Small Business Credit Markets: Why do we know so little about them?

by Katherine Samolyk*

The vast majority of U.S. businesses are small and medium-sized. Internal Revenue Service (IRS) data for the 1992 tax year indicate that there were around 16 million firms in nonfarm, nonfinancial industries.[1] Fewer than 5,000 of these were large firms, mostly corporations, having more than $50 million in annual sales. Another 16,000 were what bankers would call middle-market firms, those with sales of $10 million to $50 million. The remaining 99.9 percent of businesses were financially small.

In this country, small business is seen as a means to economic opportunity, innovation, and growth.[2] It is also commonly accepted that there is a role in the U.S. economy for independent enterprises that stay small. Historically these values have been reflected in the legislative and regulatory consideration given to small business, as well as in antitrust policies that aim to limit the concentration of economic power.

In particular, smaller firms tend to receive special attention when policymakers focus on conditions in the banking sector. For example, during the contraction in bank credit in the early 1990s, when it was thought that smaller enterprises were most likely to feel the crunch,[3] initiatives were taken to promote the availability of credit to small businesses, and bank regulatory reporting was expanded to include data on small loans to businesses.[4] And now longer-term secular trends in the financial sector have raised concerns about the attractiveness of the small business borrower. Specifically, some analysts believe that financial innovation and changes in bank regulation may be causing the banking industry to find small commercial customers less attractive.[5]

Survey data indicate that small businesses rely on financial intermediaries—especially commercial banks—as lenders. Thus, it is not surprising that the rapidly changing structure of the commercial banking industry has raised concerns about the future availability of credit for small businesses. Historically policies such as deposit insurance or branching restrictions may have encouraged small business lending (though that was not their purpose) by promoting the existence of smaller institutions that make smaller loans.[6] By the same token, the ongoing consolidation of the banking industry has highlighted the question of whether, as banking organizations grow in size, the needs of smaller business customers will continue to be met.

Supply and demand considerations can explain the logic behind this conjecture. Smaller businesses may

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[1] Although 1993 Statistics of Income (SOI) data on business tax filers from the IRS have been published, they do not report on nonfarm, nonfinancial unincorporated businesses by size class. The 1992 data reported in this paragraph are from unpublished special tabulations produced by SOI.

[2] In some discussions, "small" and "new" are used synonymously, as the vast majority of newer firms tend to be small. Of course, new firms also tend to be very risky, as evidenced by their failure rates (Bates (1991)); it is only in hindsight that one can say the winners seemed like such sure things.

[3] *See* Samolyk and Humes (1993).

[4] Section 477 of the 1991 FDIC Improvement Act (FDICIA) requires that the Board of Governors of the Federal Reserve System report periodically to Congress on the availability of credit to small businesses. More recently, under the Community Reinvestment Act small business lending was included in the mandate for banks to serve local community needs.

[5] *See* Berger, Kashyap, and Scalise (1995).

[6] Indeed, it should be noted that although historical branching restrictions promoted the atomistic structure of the industry, it is less clear that they also promoted efficient provision of credit to borrowers (Berger, Kashyap, and Scalise (1995)). In unit-banking states, densely populated areas tended to have numerous banks competing for local customers, but small towns were more likely to have only single institutions to serve their needs.

face tighter credit conditions simply because the costs and risks associated with lending to them are greater. Although these costs and risks may depend upon the type of loan that is sought, they can also be affected by who the lender is. If larger banks face cost diseconomies in serving both small and large commercial customers, then industry-wide bank consolidation will adversely affect credit conditions for small businesses. Even if larger banks do not dramatically reduce the volume of their small business lending, differences in how these institutions make credit decisions can affect who gets credit. For example, to the extent that larger banks favor credit scoring models or standardized loan products, the ability of firms and firm owners to pledge collateral or guarantee loans may become more important relative to the value of establishing borrower-lender relationships.[7]

A number of researchers have studied the extent to which relationships between borrower and lender benefit small business borrowers, and the findings they have produced are mixed. Similarly, there is a growing body of literature that examines whether bank consolidation will reduce the supply of smaller commercial credits funded by banks, and again, the results are mixed.

These are important issues, and the success of attempts to address them empirically depends on the kinds and quality of data available, particularly data about supply and demand factors and market conditions. For ultimately the attractiveness of small businesses (individually and as a group), like that of any borrower or group of borrowers, is related to these customers' characteristics, their credit needs, and the costs of meeting these needs relative to the costs of serving other customers. Yet surprisingly little is known about small firms as borrowers or about their credit markets.[8] Survey data do confirm that small businesses rely on financial intermediaries—especially commercial banks—as lenders,[9] but the information available to us about the role of intermediaries as small business lenders, about the underlying costs and risks associated with small business loans, and about the factors that influence decisions to supply credit or to demand credit is meager at best. There is no single source of data that includes all of the types of information one would like to consider in assessing the availability of credit.[10]

This lack of information reflects the complexities of the market relationships involved. Of course, problems identifying and analyzing the factors relevant to decision making affect financial market research generally; but the unique nature of small businesses makes the problem of gathering data about these credit markets particularly challenging.

First, even defining the category is problematic because the term small business means different things to different people. A bank is likely to classify its small business customers by a financial criterion, such as sales or assets, but the criterion used by the Small Business Administration (SBA) is number of employees. To the SBA, a small business is any firm with fewer than 500 employees—a cutoff that some might consider fairly sizable. Second, however "small" is defined, this population comprises firms with very diverse characteristics (in contrast, households are a more homogeneous group, making choices about consumption, investment, and borrowing that can be characterized in terms of the household's income, wealth, stage in the life cycle, and other demographic characteristics). Third, many small businesses keep few, if any, financial records besides those needed for filing tax returns (in contrast, large, publicly traded businesses have sophisticated, standardized accounting systems and publish periodic financial reports). Finally, the credit market options available to small businesses are not well defined. Whereas households and large corporations borrow in fairly standardized markets (households in mortgage and consumer credit markets, large corporations in publicly traded debt and paper markets as well as from banks and other lenders), the diverse small business population obtains loans from a wide range of sources, including loans not identified as commercial. In particular, smaller firms are more likely to finance themselves by tapping the personal credit available to the firm's owners and the owners' friends or family.

The next section of this study discusses the characteristics of firms, lenders, loans, and financial markets that can affect the availability, quantity, and price of credit to a small business. These are the characteristics on which researchers need data in order to test hypotheses about small business credit markets and, in particular, about the two central issues this paper

[7] Avery, Bostic, and Samolyk (1998) present evidence that these sorts of commitment do appear to have become more prominent features of small business loans during the past decade.

[8] This statement does not apply to bankers, who have information about their small business customers that other specialists, such as economists and policymakers, do not have.

[9] In contrast, large businesses (mostly corporations) can raise funds in direct credit markets, that is, in markets where debt and equity issues are placed directly with investors.

[10] Oh (1991) discusses a number of other sources of data on small firms and comments on the deficiencies that limit their usefulness for studying small business finance.

focuses on: To what extent do relationships with lenders affect the credit conditions faced by small businesses, and how will bank consolidation affect credit availability to smaller business borrowers. The two subsequent sections describe the data that have been collected from small businesses and from commercial banks. These descriptions of the available data are followed by a section summarizing the studies done to date on relationship lending and on bank consolidation. Underscored throughout are the ways in which both data and methodology limit the studies' usefulness to those addressing important policy questions in the area of small business finance. Ultimately, it is hard to avoid concluding that better data are essential for a better understanding of what small business' credit needs are and whether these needs will continue to be met by existing and evolving financial markets.

FACTORS INFLUENCING SMALL BUSINESS CREDIT ARRANGEMENTS

Small business lending, like consumer credit, is increasingly characterized as a separate product line or market by lending institutions. Thus, it would be plausible for economists to construct a model of a small business credit market, including all of the factors believed to affect the costs and returns to lending and to borrowing. These factors would determine small business credit conditions—defined in terms of the quantity, price, and other terms of credit agreements as well as the ability of certain borrowers to obtain a loan at all.

Generally, credit demand by firms is considered to reflect the profitability of a firm's prospects relative to the availability of internal resources to fund these prospects.[11] If a business has profitable prospects that it cannot fund internally or chooses not to, then it should borrow if the prospects remain profitable given the costs of obtaining the credit.[12] For small businesses, these costs may include owners' guarantees, pledges of collateral, and covenants restricting the firm's behavior.

In choosing to extend credit, lenders should weigh the expected risks and return of a given loan relative to the lender's current portfolio and other available lending opportunities. A loan's credit risk is related to the borrowing firm's prospects and the condition of its balance sheet as well as to provisos of the loan contract, including collateral, guarantees, and term to maturity. The profitability of a given loan, however, is also affected by the costs associated with assessing and monitoring these risks as well as by the costs of originating, funding, and servicing the loan. When intermediaries develop an expertise in screening, contracting, and monitoring loans to small businesses, they reduce the marginal costs of gathering credit information.

Academic conjectures about how small business credit arrangements should differ from those of other borrowers tend to focus on the greater difficulty and cost, for a lender, of obtaining information and assessing risks, and on the lender's use of credit arrangements that mitigate these costs. (The reason both the inherent risks and the costs involved in assessing them are believed to be greater for smaller businesses is partly that smaller firms are often newer and therefore less established.) Although these academic conjectures often take the form of informal discussions rather than mathematical models, the discussions do build on a growing literature of formal models.

At the same time, testing these "cost-based" theories of small business credit availability is particularly challenging for researchers. The available data usually do not include direct measures of borrower risk; hence, researchers use certain characteristics of the borrower or of the loan as indirect indicators of risk. Similarly, direct measures of the information and transaction costs of funding various borrowers are not available, and researchers must use indirect measures—again, certain characteristics of the borrower or of the loan—as "proxies" for these factors. A wide range of observable factors that researchers have related to the underlying credit characteristics of certain borrowers or certain types of loans is discussed in the rest of this section. They include characteristics not only of the borrower and of the loan but also of the borrower-lender relationship, of the lender itself, and of the financial markets.

Characteristics of the Borrower

Certain small business customers may involve higher information costs for lenders because of the types of businesses they are in, the inadequacy of their financial accounting, and/or their failure to separate business and personal finances. And some smaller business borrowers may represent greater credit risks than others,

[11] For a textbook discussion, see Mishkin (1992), chaps. 5 and 6.

[12] Frazzari, Hubbard, and Peterson (1988) discuss why, for smaller firms, external financing is likely to be more expensive than internal financing.

such as newer firms with less-proven track records, firms with numerous other credit commitments, or, of course, firms with bad credit histories. Greater costs or risks will translate into either more monitoring or more true uncertainty for lenders to small businesses, but there are no direct measures of the costs and risks of funding a given firm. Thus, proxies for these factors should be defined and related to observed credit conditions as lenders seek to be duly compensated.

Researchers have conjectured that costs and risks are correlated with a range of firms' characteristics, including industry, size, age, and the legal organization of the business (incorporated versus unincorporated). For example, researchers have used firm age as a proxy for business risk as well as an indirect measure of the information that is publicly available about a firm (a firm's age is posited to be inversely related to a lender's information costs).[13] A firm's characteristics may also be related to its demand for credit.

Loan Characteristics

The costs and risks of funding a small business are also conjectured to depend on the size and type of loan the firm is seeking. Since any fixed costs associated with making a loan translate into higher per-dollar financing costs for smaller credits, credit terms should be related to *loan size*. In addition, certain *types* of loans may involve lower costs and risks for lenders. For example, vehicle loans tend to be fairly uniform in contracting features, criteria for approval, and loan-to-value ratios and can therefore be evaluated on their own merits rather than on the firm's merits. To the extent that lenders can reduce their costs by standardizing loans, smaller firms can obtain better credit terms by taking advantage of these credits.

In contrast, the costs and risks associated with more idiosyncratic types of lending, such as business credit lines, should be greater than those incurred on standardized credits or on loans linked to the acquisition of particular assets. Therefore, the variations in the costs and risks across small business borrowers may be reflected in the types of loans that firms obtain as well as in the interest-rate differentials they pay on a given loan product.[14] The differences in loan products imply that researchers studying credit relationships should segment small business credit markets along product lines. For example, when one is measuring how interest-rate differentials are related to firms' characteristics, it is important to look at patterns for a given type of loan.

Other Loan Terms

Besides a loan's size and type, *contractual loan features* are related to the costs and risks incurred by both borrowers and lenders. For example, an *increased term to maturity* allows the borrower's payments to be distributed over a longer period of time. Although this reduces the size of the payment and the costs of renewing the loan, it also extends the time horizon over which a borrower's fortunes may change. All other things equal, lengthening the term of a loan transfers risk from the borrower to the lender; hence it tends to be associated with an increase in the loan's rate.

In contrast, credit enhancements—including collateral pledges, loan guarantees, and loan covenants—are nonprice features of loan contracts that tend to shift risks from lenders to borrowers. A loan secured with a *collateral pledge* gives a lender an explicit claim to assets; hence, a collateral pledge can increase the return a lender expects to get if default should occur.[15] Moreover, *the pledge of personal collateral or a loan guarantee* can represent the commitment of assets otherwise more difficult, if not impossible, for lenders to reach in the event of default.[16] Of course, in the case of a guarantee, the claim is on the general net worth of the guarantor rather than on specific assets. For corporations or limited partnerships, the guarantee creates an explicit claim where otherwise liability is limited to the owners' equity. Finally, *loan covenants* limiting actions of the firm that could potentially reduce loan creditworthiness are another means of mitigating problems associated with imperfect information and lender costs. Because the value of a firm's credit enhancement to a lender partly depends on what has been promised to others, the willingness of borrowers to limit the promises made to other lenders can also enhance their creditworthiness, albeit at some cost to the borrower.

[13] Leeth and Scott (1989) use age as a proxy for business risk, conjecturing that younger firms are more risky. Petersen and Rajan (1994) and Berger and Udell (1995) use age as a proxy for the information available about a firm.

[14] Of course, a firm's ability to take advantage of lower-cost types of loans depends on the firm's planned use of the funds, such as its need to finance the purchase of a building, vehicle, or capital equipment.

[15] Mann (1997) presents an extensive discussion of the role of secured lending in small business finance.

[16] Bester (1985) presents a theoretical framework in which collateralization reduces what is called the adverse selection problem, that is, the ability of borrowers to misrepresent their riskiness. Chan and Kanatas (1985) advance the argument that the pledge of personal assets signals the willingness of a firm's owner to risk wealth besides the equity that has already been invested in the firm. *See* Avery, Bostic, and Samolyk (1998) for an extensive discussion of personal commitments in small business financing arrangements and of results as to their importance.

Characteristics of the Relationship between the Borrower and the Lender

Economists also conjecture that the nature of the relationship between a small firm and its lender should affect the credit conditions the firm faces. Lenders should have better information about borrowers they have dealt with previously. Thus, small firms should be able to obtain better credit terms from lenders with whom they have developed a relationship, whether through a previous credit arrangement or through the purchase of other business services.[17] Lenders also should have better information about borrowers in the markets where they have maintained a more active presence. Hence, screening and monitoring costs have a geographic dimension that is particularly important for smaller firms.

These relationship dimensions of information costs suggest that markets for smaller business credits will tend to be characterized by more-localized and longer-term relationships.[18] All other things being equal, smaller business borrowers should be at a greater informational disadvantage if they seek credit from nonlocal lenders who are not familiar with their geographic market or line of business. Not only will smaller firms face higher costs when shopping for new lenders, but they may also lose the benefits of dealing with lenders with whom they have already formed relationships. The value of these relationships, however, is likely to depend on the type of loan being sought. As discussed below, it may also depend on the characteristics of the lender as well as of the local credit market.

Type of Lender

Banks, and to a lesser extent finance companies, are the dominant sources of small business loans.[19] However, whereas finance companies tend to focus on standardized types of lending, commercial banks fund a greater share of information-intensive small business loans. Researchers contend that banks' greater share of such loans reflects a cost advantage that banks have as small business lenders.[20] Historically they have provided a wider range of business services than nonbank intermediaries, and this may reduce information costs, as banks obtain additional information through the other financial products (such as depository or cash management) that they sell to smaller firms.[21] Banks have also tended to offer a wider range of loan types, which can reduce the cost of finding the most efficient credit product for a business. Finally, the decentralized structure of the U.S. banking industry may enable small business customers to develop local relationships.

To some extent, differences between banks and finance companies also reflect regulatory policies as well as market factors.[22] The very different regulatory environments may be manifest in differences in lending strategy and in the contractual features that characterize particular types of loans. For example, one might expect that fairly low-cost credit enhancements, such as signatory personal guarantees, would be used more frequently by regulated banking institutions, if only to satisfy government examiners seeking to limit loan risk.

Other Lender Characteristics

Credit terms received by smaller enterprises should also reflect the characteristics of the particular lending institution. Within the commercial banking industry, for example, smaller banks are increasingly viewed as different commercial lenders from larger regional or money-center banks. If the costs and profitability of

[17] Several theoretical papers have demonstrated that loan rates and/or collateral requirements should decline as relationships between borrowers and lenders mature (Diamond (1991), Boot and Thakor (1994)).

[18] Indeed, for antitrust purposes the geographic markets serving smaller commercial customers are defined as local markets. Antitrust laws are designed to protect all bank customers, but special emphasis is placed on small firms and consumers who face high costs in finding alternatives to their local banks. Both the Department of Justice and the Federal Reserve Board of Governors scrutinize proposed bank mergers for potential anticompetitive effects. Defining the relevant product and geographic markets as well as alternative suppliers of small business credit are key features of these analyses.

[19] By focusing on this type of lending, these intermediaries can develop a comparative expertise in evaluating and monitoring credit risks and in settling the defaulted claims of small borrowers. Fama (1985) and Bernanke and Gertler (1987) argue that the nature of their lending is what makes these institutions "special." Because of wide variations in business characteristics and credit needs, intermediaries may tend to specialize in screening and monitoring particular types of borrowers—such as firms in certain industries or certain regions. By focusing on certain types of firms, a lender can reduce the average costs of producing information about the prospects for these firms, as any fixed costs can be spread over numerous borrowers.

[20] *See* Petersen and Rajan (1994) and Berger and Udell (1995).

[21] To some extent, however, the range of business services provided by finance companies reflects the regulatory definition of a finance company. The Federal Reserve classifies all institutions that fund short- and intermediate-term credit but are not depository institutions as finance companies. Although the historical roots of finance companies are very different from those of commercial banks, the industry has evolved into one that funds a broad range of credit for the business and household sectors. It has also evolved into an industry that is dominated by the largest firms, most of which are captive financial affiliates of major U.S. corporations (D'Arista and Schlesinger (1992)).

[22] Finance companies have never been subject to minimum capital standards, regulated lending limits, or restrictions on geographic branching or on affiliations with nonfinancial corporations; however, they are prohibited from issuing federally insured deposit liabilities. Large finance companies must raise funds in capital markets and are subject to the scrutiny of sophisticated investors; smaller finance companies borrow from other intermediaries, including banks.

small business lending are related to the scale and scope of a bank's activities, then the credit terms obtained by a small business will be related to the size of its lender. Obviously, larger business customers require larger banks to meet their credit needs. Small banks are constrained by their size to make smaller loans, given the need for portfolio diversification and regulatory limits on loans to individual borrowers.

However, some researchers have argued that smaller banks can make small commercial loans more profitably than other lenders because they develop better information about the local community.[23] Larger and organizationally complex banking companies may find it less profitable to focus on both relationship-oriented small business borrowers and either large commercial customers or more-standardized loan product lines, such as credit-card lending. If large organizations do find relationship-oriented small business loans to be less profitable, they will either charge more for them or be less willing to extend them than will smaller banks.[24]

In addition to a lending institution's structural characteristics, its current condition can affect the credit terms obtained by its small business borrowers. The financial condition of a lender is, of course, related to the condition of its current loans, hence its current borrowers. Although bank asset-quality problems may be due to a number of factors, lenders experiencing these problems may tighten origination standards for prospective borrowers, including small firms.[25]

Financial Market Structure and Economic Conditions

Researchers posit that financing options should be affected by the structural characteristics and cyclical conditions in loan markets. Clearly the competitive structure of business loan markets reflects the availability of credit alternatives. As stated above, small firms seeking credit in geographic or product markets that are highly competitive should obtain better credit terms.[26] However, if the market is dominated by large banks, the terms that small business borrowers obtain may not be as favorable.

Credit availability for small business should also be considered in the context of broader financial and economic conditions. Despite public policies that promote small business lending, smaller enterprises are considered most vulnerable to changing conditions over the business cycle. Economic downturns have the potential to magnify the problems associated with lending to information-intensive small commercial borrowers. As property values and income prospects become less certain, the ability to use personal guarantees or collateral to mitigate a lender's risks and costs is likely to decline.

INFORMATION ON LOANS TO SMALL BUSINESSES

Although there are several surveys of small business finance, the only comprehensive, publicly available data on the credit arrangements of small firms are from the National Survey of Small Business Finances (NSSBF), cosponsored by the Board of Governors of the Federal Reserve System and the Small Business Administration. Surveys were conducted for 1987 and 1993 to gather detailed financial data on the types and sources of credit used by small businesses. The data for each survey year are based on a sample of firms that was statistically designed to be representative of all non-agricultural, nonfinancial enterprises having fewer than 500 full-time-equivalent employees.[27] This latter point is particularly important for researchers because, although some private analysts also collect data on firm-level finances (as discussed below), these data

[23] Nakamura (1994) discusses this view. It is important to note, however, that banks *choose* whether to devote resources to processing information about local borrowers. Because small banks serve limited localities, focusing on an information-intensive small business credit niche may be a more efficient business strategy for them than it would be for the branch of a large organization that focused on meeting the needs of corporate customers.

[24] *See* Berger and Udell (1996) and Berger, Saunders, Scalise, and Udell (1997).

[25] An institution may be having problems because it effectively underprices the risks or costs of lending to certain borrowers, hence giving these borrowers credit terms that are too good. Alternatively, an institution may be in poor condition because, although it priced risks correctly, it has effectively gotten a bad draw in terms of the performance of its loan portfolio. Thus, asset-quality problems are not a clear indicator of past underwriting standards.

[26] At the same time, however, Petersen and Rajan (1995) conjecture that because borrowers and lenders in these markets have more alternatives, relationships tend to have less value.

[27] The survey for both years is restricted to include only for-profit, nonagricultural, nonfinancial firms with fewer than 500 full-time-equivalent employees (as reported by Dun and Bradstreet) that were in business at the end of the survey year. The NSSBF reports data for 3,224 firms in 1987 and 4,637 firms in 1993. The two surveys differ somewhat in the focus of the information sought. Population estimates are also not directly comparable for the two years, because of differences in the underlying small business populations that the surveys represent. (*See* Cole, Wolken, and Woodburn (1996) for details.) For additional information about the 1987 and 1993 NSSBF, see Elliehausen and Wolken (1990) and Cole and Wolken (1995).

are hard to use as small business estimates, for they are not based on scientifically designed samples. In contrast, the NSSBF is designed to provide a comprehensive picture of small business credit conditions for a well-defined population.[28]

NSSBF: Overview

The NSSBF asks sampled firms to report information on their outstanding loans, including the balance due, the type of loan (such as line of credit, mortgage, or vehicle loan), any collateral and guarantee arrangements, and the source of the loan (that is, the type of lender). Respondents also report detailed information about the terms of their most recent loan applications. Finally, each firm is asked to report income-statement and balance-sheet data as well as demographic characteristics about the firm and its owners. Table 1 lists the types of information included in the 1993 NSSBF.

Lacunae in NSSBF Data

Careful collection of survey data is expensive and difficult. Thus, although the NSSBF is unparalleled in its ability to link the characteristics of a small business to the firm's use of credit, its capacity to record the role of lenders in the credit-allocation process is more limited. The only information reported by respondents about each supplier of credit is type (such as commercial bank or finance company), geographic distance from the firm, and the duration of the relationship with the firm. To a large extent, the reason for the lack of information about suppliers of credit is that small firms are not likely to have much information about their lenders. For example, small businesses are not likely to be able to report much about their lenders' balance sheets, including how these lenders book the various types of loans they make to the firms. Thus, although it is generally believed that loans booked as mortgage or consumer loans by lenders are often used to finance small business activities, the survey data cannot be used to quantify the extent to which this is the case.

In addition, the information provided by the NSSBF about a firm's outstanding loans is missing some factors that researchers need if they are to fully evaluate small business credit arrangements. Survey respondents report the source, type, balance due, and whether certain credit enhancements are pledged on each outstanding loan. However, they do not report the original loan amount, loan origination date, maturity date, or contractual interest rate. Although the reason for these omissions may be that many firms would not be able to recall the information, the omissions do make it difficult for researchers to study the capital budgeting decisions of small firms.

Finally, although the NSSBF reports a lot of information about the terms of a firm's most recent credit application, it does not include data about a number of important factors that normally affect credit decisions. In particular, it reports very little information about a prospective borrower's options at the time of the loan application. More problematic is the fact that the NSSBF reports employment, income-statement, balance-sheet, and financial-service-usage data for the survey year but nothing about a firm's financial condition when it last applied for credit—unless that happened to be in the survey year.[29] These omissions limit the extent to which researchers can relate the financial condition and options of a borrower at the time of a credit decision with the reported outcome of the application process.

The Usefulness of NSSBF Data

Despite these shortcomings, the NSSBF data are useful in several respects. First, they allow researchers to quantify the relationship between small business borrowing and a wide range of firms' characteristics. Economists at the Board of Governors of the Federal Reserve System and other researchers have published studies describing the features of the small business population and of small business credit markets represented by the NSSBF.[30] According to these studies, in 1993 the small business population was composed of roughly five million firms that, by and large, were quite small, generally not that young, and concentrated in the services, trade, and construction industries.[31] Roughly 60 percent of these firms had an outstanding line of credit, loan, or lease; however, among the other firms some may have used trade credit or credit cards for very short-term financing needs.[32] The 1993 data also suggest that the proportion of firms that borrow

[28] The population characterized by the NSSBF does not really represent the population of very small business entities, in particular the millions of individuals filing tax returns to report small amounts of income from part-time business activities.

[29] Gathering this sort of information for each outstanding small business loan would be virtually impossible.

[30] Cole and Wolken (1995) and Elliehausen and Wolken (1995) report extensive univariate statistics on firms' credit use, by source and by type. For statistics on the distribution of outstanding small business credit dollars across types of loans and types of lenders, see also Elliehausen and Wolken (1995) and Cole, Wolken, and Woodburn (1996). The articles reporting on the 1993 NSSBF use preliminary data that differ from the final-use database now available on the Internet.

[31] *See* Avery, Bostic, and Samolyk (1998).

[32] This measure of loans and leases does not include credit-card debt, trade credit, or loans from owners.

Table 1
The 1993 National Survey of Small Business Finance
Overview of Survey Content

Firm Characteristics as of 1993
- Includes
  - Standard Industrial Classification (SIC) code
  - Legal organization type
  - Year business was acquired
  - Number of FTE employees
  - Selected owner characteristics

Use of Deposit Services in 1993
- Includes
  - Checking accounts
  - Savings accounts (any nonchecking deposits)
    - Up to three possible sources
    - Up to three possible typical monthly balances

Outstanding Credit and Financing in 1993
- Includes
  - Lines of credit
  - Capital leases
  - Mortgages
  - Motor vehicle loans
  - Equipment loans
  - Any other loans
    - Up to three possible sources
    - Principal owed to each source
    - Types of collateral pledged on loans from each source
    - Whether guarantees have been pledged to each source
  - Loans from partners/stockholders
    - How many?
    - Total principal owed
    - Are they subordinated to other loans?

Use of Other Financial Services during 1993
- Includes
  - Transaction services
  - Cash management services
  - Credit-related services
  - Pension/trust services
  - Brokerage services
    - Yes or no reported for each financial institution used by firm

Relationships with Financial Institutions/ Credit Sources in 1993
- Up to six institutions identified as most important financial service suppliers
  - Type of supplier
  - How many years has used supplier?
  - Distance between firm and supplier location
  - Most frequent method of conducting business

Most Recent Credit Application[1]
- Includes
  - Month and year applied (last three years)
  - Amount applied for
  - Primary use of loan or line proceeds
  - Secured by real estate?
  - Appraisal required?
  - Cost of appraisal
  - Environmental survey required?
  - Cost of environmental survey
  - Was application approved or denied?
  - Information about lender applied to
    - Type
    - Length of relationship (as of 1993)
    - Distance between lender and firm
    - Why firm applied to this particular lender
  - Loan application accepted or denied?

[1]Does not include applications either pending or withdrawn by firm.

tends to increase with firm size, and very old firms borrowed less frequently than others.

Second, the NSSBF is the only source—public or private—of data that can be useful for constructing a representative picture of who funds small businesses. Hence, it can be used to assess quantitatively the validity of a number of credit-market issues, such as the concern that banks will no longer be the preeminent small business lenders.[33] As shown in table 2, the 1993 survey indicates that more than two-thirds of borrowing firms obtained at least one of their loans, credit lines, or leases from a commercial bank. Just over one-fifth of borrowing firms reported obtaining some credit from a finance company, the second most important source of loans. But in addition to market shares based on number of borrowers, shares of dollar value of borrowings are also important, since very small firms dominate the sample but account for a small share of total small business credit outstanding. In terms of loan dollars, commercial banks were the dominant source of small business credit, accounting for almost 60 percent of the dollar amount of outstanding credit lines, loans, and leases.[34] Finance companies remain a somewhat distant second, funding roughly one-seventh of outstanding small business credit in 1993.

[33] Small business loans and loan dollars as measured here do not include credit-card debt, trade credit, or loans from owners.

[34] As reported in Cole, Wolken, and Woodburn (1996), this share has changed little since 1987.

Table 2

The 1993 National Survey of Small Business Finances

Panel A. Percentage of Firms Having Any Loans, by Loan Type and by Lender Type

	All Sources[1]		Commercial Banks		Finance Companies	
	All Firms	Borrowing Firms	All Firms	Borrowing Firms	All Firms	Borrowing Firms
All loans, lines, leases	**59.1**	**100.0**	**40.7**	**68.9**	**12.6**	**21.3**
Credit lines	25.7	43.5	22.0	37.2	1.4	2.4
Vehicle loans	25.3	42.8	13.9	23.5	8.0	13.5
Equipment loans	14.8	25.0	8.0	13.5	2.2	3.7
Mortgages	7.8	13.2	5.3	9.0	0.3	0.5
Leases	10.3	17.4	2.0	3.4	2.3	3.9
Other loans	12.7	21.5	5.1	8.6	0.3	0.5

Panel B. Percentage of Outstanding Small Business Credit,[1] by Loan Type and by Lender Type

	All External Sources	Commercial Banks	Finance Companies
All external sources	**100.0**	**58.6**	**13.6**
Credit lines	42.0	32.8	6.4
Vehicle loans	4.3	2.0	1.8
Equipment loans	8.2	4.9	1.9
Mortgages	24.9	11.3	2.1
Leases	4.5	1.4	0.9
Other loans	16.2	6.3	0.6

[1]Percentage of the total value of outstanding credit lines, loans, and leases, excluding loans from owners.

Third, the 1993 NSSBF is also the only source of data that can be used to construct a comprehensive picture of small business loan markets defined by the different types of loan products that small businesses use. As table 2 shows, small business borrowers most commonly reported having at least one loan in the form of a credit line or a vehicle loan (43.6 percent and 42.8 percent, respectively). However, as credit lines tend to be larger, they account for a much greater share of outstanding small business credit dollars than vehicle loans (42.8 percent and 4.3 percent, respectively).[35]

Fourth, the information in the NSSBF can be used to describe many other features of small business credit arrangements. For example, researchers have documented the importance of collateral pledges and owners' guarantees for particular types of business borrowers that use particular types of loans or sources of credit.[36] They find that the personal commitments of owners' wealth play an important role in the allocation of credit, especially to firms with limited-liability ownership structures, such as small corporations. Other researchers use data on the distance between firms and their lenders to characterize the geographic dimensions of small business credit markets. Their findings indicate that for most kinds of loans, (at least as of 1993) the vast majority of small businesses deal with fairly local lenders.[37]

[35] Lines of credit accounted for roughly 25 percent of small business loans but roughly 40 percent of the outstanding volume of small business credit. Roughly 80 percent of credit line facilities are small (less than $100,000); however, takedowns from larger facilities account for 90 percent of outstanding balances owed on credit lines. Roughly 98 percent of vehicle-loan balances were less than $100,000; of course, this understates the average size of the loans at origination. The data also indicate that commercial banks remain the dominant source of small business credit lines in terms of loan dollars, funding 78 percent of outstanding credit line balances. The outstanding vehicle-loan balances owed to banks and to finance companies were roughly equal (46.5 percent and 45 percent, respectively).

[36] Avery, Bostic, and Samolyk (1998) study the incidence of usage of personal collateral and personal guarantees by small firms, as well as the dollar amounts of credit backed by these enhancements.

[37] Kwast, McCluer, and Wolken (1997) use the 1993 NSSBF to examine the extent to which the small businesses obtain their financial services locally. Their results are consistent with the existence of fixed transaction and information costs for both lenders and borrowers that make it cost effective for small borrowers to borrow locally, but their results also show that within local markets, smaller firms shop around. It should be noted, however, that their findings reflect the predominance of very small firms in the NSSBF population and cannot be used to quantify the share of small business credit market dollars that is extended locally.

Other Data from Small Businesses

Private-sector analysts also collect data on firm-level finances. Although these samples are generally not statistically designed to be representative of any particular segment of the small business population, they have been used to generate conclusions about small business credit conditions. The National Federation of Independent Business (NFIB) has conducted surveys of small-firm finances that—although not publicly available—have been used in research on small business.[38] For example, in late 1987 a mail survey was sent to a random sample of member firms, asking about their experiences with commercial banks as lenders and about the terms of their recent loans. The 1,921 usable responses are not statistically weighted to represent any specific small business population, but the survey's administrators argue that the characteristics of the sample of responding firms are fairly comparable to those of what the administrators call "an estimated small business universe."[39]

Findings based on other private sources of data on small business finance have been cited as well in the popular press (see sidebar). Like the NFIB, these sources gather information from their constituencies or clients but generally do not scientifically link the data to a broader population of small firms. Thus small business data from private sources can lead researchers to very different conclusions because the small businesses represented by the samples may be different. Unfortunately, without information about the underlying populations, it is difficult to reconcile conflicting findings.

"Sharp Drop in 'We'll Just Put It on the Card'"— *American Banker*, August 25, 1997

"Credit Card Use to Finance Business Is Soaring, Says Survey of Small Firms"— *The Wall Street Journal*, September 25, 1997

On August 25, 1997, an article in the *American Banker* asserted that "recent surveys show that the use of personal credit cards for business financing, . . . has fallen in recent years." One month later, an article in *The Wall Street Journal* announced that the use of credit cards by small firms was soaring. These two recent pieces illustrate the inconclusiveness of evidence yielded by different populations of small firms, especially when they are not well defined.

The *American Banker* article reports the results of two 1996 studies (by the National Federation for Women Business Owners [NFWBO] and by Dun & Bradstreet [D&B]), but makes no attempt to define the small business populations on which the evidence is based.

The Wall Street Journal story discusses an annual survey by Arthur Andersen and the trade group National Small Business United (NSBU), and does mention that the results are for businesses with fewer than 20 employees.[1] However, it does not state whether these businesses were drawn from the NSBU membership file or from some other groups of small businesses.

[1] *The Wall Street Journal* article also acknowledges that the reported increase in credit-card use conflicts with the 1996 Dun & Bradstreet (D&B) survey results. In doing so, it notes that "small firms," as represented by the D&B study, refers to businesses with fewer than one hundred employees.

DATA ON SMALL COMMERCIAL LOANS TO BUSINESS

The other main type of data used to study credit availability for small business is banking data on commercial loans (from Call Reports and from the Federal Reserve Board's Survey of the Terms of Bank Lending). When linked to other information about the lending institutions or their markets, these data have been used to answer questions about how banks' small-commercial-loan portfolios are related to the structure and condition of the banking industry.

Call Report Data

The only publicly available source of commercial banking data on outstanding small commercial loans is the midyear Report of Income and Condition (Call Report). Since 1993, each commercial and mutual savings bank has reported its outstanding balance and number of business loans of $1 million or less on its June Call Report. These data identify the number and dollar volume of outstanding Commercial and Industrial (C&I) loans, commercial real-estate loans, and agricultural loans for several loan-size classes.[40]

[38] The NFIB also publishes quarterly indices that summarize changes in credit market conditions as experienced by its members.

[39] *See* Dennis, Dunkelberg, and Van Hulle (1988) for a description of their 1987 survey. An academic study by Leeth and Scott (1989) describes earlier surveys.

[40] The Call Report small-loan numbers for the early years (especially 1993) are known to reflect some confusion as to what was supposed to be reported; hence evidence from these years should be intepreted cautiously.

Call Report data have an advantage over many other sources of information in that they cover the entire population of banks, and they are particularly valuable inasmuch as they can be used to examine how the volume of small commercial and agricultural loans held by a bank is related to a wide range of bank financial data also reported on Call Reports. Researchers can aggregate these data to examine how small commercial lending by the industry (by particular segments of the industry) is related to the industry's structure and performance.

Call Report small-commercial-loan data can also be linked with information about banks that is not published on Call Reports but is collected by bank regulatory agencies. For example, bank-level databases produced by the Federal Reserve Board of Governors and the FDIC track changes in the structural characteristics of the banking industry, including those due to the resolutions of bank failures as well as to unassisted bank mergers, acquisitions, and changes in charter.[41] The FDIC also collects annual data on the geographic distribution of each bank's deposits which can be used to construct a picture of the bank's market in terms of this funding source. Call Report data are also frequently matched with other geographic data to characterize the economic or market conditions in which a bank is operating. For example, some researchers use state economic data, such as income growth and unemployment rates, as proxies for the local economic conditions affecting banks.

The format of the Call Report itself, however, limits the usefulness of the small-commercial-loan data for studying small business finance. Characteristics of the loan rather than of the borrower make up these balance-sheet items. In particular, banks report data that are based on the size of the commercial loan—not the size of the business borrower. Some "small" businesses may obtain significant credit in amounts of more than $1 million, yet these loans are excluded. Moreover, it is believed that many smaller businesses finance their activities through bank loans not reported as commercial credits—for example, consumer installment loans and home equity lines of credit—and are thus excluded from the data.

In addition, Call Report data report the consolidated commercial loan outstandings for all offices of a bank, whether the bank is a small community lender or one with branches in a number of states. Thus, although Call Reports identify the state, city, MSA, and county of what is usually the bank's headquarters, they do not report the geographic location of the office where the small commercial loans were originated. Finally, balance-sheet data indicate only the quantity of small loans held by banks but reveal nothing about the terms associated with the loans.

STBL Data on Small Commercial Loans

Another source of commercial bank loan data that has been used for studying small business credit availability is the Federal Reserve Board of Governors Survey of the Terms of Bank Lending (STBL), administered since the late 1970s. This quarterly survey of roughly 300 banks reports data on the individual C&I loans made during the previous week. Although these data are not available publicly, they have been used in studies by Federal Reserve researchers because they include characteristics of individual loans, such as the dollar amount, interest rate, maturity, and whether collateral was required.

The STBL data are particularly valuable because they can be used to study the terms of individual commercial loans. By linking the STBL loan data reported by each bank to Call Report and other data, researchers can examine the relationships between bank characteristics and loan originations. As with Call Report data, however, the scope of the survey information limits its usefulness for studies of small business finance, since it includes nothing about the characteristics of the borrower. Thus, the STBL does not indicate the size, type, or geographic location of the commercial borrower. The STBL also does not include any data on commercial loans collateralized by real estate, which are an important type of small business loan. Finally, the STBL samples do not necessarily characterize the entire population of banks adequately, because they tend to include high proportions of larger institutions (that is, the STBL oversamples large banks relative to their incidence in the industry) and are correspondingly less likely to adequately represent loans originated by small banks.

[41] The Federal Reserve Board (FRB) and the FDIC each produce a database that tracks the evolving structure of the banking industry. The FRB's is called the FRB National Information Center (NIC) database and the FDIC's is called the Structure database.

STUDIES OF RELATIONSHIP LENDING AND BANK CONSOLIDATION VIS-À-VIS SMALL BUSINESS CREDIT

Despite limitations of data, public-policy concerns about how changes in the financial sector may affect the availability of small business credit have underscored the importance of gathering evidence about small business financing arrangements. These concerns center on two issues: the importance of firm-lender relationships in the allocation of credits to small businesses and the effects of bank consolidation on the availability of smaller commercial loans.

Evidence about Relationships between Borrowers and Lenders

Three studies have used the NSSBF to explore the idea that borrower-lender relationships reduce the costs of lending and allow small business borrowers to obtain better credit terms.[42] All three examine some aspects of the credit conditions respondents faced during their most recent applications for loans; one also examines collateral requirements on the outstanding credit lines reported by respondents. As noted above, although researchers conjecture that information gathering on small borrowers is a significant cost in originating loans, no data set includes direct measures of these costs. Thus, researchers examine the relationship between credit terms and several variables reported on the NSSBF that they use as a proxy for the information available to a lender about a firm. These variables include the firm's age, the length of time the firm has dealt with this lender, and the types of financial services the firm reports having obtained from this lender. The studies use multivariate regression models to examine how some measure of credit availability is related to a firm's characteristics (such as size, financial condition, or broad industrial class) and variables that measure the firm's relationship with its prospective lender.

Petersen and Rajan (1994) use the 1987 NSSBF to analyze the interest rate that firms reported obtaining on their most recent loans from institutional lenders. The authors' tests focus on the correlation between this loan interest rate and the relationship variables, as well as on the total number of lenders that a firm borrows from. The authors conclude that larger firms, incorporated firms, and older firms obtained lower interest rates than smaller, unincorporated, or younger firms, but they cannot conclude that firms having longer relationships with their lenders obtained lower interest rates (all other things being equal). They also find no evidence that firms that purchase other services from their lenders obtained better credit terms, but they do report that firms dealing with numerous lenders paid systematically higher rates.

The inability to find a systematic correlation between the length or breadth of the firm-creditor relationship and loan rates may reflect a number of factors. First, the statistical tests are applied to a sample that includes loan types ranging from lines of credit to vehicle loans. As discussed above, certain types of loans, such as vehicle loans, may not be very relationship oriented. Second, although the NSSBF reports data on when each firm obtained its most recent loan, the authors do not seem to have looked only at loans obtained during the survey year. This is particularly important, as the NSSBF reports firms' financial data as of the survey year, that is, 1987.[43] Thus, for loans obtained a number of years earlier, a firm's financial data may not be representative of what the firm looked like when the loan rate was contractually agreed upon. Finally, the tests presented by Petersen and Rajan do not examine credit extensions from a given type of lender, such as commercial banks, although relationships may matter more for banks than for nonbank lenders. Oddly enough, this study is frequently cited as evidence that firm-creditor relationships *do* matter.[44]

In a related paper, Berger and Udell (1995) control for the type of loan and the type of lender in testing whether borrower-lender relationships improve credit terms received by small businesses. They, too, use the 1987 NSSBF but focus their analysis on a specific type of loan—lines of credit—obtained from commercial banks. They, too, analyze the relationship between proxies for the lender-borrower relationship and two different measures of credit terms on these lines of credit: loan rates and collateral requirements. Berger and Udell distinguish between public information about the reputation of a firm (which they say

[42] Petersen and Rajan (1994), Berger and Udell (1995), and Cole (1998).

[43] For the exact questions asked of each firm, see Research Triangle Institute (1989).

[44] The reason may be that the authors also report findings that a firm's late-payment rate on its trade debt is negatively related to its age, its longest lender relationship, and the share of its debt from a financial supplier. The authors interpret these results as indicating that lender relationships increase the availability of credit.

is associated with the firm's age) and the private information that a bank gathers through its relationships with small business borrowers.

Like Petersen and Rajan, Bergen and Udell find that older businesses and incorporated firms tended to pay lower interest rates. However, Berger and Udell also find that, given a business's age, firms having had longer banking relationships also paid modestly lower premiums over prime on their most recently obtained credit lines. In assessing collateral pledges on outstanding credit lines, the authors report that a firm's age and the age of its banking relationship also affects the likelihood that collateral is required. This result is consistent with the notion that problems of getting information are more acute when banks lend to newer firms or to firms that are newer customers.[45] At the same time, the quantitative evidence about the benefits of borrower-lender relationships is quite modest. Roughly speaking, Berger and Udell find that each year of the relationship reduces the premium paid over prime by two to three basis points.[46]

A third study, this one by Cole (1998), uses the 1993 NSSBF to examine the relationship between the length and breadth of the borrower-lender relationship and the probability that a firm's most recent loan application is accepted. As with the Petersen and Rajan study, however, most of the results reported by Cole are based on relationships evident for a sample that includes all types of loans.[47] The multivariate tests also include only subsets of the array of borrower characteristics that are conjectured to affect a lender's acceptance/denial decision. Thus, the measured effects of the borrower-lender relationship may be due to their link to borrower characteristics that are not included in the analysis. The very last results presented by Cole report findings about how a broad set of characteristics of the firm and of the firm-lender relationship is related to credit extensions identified as "working capital" loans. These findings suggest that the major factor explaining higher denial rates between 1991 and 1994 was that firms were applying to lenders with whom they had had no previous financial dealings. For firms having some relationship with the lender, the author finds no systematic link between the age of the relationship (as of 1993) and the probability that a working capital loan was granted. However, there is some evidence that types of other services obtained from a prospective lender do affect loan acceptance/denial rates. Specifically, having an outstanding loan from a prospective lender appears to be associated with modestly higher denial rates, whereas having a savings account or purchasing other nonchecking financial services tends to be associated with lower loan-denial rates.[48] Not surprisingly, the timing of the loan application was a major factor explaining acceptance/denial rates. Businesses applying for their most recent working capital loans from commercial banks during 1991 or 1992 were substantially more likely to be denied credit. Finally, older and larger firms tended to have lower denial rates.

Findings about Bank Consolidation

During the 1990s, restrictions on the geographic scope of banking organizations have been significantly liberalized. The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, which authorizes interstate bank branching, increases the prospect of further industry consolidation, as some banks may choose to branch across state lines. As noted above, concerns about how bank consolidation will affect the availability of small business credit reflect the belief that smaller and larger institutions behave very differently as small business lenders. Larger banks may tend to focus more on credit scoring models or standardized loan products than on relationship-based evaluations tailored to a wide range of small business clients. Changes in the structural composition of the banking industry as well as in the broader financial-services industry may affect which small businesses get credit and the terms that they receive.

Unfortunately, the publicly available NSSBF does not allow one to explore whether the importance of relationships depends on the scale and scope of a lender's financial operations. Thus, to look for evidence about how bank consolidation has affected small business credit availability, researchers have

[45] Of course, the age of a firm may also reflect the firm's inherent risk, that is, its underlying creditworthiness. Firms that have survived tend to be more-proven risks and therefore more creditworthy customers. Indeed, several other researchers have used a firm's age as a proxy for the firm's default risk.

[46] To some extent, the Berger-Udell tests are subject to some of the same data problems as the Petersen and Rajan study. For example, in conducting their analysis of the negotiated interest rate, they, too, do not appear to control for how long before 1987 the most recent loan was made. In addition, when assessing how the current age of the borrower-lender relationship is related to collateral requirements on each of a firm's outstanding credit lines, they cannot control for how long before 1987 a credit line was obtained. Survey respondents are not asked to report the date on which they obtained each of their outstanding loans.

[47] Most of Cole's results are based on the data for the 2,007 firms in the 1993 NSSBF that applied for any credit between 1991 and 1994.

[48] The number of sources from which a firm buys financial services and the number of a firm's business delinquencies are positively, but modestly, related to a higher rate of loan denial.

turned to the available data on bank commercial loans. The bulk of this research has been aimed at documenting the evident patterns between bank size and small-commercial-loan ratios. Early studies tend to interpret their findings as suggesting that bank consolidation reduces at least the asset share, if not the level, of smaller commercial loans, and more recent papers have argued that consolidation patterns may even increase "small business lending."[49]

The Call Report data indicate that at smaller banks, smaller loans constitute a much higher share of the commercial lending. An important issue, however, is the extent to which this reflects profitable loan opportunities rather than constraints imposed by the bank's smaller size. There are very few studies that focus on how business credit terms vary with the size and scale of banking organizations, no doubt because there are few publicly available banking data other than bank Call Reports. Berger and Udell (1996) match Call Report data with information from the STBL (from 1986 through 1994) to examine how the rates and collateralization requirements on C&I loans are related to bank characteristics as reported on Call Reports and to loan characteristics as reported on the STBL. In particular, they study whether credit terms from larger and smaller banks systematically differ.[50] Their results indicate that for loans in all size classes, larger banks on average charged lower interest rates and were less likely to secure their C&I lending. Thus, although larger banks make proportionately fewer small loans, the loans they do make are priced more cheaply than those from small banks. The authors interpret their findings as being consistent with the conjecture that larger, more-complex institutions engage in less information-intensive relationship lending than their smaller counterparts.[51] Unfortunately, without additional data on the types of C&I loans extended or the characteristics of the borrowing firms, one cannot verify whether this is indeed the case or whether larger banks simply make relationship loans more efficiently.[52]

A second important issue is the extent to which merger and acquisition alter the lending patterns of the banking entities involved. Most of the bank-consolidation studies using Call Report data can be characterized as event studies, which test for systematic differences in small-loan ratios between firms experiencing the event—here, a merger or an acquisition—and firms not experiencing the event. In other words, this type of research basically compares the behavior of banks involved in merger and acquisition (M&A) activity with the behavior of a "control group" of banks that have not undergone these structural changes. Researchers classify banks in terms of their M&A activity by using the structural merger and acquisition data collected by bank regulatory agencies. In some papers, banks involved in M&A activity are also classified by other characteristics of the changes in banking structure—for example, large banks that have absorbed small institutions, or banks within a given state that have been acquired by out-of-state organizations. Breaking up M&A activity into a range of events allows a researcher to examine whether small business lending patterns can be related to specific types of M&A activity.

There is a growing number of bank-consolidation studies that use the small-commercial-loan balances reported on the June Call Reports. Two of the most recent of these studies are by Peek and Rosengren (1998) and Strahan and Weston (1998). Peek and Rosengren test whether annual changes in ratios of small C&I loans to assets between 1993 and 1996 differ between banks that were not involved in mergers and banks that were. They classify each merger by how it affects the acquiring institution's ratio of small loans to assets. For example, if bank A acquired bank B in early 1995, then bank A's pre-merger loan ratio (from June of 1994) is compared with the ratio obtained by combining the June 1994 balance sheets of bank A and bank B. The authors then measure the relationship between post-merger commercial lending patterns and the pro forma changes in acquirers' balance sheets. Moreover, they examine whether this relationship varies depending on whether the acquirers are relatively active or inactive as small commercial lenders.[53]

[49] There are far more studies of bank consolidation than of relationship lending. This paper discusses only a few of the most recent ones, including Peek and Rosengren (1998), Strahan and Weston (1998), and Berger et al. (1997).

[50] They test separate models for a number of loan-size classes to see if the determinant of credit terms differs with loan size. Berger and Udell also report interesting evidence about the relationship of loan characteristics to credit terms. Their findings, consistent with those in other small business research, are that larger loans generally have lower interest rates, whereas collateralized loans tend to have higher rates. Thus, collateral appears to be associated with riskier credits across all loan-size classes.

[51] Keeton (1996) and Whalen (1995) also present evidence about the relationship between organizationally complex institutions (such as banks owned by out-of-state holding companies) and small commercial loans.

[52] The authors do argue that to the extent that small credits are standardized loans, the attendant borrowers may be adequately served by larger institutions. However, they cannot estimate the mix of information-intensive versus standardized C&I loans in the STBL data.

[53] Banks whose ratios of small loans to assets are under 10 percent are defined as inactive small business lenders, while banks whose portfolio shares of small business commercial loans exceed 10 percent are defined as active.

The authors report that acquiring banks tend to readjust toward their pre-acquisition ratios of small loans to assets during the year the acquisition took place. Moreover, the magnitude of the readjustment is related to the acquirer's pre-merger presence as a small commercial lender. Acquirers with a heavier concentration of small commercial loans tend to offset decreases in their portfolio share of small loans, and banks with a low pre-merger share of small commercial loans tend to respond by offsetting merger-related increases in this share. The authors also report that small institutions (less than $100 million in assets) significantly offset merger-related decreases in small-commercial-loan ratios; however, all banks appear to eliminate merger-related increases. On the basis of the merger patterns during the period under scrutiny (mid-1993 through mid-1996), Peek and Rosengren conclude that bank consolidation may actually increase the availability of small loans. In particular, a surprising number of acquiring banks were relatively small institutions with significant small-loan portfolios.

In a similar type of study, Strahan and Weston (1998) use Call Report data for 1993–96 to explore the hypothesis that bank consolidation may reduce small commercial lending by banking firms. They examine how small-C&I-lending ratios are related to the size and organizational complexity of banking organizations. Unlike Peek and Rosengren, however, they analyze banking data for consolidated holding companies because, as they argue, intra-holding company transactions among affiliates could bias the statistical results. The authors present two sets of multivariate tests.

The first examines how the level of a banking organization's C&I loans-to-assets ratio is correlated with various measures of its size and complexity. The "complexity" of a banking organization is defined by the number of its bank subsidiaries, the average size of these subsidiaries, and the number of states in which these banks operate. The results indicate that for organizations with less than $300 million in assets, there is a positive link between the average size of the bank subsidiary and the ratio of small commercial loans to assets. In other words, for companies below this size threshold, larger subsidiaries have higher ratios of small C&I loans to assets. In contrast, for companies with assets of more than $300 million, there is a negative link between subsidiary size and ratios of small C&I loans to assets. Generally the tests do not reveal significant links between the other complexity variables and the loan ratios.

The second set of multivariate tests measures how the *changes* in ratios of small C&I loans to assets (June 1996 compared with June 1993) are related to mergers among banking organizations and to the respective sizes of acquirers and their targets. Unlike Peek and Rosengren, these authors examine changes not only in shares of bank assets but also in small C&I loans relative to total C&I lending.[54] Strahan and Weston analyze banks that were in existence in June 1993 and were still in existence in June 1996, separating these institutions into organizations that were not involved in any acquisitions and organizations that were. They also sort acquirers into classes that reflect their size (small, medium, and large) and the size of their target (small, medium, and large). They then test how changes in the C&I loan ratios are related to the sizes of the organizations involved in bank mergers.

The results indicate that organizations involved in mergers, on average, had greater increases in the shares of assets allocated to both small C&I and total C&I loans than banks not involved in mergers. However, they are unable to reject the hypothesis that there was no difference in the growth of small loans *as a share of total* C&I loans for these groups. The results also suggest that mergers occurring between smaller institutions (small acquirer and small target) were associated with modest increases in the portfolio shares of both small C&I loans and total C&I loans. Again, however, there is no significant change in small C&I lending *as a share of total* C&I loans for this group. In none of the other size pairings, the authors find statistically significant patterns between changes in C&I loan ratios and mergers. Consistent with the Peek and Rosengren results, these multivariate tests also reveal that for all banks in the sample, bank size was negatively related to changes in small C&I lending, both as a share of assets and as a share of total C&I loans.[55] Despite the negative effects attributable to bank size, Strahan and Weston interpret their findings as suggesting that a further decline in the percents of independently owned

[54] They examine changes between 1993 and 1996 in the following ratios: small C&I loans to assets, total C&I loans to assets, and small C&I loans to total C&I loans.

[55] Not surprisingly, growth in personal income (in the state where a banking organization is headquartered) is positively correlated with both small C&I and total C&I loan ratios during this period.

banks need not adversely affect the availability of small business credit. They base this conclusion on the finding that, all other things being equal, small banks that acquired other small banks on average had modestly larger changes in C&I loans-to-assets ratios than other banks in the sample.

Although the studies by Peek and Rosengren and Strahan and Weston contribute much to our understanding of bank commercial lending patterns, the implications of their findings for the availability of small commercial credits should be interpreted cautiously. Both studies base their sanguine view of M&A activity on balance-sheet ratios for merging banks, however the patterns evident in bank loans-to-assets ratios do not tell us much directly about the aggregate supply of small commercial loans. For example, if active small business lenders account for a very small share of bank assets, then banks' merger activity may have little effect on the allocation of credit dollars in the industry. In particular, the authors do not quantify the dollar changes in small commercial credits that are attributable to mergers.[56]

Moreover, both studies verify that bank size is a major factor explaining the share of assets devoted to commercial loans of less than $1 million. Thus, as banks merge they get larger and are therefore likely (given legal lending limits) to make larger loans.

Another important consideration in assessing how bank consolidation may affect the supply of small commercial loans is the behavior of other lenders in the commercial loan market. Even if a structural change—such as a merger—reduces one bank's lending focus, other lenders may be willing to make profitable small loans.

A recent study by Berger, Scalise, Saunders, and Udell (1997) uses STBL, Call Report, and bank structure data to examine how mergers and acquisitions have been related to a number of longer-term trends affecting the availability of smaller commercial credits, including the response of other banks to M&A activity. The authors use the STBL data on originations of C&I loans to estimate patterns in small commercial lending for the banking industry between 1980 and 1995.[57] However, to derive these estimates, the authors must make several important assumptions. First, they must assume that data on loan originations can be used to generate an accurate picture of a bank's outstanding C&I loan portfolio. Second, they must assume that the commercial lending patterns they estimate for banks in the STBL sample can also be used as estimates for banks with similar characteristics that are not in the sample.

To analyze how lending patterns have been related to mergers and acquisitions, the authors decompose changes in bank small commercial loan ratios into a number of "effects." First, for each institution involved in a merger, they estimate a "static effect" that measures the pure cross-sectional difference in lending that would be attributable to the merged institution's larger size alone. They also estimate a number of dynamic "effects" that they interpret as reflecting longer-run factors that affect small commercial lending over time. These include the characteristics of the merger itself, the secular lending trends that are affecting all banks during this period, and the response of other banks in markets where mergers are occurring. Using the patterns measured at the bank level, the authors then derive aggregate estimates of how M&A activity has affected the dollar volume of small commercial credit in the banking industry during the period under scrutiny.[58]

Their results yield a picture of small commercial lending patterns that is consistent with the results from other studies. They find that mergers of smaller banks are associated with increases in small commercial credits, whereas mergers of large banks are correlated with decreases. The aggregate static effect—that is, the pure size-based effect—of mergers on the volume of small commercial loans is negative and considerable. However, the estimated reaction of other banks in local markets offsets much, if not all, of the contraction.[59] The authors note that this external effect is probably the least-accurate quantitative estimate presented. Still, they argue that the evidence suggests that despite continuing reductions in small commercial lending by merging banks, the total supply of these credits may not decline.

[56] To compute the net effect of mergers on the share of banking assets that is allocated to smaller commercial credits, one would have to consider the volume of assets as well as the number of banks.

[57] They use the STBL loan origination data to estimate the outstanding small C&I loans held by all banks between 1980 and 1995.

[58] An institution is counted more than once if it is involved in multiple mergers during the period.

[59] The conclusions of Berger et al. (1997) contrast sharply with those of an earlier study (Berger, Kashyap and Scalise (1995)).

CONCLUSION

While researchers have attempted to understand the dynamics of the credit markets facing small business, the weaknesses in the available data limit the conclusions that can be drawn. Most of the issues of small business credit availability are linked to the costs of lending to small business relative to larger firms. The relative costs of funding small firms reflect the basic characteristics of small borrowers, the ability to gather efficiently financial information on these firms, and the government policies that affect credit market participants. Since there is no data set that includes all of the factors affecting supply and demand in small business credit markets, the results derived from the available data should be interpreted as being consistent with certain conjectures rather than constituting quantitative estimates of market conditions.

Data from surveys of small businesses are useful for measuring how small firms are financed and for relating a firm's characteristics to credit market experiences. However, these data alone do not allow researchers to assess the supply conditions facing small firms. They include little information about lenders and limited information about a firm's financial condition when it obtained loans. Similarly, there is no publicly available source of information about loans extended to small firms by individual commercial banks (or by any other type of lender). Thus, to assess the relationship between the availability of these loans and conditions in the banking industry, researchers are forced to use balance-sheet data on small commercial loan outstandings as a proxy for loans.

The available data can tell us a great deal about the patterns in who the borrowers and lenders are, but they do not allow researchers to adequately address a number of important policy issues. For example, it would be useful to know more about how characteristics of banks and the structure of the banking industry are related to the allocation of credit to small firms. Nor can concerns about bank consolidation be adequately addressed without information about nonbank lenders, especially finance companies. We also know very little about how the availability of small business credit is related to economic conditions over the business cycle.

To better understand demand and supply relationships in small business credit markets, researchers will always need consistent data from both small businesses and lenders. The breadth of the information needed suggests that periodic surveys are generally a more cost-effective source of data than quarterly reporting requirements. Moreover, since small businesses and nonbank lenders are not subject to reporting requirements, voluntary surveys represent the only means by which policymakers can obtain information about issues involving small business credit.

Small business will continue to be an important social and economic force in our society. Thus, public policy that supports small business as an engine of economic growth and the bulwark of competitive markets must be concerned with the availability of credit to these entrepreneurs. If policy decisions regarding small business credit are to be informed, good data must be available.

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