# Surveys of Small Business Finances Abstracts

The abstracts document is a running record of the work being done using SSBF data. The references are grouped by survey data year, 1987, 1993, and 1998. The listings consists of all the articles we are aware of and are periodically updated. Even with the ongoing efforts, these listings are not complete. Please let us know of any work missing from our list so we can add the reference and abstract to our site. To contact us, fill out a feedback form, selecting staff group: Survey of Small Business Finances. The feedback form can be found on: http://www.federalreserve.gov/feedback.cfm

## I. National Survey of Small Business Finances - 1987

Ang, James S., James Wuh Lin, and Floyd Tyler. "Evidence on the Lack of Separation between Business and Personal Risks among Small Businesses." *Journal of Small Business Finance* 4, nos. 2-3 (1995): 197-210.

Small business researchers conjecture that there is little separation between business and personal risks among small businesses. Personal assets and wealth can be subject to business risks in the form of an implicit or explicit claim depending on the organizational form and whether personal commitments are pledged by owners. The choice of organizational form can be considered a mechanism to increase the degree of separation; however, lenders' requirements for personal commitments mitigate the benefits of limited liability provisions. This paper examines the role of personal collateral and personal guarantees in augmenting implicit claims on business and personal assets with explicit claims on personal assets and personal wealth. It documents the degree of non-separation of business and personal risk for 692 firms. The results suggest that small business owners have a significant incidence of personal assets and wealth pledged for business loans, even for organizational forms such as a S-corporations and C-corporations with limited legal liability. These results confirm the conjecture that there is a lack of separation between business and personal risks. The lack of separation of business and personal risks has important policy implications for the borrowing patterns and access to credit markets of small businesses.

Bento, Alberto M. and Lourdes F. White. "Organizational Form, Performance and Information Costs in Small Businesses." *The Journal of Applied Business Research* 17, no. 4 (Fall 2001): 41-61.

This extends agency theory to introduce organizational form as a decision variable that directly influences risk bearing and the costs of control in small businesses. Based on information cost and organization design theories, we propose a relationship between organizational form and information costs. Our empirical results reveal that organizational form is the first or second most important decision variable related to performance and information costs in small businesses.

Berger, Allen N. and Gregory F. Udell. "Relationship Lending and Lines of Credit in Small Firm Finance." *Journal of Business* 68, no. 3 (July 1995): 351-81.
Also in Salomon Center for the Study of Financial Institutions Working Paper: S/95/5. New York University. 1995.
Previously published as "Lines of Credit, Collateral, and Relationship Lending in Small Firm Finance." *Finance and Economics Discussion Series* 1993-9, Board of Governors of the Federal Reserve System, 1993.

This article examines the role of relationship lending in small firm finance. It examines price and nonprice terms of bank lines of credit (L/Cs) extended to small firms. The focus on L/Cs allows the examination of a type of loan contract in which the bank-borrower relationship is likely to be an important mechanism for solving the asymmetric information problems associated with financing small enterprises. We find that borrowers with longer banking relationships pay lower interest rates and are less likely to pledge collateral. These results are consistent with the theoretical arguments that relationship lending generates valuable information about borrower quality.

Berger, Allen N., Gregory F. Udell, and John D. Wolken. "Spot Versus Forward Contracting in Small Business Working Capital Financing." Board of Governors of the Federal Reserve System. Washington, D.C., April 1992.

Small firms obtain working capital financing from financial institutions using two very different arrangements. Some rely on short-term spot market loans on an 'as needed' basis, while others have formalized their working capital financing arrangements by negotiating lines of credit in the forward market with their institutional lenders. The distinction between spot and forward financing has implications far beyond just the convenience with which credit is arranged. Lines of credit may be associated with either greater or lesser borrower risk and loan risk to the issuing banks.

Unfortunately, research on the relationship between borrower risk and forward commercial loan contracting has been problematic because of data limitations. The purpose of this study is to try to fill this gap in literature by employing a new data set, the National Survey of Small Business Finances (NSSBF), which contains both firm and loan contract information. Thus, we are able to infer directly the relationship between borrower risk and loan contracts, as opposed to inferring it from contract terms and subsequent bank performance.

Bostic, Raphael W. 1999. "Trends in Equal Access to Credit Products." Paper presented at the Credit Research Center 25th Anniversary Conference, November 3-4. Alexandria, Virginia.

Concerns about equal access to credit in the United States have been longstanding. For the past several decades, many have argued that certain populations – primarily ethnic minorities, low-income households, and those residing in neighborhoods with large numbers of ethnic minorities or low-income households – have not had the same access to credit products as others. This, they argue, has impeded the ability of these populations and communities to maintain and improve their economic condition.

The objective of this paper is to provide insight into how access to credit has changed for members of different populations and how relative access to credit has also changed. In examining these questions, the focus will be on several credit products – mortgages, consumer loans and small business loans. The period of analysis will be the early 1990s, a period which was marked by a significant economic expansion, major changes in the banking services industry, and increased vigilance regarding the enforcement of CRA and other fair lending laws.

The results suggest that absolute access to credit products has increased generally and for all subgroups in the population. Moreover, relative access to credit products appears to have improved for minority households and small businesses, as increases in absolute access to first mortgages, home ownership and credit cards was larger for minority households than for comparable white households. Similarly, lower-income households appear to have realized improved relative access to first mortgages and credit cards. This was not observed for home ownership, as relative access to home ownership declined for households in the lowest quintile.

Cavalluzzo, Ken S. and Linda C. Cavalluzzo. "Market Structure and Discrimination: The Case of Small Businesses." *Journal of Money, Credit and Banking* 30, no. 4 (November 1998): 771-92.

This paper examines bank market structure to draw inferences concerning the role of discrimination in credit markets for small businesses. It analyzes credit application and denial rates, loans outstanding, and interest rates across demographic groups. This set of variables, in combination with information on local bank market structure, helps to distinguish among borrower preferences, lender tastes, and inadequate lender information as likely causes of differences in credit market experiences of small business operators from distinct demographic groups. Results conclude that white men and women can expect similar treatment in credit markets, with some benefits to female-owned firms located in concentrated banking markets. Minorities, by contrast, fare worse than whites. Moreover, by appealing to

Becker's (1957) classic theories, some clear evidence is found to support the view that prejudicial discrimination is at least partly to blame.

Cloyd, C. Bryan and Stephen T. Limberg. "The Impact of Federal Taxes on the Use of Debt by Closely Held Corporations." *National Tax Journal* 50, no. 2 (June 1997): 261-277.

It is often asserted that the income tax encourages the use of debt because of the deductibility of interest expense. We examine this conjecture by analyzing the interest incurred by a large sample of small, closely held corporations. We estimate regressions of the level of interest on proxies for expected future tax rates, interactions between the tax rate proxies and nondebt tax shields, and other determinants of debt utilization. Our evidence is consistent with prior studies in that we find that firms with high tax rates pay more interest than firms with low tax rates. In addition, firms for which additional tax shields might reasonably lower tax rates exhibited significant substitution between nondebt tax shields and debt tax shields.

Cole, Rebel A., John D. Wolken, and R. Louise Woodburn. "Bank and Nonbank Competition for Small Business Credit: Evidence from the 1987 and 1993 National Surveys of Small Business Finances." *Federal Reserve Bulletin* 82, 11 (November 1996): 983-95.

This paper explores competition between banks and nonbanks in the U.S. market for small business credit. It analyzes the bank and nonbank shares of the dollar amount of outstanding credit to small businesses, including how these shares have changed from 1987 to 1993. This paper also examines the incidence of small business borrowing from banks and nonbanks, which is defined as the percentage of firms using credit of a certain type or from a particular source.

Cox, Brenda G., Gregory E. Elliehausen, and John D. Wolken. "The National Survey of Small Business Finances: Description and Preliminary Evaluation." *Finance and Economics Discussion Series* 1989-93, Board of Governors of the Federal Reserve System, 1989.

The Board of Governors of the Federal Reserve System and the Small Business Administration sponsored the National Survey of Small Business Finances (NSSBF) in 1989. The NSSBF collected data from a national sample of 3,600 small business firms inventorying their use of transaction accounts, other deposit and investment accounts, and credit services by source as well as obtaining a balance sheet, an income statement, and other characteristics of the business. A major concern of the study was to assess the degree to which small businesses rely on local commercial banks for credit, transactions, and deposit services, information that may have implications for public policy on mergers and deregulations in financial markets. The survey was intended, however, to serve a much broader purpose of providing basic procedures used for the survey and presents a preliminary discussion of the coverage and overall response.

Detragiache, Enrica, Paolo Garella, and Luigi Guiso. "Multiple versus Single Banking Relationships: Theory and Evidence." *Journal of Finance* 55, no. 3 (June 2000): 1133-1161.

A theory of the optimal number of banking relationships is developed and tested using matched bank-firm data. According to the theory, relationship banks may be unable to continue funding profitable projects owning to internal problems and a firm may thus have to refinance from nonrelationship banks. The latter, however, face an adverse selection problem, as they do not know the quality of the project, and may refuse to lend. In these circumstances, multiple banking can reduce the probability of an early liquidation of the project. The empirical evidence supports the predictions of the model.

Elliehausen, Gregory E. and John D. Wolken. "Banking Markets and the Use of Financial Services by Small and Medium-Sized Businesses." Staff Studies 160. Board of Governors of the Federal Reserve System, 1990.
Also in *Federal Reserve Bulletin* 76, 10 (October 1990): 801-17.

This paper addresses the longstanding problem in the antitrust analysis of proposed bank mergers -the definition of the geographic area and services that constitute a particular market for financial services. Empirical evidence was collected through surveys in order to learn more about the use of financial services by consumer and by small and medium-sized business firms, the major customer group whose demand is most likely to be limited to local commercial banks.

____. "The Demand for Trade Credit: An Investigation of Motives for Trade Credit Use by Small Businesses." Staff Studies 165. Board of Governors of the Federal Reserve System, 1993. Summary in *Federal Reserve Bulletin* 79, 10 (October 1993): 929-30.

This paper presents new evidence on small businesses' motives for using trade credit based on data from the National Survey of Small Business Finances. The survey gathered information on the trade credit use and payment practices of a large segment of the business population not covered by most sources of financial data on businesses. A model of demand incorporating the transaction and financing motives was developed. This model 'analyzed small businesses' decisions about using trade credit at all, making late payments on trade credit and the amount of trade credit to use. The results of the analysis, which support the existence of both a transaction and a financing motive, provide insights on the substitutability of trade credit and institutional credit and on the relative importance of the two motives in the use of trade credit by small businesses.

_____. "Descriptive Statistics from the 1987 National Survey of Small Business Finances." Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, D.C., June 1995.

This report presents general descriptive statistics for the 1987 National Survey of Small Business Finances, a nationally representative survey of about 3,400 small businesses in the United States. The statistics cover basic demographic characteristics, the types of financial services and financial service suppliers used, recent financial activities, and income statement and balance sheet ratios.

_____. "The Geographic Extent of Banking Markets for Small and Medium-Sized Businesses." Board of Governors of the Federal Reserve System. Mimeographed.

The relaxation of regulatory restraints to geographic expansion and the recent consolidation in the banking industry have focused attention on whether banking markets are local or national. This paper presents new evidence on the geographic extent of the banking markets for small and medium-sized businesses from the National Survey of Small Business Finances, which is more comprehensive in its coverage of these firms' use of financial services and institutions than any other data source. Particularly important for banking market definition is the finding that local bank structure affects the choice of location for financial service suppliers, a finding that is consistent with the existence of local banking markets.

_____. "Small Business Clustering of Financial Services and the Definition of Banking Markets for Antitrust Analysis." *The Antitrust Bulletin* 37, no. 3 (Fall 1992): 707-35.

This article attempts to determine whether clustering is empirically relevant for the small business firm. Small businesses generally limit their purchases of financial services to fairly small geographic areas and obtain most of their services from depository institutions. If clustering is applicable to any group of bank customers, small businesses would probably be one such group.

Haynes, George W. "Credit Access for High-Risk Borrowers in Financially Concentrated Markets: Do SBA Loan Guarantees Help?" *Small Business Economics* 8, no. 6 (December 1996): 449-61.

The Small Business Administration's (SBA) loan guarantee program was established to correct financial capital market inefficiencies and improve small business access to financial capital. However, the SBA loan guarantee program has been criticized for its failure to improve the performance of financial capital markets available to small businesses. This study considers the financial capital market

failure created by lenders' monopoly power (specifically, financial market concentration) in financial capital markets. Based on this potential market failure, a model is derived to evaluate the behavior of lenders and borrowers in financial capital markets. Using the National Survey of Small Business Finance, this study compares the financial characteristics of small business borrowers with and without SBA loan guarantees, and provides a qualitative assessment of the SBA's ability to correct financial capital market inefficiencies. When considering only the interaction between borrower quality and the degree of financial market concentrations, high-risk borrowers in high concentration financial markets have a higher probability of receiving an SBA loan guarantee than low-risk borrowers in low concentration financial markets. However, when other factors influencing the demand for financial capital are included in the model, only the borrower attributes (credit risk and age) are significant. While the SBA loan guarantee program appears to partially mitigate the effects of the market failure caused by financial market concentration for high-risk borrowers, the program appears to be better designed to address borrower risk, rather than credit market failure.

_____. "Executive Summary: Financial Structure of Women-Owned Businesses." Small Business Administration. June 1995.

The purpose of this study is to examine the financial differences between small businesses owned by women and men using the National Survey of Small Business Finance (NSSBF). While previous literature has examined the sources used for financing women-owned businesses, appropriate data were not available to evaluate the financial structure of men- and women-owned small businesses. An evaluation of the financial structure includes a review of the amount and share of capital acquired from each source of financial capital and each type of financial instrument (i.e., leases and loans). In addition, lease and loan contracts held by women- and men-owned small businesses are assessed to determine if women-owned businesses pay higher interest rates, acquire smaller loan amounts, or face more stringent collateral requirements than men-owned small businesses.

Haynes, George W. and Deborah C. Haynes. "The Debt Structure of Small Businesses Owned by Women in 1987 and 1993." *Journal of Small Business Management* 37, no. 2 (April 1999): 1-19. Also in *Consumer Interests Annual* 44, (1998): 36-41.

This study examines the access women-owned small business borrowers had to financial capital provided by institutional and non-institutional lenders in 1987 and 1993 using the National Survey of Small Business Finance. This study utilizes non-linear (logit and tobit) multivariate regression models to examine the probability of holding a debt instrument and the share of total debt held in each debt instrument by women-owned business borrowers. While women-owned small businesses still have a higher probability of borrowing from family and friends, the results suggest that women-owned small businesses have gained similar access to line-of-credit loans from commercial banks as men-owned small businesses over the period of time from 1987 to 1993.

Haynes, George and Myles Watts. "Finance Companies and Small Business Borrowers: An Empirical Investigation." *Journal of Entrepreneurial and Small Business Finance* 5, no. 1 (1996): 17-42.

Finance companies have been perceived as isolated and insignificant lenders, attracting high risk borrowers and charging these borrowers relatively high prices. Using the 1987 National Survey of Small Business Finance, this study examines the relationship between finance companies and other lenders, describes the characteristics of borrowers attracted to finance companies and assesses whether finance companies charge higher loan prices and impose more stringent collateral requirements on their borrowers than other lenders. This study refuses the popular notion that finance companies are not mainstream lenders by suggesting that finance companies are an important source of financial capital attracting borrowers similar to those attracted by commercial banks and charging these borrowers competitive prices.

Petersen, Mitchell A. and Raghuram G. Rajan. "The Benefits of Lending Relationships: Evidence from

Small Business Data." *Journal of Finance* 49, no. 1 (March 1994): 3-37.

This paper empirically examines how ties between a firm and its creditors affect the availability and cost of funds to the firm. It is an analysis of the data collected in a survey of small firms by the Small Business Administration. The primary benefit of building close ties with an institutional creditor is that the availability of financing increases. Smaller effects on the price of credit are found. Attempts to widen the circle of relationships by borrowing from multiple lenders increases the price and reduces the availability of credit. In sum, relationships are valuable and appear to operate more through quantities rather than prices.

____. "The Effect of Credit Market Competition on Lending Relationships." *Quarterly Journal of Economics* 110, no. 2 (May 1995): 407-43.

This paper provides a simple framework showing that the extent of competition in credit markets is important in determining the value of lending relationships. Creditors are more likely to finance credit constrained firms when credit markets are concentrated because it is easier for these creditors to internalize the benefits of assisting the firms. The paper offers evidence from small business data in support of this hypothesis.

____. "Trade Credit: Theories and Evidence." NBER Working Paper No. 5602. June 1996. Also in *The Review of Financial Studies* 10, no. 3 (Fall 1997): 661-91.

In addition to borrowing from financial institutions, firms may be financed by their suppliers. Although there are many theories explaining why non-financial firms lend money, there are few comprehensive empirical tests of these theories. This paper attempts to fill the gap. We focus on a sample of small firms whose access to capital markets may be limited. We find evidence that firms use trade credit relatively more when credit from financial institutions is not available. Thus while short term trade credit may be routinely used to minimize transactions costs, medium term borrowing against trade credit is a form of financing of last resort. Suppliers lend to firms no one else lends to because they may have a comparative advantage in getting information about buyers cheaply, they may have a better ability to liquidate goods, and they may have a greater implicit equity stake in the firm's long term survival. We find some evidence that trade credit is used as a means of price discrimination. Finally, we find that firms with better access to credit from financial institutions offer more trade credit. This supports the view that trade credit may be a channel through which monetary policy affects firms outside the banking system.

Scherr, Frederick C. and Heather M. Hulburt. "The Debt Maturity Structure of Small Firms." *Financial Management* 30, no. 1 (Spring 2001): 85-111.

Small firms differ from large firms in taxability, ownership, flexibility, industry, economies of scale, financial market access, and level of information asymmetry. We investigate the determinants of small firms' choice of the maturity structure of debt. We find that small firms' maturity of assets, capital structure, and probability of default are statistically and economically important in the choice of debt maturity. We find little evidence that small firms' growth options, level of asymmetric information, and tax status affect debt maturity choice.

Uzzi, Brian. "Embeddedness in the Making of Financial Capital: How Social Relations and Networks Benefit Firms Seeking Financing." *American Sociological Review* 64, no. 4 (August 1999): 481-505.

I investigate how social embeddedness affects an organization's acquisition and cost of financial capital in middle-market banking—a lucrative but understudied financial sector. Using existing theory and original fieldwork, I develop a framework to explain how embeddedness can influence which firms get capital and at what cost. I then statistically examine my claims using national data on small-business lending. At the level of dyadic ties, I find that firms that embed their commercial transactions with their lender in

social attachments receive lower interest rates on loans. At the network level,
firms are more likely to get loans and to receive lower interest rates on loans if their network of bank ties has a mix of embedded ties and arm's-length ties. These network effects arise because embedded ties motivate network partners to share private resources, while arm's-length ties facilitate access to public information on market prices and loan opportunities so that the benefits of different types of ties are optimized within one network. I conclude with a discussion of how the value produced by a network is at a premium when it creates a bridge that links the public information of markets with the private resources of relationships.

____. "Getting the Best Deal: The Governance Benefits of Social Networks in Commercial Loans." Mimeographed.

We investigate whether social embeddedness affects governance costs in loan contracts among midmarket banks and firms - a lucrative yet understudied financial market. Drawing on social embeddedness theory, we argue that embedding commercial transactions in social attachments and networks facilitates exchange by initiating self-organizing governance arrangements that operate through expectations of trust and reciprocity and access to private knowledge. At the level of the bank-firm tie, we expect increased embeddedness to enhance governance benefits. At the network level, we expect networks composed of a complementary mix of embedded and arm's-length ties to produce optimal governance. Using methods that triangulated theory, original fieldwork, and statistical analysis, our statistical results supported our arguments and showed that embeddedness creates governance by reducing the need for costly formal governance benefits and by motivating exchange partners to mutually share gains through Pareto improved loan contracts.

Uzzi, Brian and James J. Gillespie. "Financing Networks and Knowledge Spillover." *Academy of Management Proceedings*. 2001. Edited by Dennis Nagao. Academy of Management Online at Pace University.

Evidence suggests that networks among firms promote competitive advantage in ways that individual or firm-level factors cannot while recent work suggest the possibility that a firm's network of connections can provide benefits that spillover into transactions with other trading partners that exist beyond the network of ties that generated the benefits. We aim to contribute to this literature by identifying a new concept we term *network transitivity* and by measuring its benefits against a yardstick of fiscal probability: the use of trade credit financing.

_____. "Social Embeddedness and Corporate Finance: The Case of Trade Credit Financing." Mimeographed.
Formerly: "How Embedded Ties Transfer Benefits through Networks: The Firm's Strategic Use of Trade Credit Financing."

Building on social embeddedness theory, we examined how the competencies and resources of one actor in a network are transferred to another actor who uses them to enhance its transactions with a third actor. We examined this puzzle in the context of small firm corporate finance, with an eye to how embedded relations between a firm and its banks facilitate the firm's access to capabilities that enable it to strategically manage its trade credit financing relationships. Our methods combined qualitative and quantitative analysis. We used theory and original case study fieldwork to develop our arguments and explore the types of resources and competencies that are at stake in the bank-firm relationships. We then tested the generalizability of our hypotheses on a separate large-scale data set. The analyses showed that embedded bank-firm relationships provided three vital resources to firms – fiscal expertise, supplier referrals, and financing – and that firms that had access to these factors excelled in their ability to take lucrative early payment trade discounts and avoid costly late payment penalties.

## II. National Survey of Small Business Finances - 1993

Ang, James S., Rebel A. Cole, and James Wuh Lin. "Agency Costs and Ownership Structure." *Journal of Finance* 55, no. 1 (February 2000): 81-106.

We provide measures of absolute and relative agency costs for corporations under different ownership and management structures. Our base case is Jensen and Meckling's (1976) zero agency-cost firm, where the manager is the firm's sole shareholder. We utilize a sample of 1,708 small corporations from the FRB/NSSBF database and find that agency costs (i) are significantly higher when an outsider rather tan an insider manages the firm; (ii) are inversely related to the manager's ownership share; (iii) increase with the number of nonmanagers, shareholders, and (iv) to a lesser extent, are lower with greater monitoring by banks.

Avery, Robert B., Raphael W. Bostic, and Katherine A. Samolyk. "The Role of Personal Wealth in Small Business Finance." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 1019-61.

This paper provides new empirical evidence on the relationship between personal commitments and the allocation of small business credit. The data suggest that personal commitments are important for firms seeking certain types of loans. Guarantees are more prevalent than collateral and organization type (corporate versus noncorporate status) appears to be particularly important in determining commitment use. No systematic relationship is observed between commitment use and owner wealth. Personal commitments appear to be substitutes for business collateral, at least for lines of credit, while personal collateral and personal guarantees do not seem to substitute for each other. Personal commitments have generally become more important to small business lending since the late 1980's.

Ayers, Benjamin C., Bryan C. Cloyd, and John R. Robinson. "The Influence of Income Taxes on the Use of Inside and Outside Debt by Small Businesses." *National Tax Journal* 54, no. 1 (March 2001): 27-55.

We investigate the effect of taxes on the utilization of inside debt (loans from owners) and outside debt (loans from nonowners) across small businesses organized as taxable corporations and flow-through entities (Subchapter S corporations and partnerships). We find that the tax incentives to use debt differ according to the type of debt and the type of entity. Our results indicate that the effect of marginal tax rates on the use of outside debt and other non-debt tax shields is similar for both taxable and flow-through entities. In contrast, we find that marginal tax rates are unrelated to the use of inside debt by flow-through entities.

Berger, Allen N., Richard J. Rosen, and Gregory F. Udell. "The Effect of Market Size Structure on Competition: The Case of Small Business Lending." *Finance and Economics Discussion Series* 2001-63, Board of Governors of the Federal Reserve System, 2001.

Banking industry consolidation has raised concern about the supply of small business credit since large banks generally invest lower proportions of their assets in small business loans. However, we find that the likelihood that a small business borrows from a bank of a given size is roughly proportional to the local market presence of banks of that size, although there are exceptions. Moreover, small business loan interest rates depend more on the size structure of the market than on the size of the bank providing the credit, with markets dominated by large banks generally charging lower prices.

Berger, Allen N. and Gregory F. Udell. "The Economics of Small Business Finance: The Roles of Private Equity and Debt Markets in the Financial Growth Cycle." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 613-73.
Also in *Finance and Economics Discussion Series* 1998-15, Board of Governors of the Federal Reserve System, 1998.

This article examines the economics of financing small business in private equity and debt markets. Firms are viewed through a financial growth cycle paradigm in which different capital structures are optimal at different points in the cycle. The article shows the sources of small business finance, and how capital structure varies with firm size and age. The interconnectedness of small firm finance is discussed along with the impact of the macroeconomic environment. Also includes an analysis of a number of research policy issues, reviews the literature, and suggests topics for future research.

______. "Small Business Credit Availability and Relationship Lending: The Importance of Bank Organisational Structure." *Economic Journal* 112, no. 477 (February 2002): F32-53.

This paper models the inner workings of relationship lending, the implications for bank organisational structure, and the effects of shocks to the economic environment on the availability of relationship credit to small businesses. Relationship lending depends on the accumulation over time by the loan officer of 'soft' information. Because the loan officer is the repository of this soft information, agency problems are created throughout the organisation that may best be resolved by structuring the bank as a small, closely-held organisation with few managerial layers. The shocks analysed include technological innovations, regulatory regime shifts, banking industry consolidation, and monetary policy shocks.

Berkowitz, Jeremy and Michelle J. White. "Bankruptcy and Small Firms' Access to Credit." Board of Governors of the Federal Reserve System and University of Michigan. Mimeographed: January 1999.

In this paper, we investigate whether and how personal bankruptcy law affects small firms' access to credit. When a firm is unincorporated, its debts are personal liabilities of the firm's owner, so that lending to the firm is equivalent to lending to its owner. If the firm fails, the owner has an incentive to file for personal bankruptcy in order to obtain discharge of the firm's debts. While bankruptcy law is uniform across the country, states are allowed to set their own bankruptcy exemption levels and they vary widely. The higher the exemption level, the more attractive it is for debtors who live in that state to file for bankruptcy, because they can keep more of their assets while obtaining discharge of their own and the firm's debts.

The paper presents a theoretical model of credit markets which shows that supply of credit falls and demand for credit rises when non-corporate firms are located in states with higher bankruptcy exemption levels. We test the model using the NSSBF and find that high homestead and personal property exemptions are associated with an increased probability of non-corporate firms being denied credit, but do not affect the probability of corporate firms being denied credit. We also find weak evidence that both types of firms receive smaller loans when they are located in states that have high bankruptcy exemptions, but we find no evidence that interest rates are affected by bankruptcy exemptions. We also test for the effect of a prior bankruptcy filing by non-corporate firms or their owners on access to credit and find that a prior filing nearly triples the probability that these firms are denied credit.

Bernstein, David. "Fringe Benefits and Small Businesses: Evidence from the Federal Reserve Board Small Business Survey." Office of Economic Policy, U.S. Treasury. Mimeographed: 2001. Also in *Applied Economics* 34, no. 16 (November 10, 2002): 2063-2067.

Data from the 1993 National Survey of Small Businesses (NSSBF) is used to analyze the factors affecting the provision of pensions and health insurance by small businesses. The race of the business owner is found to impact the provision of tax advantaged fringe benefits, even after accounting for a wide range of other economic and demographic variables. It is not possible to determine why owner race impacts the provision of fringe benefits by small businesses but the significance of the race variable might reflect a lower level of marketing effort by financial service firms in minority-dominated communities. The owner education variable, which is also significant in both the pension and health insurance models, could also be a proxy for the availability of general information about the importance of fringe benefits. With the exception of the sole proprietorship variable, the demographic and economic variables appear to have similar effects on the provision of both pensions and health insurance by small businesses. Some sole proprietors appear to prefer pension benefits to health insurance benefits possibly because pensions allow the business owner to shield some assets in the case of bankruptcy.

Bitler, Marianne P., Tobias J. Moskowitz, and Annette Vissing-Jorgensen. "Why Must Entrepreneurs Hold Large Ownership Shares? Optimal Contracting in Private and Newly Public Firms." RAND Corporation, University of Chicago, and NBER Working paper. Mimeographed: November 2001.

Using new data on entrepreneurial effort and net worth from privately held and newly public firms, we test the implications of agency and information contracting theory. We find that ownership shares increase with net worth and decrease with firm risk, and that effort increases with ownership, consistent with models of moral hazard. Furthermore, both ownership and effort increase firm performance after accounting for unobserved firm heterogeneity using instrumental variables. Finally, sales of shares by entrepreneurs at IPOs are negatively related to subsequent firm valuation, consistent with signaling and distinct from moral hazard. These findings highlight the importance of agency and signaling costs in explaining the large equity ownership shares of entrepreneurs.

Blanchflower, David G., Phillip B. Levine, and David Zimmerman. 1999. "Discrimination in the Small Business Credit Market." Paper presented at Federal Reserve System Research Conference: Business Access to Capital and Credit, March 8-9, at Sheraton National Hotel, Arlington, Virginia.
Also in NBER Working Paper Series No. W6840. December 1998.

This paper uses data from the 1993 National Survey of Small Business Finances to determine the extent to which minority-owned small businesses face constraints in the credit market beyond those faced by white-owned small businesses. First, qualitative evidence is presented indicating that black- and white-owned firms report similar concerns about the factors that may affect their businesses except that blacks are far more likely to report problems with credit availability. Second, an econometric analysis of loan denial probabilities is conducted by race and it is found that black-owned small businesses are almost three times more likely to have a loan application denied. Even after controlling for the differences in credit-worthiness and other factors that exist between black- and white-owned firms, blacks are still about twice as likely to be denied credit. A series of specification checks indicate that this gap is unlikely to be largely attributed to omitted variable bias. Third, a similar analysis is conducted regarding interest rates charged to approved loans and it is found that black-owned firms pay higher interest rates as well. Finally, even these results are likely to understate differences in credit access because many potential black-owned firms are not in operation due to the lack of credit and those in business may be too afraid to apply. These results indicate that the racial disparity in credit availability is likely caused by discrimination.

Board of Governors of the Federal Reserve System. *Report to the Congress on Small Business Credit Availability.* Board of Governors of the Federal Reserve System. Washington, D.C., 1997.

Section 2227 of the Economic Growth and Regulatory Paperwork Reduction Act of 1996 requires the Board of Governors of the Federal Reserve System to conduct a study and report every five years to Congress detailing the extent of small business lending by all creditors. The act specifies that the study should identify factors that provide policymakers with insight into the small business credit market, including, among other items, the demand for credit by small businesses, the availability of credit, and risks of lending to small businesses. The report relies in part on the 1993 National Survey of Small Business Finance for details on the sources and types of credit used by small businesses. The survey also provides information on the borrowing experiences of small businesses in 1993. Topics include the variations of the types of financial arrangements and sources of credit used by small firms by organizational form, industry, size, and other characteristics of the business, the importance of the relationship between lenders and small business customers in determining the terms and availability of credit, the implications for bank lending to small businesses (credit scoring and securitization of small business loans, and consolidation within the banking industry), whether mergers and consolidation within the banking industry produce more large banking organizations while reducing the number of small banks that are important lenders to small businesses in their localities, and a brief discussion of a noncredit source of finance for small firms--the private equity market.

Bostic, Raphael W. 1999. "Trends in Equal Access to Credit Products." Paper presented at the Credit Research Center 25th Anniversary Conference, November 3-4. Alexandria, Virginia.

Concerns about equal access to credit in the United States have been longstanding. For the past several decades, many have argued that certain populations – primarily ethnic minorities, low-income households, and those residing in neighborhoods with large numbers of ethnic minorities or low-income households – have not had the same access to credit products as others. This, they argue, has impeded the ability of these populations and communities to maintain and improve their economic condition.

The objective of this paper is to provide insight into how access to credit has changed for members of different populations and how relative access to credit has also changed. In examining these questions, the focus will be on several credit products – mortgages, consumer loans and small business loans. The period of analysis will be the early 1990s, a period which was marked by a significant economic expansion, major changes in the banking services industry, and increased vigilance regarding the enforcement of CRA and other fair lending laws. The results suggest that absolute access to credit products has increased generally and for all subgroups in the population. Moreover, relative access to credit products appears to have improved for minority households and small businesses, as increases in absolute access to first mortgages, home ownership and credit cards was larger for minority households than for comparable white households. Similarly, lower-income households appear to have realized improved relative access to first mortgages and credit cards. This was not observed for home ownership, as relative access to home ownership declined for households in the lowest quintile.

Bostic, Raphael W. and K. Patrick Lampani. 1999. "Race, Geography, Risk, and Market Structure: Examining Discrimination in Small Business Finance." Paper presented at Federal Reserve System Research Conference: Business Access to Capital and Credit, March 8-9, at Sheraton National Hotel, Arlington, Virginia.

This paper attempts to identify and quantify differences in credit market experiences of small businesses with owners of different races and examine possible sources of these differences using the 1993 National Survey of Small Business Finances (NSSBF) along with detailed demographic and economic data on the local area where the business is located. Our analysis finds no statistically significant differences in denial rates between white-owned firms and firms owned by Asians, or Hispanics. The only racial disparity that is statistically significant is the difference in denial rates between white-owned and Black-owned firms. The results show that controlling for a variety of financial and economic characteristics of the firm, owners, and local market explains much of the Black-white differences. Importantly, our results show that controlling for variation in a firm's local geographic market is often important in explaining differences in their credit market experiences.

Brau, James C. 2002. "Do Banks Price Owner-Manager Agency Costs? An Examination of Small Business Borrowing." *Journal of Small Business Management* 40, no. 4 (October 2002): 273-286.

Ang, Cole, and Lin (2000) provide evidence that supports the theoretical work of Jensen and Meckling (1976) on agency costs. As a further examination, I conduct a test to determine the economic significance of owner-management agency conflicts. Using the same data source and empirical framework as Ang, Cole, and Lin (2000), I test to determine if banks change a premium when extending loans to firms with various ownership structures. In empirical tests, I find that banks do not require an owner-manager agency premium either through increased interest rates or through the requirement of collateral. Instead, I find that the interest rate is significantly affected by the length of the longest banking relationship, the number of banking relationships, firm age, and firm size. Additionally, the requirement of collateral is significantly affected by the number of banking relationships, the debt position of the firm, and firm size.

Cavalluzzo, Ken S., Linda C. Cavalluzzo, and John D. Wolken. 1999. "Competition, Small Business Financing, and Discrimination: Evidence From a New Survey." Paper presented at Federal Reserve System Research Conference: Business Access to Capital and Credit, March 8-9, at Sheraton National Hotel, Arlington, Virginia.
Also in *Finance and Economics Discussion Series* 1999-25, Board of Governors of the Federal

Reserve System, 1999.
Also in *Journal of Business* 75, no. 4 (2002): 641-79.

Using data from the 1993 National Survey of Small Business Finances, we examine some of the factors influencing differences in small business credit market experiences across demographic groups. We analyze credit applications, loan denials, and interest rates paid across gender, race and ethnicity of small business owners. In addition, we analyze data gathered from small business owners who said they did not apply for credit because they believed that their application would have been turned down. This set of analysis, in combination with important new information on the personal credit history of the principal owner, the business credit history of the firm, a rich set of additional explanatory variables, and information on local bank market structure, helps us to understand better the sources of observed differentials in the credit market experiences of small business operators across demographic groups.

Credit market experiences often differ markedly among demographic groups. However, so do the characteristics of firms and owners. Results of our multivariate analyses show that many of the factors we consider help to explain the observed differences in credit market experiences. However, even after controlling for a large number of firm and owner characteristics, substantial differences often remained. There was also evidence that some of the differentials were associated with the degree of lender market concentration in the firm's local area.

Cavalluzzo, Ken S. and Christopher Geczy. "The Choice of Organizational Form: Taxes, Liability, Agency, and Financing." Georgetown University and University of Pennsylvania. Mimeographed: July 23, 2002.

We investigate tax liability, agency and financing factors influencing a firm's choice of organizational form. Taking into account the endogenous nature of the decision, our evidence indicates that not only are tax-related influences important, but also that liability, agency, financing, owner sophistication, and industry-related factors are associated with a firm's choice of being a proprietorship, partnership, S-corporation or C-corporation. Furthermore, controlling for these motivations, we find that corporations (both S- and closed C-corporations) realize considerable financing benefits in the form of lower costs of capital relative to sole proprietorships and partnerships.

Cavalluzzo, Ken S. and Srinivasan Sankaraguruswamy. "Executive Compensation in Privately Held Small Corporations." Georgetown University. Mimeographed: July 2003.

We investigate some of the factors influencing executive compensation in privately held small corporations. Consistent with predictions from agency theory, as ownership becomes more diffuse, the association between compensation and accounting performance increases. Additional analysis indicates that this result is driven by the behavior of employee-managed and non-family-owned businesses. We also find that C-corporations, and in particular owner managers of C-corporations, have a higher level of compensation, while owner-managed firms with loans from their owners have lower compensation. These latter results are consistent with owner managers using compensation to avoid taxes. Taken together, our results suggest that both tax and agency issues play important roles in determining executive compensation among privately owned small businesses, and that corporate and ownership structure are important in assessing the effect of these issues.

Chakraborty, Atreya and Charles X. Hu. "Lending Relationships in Line-of-Credit and Non-Line-of-Credit Loans: Evidence from Collateral Use in Small Business." Charles River Associates and The Claremont Institute for Economic Policy Studies. Mimeographed. January 31, 2002.

Informational asymmetries in financing small businesses require lenders to continuously produce reliable private information about borrower's performance. This paper shows how the two primary sources of private information – duration of bank-borrower relationship and the number of bank-services used – affect collateral requirements for lines of credit (L/Cs) differently from other loans (non-L/Cs). Our results confirm previous findings that borrowers with longer relationships with banks are less likely to pledge collateral only for lines of credit. For all other loans, however, the more lender-offered financial services are used by the borrower, the lower is the incidence of collateral. These findings may indicate that the mechanism through which banks obtain private information depends on loan type. Our results also shed light on the puzzling fact that both sources of private information have little impact on loan pricing when loans are pooled across types.

Cohn, Richard and Susan Coleman. "Borrowing Behavior of Small Black-Owned Firms." *The Journal of Applied Management and Entrepreneurship* 6, no. 2 (2001): 68-81.

External debt, and in particular, commercial bank loans, are an important source of financing for small firms. To date, there has been little research on the potential effects of race on commercial lending decisions. This article uses data from the 1993 National Survey of Small Business Finances to examine the effect of race on commercial lending. Results reveal that, while black-owned firms were no less likely than white-owned firms to apply for a loan, they were less likely to be approved for one. Results also reveal that black-owned firms tended to pay higher interest rates on their external loans.

Cole, Rebel A. "The Importance of Relationships to the Availability of Credit." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 959-77.

This article examines the effect of pre-existing relationships between a firm and its potential lender on the potential lender's decision whether or not to extend credit to the firm. It is found that the potential lender is more likely to extend credit to a firm with which it has a pre-existing relationship as a source of financial services, but that the length of this relationship is unimportant. These findings provide empirical support for theories of financial intermediation positing that banking relationships generate valuable private information about the financial prospects of the financial institution's customer. The results also provide evidence that potential lenders are less likely to extend credit to firms with multiple sources of financial services, in support of the theory that the private information a financial institution generates about a firm is less valuable when the firm deals with multiple sources of financial services.

Cole, Rebel A., Lawrence G. Goldberg, and Lawrence J. White. "Cookie-Cutter versus Character: The Micro Structure of Small Business Lending by Large and Small Banks." Salomon Center for the Study of Financial Institutions Working Paper: S/99/12. New York University. February 1999.

Consolidation in the U.S. banking system has focused attention on the differences in lending between large and small banks because large banks lend proportionately less to small business. We use a survey of small businesses conducted by the Federal Reserve to analyze the micro-level differences between large banks and small banks in the loan approval process. We provide evidence that large banks ($1 billion or more in assets) employ standard criteria obtained from financial statements in the loan decision process, but that small banks (less than $1 billion assets) deviate from these criteria by relying to a larger extent upon the character of the borrower. These "cookie-cutter" and "character" approaches are consistent with the incentives and environments facing large and small banks.

Cole, Rebel A. and Nicholas Walraven. "The Effect of Mergers and Acquisitions on Bank Lending Policies." Mimeographed: December 2, 1997.

In this study, we use firm-level data from the National Survey of Small Business Finances to examine the effect of bank mergers and acquisitions on the availability of credit to small businesses. We find that both acquirers and targets in bank mergers are less likely than other banks to extend to small business loan applicants. However, these differences disappear after we control for urban and rural location of the lending bank. These results provide some tentative evidence that the ongoing consolidation in the banking industry has not adversely affected the availability of credit to small businesses.

Cole, Rebel A. and John D. Wolken. "Financial Services Used by Small Businesses: Evidence from the 1993 National Survey of Small Business Finances." *Federal Reserve Bulletin* 81, 7 (July 1995): 629-67.

This article offers preliminary findings regarding the characteristics of the U.S. population of small businesses--firms with fewer than 500 employees--and their use of credit and other financial services.

Cole, Rebel A., John D. Wolken, and R. Louise Woodburn. "Bank and Nonbank Competition for Small Business Credit: Evidence from the 1987 and 1993 National Surveys of Small Business Finances." *Federal Reserve Bulletin* 82, 11 (November 1996): 983-95.

This paper explores competition between banks and nonbanks in the U.S. market for small business credit. It analyzes the bank and nonbank shares of the dollar amount of outstanding credit to small businesses, including how these shares have changed from 1987 to 1993. This paper also examines the incidence of small business borrowing from banks and nonbanks, which is defined as the percentage of firms using credit of a certain type or from a particular source.

Coleman, Susan. "Access to Capital and Terms of Credit: A Comparison of Men- and Women-Owned Small Businesses." *Journal of Small Business Management* 38, no. 3 (July 2000): 37-52.

This article compares access to capital for men- and women-owned small business using data from the 1993 National Survey of Small Business Finances. Findings reveal that women-owned firms are less likely to use external financing as a source of capital. It does not appear, however, that lenders discriminate against women on the basis of gender in terms of access to capital. A second part of this study examines the terms under which women obtain credit to determine whether they are at a relative disadvantage from that perspective. Findings reveal that women-owned firms paid higher interest rates than men for their most recent loans. In addition, women-owned service firms were more likely to put up collateral than men-owned service firms.

_____. "Constraints Faced by Women Small Business Owners: Evidence from the Data." *Journal of Developmental Entrepreneurship* 7, no. 2 (August 2002): 151-174.

Traditional capital structure theory contends that firms select the mix of debt and equity that minimizes their cost of capital and maximizes the value of the firm. Prior research suggests, however, that small firms, and particularly small women-owned firms experience difficulty in securing sources of debt capital. This article explores some of the possible constraints faced by women business owners using data from the 1993 National Survey of Small Business Finances. Although results do not demonstrate evidence of non-economic discrimination against women-owned firms, they do reveal that certain characteristics typical of many women-owned firms, including small size, limited prospects for growth and profitability, and failure to provide collateral or guarantees reduce the likelihood of obtaining debt capital. Thus, for smaller firms, capital structure may be at least partially dictated by the characteristics of the firm rather than by the choices of the owner-manager.

_____. "Small Firm Use of Debt: An Examination of the Smallest Small Firms." *Journal of Entrepreneurial Finance and Business Ventures* 1, no. 1 (2001): 51-76.

Access to capital is an on-going challenge for small firms. Capital is required to address a broad range of needs: to cover start-up costs, to provide working capital, to secure facilities or equipment, and to hire employees. Most small firms are at a relative disadvantage, because they are too small to access the public debt and equity markets. Similarly, they are typically too small to show up on the radar screens of venture capitalists on patrol for the next potential hot IPO. Alternatively, very small firms are heavily reliant on bank loans, trade credit, and informal sources of capital including loans from family and friends.

This paper will use data from the 1993 National Survey of Small Business Finances (NSSBF) to examine the financing strategies of very small firms, a largely understudied segment of the small business market. Specifically, it will examine the types of debt capital used by the smallest small firms and compare their usage to that of somewhat larger small firms. Further this article will attempt to determine the variables that predict the use of debt capital and externally acquired debt capital by small firms and larger firms. Finally, it will explore the extent to which smaller and larger firms apply for external debt capital and the extent to which they are approved for loans.

_____. "Sources of Small Business Capital: A Comparison of Men and Women-Owned Small Businesses." *The Journal of Applied Management and Entrepreneurship* 4, no. 2 (January 1999): 138-151.

Recent reports have indicated that increasingly, small businesses are the engine of economic growth and job creation (*The State of Small Business... 1995)*. In many parts of the country, major industries and employers continue to consolidate and merge. Simultaneously, however, small businesses have been a growing and vibrant part of the economy. Given the miportant role played by small businesses in job creation, it is in our interest to identify and address particular barriers and difficulties faced by those who start, own, and operate small businesses.

One frequently cited difficulty is access to capital. Unlike larger, well-known, and well established firms, small businesses typically do not have the option of issuing stocks and bonds to finance new products, geographic expansion, equipment, and growth. Alternatively, they are heavily reliant on bank financing and "informal" sources of capital including personal savings, loans from family and friends, and personal credit rather than businesses credit (Cole & Wolken, 1995; Weinberg, 1994).

Prior research suggests that women small business owners experience greater difficulty accessing capital than men (Brush, 1992; Buttner & Rosen ,1988; Collerett & Aubry, 1990; Riding & Swift, 1990). Further, women are less likely to use banks as a source of capital than men (Coleman & Carsky, 1996a). This article will use a national sample of small businesses to examine the extent to which men and women rely on various sources of external debt capital.

Coleman, Susan and Mary Carsky. "Sources of Capital for Small Family-Owned Businesses: Evidence from the National Survey of Small Business Finances." *Family Business Review* 12, no. 1 (March 1999): 73-85.

Securing adequate capital is an ongoing challenge for many small family-owned businesses. This article uses data from the 1993 National Survey of Small Business Finances to determine the extent to which small family-owned firms use various types of credit products. Using logistic regression, it also identifies variables that predict the likelihood of using credit. Findings reveal that size, age, and profitability of the firm were the most important predictors. Results also indicate that there were virtually no differences between family-owned and nonfamily-owned businesses in the usage of various credit products.

Coleman, Susan and Richard Cohn. "The 'Lack of Separation' Revisited: Small Business Owners and Risk." *Journal of Entrepreneurial Finance* 6, no. 1 (2001): 104-114.

The close link between the personal financial affairs of a small business owner and his or her firm has been noted in prior research. This article compares attitudes toward risk on the part of small business owners (SBOs) and non-small business owners (NSBOs). In addition, it compares the personal balance sheets of SBOs to those of NSBOs to determine if SBOs hold a higher level of risky assets. Results reveal that small business owners express a greater willingness to accept risk and hold a higher level of risky assets in their personal portfolios. This finding is consistent with small business owners' willingness to own and operate small firms which are, by their very nature, risky.

_____. "The Role of Debt in Small Business Finance: A Comparison of Men- and Women-Owned Firms." *Academy of Entrepreneurship Journal* 6, no. 2 (2000): 87-103.

This study compares the use of financial leverage by men- and women-owned small firms. Findings reveal similar borrowing behavior between the two. For both, larger firms used higher total debt, but smaller firms used more external or interest-bearing debt. Age of the firm owner was negatively related to the use of debt. This finding was more pronounced for women business owners than for men.

_____. "Small Firm Use of Leverage: A Comparison of Men- and Women-Owned Firms." Proceedings of the *1999 United States Association for Small Business and Entrepreneurship National Conference,*

(1999): 121-136.

Prior research and anecdotal evidence suggests that women-owned small businesses use less debt than men. This study uses data from a nationwide sample of small businesses to determine differences in leverage between men and women-owned firms. Findings reveal that the primary determinants of leverage are firm size, firm age, and profitability. There were no significant differences in the usage of debt between men and women, and gender was not a significant predictor of financial leverage.

_____. "Small Firms' Use of Financial Leverage: Evidence from the 1993 National Survey of Small Business Finances." *Frontiers of Entrepreneurship Research 1999.* Babson College, University of South Carolina. 1999.
Also in *Journal of Business and Entrepreneurship* 12, no. 3 (October 2000): 87-103.

This research examines capital structure theory as it applies to small, privately held firms. We hypothesized that, given the fine line between the firm and the firm owner in small firms, lenders should take both the characteristics of the firm and those of the borrower into consideration. Our findings reveal that leverage is predominantly a function of firm characteristics rather than owner characteristics. The owner's educational level, however, was a positive predictor of external debt, suggesting that lenders may use education as a proxy for human capital.

Danielson, Morris G. and Jonathon A. Scott. "A Note on Bank Loan Availability and Trade Credit Demand." Mimeographed: February 2003.

This paper investigates the effects of bank loan availability on the trade credit and credit card demand of small firms, using firm-level data from the 1995 Credit, Banks, and Small Business Survey, conducted by the National Federation of Independent Business. We find that firms increase their trade credit and credit card demand when facing credit constraints imposed by banks. Because trade credit and credit cards can be expensive sources of medium-term funds, this finding provides evidence of a pecking order of debt financing, in which firms select more expensive sources of funds when bank loans are not available.

Dunkelberg, William C. and Jonathon A. Scott. "A Note on Competition and Small Firm Credit Market Outcomes." Mimeographed: January 2002.

Using survey data from a sample of small U.S. firms, assessments of changes in reported bank competition for their financial business is related to several credit market outcomes. The analysis is limited to a sample of larger, creditworthy small firms to avoid the vexing endogeneity problem of favorable competition assessments being associated with good credit quality. For this restricted sample, increases in reported intensity of competition for their banking business are associated with an improved fulfillment of credit needs, lower rates, and a lower number of services with fees. This effect is in addition to the effect of traditional measures of competition based on market concentration such as a Herfindahl-Hirshman Index of bank deposit concentration, which is not significant in explaining any of the outcomes used.

Fenn, George W. and Nellie Liang. "New Resources and New Ideas: Private Equity for Small Businesses." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 1077-84.

Private equity for rapidly growing small business is raised primarily from the organized venture capital market and the informal market, comprised of high-net worth individuals or "angel" investors. This paper explores commercially and publicly available data on private equity, the research findings of studies that use these data, and some of the more important questions that the available data have been unable to address.

Fernando, Cresenta, Atreya Chakraborty, and Rajiv Mallick. "The Importance of Being Known: Relationship Banking and Credit Limits." Brandeis University, Charles River Associates, and Harvard Business School. Mimeographed: January 2002.

This paper measures the importance of bank-firm relationships in obtaining higher credit "limits." We use data from a relatively unused section of the National Survey of Small Business Finance (NSSBF, 1993) on credit limits, credit sources, and contract terms for firms with lines of credit from multiple banks. This lets us isolate the credit limit that each bank provides the same firm, eliminating the need to control for often immeasurable, unreliable, or firm-specific "soft" information. For a median Line of Credit (LOC) of $250,000, we find that a bank with a five-year information advantage provides a LOC limit that is $20,000 higher. We also find that purchase of loan and non-loan services by firm from the contracting bank affects the credit limit differently. Non-loan services increase the credit limit and loan services decrease the credit limit. Our findings confirm anecdotal claims from the small business community that relationships are vital to secure higher credit limits.

Haynes, George W. and Rosemary J. Avery. "Family Businesses: Can the Family and the Business Finances be Separated? Preliminary Results." *The Journal of Entrepreneurial and Small Business Finance* 5, no. 1 (1996): 61-74.

Small businesses had nearly $1.25 trillion in loans outstanding from commercial lenders, business finance companies, other businesses in the form of trade credit, and friends and relatives in the early 1990's (Ou, 1991). Based on recent information derived from the National Survey on Small Business Finance (NSSBF), loans held by commercial banks and family members or owners of the firm were significant sources of credit, comprising 54 and 18 percent of all loans, respectively (Haynes, 1996). The relative importance of these types of loans suggests that the finances of the business and the family are often intertwined. This study utilizes the recently released Survey of Consumer Finances to examine the impact of small business ownership on the household's debt structure.

Haynes, George W. and Deborah C. Haynes. "The Debt Structure of Small Businesses Owned by Women in 1987 and 1993." *Journal of Small Business Management* 37, no. 2 (April 1999): 1-19. Also in *Consumer Interests Annual* 44, (1998): 36-41.

This study examines the access women-owned small business borrowers had to financial capital provided by institutional and non-institutional lenders in 1987 and 1993 using the National Survey of Small Business Finance. This study utilizes non-linear (logit and tobit) multivariate regression models to examine the probability of holding a debt instrument and the share of total debt held in each debt instrument by women-owned business borrowers. While women-owned small businesses still have a higher probability of borrowing from family and friends, the results suggest that women-owned small businesses have gained similar access to line-of-credit loans from commercial banks as men-owned small businesses over the period of time from 1987 to 1993.

Haynes, George W., Charles Ou, and Robert Berney. "Small Business Borrowing from Large and Small Banks." Presented at Federal Reserve System Research Conference, February 5, 1999.

Recent research on bank consolidations suggests that credit supplies to small business borrowers have been declining, especially in instances where large, complex bank are involved. When banks with a small percentage of small business loans merges with a smaller bank, credit supplies to small businesses also decline, as seen in papers by Zardkoohi and Koari, and Peek and Rosengren. This study complements the work of these authors by assessing whether small businesses have less access to bank credit from large banks than larger businesses using the National Survey of Small Business Finances. This study examines the impact of commercial bank size on the use of debt instruments (line-of-credit, lease, mortgage, vehicle, or equipment loans) supplied by small and large commercial banks; and, assesses the impact of bank size on selected borrowers.

Jayaratne, Jith and John D. Wolken. "How Important are Small Banks to Small Business Lending? New Evidence from a Survey of Small Firms." *Journal of Banking and Finance* 23, nos. 2-4 (February 1999): 427-58.

Typically, small banks lend a larger proportion of their assets to small businesses than do large banks.

The recent wave of bank mergers has thinned the ranks of small banks, raising the concern that small firms may find it difficult to access bank credit. However, bank consolidation will reduce small business credit only if small banks enjoy an advantage in lending to small businesses. The existence of a small bank cost advantage in small business lending is tested by conducting the following simple test: If such advantages exist, then small businesses in areas with few small banks will have less credit. Using data on small business borrowers from the 1993 National Survey of Small Business Finances, the results show that the probability of a small firm having a line of credit from a bank does *not* decrease in the long run when there are fewer small banks in the area, although short-run disruptions may occur. Also, firms in areas with few small banks are not any more likely to repay trade credit late, suggesting that such firms are no more credit constrained than firms in areas with many small banks.

Kiser, Elizabeth K. "The Perceived Cost of Changing Banks: Switching Behavior Among Small Businesses." Board of Governors of the Federal Reserve System. Mimeographed: December 1997.

This study seeks to identify the factors that affect a small business's perceived cost of changing financial institutions, using data from the 1993 Survey of Small Business Finances. Reported firm tenure at financial institutions is combined with descriptive evidence on firm characteristics, owner demographics, and the financial services obtained by firms to suggest patterns in the flexibility of small businesses in changing financial institutions. The evidence from the preliminary analysis is then used to construct OLS, median and logit regression models that use firm characteristics to predict tenure and switching behavior. The results have two primary implications for merger analysis. First, the effects of increasing concentration in retail banking are likely to have a heterogeneous effect on small businesses, depending on firm and owner characteristics and attitudes. Second, the vast majority of firms appear to be quite inflexible in their ability or willingness to change financial institutions, reflected not only in their long tenure at their financial institutions, but also in their lack of response to rates and fees, as well as their continuing desire to bank in person. Hence, potential competition is likely to play only a small role in competition for retail banking for small businesses, and competitive pressures are likely to remain relatively weak in the face of greater concentration.

Kolari, James, Robert Berney, and Charles Ou. "Small Business Lending and Bank Profitability." *Journal of Entrepreneurial and Small Business Finance* 5, no. 1 (1996): 1- 15.

In theory commercial banks exist to resolve asymmetric information problems in credit markets. Because small business firms have much greater information problems than large firms, it is not surprising that they depend almost entirely on banks for external finance needs. Unfortunately, little is known either in academic literature or banking practice about the profitability of small business credit (and related information) services. The present study employs recently available business loan size information from the Call Reports for all insured U.S. commercial banks in 1994 and 1995 to examine the relationship between bank profits and small business credit. Regression analyses are conducted using the rate of return on assets and business loans less than $250,000, in addition to a number of variables that proxy various dimensions of risk that potentially could influence this relationship. Due to the fact that small and large banks differ considerably in their lending activities, separate analyses are conducted for five asset size groups. In brief, we find that, while small business loans likely have a negligible effect the profits of large banks, they tend to increase the profitability of small banks over time, holding constant various bank risk characteristics.

Kwast, Myron L., M. Starr-McCluer, and John D. Wolken. "Market Definition and the Analysis of Antitrust in Banking." *The Antitrust Bulletin* 42, no. 4 (Winter 1997): 973-95. Also in *Finance and Economics Discussion Series* 1997-52, Board of Governors of the Federal Reserve System, 1997.

This article attempts to contribute to the debate of the procedures for analyzing the potential competitive impact of a proposed merger by utilizing two data sources that are particularly well-suited to examining some of the key hypotheses. This article uses the 1992 Survey of Consumer Finances (SCF) and the 1993 National Survey of Small Business Finances (NSSBF) to examine the extent to which

households and small businesses (1) tend to focus their purchases of financial services at an insured depository, as opposed to nondepository, institutions,; (2) purchase their financial services locally; and (3) tend to cluster their purchases of financial services at a single "primary" financial institution.

Lim, William, Devashis Mitra, and Muhammad Rashid. "Determinants of the Cash Discount Rate in Credit Policy." University of New Brunswick. Mimeographed: December 2000.

In this paper, using data from the 1993 National Survey of Small Business Finances, we find that the cash discount rate is determined by the behavioral and operating characteristics of buyers and sellers. Buyers with lower credit quality are offered higher cash discounts. Higher cash discounts are also associated with buyers who typically pay cash and who forward buy (i.e., accumulate inventory to take advantage of the higher cash discount). We explain how lower credit quality are tendencies to pay cash and forward buy proxy for higher cash discount elasticity, as these factors increase the sensitivity of the buyer to cash discounts. Therefore, the higher is the buyer's cash discount elasticity of demand, the higher is the cash discount rate offered. Next, sellers with higher profit margins and who face less competition offer higher cash discount rates. In addition, cash discount rates vary across industries due to varying product price elasticities. The cash discount rate d, discount period $N_1$ and credit period $N_2$ are also positively correlated with each other. Finally, the cash discount rate d is directly related to the net credit period ($N_2$ - $N_1$). We conclude the data do not reject the theoretical results of Rashid and Mitra (1999) and Lim and Rashid (2000), which suggest that trade credit policy must be fully integrated with the seller's overall pricing scheme and cannot be analyzed in isolation.

Meyer, Laurence H. "The Present and Future Roles of Banks in Small Business Finance." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 1109-16.

Discusses the role of banks in supplying credit to small businesses. Topics include the importance of the bank-small business relationship, financial modernization, and the potential effects of bank mergers and acquisitions on small business lending.

Office of Advocacy, U.S. Small Business Administration. "Minorities in Business." Office of Advocacy. Washington, D.C., 1999.

Minority-owned businesses are an important segment of our nations' successful economy. They outpace other businesses in growth and participate in many different industries. The U.S. Small Business Administration's Office of Advocacy estimates that there were 3.25 million minority-owned businesses in 1997, generating $495 billion in revenue and employing nearly 4 million workers. Their numbers have been increasing rapidly, growing 168 percent over the last decade. The growth in their revenues has been even more astonishing - 343 percent over the last decade, even after controlling for inflation.

The Office of Advocacy supports small business research - including that focused on minority-owned businesses - by identifying small business contributions, evaluating small business vital signs, determining regulatory impacts on small businesses, and monitoring the financing of small businesses. In this report, the Office of Advocacy has analyzed the available data on minority-owned businesses to estimate the number and contributions of these firms. The data sources indicate that significant growth has occurred in all areas.

Ou, Charles and George W. Haynes. "Uses of Equity Capital by Small Firms – Findings from the Surveys of Small Business Finances (for 1993 & 1998)." 2003. Paper presented at the Academy of Entrepreneurial Finance 14th International Conference, April 30th - May 2nd. Chicago, Illinois

While the importance of venture capital to the growth of small firms has been widely discussed during the past decade, little is known about the uses of equity capital, especially internal equity capital, by the majority of small firms in the United States. Information from the Federal Reserve Board's Survey of Small Business Finances provides a rare opportunity to examine this important issue.

This paper utilizes the information collected in the 1993 and 1998 Small Business Finances surveys to investigate the uses of equity capital by small firms. We found that while the importance of

new issue markets (IPOs) and the role of venture capital investment in promoting the growth of small dynamic firms cannot be denied, the importance of external equity capital in promoting the formation and the growth of small firms seems to be overstated. Only a very small number of small firms used external equity. In fact, the information on the uses of venture capital (equity capital from external sources) from the national surveys is too limited to permit a statistical analysis of the factors determining their uses by small firms. It is the internal equity capital, not external equity, that is one of the major financing sources for most of small firms in these surveys. A majority of small firms relied on internal sources of capital (owner's capital, owner's loans, and retained earnings) and external borrowing from financial institutions to finance their business operation and growth. There appeared to be a "pecking order" of borrowing from financial sources from internal sources to financial institutions to non-financial lenders. In addition, internal equity and commercial bank loans appeared to be complementary financial resources.

Petersen, Mitchell and Raghuram Rajan. "Does Distance Still Matter: The Information Revolution in Small Business Lending." NBER Working Paper Series No. W7685. May 2000. Also in *The Journal of Finance* 57, no. 6 (December 2002): 2533-2570.

The distance between small firms and their lenders in the United States is increasing. Not only are firms choosing more distant lenders, they are also communicating with them in more impersonal ways. After documenting these systematic changes, we demonstrate that they do not stem from small firms locating differently, from consolidation in the banking industry, or from biases in the sample. Instead, they seem correlated with improvements in bank productivity. We conjecture that greater, and more timely, availability of borrower credit records, as well as the greater ease of processing these, may explain the increased lending at a distance. Consistent with such an explanation, distant firms no longer have to be observably the highest quality credits, suggesting that a wider cross-section of firms can now obtain funding from a particular lender. These findings, we believe, are direct evidence that there has been substantial development of the financial sector, even in areas such as small business lending that have not been directly influenced by the growth in public markets. From a policy perspective, that small firms now obtain wider access to financing suggests the consolidation of banking services may not raise as strong anti-trust concerns as in the past.

Rutherford, Matthew W., Patrick McMullen, and Sharon Oswald. "Examining the Issue of Size and the Small Business: A Self Organizing Map Approach." Auburn University. Mimeographed. Also in *Journal of Business and Economic Studies* 7, no. 2 (Fall 2001): 64-82.

The purpose of this work is to serve as point of departure for the size and small business field of research. Specifically, we explore the issue of firm size with an unconventional research methodology. It is the contention of this research that differences in firm size must be considered in attempting to predict antecedents of firm success or firm survival because there are vast differences in the behavior patterns of firms across size, as measured by number of employees. We base this belief, in part, on the concept of the organization life cycle (Howard and Hines 1997), and the financial growth cycle works of Berger and Udell (1998). Therefore, we test the hypothesis that small firms will classify into multiple groups with regard to a set of commonly studied small firm and business owner constructs. Using a self organizing map (SOM) approach we find that small businesses classify into two distinct groups. Implications and limits are discussed.

Rutherford, Matthew W. and Sharon L. Oswald. "Antecedents of Small Business Success." Paper presented at The Academy of Management Chicago 1999 Conference: Change and Development Journeys into a Pluralistic World, August 6th- 11th, Chicago, Illinois.

This paper focuses on what makes small businesses successful and whether consistent patterns of success can be identified. The methodology draws upon prior research; however, it improves upon previous work by using a significantly larger sample size, representing a large array of industries across the US, and utilizing multiple performance measures (Ibrahim & Goodwin, 1986; Cragg & King, 1988; Perry, Meredith & Cunnington, 1988). Results indicate that owner/manager education, owner/manager experience, and record keeping classification have an effect on small firm performance as measured by

return on assets, return on equity, return on sales, and return on cash flow. However, gender and legal structure were found to be relatively unimportant. Implications are suggested.

_____. "The Growth Cycle Theory of Small Firm Financing: An Empirical Investigation of the Relationship between the Organizational Life Cycle and Small Firm Financing." Auburn University. Mimeographed.

How do financing options vary over the life cycle of a firm? This work empirically examined a generally accepted model of small firm financing behavior: the financial growth cycle theory. Based on a sample of 558 companies, we analyzed the relationship between stage of the organizational life cycle and the sources of capital used by firms. The data found firm size, industry-type, owner age, and structure to be good discriminators. However, information availability and firm age were not. The results suggest that traditional finance theory does not fully explain small firm financing behavior.

Samolyk, Katherine. "Small Business Credit Markets: Why do we know so little about them?" *FDIC Banking Review* 10, no. 2 (1997): 14-32.

Focuses on two central issues: 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. Includes descriptions of the data that have been collected from small businesses and from commercial banks and summaries of the studies done to date on relationship lending and on bank consolidation.

Scherr, Frederick C. and Heather M. Hulburt. "The Debt Maturity Structure of Small Firms." *Financial Management* 30, no. 1 (Spring 2001): 85-111.

Small firms differ from large firms in taxability, ownership, flexibility, industry, economies of scale, financial market access, and level of information asymmetry. We investigate the determinants of small firms' choice of the maturity structure of debt. We find that small firms' maturity of assets, capital structure, and probability of default are statistically and economically important in the choice of debt maturity. We find little evidence that small firms' growth options, level of asymmetric information, and tax status affect debt maturity choice.

So, Jacky. "Capital Market Imperfections and Leasing- New Evidence from the Very Small Firms." Presented at Annual Conference of the Academy of Entrepreneurial Finance, April 27-28, 2001, Syracuse, New York.

This study examines the relationship among capital market imperfections, debt financing, and leasing. Using the Small Business Finance Survey database, provided by the Federal Reserve Board and the Small Business Administration Office, this paper documents that small firms, that had stronger "earning power" and larger sizes, tended to use less debt financing. The "size" effect had significant impact on operating lease, but not capital lease, of the companies. Using a maximum likelihood method, we find that operating-lease was determined by bankruptcy risk, growth, and size. The last variable also affected capital lease.

Strahan, Phillip E. and James P. Weston. "Small Business Lending and the Changing Structure of the Banking Industry." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 821-45.

This study investigates the relationship between lending to small businesses, banking company size and complexity, and bank consolidation. It explores two potential influences on small business lending associated with changes in the size distribution of the banking sector. On the one hand, organizational diseconomies may increase the costs of small business lending as the size and complexity of the banking company increases. On the other, size-related diversification may enhance lending to small businesses. It is found that small business loans per dollar of asset rises, then falls, with banking company size, while the level of small business lending rises monotonically with size. Second, consolidation among small banking companies serves to increase bank lending

to small businesses, while other types of mergers or acquisitions have little effect. The findings are deemed consistent with the diversification hypothesis.

Uzzi, Brian. "Getting the Best Deal: The Governance Benefits of Social Networks in Commercial Loans." Mimeographed.

We investigate whether social embeddedness affects governance costs in loan contracts among midmarket banks and firms - a lucrative yet understudied financial market. Drawing on social embeddedness theory, we argue that embedding commercial transactions in social attachments and networks facilitates exchange by initiating self-organizing governance arrangements that operate through expectations of trust and reciprocity and access to private knowledge. At the level of the bank-firm tie, we expect increased embeddedness to enhance governance benefits. At the network level, we expect networks composed of a complementary mix of embedded and arm's-length ties to produce optimal governance. Using methods that triangulated theory, original fieldwork, and statistical analysis, our statistical results supported our arguments and showed that embeddedness creates governance by reducing the need for costly formal governance benefits and by motivating exchange partners to mutually share gains through Pareto improved loan contracts.

Wolken, John D. " 'New' Data Sources for Research on Small Business Finance." *Journal of Banking and Finance* 22, nos. 6-8 (August 1998): 1067-76.

This paper describes three new sources of data on small business finances: Bank Call Report data on small business lending, the 1995 Survey of Consumer Finances (SCF), and the 1993 National Survey of Small Business Finances (NSSBF). Each of these data sources offers publicly available micro-level data useful for examining a wide variety of issues and questions about small business finances. A number of studies which have utilized these data are cited and information on how to access these data is provided.

## III. Survey of Small Business Finances - 1998

Alphonse, Pascal, Jacqueline Ducret and Eric Séverin. "When trade credit facilitates access to bank finance: Evidence from U.S. small business data." Univeristy of Lille. Mimeographed: October 2003.

When trade credit is traditionally considered as a substitute for bank loans, recent theoretical papers (e.g. Biais and Gollier (1997)) suggest that bank debt and trade credit can also be considered as two complementary sources of financing.

By using U.S. small businesses data (NSSBF 1998), this paper provides an empirical analysis of these hypotheses. The empirical findings are consistent with the hypothesis that trade credit helps firms to improve their reputation. The results show that trade credit can work as a signal about firms' quality and thus facilitates access to bank debt.

Bitler, Marianne. "Effects of the Level of Interviewer Effort on the Characteristics of Completed Responses: An Experiment Using the 1998 Survey of Small Business Finances." Proceedings of the *Second International Conference on Establishment Surveys,* June 17-21, 2000, Buffalo, NY.

All surveys contain a mix of interviews that required more or less effort to complete. Difficult cases are often given to interviewers specializing in refusal conversion or are given incentives to cooperate. Use of these refusal conversion experts can increase response rates among hard to reach subjects. Analysis not explicitly controlling for interviewer effort assumes that the easy to interview and hard to interview cases are statistically identical except for difficulty in completing the interviews. Violations of the assumption of "no interviewer treatment effect" question the validity of comparisons not controlling for ease of interview completion. The 1998 Survey of Small Business Finances (SSBF) allows us to test the assumption of no interviewer effect. This paper presents preliminary data suggesting that interviewer effects may be important for this data set. It also presents

analysis of the effects of incentives on completion rates.

____. "Small Businesses and Computers: Adoption and Performance." The Federal Reserve Bank of San Francisco. Working Paper: 2001-15.

Until recently, little evidence suggested that the computer revolution of recent decades has had much impact on aggregate economic growth. Analysis at the worker level has found evidence that use of computers is associated with higher wages. Although some research questions whether this finding is solely due to unobserved heterogeneity in worker quality, others point to such results as evidence that the wage premia for skilled workers have increased over time. Adoption of new technologies is associated with higher productivity and higher productivity growth. As in the worker literature, firms adopting computers may simply be more productive firms. Using new data from the 1998 Survey of Small Business Finances, I examine the determinants of computer adoption by small privately-held firms and analyze whether computer use affects profits, sales, labor productivity, or other measures of firm success. I am able to control for many firm characteristics not available in other data sets. I find that computer adoption is more likely by larger firms, by younger firms, by firms whose markets are national or international, and by limited liability firms. Adoption is also more likely by firms founded or inherited by a current owner and by firms whose primary owners are more educated. Firms with more than 50% of their ownership shares held by African Americans or Asians, and, in some specifications, firms with more than 50% of their shares held by Hispanics are less likely to have adopted computers, echoing results for households in the literature. Evidence concerning the link between computer use and firm performance is mixed. Current performance as measured by profits or sales is not associated with current computer use in the full sample. In some specifications, use of computers for specific tasks is associated with higher costs. Estimates of the effects of computer use on costs are larger (in absolute value) when the sample is restricted to manufacturing or wholesale trade firms or to larger small businesses. Estimates using the more parsimonious set of control variables widely available in other firm level data show large and positive effects of computer use on firm costs, sales, and profits, suggesting that controlling for managerial, firm, and owner characteristics is important.

Bitler, Marianne P., Tobias J. Moskowitz, and Annette Vissing-Jorgensen. "Why Must Entrepreneurs Hold Large Ownership Shares? Optimal Contracting in Private and Newly Public Firms." RAND Corporation, University of Chicago, and NBER Working paper. Mimeographed: November 2001.

Using new data on entrepreneurial effort and net worth from privately held and newly public firms, we test the implications of agency and information contracting theory. We find that ownership shares increase with net worth and decrease with firm risk, and that effort increases with ownership, consistent with models of moral hazard. Furthermore, both ownership and effort increase firm performance after accounting for unobserved firm heterogeneity using instrumental variables. Finally, sales of shares by entrepreneurs at IPOs are negatively related to subsequent firm valuation, consistent with signaling and distinct from moral hazard. These findings highlight the importance of agency and signaling costs in explaining the large equity ownership shares of entrepreneurs.

Bitler, Marianne, Alicia M. Robb, and John D. Wolken. "Financial Services Used by Small Businesses: Evidence from the 1998 Survey of Small Business Finances." *Federal Reserve Bulletin* 87, no. 4 (April 2001): 183-205.

Using newly available data from the 1998 Survey of Small Business Finances, this article offers preliminary findings regarding the characteristics of small businesses in the United States and their use of credit and other financial services. The main goals of the survey are to provide information on credit accessibility for small businesses, their use of financial services, and the sources of those services. The survey also provides a general-purpose database that can be used to study small business financing. Preliminary findings suggest that although the financial landscape has changed markedly since the previous survey in 1993, financing patterns and the use of particular suppliers have not.

Board of Governors of the Federal Reserve System. *Report to the Congress on Small Business Credit Availability.* Board of Governors of the Federal Reserve System. Washington, D.C., 1997.

Section 2227 of the Economic Growth and Regulatory Paperwork Reduction Act of 1996 requires that, every five years, the Board of Governors of the Federal Reserve System submit a report to the Congress detailing the extent of small business lending by all creditors. The act specifies that the study should identify factors that give policymakers insight into the small business credit market, including the demand for credit by small businesses, the availability of credit, the range of credit options available, the types of credit products used ,the credit needs of small businesses, the risks of lending to small businesses, and any other factors that the Board deems appropriate. The report relies in part on the 1998 National Survey of Small Business Finance for details on the sources and types of credit used by small businesses.

Cavalluzzo, Ken and John Wolken. "Small Business Loan Turndowns, Personal Wealth and Discrimination." *Finance and Economics Discussion Series* 2002-35, Board of Governors of the Federal Reserve System, August 2002.

Using newly available data from the Federal Reserve, we examine the impact of personal wealth on small business loan turndowns across demographic groups. Information on home ownership, home equity, and personal net worth excluding the business owner's home, in combination with data on the personal credit history of the principal owner, the business credit history of the firm, a rich set of additional explanatory variables, and information on the competitiveness of local banking markets, contributes to our understanding of the credit market experiences of small businesses across demographic groups. We find substantial unexplained differences in denial rates between African American-, Hispanic-, Asian-, and white-owned firms. We also find that greater personal wealth is associated with a lower probability of loan denial. However, even after controlling for personal wealth, large differences in denial rates across demographic groups remain. Further, consistent with Becker's classic theories (1957), we find some evidence that African American-denial rates increase with lender market concentration.

Coleman, Susan. "The Borrowing Experience of Black and Hispanic-Owned Small Firms: Evidence from the 1998 Survey of Small Business Finances." *The Academy of Entrepreneurship Journal* 8, no. 1 (2002): 1-20.

Commercial bank loans are a primary source of external capital for firms that are too small to access the public debt and equity markets. Thus, the availability of credit at a reasonable cost is a key concern for small firms. This article explores the extent to which black and Hispanic-owned firms are willing to pursue commercial bank loans and the extent to which they are able to obtain them. Results reveal that, although black and Hispanic-owned firms were just as likely to apply for a loan as white-owned firms, they were significantly less likely to be approved for one. Further, black and Hispanic-owned firms were significantly more likely to avoid applying for loans because they believed they would be denied. These findings did not reveal any differences in the interest rates charged on approved loans to black, Hispanic, or white-owned firms.

_____. "Borrowing Patterns for Small Firms: A Comparison by Race and Ethnicity." *The Journal of Entrepreneurial Finance & Business Ventures* 7, no. 3 (2003): 87-108.

This article explores the use of debt capital by small firms using data from the 1998 Survey of Small Business Finances. An examination of the data reveals differences in the characteristics and borrowing experience of small firms by race and ethnicity. Results indicate that although minority firm owners were just as likely to apply for loans, they were significantly less likely to be approved for them. Further, black small business owners were less likely to even bother applying for a loan, because they assumed they would be denied. These findings have implications for the ability of minority small business owners to grow their firms and contribute to the economic well-being of their communities.

_____. "Characteristics and Borrowing Behavior of Small, Women-Owned Firms: Evidence from the 1998 Survey of Small Business Finances." *The Journal of Business and Entrepreneurship* 14, no. 2 (2002): 151-166.

Recently released data from the 1998 Survey of Business Finances reveals that commercial banks

continue to be the dominant source of loans for both women- and men-owned small firms. Controlling for other variables, women were less likely than men to have applied for a loan within the previous three years. They were no less likely to be approved, however, if they did apply. These findings suggest that previously noted differences between women and men in terms of access to debt capital may have been largely eliminated. These findings do indicate, however that black- and Hispanic-owned firms were less likely to be approved for their most recent loan application than non-minority firms.

_____. "Free and Costly Trade Credit: A Comparison of Small Firms." 2003. Paper presented at the Academy of Entrepreneurial Finance 14th International Conference, April 30th - May 2nd. Chicago, Illinois.

Trade credit is a major source of financing for small firms. This article examines the extent to which small firms use trade credit as well as the extent to which they use "free" versus "costly" trade credit. Those firms that use free trade credit make payment within the discount period. Alternatively, firms that use costly trade credit forego available discounts and may also make payment after the due date thereby incurring substantial additional costs. Results reveal that larger firms were more likely to use trade credit. Younger firms were more likely to be denied trade credit and were also more likely to pay late as were firms with a history of credit difficulties and those with high levels of debt. Firms owned by white women, black men, and Hispanic men were significantly less likely to have trade credit than firms owned by white men. Further, firms owned by black men were significantly more likely to be denied trade credit.

Haggerty, Catherine, Karen Grigorian, Rachael Harter, and John Wolken. "The 1998 Survey of Small Business Finances: Sampling and Level of Effort Associated with Gaining Cooperation from Minority-Owned Business." Presented at the International Conference on Establishment Surveys II, June 17-21, 2000, Buffalo, NY.

The 1998 Survey of Small Business Finances is the third survey in a series that collects financial data from businesses with fewer than 500 employees. The intent of the survey is to understand how small businesses finance themselves, what sort of access to credit they have, and the impacts of changes in financial organizations on access to credit for small businesses, particularly those that are minority owned.

Publicly available business lists generally do not include information on the race and ethnicity of business owners. When this information is available, generally it is available for only a small subsample of firms on the list and may be of questionable quality. In order to overcome this limitation for the 1998 Survey of Small Business Finances, a large sample of business firms selected from Dun & Bradstreet's business listings was first screened to identify minority ownership. After screening, a smaller second stage sample, stratified by minority ownership, was selected. In this paper we compare our minority classification results with the minority information available in the Dun & Bradstreet data and with our expectations from the Census Survey of Minority-Owned Business Enterprises.

This paper also examines the level of effort associated with collecting data from comparable firms across different strata.

Helwege, Jean and Frank Packer. "The Decision to Go Public: Evidence from Mandatory SEC Filings of Private Firms." Fisher College of Business Working Paper. Ohio State University April 2003.
Formerly: "The Decision to Go Public: Evidence from Corporate Bond Issuers."

We investigate a sample of private firms to determine whether they are likely to go public. While most private firms' data are not available, we take advantage of the fact that some firms are required to file with the SEC. Our sample firms are typically large and highly leveraged. Although we see some evidence of a debt overhang problem that inhibits firms from going public, our results also indicate that high leverage reflects managers' desire to avoid outside equity. Of the firms in the sample that do issue outside equity (to private equity specialists), there is a greater likelihood of attempting an IPO. This result is consistent with Black and Gilson's (1998) view of the stock market as an exit strategy.

Lel, Ugur and Gregory F. Udell. "Financial Constraints, Start-up Firms and Personal Commitments." Kelley School of Business Working Paper. Indiana University. October 2002.

Start-up firms likely face significant funding constraints that affect their access to and cost of external finance. In this paper we test for the first time theoretical models that suggest that personal commitments may mitigate information problems that give rise to funding constraints. We find that the use of personal commitments in the form of personal guarantees and outside collateral increases access to external financing. This suggests that funding constraints are significant in start-up firms and that personal commitments offer an important solution. We also conduct a number of other tests which also suggest that funding constraints affect the behavior of start-up firms and an entrepreneur's choice of whether to start a firm.

Office of Advocacy, U.S. Small Business Administration. "Financing Patterns of Small Firms: Findings from the 1998 Survey of Small Business Finance." Office of Advocacy. Washington, D.C., 2003.

This report presents a statistical report on the financing patterns of small firms using the 1998 Survey of Small Business Finances. It also provides a brief review of the financing patterns of all small firms, small minority-owned firms, and women-owned firms. The study found that financing patterns do differ by firm size and for different groups of small firms. It was found that very small firms relied less on financing by financial institutions and more on sources from non-traditional sources such as owners' loan and the use of personal credit cards. Minority and women-owned firms were also found to have used more of certain sources of financing as compared with all small business in general. Whether these observed differences in the financing patterns can be attributed to the reduced availability of certain types of credit from certain groups of suppliers is, however, difficult to ascertain because of hte complexity of the determinants of the demand and the supply of credit to small firms. Further research on these issues utilizing the detailed information collected in the survey along with a more elaborate econometric analysis is certainly warranted.

Ou, Charles and George W. Haynes. "Uses of Equity Capital by Small Firms – Findings from the Surveys of Small Business Finances (for 1993 & 1998)." 2003. Paper presented at the Academy of Entrepreneurial Finance 14th International Conference, April 30th - May 2nd. Chicago, Illinois

While the importance of venture capital to the growth of small firms has been widely discussed during the past decade, little is known about the uses of equity capital, especially internal equity capital, by the majority of small firms in the United States. Information from the Federal Reserve Board's Survey of Small Business Finances provides a rare opportunity to examine this important issue.

This paper utilizes the information collected in the 1993 and 1998 Small Business Finances surveys to investigate the uses of equity capital by small firms. We found that while the importance of new issue markets (IPOs) and the role of venture capital investment in promoting the growth of small dynamic firms cannot be denied, the importance of external equity capital in promoting the formation and the growth of small firms seems to be overstated. Only a very small number of small firms used external equity. In fact, the information on the uses of venture capital (equity capital from external sources) from the national surveys is too limited to permit a statistical analysis of the factors determining their uses by small firms. It is the internal equity capital, not external equity, that is one of the major financing sources for most of small firms in these surveys. A majority of small firms relied on internal sources of capital (owner's capital, owner's loans, and retained earnings) and external borrowing from financial institutions to finance their business operation and growth. There appeared to be a "pecking order" of borrowing from financial sources from internal sources to financial institutions to non-financial lenders. In addition, internal equity and commercial bank loans appeared to be complementary financial resources.

Robb, Alicia. "Small Business Financing: Differences Between Young and Old Firms." *Journal of Entrepreneurial Finance and Business Ventures*, (November 2002).

Financial capital is necessary not only for business formation but also for business survival and expansion: its role is well documented in the literature. While venture capital and IPOs often make the popular press, the fact is most firms are unable to tap into this market. Instead, they depend on owner equity, other private equity, and debt financing. Survey data from the Federal Reserve Board allow an in depth look at the patterns of small business financing in the late nineties. Evidence suggests that debt financing for small businesses was extremely important, especially for young firms.

Robb, Alicia and John Wolken. "Firm, Owner, and Financing Characteristics: Differences between Female- and Male-owned Small Businesses." *Finance and Economics Discussion Series* 2002-18, Board of Governors of the Federal Reserve System, March 2002.

Differences in financing patterns and financial characteristics between female- and male-owned firms are often attributed to imperfections in credit markets. However, these differences could arise for many reasons, such as differences in the characteristics and preferences of owners and firms. The differences in lending patterns by gender may in fact have little or nothing to do with supply side factors or market imperfections. The goal of our paper is to test the hypothesis that differences in financing patterns between female- and male-owned small businesses can be explained by differences in business, credit history, and owner characteristics other than gender. In what follows, we first describe how owner, business, and financing characteristics of female-owned businesses differ from male-owned businesses. We then conduct a multivariate analysis of indicators of credit use and recent lending experiences, modeling each of these as a function of firm, owner, and credit history characteristics.