Finance Companies versus Banks

Unlike insurance companies, whose preferences for long-term lending are dictated by their long-term liabilities, finance companies are relatively free to structure their liabilities either long or short. In particular, they can assess the contractual requirements of the borrower (including maturity), and then structure their liabilities accordingly. Assuming that this flexibility is important, finance companies are better positioned to make short-term loans that would compete directly with banks. In practice, while the maturity structure of their lending is indeed shorter-term, it is not as short as the typical bank loan. Moreover, significant differences in collateral requirements are found between the loans made by banks and by finance companies. We argue that these differences effectively segment the market for business lending (excluding mortgages) between banks and finance companies.

Broadly characterized, the evidence suggests that finance companies specialize in "good collateral" lending and leasing. According to the *Federal Reserve Bulletin* (August 1995, Table 1.52), leases make up 47 percent of the \$157 billion in credit provided by finance companies to business.¹⁴ The balance of finance company lending is niche lending against assets that have thick secondary markets (and therefore high liquidation values). On the other hand, leasing or secured loans may not be an attractive option for firms with firm-specific assets. For example, leasing is relatively uncommon in the manufacturing sector (Sivarama and Moyer 1994). In contrast, a significant portion of bank commercial loans are unsecured (Beckett and Morris 1993). These facts suggest that relative to finance companies, banks specialize in lending against assets that are difficult to pledge as collateral.

Given that finance companies specialize in collateral, the nature of firm assets appears to determine whether firms borrow from banks or finance companies. Many assets make poor collateral; expenditures for R&D, advertising, and firm-specific fixed capital create assets that are difficult or impossible to sell in the event of a loan default. Because these assets have little value except as part of the firm as a going concern, the optimal loan contract will substitute tighter covenants and shorter

¹⁴ The accelerated growth in the 1980s in part reflects a boom in leasing spurred by the Economic Recovery Tax Act of 1981 (Remolena and Wulfekuhler 1992). The Act allowed simplified and accelerated write-offs of depreciation. Finance companies could use the write-off to shelter their income while banks could offer only nonoperating leases and therefore could not shelter their income. The corporate debt buildup later in the '80s also increased the demand for leasing, as highly leveraged firms could protect their credit rating by leasing instead of borrowing.

maturity in place of collateral requirements.¹⁵ These loan characteristics enhance the benefits of continuous monitoring and place more emphasis on the assets' contribution to cash flow rather than their value on secondary markets.

What accounts for the respective degrees of specialization between banks and finance companies? Regulatory restrictions on bank assets provide one explanation. Remolona and Wulfekuhler (1992) suggest that the large market share of finance companies in leasing is the combined outcome of Federal Reserve Regulation Y (which restricted bank leasing) and dynamic learning economies, through which finance companies gained valuable knowledge about secondary-market values for large-asset classes like commercial aircraft, construction equipment, machine tools, and medical equipment. This asset knowledge gave finance companies a significant cost advantage over banks in various niche markets where the nature of the asset being financed permits leasing or secured lending.¹⁶

With the exception of Remolona and Wulfekuhler (1992), we are not aware of attempts in the literature to explain the segmentation of loan markets between banks and finance companies. Specifically, given that finance companies are successful in markets for leasing and for highly collateralized loans, why do they not compete with banks in the market for short-term, unsecured loans? This puzzle is presumably explained by the bank franchise on deposit-taking. We can think of two reasons why deposit-taking might lower the cost of making short-term, relatively unsecured loans. First, as Fama (1985) and others have suggested, if deposit-taking lowers the cost of monitoring the firm's financial condition, then it confers an advantage in unsecured lending (especially for short-term lending). Second, if maturity matching reduces costs, then deposit-taking makes it cheaper for banks to lend short term. The large amounts of commercial paper floated by finance companies are short maturity (30 days, typically), but not as short as a demand deposit. As long as banks retain their franchise on deposit-taking, they seem likely to retain their dominant position in the market for short-term, unsecured C&I lending.¹⁷

¹⁵ In general, firms with intangible assets will also choose lower debt-equity ratios (Harris and Raviv 1990). Our analysis considers only the debt choice conditional on the debt-equity choice.

¹⁶ Remolona and Wulfekuhler (1992) also point out that economies of scope could also provide finance companies with a cost advantage over banks in secured lending. For example, they note that IBM Credit uses information about the parent's product plans to inform its forecasts of residual asset values. On the other hand, they note that GE Capital successfully entered aircraft leasing even though its parent manufactures only engines.

¹⁷ This assumes that innovations in transactions technology will not render deposit-taking obsolete.

CONCLUSION

While both theoretical and empirical research identify fundamental differences between intermediated and direct borrowing, more research is needed on the differences among intermediaries, especially those between banks and finance companies. Finance companies fund loans by selling commercial paper and medium-term notes to mutual funds, which in turn issue shares to savers. Is this "parallel banking system" (D'Arista 1994) merely an artifact of regulation (for example, the reserve tax), or has it arisen because of informational economies of scope between producing and selling capital goods and making loans secured by those same assets? Does the banks' franchise on demand deposits, the most liquid of liabilities, provide sufficient information and other advantages to stave off finance companies funded by one-month commercial paper?

Boyd and Gertler (1994) stress that most commercial paper is backed by a standby letter of credit from a bank, suggesting that banks add value to the market by monitoring issuers (or by providing indirect access to the discount window). Does this arrangement open a policy channel to the commercial paper market? Banks are required to hold capital against standby letters of credit, so a capital shock could affect the supply of standby letters and the cost of commercial paper.¹⁸ Backup letters do not require reserves, however, so it seems doubtful that open market operations could directly affect the commercial paper market.

With such questions for future research in mind, we conclude that bank lending is still special, at least for some business borrowers. Smaller, lower-quality borrowers still require intensive screening and monitoring by intermediaries. Some such firms can borrow from insurance companies, but many do not. Only firms with easily secured assets seem able to borrow from finance companies. For the remainder of firms, bank lending is still special. Of course, the existence of a lending channel also requires that monetary or regulatory policy actually change the supply of bank loans. This topic is considered by other papers at this conference.

¹⁸ D'Arista (1994, p. 456) cites evidence that the imposition of capital requirements against letters of credit tightened terms of banks' backup lines for finance company commercial paper.

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DISCUSSION

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For bank lending to provide a distinct mechanism for the transmission of monetary policy, banks must occupy a special niche for some category of borrowers. This paper by Charles Himmelberg and Donald Morgan focuses directly on that issue and is an appropriate place to start this conference. My brief comments are directed to three questions raised by the paper. First, in the past has a discernible category of borrowers been dependent on bank loans? Second, are these borrowers likely to continue to depend on banks, or will nonbank substitutes compete effectively for them? Third, how effective is this bank lending channel as a transmission mechanism for monetary policy; specifically, does it reinforce what the Fed is seeking to do through other policy initiatives, or does it act at cross-purposes?

Using both theoretical and empirical evidence, the authors show, quite persuasively I believe, that a well-defined class of borrowers is and has been markedly dependent upon banks. This important group is characterized as small and non-capital-intensive firms and includes high-tech and rapidly growing companies. They may be responsible for only 28 percent of employment, but they create more than their share of jobs in cyclical expansions.

The theoretical support for identifying this group rests primarily on agency cost considerations. Because less information is published for them, smaller firms (and especially those non-capital-intensive firms whose value depends more on intangible assets, which provide less satisfactory collateral for loans) are more subject to classical agency costs

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than other firms. Naturally, both these firms and the market seek to reduce those agency costs, and one effective way to reduce them is by creating tight, detailed covenants in bank lending contracts. Intermediaries in general, and banks in particular, are well-equipped and have specialized in creating, negotiating, monitoring, and where necessary, renegotiating these contracts. That is the niche intermediaries occupy, and banks have become extremely skilled in that role. These skills have contributed importantly to reducing the cost of lending. The empirical support in the paper, beyond a review of past evidence, is contained in a probit analysis of new data confirming this image of a special category of bank borrowers: small, growing, non-capital-intensive firms.

But so much for the past; as the authors say, banks have been special until now. The question remains, will they be special in the future? First of all, how about competition for small-business lending from other intermediaries, specifically life insurance companies and finance companies? Looking forward, I am less convinced that banks will successfully hold off this competition.

First, why cannot life insurance companies offer serious competition? The major thrust of the argument is that the maturity mismatch that would occur when their naturally long-term liabilities are set off against short-term loans to these small, growing firms has kept insurance companies out of this business. Well, if that has been the reason in the past, I think it less likely to be a reason in the future. Techniques using derivative instruments are now available to transform maturities and reconcile mismatches with low risk and at very low cost. So if all that was keeping insurance companies out of short-term, small-business lending is the maturity mismatch, that is hardly going to be a great barrier in the future. There are, of course, other forces that may keep life insurance companies out of this market, not least the consolidation and continuing competitive pressure confronting insurers. But I would not rely on maturity mismatch to keep insurers from competing with banks for short-term business loans.

Finance companies, on the other hand, have already become an extraordinarily important competitor of banks. In the late '80s and early '90s, finance companies were providing short-term business loans at three times the rate of banks. It is true, historically, that these intermediaries have specialized in collateralized lending. Generally they grew from captive lenders of manufacturing firms, as the authors note. But in recent years, a number of the larger finance companies (for example, General Electric Credit Corp.) have become increasingly skilled at making non-collateralized, cash-flow loans and, I suspect, will continue to do so. The maturity issue is not significant here. There is no conceptual reason why finance companies will not continue to give banks serious competition for small-business lending.

Indeed, among intermediaries, what gives banks a competitive

advantage? The argument is, first, banks benefit from economies of scope derived from deposit-taking, which provides information useful in monitoring. No doubt that is true, but against that advantage one must consider the daunting list of disadvantages of being a bank. The list includes the reserve tax, deposit insurance rates, and the added burden that regulations impose, particularly the micro-management regulations imposed recently by FDICIA, and other regulations like CRA. Important regulatory costs are imposed on banks, as compared with nonbank intermediaries.

These disadvantages are quite substantial, even compared with the advantages that banks have. Indeed, when I was at the U.S. Treasury Department, several heads of large finance companies met with me to say they could not care less what kind of banking legislation we passed, they had absolutely no interest in becoming a regulated bank. They were quite happy to raise their funding as a non-government-insured borrower in the capital markets and lend it outside the regulation that is imposed on banks. Banks confront other intermediaries armed with some advantages but also carrying a great deal of added cost.

A second challenge to banks, and to bank lending as a channel, comes from the capital markets themselves. Exploiting information technology that supports the work of rating agencies, capital markets have relentlessly substituted direct lending via securities for intermediated lending, starting with large, high-quality borrowers and moving on to large, lower-quality firms (that is, the junk bond market). Consequently, intermediaries have been forced into a narrow corner—lending to small firms, a trend well described in the paper. To the question, “Will this corner become even narrower in the future?” my bet is “Yes.” Securitization of small-business loans is difficult, to be sure, because of the heterogeneity in information demands, but I think it will continue to make progress. More and more of this niche will be carved out by the capital markets themselves, and the bank lending channel will become further attenuated.

The last question I want to address is this: Just how effective is the bank lending channel at transmitting Fed policy? What goes through this channel? Does this channel support Fed policy or work against it, at cross-purposes with that policy? On this issue, a good deal of the relevant research has been done here at the Boston Fed. The experience of the early '90s, as documented by Peek and Rosengren (1995) and by Randall (1993), suggests that, while Fed policy during the period was stimulative, supervisory and examination policy was operating to restrain lending.

Reacting to a variety of forces, not the least of which were political, examiners clamped down on bank lending just when monetary policy was seeking to be stimulative. Several actions have been cited: Leverage ratios were raised, classification standards were tightened. Examination

and supervisory policies plainly made it harder for banks to support the recovery. These policies were, simply, pro-cyclical. That, I believe, worked against the forces Fed monetary policy was trying to transmit. Of course, the problem lay not only with regulators, supervisors, and examiners; the banks themselves had a hand in turning the lending channel against the recovery. Banks failed to accumulate sufficient capital in good times to act as a buffer in bad times. They took on marginal loans in the expansion, which came home to roost in the recession.

In sum, there is much evidence that banks and regulators have acted to make supervisory policy operate cyclically, tightening in downturns and loosening in expansions. With a pro-cyclical supervisory policy, the lending channel becomes a transmission mechanism for monetary policy, but operates in reverse.

Bank lending as a proper transmission mechanism for monetary policy requires more than the convincing evidence in this paper that banks have carved out a special lending niche in the past. The future will likely see a further erosion of that niche. And, more disturbing, there is evidence that bank lending as a transmission mechanism may operate to undermine monetary policy, at least in part, during periods of both stimulation and restraint.

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DISCUSSION

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Bank lending is “special” if firms do not have close substitutes for bank loans. An important premise of this paper by Charles P. Himmelberg and Donald P. Morgan is that bank lending has to be special for monetary policy to be transmitted through banks (the so-called “lending channel”).

To understand if this premise is justified, we must first understand why one might think that monetary policy could be transmitted through banks. This is what I make of the received view: The monetary authority increases short-term interest rates. Transactions deposits fall off because the opportunity cost to depositors of holding money increases. A bank has to make up the funding shortfall through other sources. If transactions deposits were perfectly substitutable with these other sources, there would be no effect on the bank’s assets. But if transactions deposits are special for some reason (for example, they enjoy a government insurance subsidy), then other forms of funding may not easily replace the lost deposits, because of capital market imperfections. Bank assets would then shrink, affecting securities holdings first, then bank loans. Finally, firms that do not have access to other financial institutions or markets—because of agency or asymmetric information problems—will find their investment credit-constrained, and real activity will be affected.

The necessary conditions for the “lending channel,” it would seem, are as follows. (1) Banks do not have perfect substitutes for transaction deposits, so monetary policy affects bank liabilities and thus bank assets (that is, loans). (2) Firms do not have perfect substitutes for bank loans:

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Banks are special because they solve agency and asymmetric information problems at the firm level that other financial institutions cannot solve. This paper focuses on (2). But as an aside, I wonder if (1) is necessary? In other words, a fair amount of research effort (see the references in the paper) has been spent recently investigating whether banks themselves suffer from agency and asymmetric information problems, so that (insured) transaction deposits are indeed a special source of funding. But could the lending channel work directly off the asset side of banks, without necessarily flowing through the liability side?

The reason I think this is important is that most theories of banks (see, for example, Diamond 1984) would suggest that banks exist because they somehow convince investors that agency and asymmetric information problems will be low at the bank level. Otherwise, banks would simply add another layer of costs between the initial saver and the ultimate user of funds. So a theory of transmission of monetary policy that requires substantial agency costs and information problems at both the bank level and the firm level raises questions about why banks exist in the first place.

Here is one way monetary policy could work directly through the bank asset side. Suppose reserves are special. This could be motivated in a number of ways that do not require banks to be constrained on the liability side. For instance, suppose banks may be faced with a random demand for repayment by short-term creditors (not necessarily insured depositors). Banks would want to hold liquid assets to insure against this, because the price of liquidity fluctuates over time and banks do not want to raise funds when the price of liquidity is too high. Thus, banks have a demand for liquid assets and perhaps for reserves, which are more liquid than any other asset. Once banks do have such a demand, it is obvious that by increasing the short-term interest rate (and under the assumption that bank lending rates do not immediately adjust in full measure), the monetary authority reduces the opportunity cost to banks of maintaining a liquid reserve. Thus, loans decrease and the bank's holdings of short-term securities increase.

I do not claim that monetary policy does not affect the liability side. But if it works directly through the asset side also, then monetary policy may be transmitted through a variety of financial institutions that need liquidity, not just banks. The extent to which it would affect their lending would depend only on the extent to which they need liquidity. For instance, life insurance firms would be less affected than would banks.

This has an important bearing on the paper. From a firm's point of view, credit from a bank and credit from a finance company may be close substitutes (they both are institutional investors, capable of monitoring and controlling the firm). Banks may increasingly be displaced by

finance companies. If monetary policy is transmitted via the liability side of banks, it will have less and less effect as bank lending is displaced by finance company lending. But if it works directly off the asset side of financial institutions, to the extent that both finance companies and banks need liquidity, monetary policy would continue to affect lending even if (or when) banks decline in importance.

Let us move now to Himmelberg and Morgan's paper. They argue that institutional lending is special because institutions, unlike public investors, can enter into long-term relationships with borrowers that result in a richer set of contractual possibilities. Institutions also enjoy scale economies in monitoring and lower coordination costs than public investors in effecting changes in managerial actions. Furthermore, banks are special among institutions because banks have information from deposit accounts. A franchise in offering short-term deposits (because of entry restrictions/deposit insurance subsidy/access to payment system/access to discount window) gives banks a preference for liquid assets and a comparative advantage in making short-term monitored loans. Finally, the structure of bank assets and liabilities minimizes the cost of intermediation.

The paper, however, does not test much of this. It examines the following two issues. First, what determines whether a firm gets rated? The authors regress an indicator showing whether a firm is rated against explanatory variables such as size and capital intensity. They conclude that only large firms with tangible, collateralizable assets are likely to be rated and have access to public debt markets. While I believe the result, one must be careful in interpreting such regressions, because a number of firms may be quite capable of accessing the public debt markets but may not bother to get a rating. American Home Products, through much of the 1970s, is an example.

Second, the authors ask what determines how much short-term debt a firm uses. They conclude that agency problems restrict firms with high R&D and high growth to short-term borrowing. Of course, one has to be careful in concluding that short-term debt is institutional finance, because much of it could be commercial paper. Nevertheless, from this and other studies, it seems reasonable to conclude that institutional financing is likely to be more valuable and available for some firms than public financing. But are banks special among institutions? The paper is less illuminating here.

Finally, if banks are special, why has bank lending as a fraction of total financing been declining over the 1980s? Some argue that vast increases in computing power and informational technology have made monitoring the borrower easier for the public investor, and this is why banks are losing their comparative advantage. But since banks also could avail themselves of this technology, it is not clear why bank lending is declining. More plausible arguments relate to the fact that

markets have become more receptive to issuing firms. Since this reduces the value of long-term banking relationships, it could lead to an increase in disintermediation. Another possibility is that banks are valuable only as long as they have a deposit franchise. Since the value of that franchise has declined, the role of banks has declined. Which one of these possibilities (if any) explains the decline of bank market share awaits future research.

To conclude, substantial evidence is found in this paper and in others that financial institutions can overcome agency and information problems at the firm level. Whether such institutions need to be banks is debatable. What is even less clear is whether there is a lending channel for monetary policy, and whether such a channel operates through banks only. Obviously, more research is needed.

Reference

- Diamond, Douglas W. 1984. "Financial Intermediation and Delegated Monitoring." *Review of Economic Studies*, vol. 51, pp. 393-414.