

Bank Credit Commitments: Protection from a Credit Crunch?

By Donald P. Morgan

Concern has grown in recent months over signs that banks have tightened lending standards. Some analysts fear such actions could lead to a significant curtailment of bank lending, similar to episodes in the past in which banks dramatically slowed their lending. These past episodes, or credit crunches, have been associated with economic recessions.

The situation today differs from past credit crunches in several ways. Absent today are two factors that aggravated past credit crunches: interest rate ceilings and credit controls. More prevalent today is a factor that may help alleviate a credit crunch: bank credit commitments. A bank credit commitment is a promise by a bank to a business to lend up to some limit, for some fixed amount of time, at predetermined terms.

Bank credit commitments may provide some protection from a credit crunch. During a

credit crunch banks may ration loans by tightening lending terms, scaling back loan amounts, or even denying loans altogether to prospective borrowers. Since commitments obligate banks to lend at predetermined terms, commitment holders are shielded from such rationing.

But how broad is this shield? This article argues bank credit commitments cannot protect the entire economy from a credit crunch. In arriving at this position, the first section of the article examines recent credit crunches and the role of credit rationing during such times. The second section shows that bank credit commitments cannot fully protect the economy from a crunch because the firms most at risk of rationing during a crunch, small businesses, often do not hold commitments.

I. Credit Crunches and Rationing

Banks extend credit to businesses for many purposes: to stock inventories, finance new plant and equipment, and start new businesses. When banks dramatically reduce the supply of

Donald P. Morgan is an economist at the Federal Reserve Bank of Kansas City. Dodd Snodgrass, a research associate at the bank, assisted in the preparation of the article.

credit, interest rates rise, rationing increases, and the economy suffers a *credit crunch*.

Past credit crunches

The economy experienced credit crunches in 1966, 1969-70, 1973-74, and 1978-81.¹ These crunches resulted from a confluence of factors that operated to reduce the supply of bank credit.²

An important factor contributing to the crunches in the 1960s and 1970s was regulated ceilings on bank deposit rates. Although ceilings were imposed in the 1930s, deposit rates did not bump against the ceilings until market rates reached record heights in 1966. When market rates rose still higher, savers withdrew deposits from banks and thrifts to invest in higher yielding market assets. The loss of deposits, called disintermediation, forced banks and thrifts to slow their lending. Disintermediation also figured in the crunches of 1969-70 and 1973-74 after market rates again rose above deposit rate ceilings.

Legal and regulatory ceilings on loan rates also reduced the supply of bank credit in some of these crunches. Ceilings on loan rates prevent borrowers from competing for loans, just as ceilings on deposit rates prevent banks from competing for funds. For example, a prime rate ceiling of 6 percent was imposed briefly during the 1973 crunch.³ After market rates topped this ceiling, banks were unable to make profitable loans.

Direct prohibitions against lending also have been a contributing factor in crunches. For example, during the 1966 crunch the Federal Reserve discouraged banks from excessive lending in hope of controlling inflationary pressure. More formal credit controls, enforced briefly in 1980, aggravated the 1978-81 credit crunch.

Deterioration in the financial condition of banks probably also contributed to past

crunches. When the loan portfolio of a bank deteriorates, the bank must slow lending to set aside more capital for loan losses. Banks may also reduce lending if their capital-asset ratios decline. To increase their ratios banks may shrink their assets by selling existing loans and by not making new loans. Deteriorating loan quality and declining capital-asset ratios are commonly mentioned in explaining recent tightening in lending standards.⁴

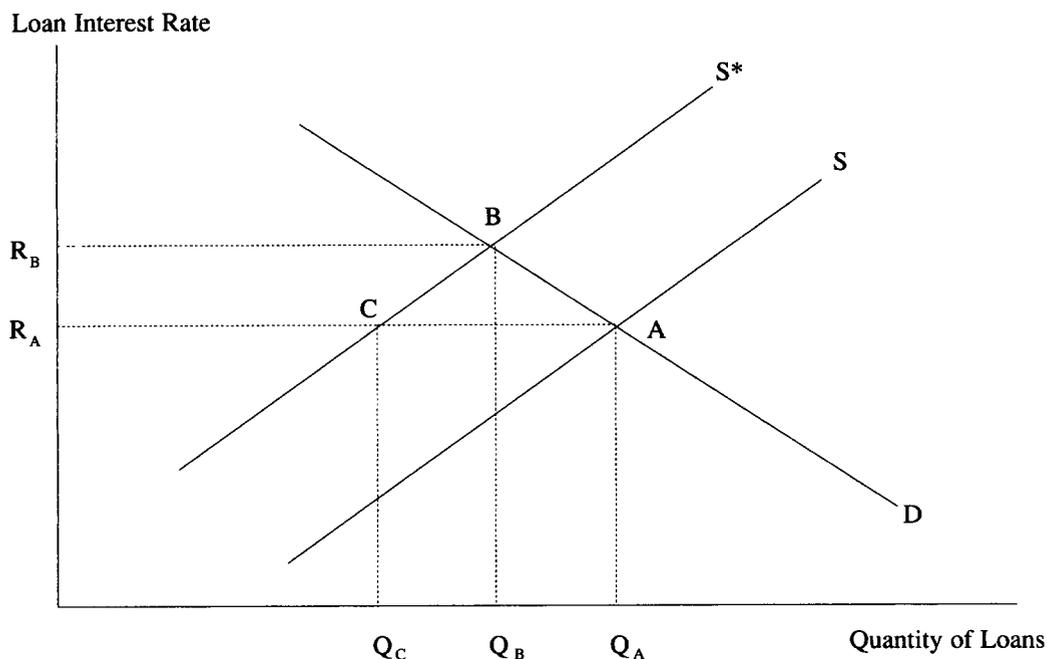
Rationing during credit crunches

Borrowers may experience a credit crunch through two distinct channels: higher loan rates and rationing. These channels can be illustrated with Figure 1, which represents the market for bank loans. The curve labeled *D* is a demand curve relating the quantity of loans demanded by borrowers to the interest rate on loans. The demand curve slopes downward because borrowers will want to take out more loans at lower lending rates. The other side of the loan market is represented by the supply curve, labeled *S*. The supply curve relates the quantity of loans banks are willing to make to the interest rate on loans. The supply curve slopes upward because banks will lend more only at higher loan rates, in part because banks themselves must pay higher rates to depositors to attract funds to lend. The market for bank loans is said to be in "equilibrium" at point *A*, where supply equals demand.

Next, suppose banks take action to reduce their lending, perhaps because some past loans appear to be unprofitable. The reduction in the supply of credit would appear in Figure 1 as a leftward shift in the supply curve from *S* to *S**. Banks are now willing to supply fewer loans at the same interest rate.

Borrowers initially feel the crunch through the loan rate channel as banks begin to charge higher loan rates. As the loan rate rises toward *R_B*, borrowers reduce their borrowing from

Figure 1
Market for Bank Loans



quantity Q_A . All else equal, banks would raise the loan rate all the way to R_B , causing the new equilibrium quantity of loans to fall Q_B . In this case the crunch would operate only through the loan rate channel.

But all else is not equal because higher loan rates may increase the risk of borrower bankruptcy. Bankruptcy occurs when a firm's assets are less than its obligation to lenders and its other liabilities. Higher loan rates increase bankruptcy risk by increasing a firm's obligation to lenders.⁵ If higher loan rates threaten to increase bankruptcy risk too much, banks will refuse to lend instead of raising interest rates. And even though firms may offer to pay higher interest rates to obtain credit, lenders will refuse the offer.

The rationing channel of a crunch operates when banks do not raise the loan rate all the way to R_B . In the extreme case where banks do not raise their rates at all, the crunch is felt only through the rationing channel. In that case, the loan rate remains at R_A and the quantity of credit supplied declines to Q_C . But since the loan rate does not rise, the demand for credit does not decline. Thus, banks must ration the reduced amount of credit, Q_C , among borrowers who in aggregate demand the larger amount of credit, Q_A .

Banks can ration credit in several ways.⁶ They may deny loans altogether to some prospective borrowers or may lend smaller amounts than borrowers desire. Alternatively, banks may substitute higher collateral require-

ments for higher interest rates, granting loans only to the safest borrowers with the most collateral.

There is evidence that some amount of rationing occurs at all times. For example, research suggests that heavily indebted firms are subject to rationing because of high bankruptcy risk. In a study of 325 firms from 1973 to 1986, Whited (1990) found that firms with heavy debt burdens often postponed profitable investments. This finding suggests these firms were unable to borrow additional funds to finance the investment. In contrast, firms with low debt burdens were more inclined to undertake the investments immediately.

There is also evidence that rationing intensifies during credit crunches. King (1986) estimated aggregate loan supply and demand curves resembling the hypothetical curves in Figure 1. His results suggest that rationing increases substantially during crunches. During the 1973-75 crunch, for example, the demand for loans exceeded the supply of loans by more than 10 percent.⁷

II. Bank Credit Commitments and Rationing

In recent years, a growing number of businesses have been able to insulate themselves from rationing with bank credit commitments. This section first explains how bank credit commitments operate, and then answers the question: Can commitments protect the entire economy from a credit crunch?

Bank credit commitments

The defining feature of a bank credit commitment is that it promises the holder a loan for some length of time. Apart from that common feature, the contracts can vary along several dimensions, including the degree of formality, the maturity, and the pricing.

The majority of credit commitments are revolving credit agreements. These are formal, long-term contracts committing the bank to lend to the holder for several years. The revolving feature permits the holder to borrow and repay repeatedly—much like a credit card. Fees are usually levied against the unused portion of the commitment, the total amount committed, or both. These contracts contain covenants that must be satisfied before loans are made. For example, borrowers are usually required to maintain a minimum level of collateral and working capital. If a covenant is violated, the bank may cancel the agreement and refuse to lend. The interest rate on a revolving credit agreement may be either a fixed or floating rate. Most are floating rate contracts, charging a fixed markup over a base rate, such as the prime rate.

Confirmed lines of credit are another, less common type of commitment. These are informal, short-term agreements, usually for less than a year. Fees are not usually charged on confirmed lines of credit.⁸ The interest rate on confirmed lines of credit can be either a floating or fixed rate.

Businesses obtain credit commitments for various reasons. For firms that borrow frequently from banks, obtaining a commitment is simply more convenient than reapplying for credit each time they need a loan. This reason was most frequently cited by senior loan officers in explaining why firms obtain commitments (Board of Governors 1988). But even firms unsure if they will need credit might obtain commitments. These firms want assurance that credit will be available if needed—even in a credit crunch. Senior loan officers viewed protection from rationing during a credit crunch as the second most common reason why firms obtain commitments.

Protection from rationing

As noted in the previous section, rationing can take three forms. Banks may simply refuse to lend to a business, they may lend less than the firm needs, or they may tighten credit standards so severely that a once creditworthy business no longer qualifies for a loan.

Commitments protect against each type of rationing. Commitment holders cannot be denied loans altogether, of course, because by definition commitments are a promise by the bank to provide a loan. For example, a bank cannot deny loans because its own balance sheet has deteriorated. Nor can a bank deny loans due to a lack of deposits, as occurs during disintermediation—a bank without sufficient deposits would need to borrow in the more expensive federal funds market to fund the loan. Similarly, commitment holders are protected from loan rate ceilings that may cause banks to curtail lending to borrowers without commitments.⁹

Commitments also protect against rationing in the form of a loan that is too small. This protection arises because the loan limit on a commitment is chosen in advance by the business. The business then has the right to borrow up to that limit as long as the contract is in effect.¹⁰

Finally, commitment holders are protected if banks begin rationing credit through tighter credit standards, such as higher collateral requirements. Commitments protect against such an event because the contract specifies credit standards beforehand. Thus, tighter credit standards can constrain only borrowers without commitments.

Are there features of commitment contracts that limit the protection provided to borrowers? Commitments do specify a loan limit, so commitment holders may be rationed if they need to borrow more than the limit. Such a limitation does not appear to be significant, though, because the proportion of commitments actually

borrowed rarely exceeds 50 percent even during credit crunches (Hanweck 1982). Commitment holders may also be rationed if any of the commitment covenants are violated. In a recent study, however, it was found that only 2 percent of the businesses sampled lost a commitment because a covenant was violated (Lummer and McConnell 1989). Commitment holders might also be rationed if their commitment expires during a crunch. Most credit commitments, though, are long-term contracts spanning several years, which reduces the risk that commitment holders will lose their protection in the midst of a crunch.

Commitments cannot protect the entire economy

The market for commitments has grown since the late 1970s. The volume of commitments at 113 large commercial banks grew from about \$350 billion in 1977 to about \$500 billion in 1987 (Chart 1).¹¹ As a result of this growth, commitment lending is now more prevalent in commercial bank lending to business. Specifically, the percentage of commercial and industrial bank loans made under commitment increased from about 50 percent in the 1970s to about 70 percent in the 1980s.¹²

With such broad coverage against credit rationing, one might believe the economy may be protected from a credit crunch. The degree of protection is limited, though, in part because commitments are relatively rare among smaller borrowers. From 1984 to 1990, only about a third of the volume of loans under \$100,000 were made under commitment, and about 56 percent of the volume of loans from \$100,000 to \$500,000 were made under commitment.¹³ In contrast, larger loans were much more likely to be made under commitment: About 70 percent of the volume of loans from \$500,000 to \$1 million were made under commitment, and over 80 percent of the loans of \$1 million or more were

Chart 1
Loan Commitments at Large Commercial Banks

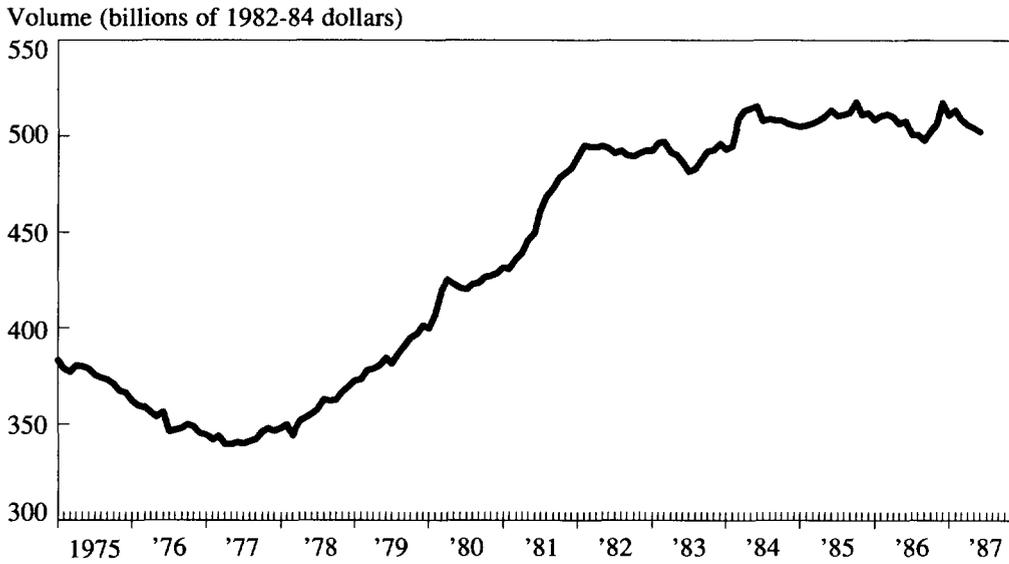
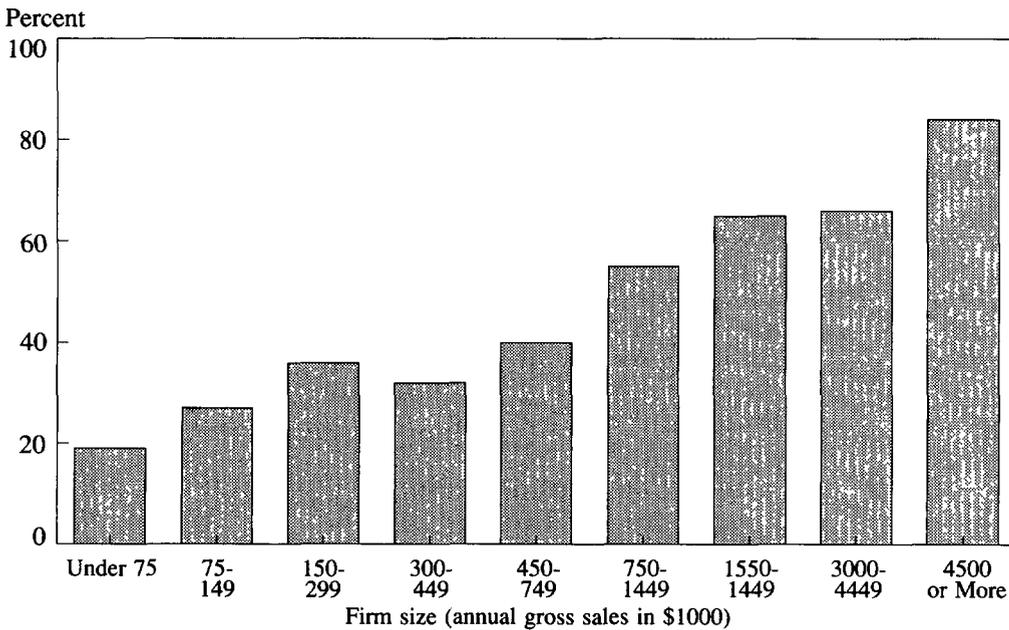


Chart 2
Percent of Firms with Credit Commitments, 1988



Source: Chart 1, Federal Reserve Board. "Commercial and Industrial Loan Commitments at Selected Large Commercial Banks" various issues.

Source: Chart 2, Dennis, Dunkelberg, and Hulle 1988.

made under commitment (Board of Governors 1984-90). To the extent smaller businesses are the recipients of smaller loans, these numbers are evidence that smaller businesses are less likely to own commitments.

More direct evidence comes from a survey of small businesses (Dennis, Dunkelberg, and Van Hulle 1988). The survey revealed smaller firms were less likely than larger firms to have a bank credit commitment (Chart 2). Perhaps small firms are less likely to have commitments because banks are reluctant to grant them commitments. After surveying senior loan officers about commitments, Duca (1988) concluded banks extend commitments primarily to larger, safer borrowers.

Fewer small firms owning commitments would not necessarily mean a great deal for the economy during a credit crunch, provided that small firms were less likely to be rationed. Recent research, however, suggests smaller firms are more likely to be rationed. For example, Fazzari, Hubbard, and Petersen (1987) compared the investment spending of smaller and larger firms from 1970 to 1984.¹⁴ They found investment spending of smaller firms depended more on cash flow than on the profitability of the investment projects. In contrast, investment of larger firms was driven more by the profitability of the projects and less by cash flow.¹⁵ This finding suggests the smaller firms could not borrow to finance some worthwhile projects and were forced to rely on cash flow for financing.

Other evidence also suggests smaller firms are more likely than larger firms to be rationed during a credit crunch. A survey of small and medium-sized firms during the 1966 credit crunch revealed that 26.7 percent of the small firms in the sample were denied their initial loan request. In contrast, only 19 percent of the medium-sized firms were refused credit the first time they applied.¹⁶ Moreover, Gertler and Hubbard (1988) discovered investment by smaller

manufacturing firms declined more than investment by larger firms during the 1966 crunch.

Small firms without commitments thus appear to be vulnerable to rationing. But is the output of small firms without commitments enough to have much impact on the overall economy? Data on the share of output contributed by such firms is, unfortunately, not available. However, it is easy to dispel the view that small businesses as a whole do not matter to the economy. The most recent data showed that in 1976 nearly half of the economy's output originated at small businesses defined as those with fewer than 500 employees (Popkin 1980). Indeed, in the construction, wholesale trade, and service industries, fully 80 percent of the output originated at small businesses.

Other, more recent measures also indicate small businesses are a vital force in the U.S. economy. For example, firms with fewer than 500 employees accounted for over half of employment and 45 percent of all sales in 1986 (Gertler and Hubbard 1988). Even firms with fewer than 100 employees accounted for a third of total sales in 1986 (Brock and Evans 1986). These numbers show clearly that the role of small firms in the economy is substantial.

Of course, not all small firms would be rationed in a credit crunch. According to a quarterly survey conducted by the National Federation of Independent Businesses, about two-thirds of small businesses do not borrow regularly from banks. That leaves one-third of small businesses who borrow regularly—and may be without bank credit commitments. It is these businesses that remain most vulnerable to rationing during a credit crunch.

III. Summary

Credit crunches have gripped the economy several times in recent decades. During these episodes, bank lending slowed dramatically as banks raised loan rates and rationed credit.

Some observers fear the present weakened financial condition of some banks, brought on by high loan losses and rising capital requirements, may end in a credit crunch. If so, businesses with loan commitments will be protected from rationing. But bank commitments cannot

protect the entire economy because the smaller firms most likely to be rationed in a crunch are the least likely to own commitments. Thus, policymakers must remain alert to signs of a credit crunch.

Endnotes

¹ Eckstein and Sinai (1986) date these crunches by year and quarter: 1966:1 to 1966:2, 1969:1 to 1970:1, 1973:1 to 1974:3, 1978:2 to 1980:1, and 1981:1 to 1981:4. For a historical accounting of these crunches and surrounding financial events, see Wojnilower 1980.

² In identifying credit crunches, the focus is on the supply of credit, not the demand. A crunch occurs when a reduction in the supply of credit forces firms to reduce their spending. Such a situation is fundamentally different from one in which the supply of credit stays constant but firms reduce their demand for funds because of a desired reduction in spending. Bank credit, in particular, is emphasized because banks may be the only source of credit for smaller businesses without access to the capital markets.

³ The ceiling was enforced from February to April 1973 by the Committee on Interest and Dividends, a vestige of the wage and price controls of the early 1970s.

⁴ In the May 1990 Federal Reserve Survey of Senior Loan Officers, deterioration in loan quality and inadequate capital were among the most frequently cited reasons for tighter loan standards on small and medium-sized firms.

⁵ Jaffe and Russell (1976) argue that raising interest rates could also increase bankruptcy risk by driving honest borrowers from the market, leaving relatively more dishonest borrowers in the market with little intention of actually repaying such high loan rates. If lenders are uncertain of borrowers' character, such a shift may force them to ration credit. A recent survey by the National Federation of Independent Business (NFIB) supports this possibility. The survey revealed that collateral and credit availability were more of a problem for urban borrowers than for rural borrowers. Rural borrowers, on the other hand, were more concerned with interest rates than were urban borrowers. These differences suggest that rural bankers are better acquainted with their borrowers and can allocate credit with interest rates, while urban bankers lend to relative strangers and thus may be forced to ration credit.

⁶ The term rationing here describes any nonprice criteria

for allocating credit.

⁷ For his sample period from 1955 to 1979, King found the demand for loans often exceeded the supply. However, he found the level of bank credit did not help predict output after taking into account the level of demand deposits, leading him to conclude that rationing does not play a significant macroeconomic role. This conclusion has been disputed by Lown (1988). Using techniques for treating lags and trends developed after King's research, Lown found that bank credit does help predict output over the period studied by King.

⁸ Firms with confirmed lines of credit may be required to hold compensating balances at the bank.

⁹ Indeed, commitment holders benefitted from the prime rate ceilings in early 1973 as banks were forced to make loans to these borrowers at below-market rates. Federal Reserve Chairman Burns mentioned this issue in testimony to Congress, published in the *Federal Reserve Bulletin* in April 1973.

¹⁰ Nonusage fees on commitments may also entitle businesses to larger loan limits. With a nonusage fee, if the firm happens to borrow only a small amount the bank will profit from the high fee. The expectation of earning this fee compensates the bank for the risk of making unprofitably large loans (Boot, Thakor, and Udell 1987; and Morgan 1990). Recent surveys of lenders and borrowers support this idea (Duca 1988; and Dennis, Dunkelberg, and Van Hulle 1988).

¹¹ The volume of commitments is measured in 1983 dollars. The Federal Reserve discontinued the commitment survey in 1987.

¹² These data are derived from the Federal Reserve's Survey of Terms of Bank Lending.

¹³ In fact, the volume of loans under \$500,000 represents only a small fraction of the total volume of bank lending. However, such loans represent a much larger fraction of the total volume of credit available to small businesses.

¹⁴ Actually, the researchers compared firms according to their dividend-to-income ratios. The comparison is based on the assumption that rationed firms would retain all their dividends to overcome the fact that they could not borrow as much as needed. As it happened, the firms with the lowest dividend-to-income ratio were also the smallest firms, while the largest firms had the highest dividend-to-income-ratios.

¹⁵ Strictly speaking, this research provides evidence not of credit rationing, but rather evidence of information prob-

lems that may result in credit rationing. The evidence suggests information problems seem to plague even relatively large, publicly traded firms studied in this research. The implication is that smaller firms may face more severe information problems, and thus be more likely to be rationed.

¹⁶ The smallest firms owned an average of \$1 million to \$1.5 million in assets. The larger firms owned an average of \$21.4 million to \$49.8 million in assets. For a further description, see Jaffe 1971.

References

- Board of Governors of the Federal Reserve System. 1984-90. "Survey of Terms of Bank Lending," statistical release E.2.
- _____. 1990. "Senior Loan Officer Opinion Survey on Bank Lending Practices." Board of Governors of the Federal Reserve System, May.
- _____. Various issues. "Commercial and Industrial Loan Commitments at Selected Large Commercial Banks," statistical release G.21.
- Boot, Arnoud, Anjan V. Thakor, and Gregory F. Udell. 1987. "Competition, Risk Neutrality and Loan Commitments," *Journal of Banking and Finance*, September.
- Brock, William A., and David S. Evans. 1986. *The Economics of Small Business*. New York: Holmes & Meier, p. 12.
- Dennis, William J., William C. Dunkelberg, and Jeffrey S. Van Hulle. 1988. *Small Business and Banks: The United States*. Washington: National Federation of Independent Business.
- Duca, John. 1988. "The Relevance of Loan Commitment Theories: Evidence From Survey Data," Board of Governors of the Federal Reserve System mimeo, May.
- Eckstein, Otto, and Allen Sinai. 1986. "The Mechanisms of the Business Cycle in the Postwar Era," in Robert J. Gordon, ed., *The American Business Cycle*. Chicago: University of Chicago Press.
- Fazzari, Steven, R. Glenn Hubbard, and Bruce C. Petersen. 1988. "Financing Constraints and Corporate Investment," *Brookings Papers on Economic Activity*, no. 1.
- Gertler, Mark, and R. Glenn Hubbard. 1988. "Financial Factors in Business Fluctuations." Paper presented at symposium on *Financial Market Volatility*, sponsored by the Federal Reserve Bank of Kansas City, August, p. 47.
- Hanweck, Gerald. 1982. "Below the Bottom Line: The Use of Contingencies and Commitments by Commercial Banks," Board of Governors of the Federal Reserve System Staff Study no. 113.
- Jaffe, Dwight M. 1971. *Credit Rationing and the Commercial Loan Market*. New York: John Wiley & Sons, Inc.
- _____, and Thomas Russell. 1976. "Imperfect Information and Credit Rationing," *Quarterly Journal of Economics*, vol. 40.
- King, Stephen. 1986. "Monetary Transmission: Through Bank Loans or Bank Liabilities?" *Journal of Money, Credit and Banking*, August.
- Lown, Cara S. 1988. "The Credit-Output Link vs. the Money-Output Link: New Evidence," Federal Reserve Bank of Dallas, *Economic Review*, November.
- Lummer, Scott L., and John J. McConnell. 1984. "Further Evidence on the Bank Lending Process and the Capital-Market Response to Bank Loan Agreements," *Journal of Financial Economics*, November.
- Morgan, Donald P. 1990. "Bank Credit Commitments and Credit Rationing," Federal Reserve Bank of Kansas City Working Paper, October.
- Popkin, Joel. 1980. "Measuring Gross Product Originating in Small Business: Methodology and Annual Estimates, 1955 to 1976," Small Business Administration.
- Scott, Jonathan A., and William C. Dunkelberg. 1983. *Credit, Banks and Small Business*. Washington: National Federation of Independent Business.
- Whited, Toni. 1990. "Debt, Liquidity Constraints, and Corporate Investment: Evidence From Panel Data." Federal Reserve Board Finance and Economics Discussion Series, March.