IV. The Small Business Lending Relationship: Session B

What Small Firms Get Capital and at What Cost: Notes on the Role of Social Capital and Banking Networks

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Drawing on excerpts and selections from Uzzi (1999), this study investigates how social ties between bankers and small- to medium-sized firms affect the firm's acquisition and cost of financial capital. On the basis of existing theory and original fieldwork, we developed a framework to explain how social ties and networks influence lending decisions and examined the representativeness of our claims using two sources of data: the National Survey of Small Business Finances and in-depth interviews with bank relationship managers. Qualitative and statistical results revealed that firms that embedded their bank exchanges in social attachments were more likely to have access to capital and received more favorable interest rates on loans. The same benefits increased if a firm's network of bank ties had a complementarity mix of embedded and market ties. Embedded ties motivates banks and firms to share private resources, while arm's-length ties help firms to search comprehensively for public information on market prices and loan opportunities. We conclude that the value-producing quality of social structure offers premium benefits when it creates a bridge between public market information and the private resources of relationships.

Introduction

Financial theory possesses different views on how bank-firm relationships affect a firm's access to and cost of capital. Despite the prevalence of relationships, the neoclassical approach questions whether social ties play even a meager role in well-developed financial markets

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where money is a commodity and the bank's ability to hold collateral reduces the uncertainty of writing complete contracts (Blackwell and Santomero, 1982; Arrow, 1998). In contrast to the neoclassical approach, an emerging view holds that close ties are consequential, but that the direction of the effect is difficult to systematically determine (Berger and Udell, 1998). On the one hand, if close ties permit banks to acquire an information monopoly on the firm, banks will extract rents, particularly in markets with few lenders (Rajan, 1992). On the other hand, if ties permit banks to access private information about the firm that is durable and specific, then close lenders should offer a lower price than banks that will charge extra fees to cover risks they assume are hidden (Akerlof, 1970). This literature is also conflicted as to whether lending relationships are social, imbued with the characteristics of nonmarket attachments, or whether there are economic mechanisms that operate under a market logic of narrow self-gain (Jensen and Meckling, 1994). These contentions have led to both the conclusion that "the effect of close firm-creditor ties on the cost of funds is ambiguous" and a call for further elaboration about how social relations affect knowledge transfer, trust, and bank-borrower cooperation (Petersen and Rajan, 1994:6).

The purpose of this paper is to introduce ideas about how relationships form and function in the context of small- to medium-sized banks and firms. In contrast to previous work in finance on relationship lending, this paper focuses much more on the "social" nature of the banking relationship. Instead of viewing the relationship as a simple information conduit, we view relationships as embedded in a web of obligations, norms of behavior, and information channels that promote information transfer and governance over transactions. To describe the effects that social attachments can have on economic outcomes, economist Glenn Loury (1977) coined the term "social capital," which subsequently benefited from intense development in other social sciences (Bourdieu, 1985; Coleman, 1988a, 1990, 1998b; Burt, 1992; Putnam, 1993; Portes, 1998; Macneil, 1999). Economists are now finding new interest in social capital after a long hiatus (Arrow, 1998). Social capital is like other forms of capital: it can be invested in, it has distinctive productive value, and consists of debits and credits—obligations to give and receive assets in exchange under specific conditions that are governed by shared expectations of exchange and that facilitate coordination and cooperation for mutual benefit. Thus, how social capital is different from human capital and financial capital is that it is not a characteristic of a person or a firm's implements of production. Rather, it inheres in the relationships between and among actors.

This section draws on excerpts from Uzzi (1999) on how the social capital of small firms affects their ability to acquire and lower

the cost of their financial capital. The basic argument is that firms that have ties to banks that are rich in social capital are more likely to get financial capital, and those that get capital do so at more favorable rates *net of conventional economic, market, and firm level characteristics.* We do not necessarily refute traditional financial axioms, but show how aspects of the social organization of relationships between bankers and firms mediate economic transactions. In economics, this theoretical focus on social networks is unusual. Arrow (1998) observes that where the social network model has been applied, it has been seen as "most appropriate for the labor market, and perhaps *less so for…credit markets*. But in all of these, *each transaction is a social event*. [The main point being that] Transactors bring to it [the transaction] a whole set of social attitudes which would be irrelevant in the market model" (italics added).

In making our arguments, we draw on the embeddedness approach, a social theory of networks and relationships that specifies how social capital arises in market transactions and produces unique economic benefits (Granovetter, 1985; Portes and Sensenbrenner, 1993; Romo and Schwartz, 1995; Uzzi, 1996, 1997). Embeddedness reflects the degree to which commercial transactions are governed by exchange protocols that are associated with social, non-commercial attachments and that reside in relations and networks of relations that enable compliance and shared expectations (Marsden, 1981). We argue that embedding commercial transactions in social attachments and particular kinds of networks raise a firm's social capital. We analyze how both social relationships and networks affect lending. At the level of relationships, our framework draws on research that has examined how properties of embedded and arm's-length ties promote different kinds of access and governance benefits in market exchanges. At the level of the network, we elaborate on the finding that networks with a mix of embedded and market ties provide premium benefits by explicating how they enable a firm to synthesize the advantages of partnering via embedded ties with the advantages of brokerage and market search offered by arm's-length ties.

Before proceeding, we note the unique qualitative and quantitative materials used in the analysis. Most empirical work by financial economists on the topic of banking relationships has been on aggregated survey data. Such data produce many valuable insights, but leave open to inference the causes and consequences of each actor's behavior (King, Keohane, and Veba, 1994). In an attempt to overcome this limitation of statistical analysis, we built our studies on a triangulation of theory, fieldwork, and statistical analysis. We used original field data on bank-borrower ties to help explicate and illustrate the mechanisms by which embeddedness produces outcomes and actors construct markets. In addition, we used a separate national random sample of

companies, the National Survey of Small Business Finances (NSSBF), to examine the validity of our theory and hypotheses. By triangulating theory and multiple methods, we strengthen our ability to analyze the properties and generalizable effects of social embeddedness (King et al., 1994). We begin our analysis by introducing social embeddedness theory. Next, we analyze qualitative evidence that illustrates the properties of embeddedness and educes hypotheses about its effect on corporate financing. We then statistically examine our framework using a large-scale random sample.

Theory: Social Relationships and Networks

This section draws on selections from Uzzi (1999). Relationships between bankers and firms may vary between arm's-length and embedded. Arm's-length ties are very typical to the neoclassical idea of spot market ties, which are thought to be all that is needed for efficient transacting when markets function well (there is little asymmetric information), products have agreed-upon value, and products are substitutable, like cash. Hirschman (1982) also notes that arm's-length ties "function without any prolonged human or social contact between parties…[who] need not enter into recurrent or continuing relations as a result of which they would get to know each other well." Theory suggests that arm's-length ties offer special benefits for searching for prices and opportunities in a market. A central proposition is that a person's contact network determines the information they know and can act on, even if similar information is publicly available through other means such as advertising or publicity. For example, Granovetter (1974) found that job seekers learned about job openings through contacts even if the same information was publicly posted in advertisements. Davis (1991) found that poison pills were adopted through interlock ties despite the defense's popularity and wide availability at many legal firms. Burt (1992) developed the most trenchant implications of this reasoning, arguing that networks of arm's-length ties offer the highest possible returns to firms and persons by enabling wide exposure to public market data and brokerage, while evading the reciprocal obligations and coordination costs that arise in dense relations. Models similar to Burt's have recently have been developed in economics (Jackson and Wolinsky, 1996).

There is less theory for expecting that commercial transactions that are embedded in social attachments generate exchange benefits, although information has been accumulating (Arrow, 1998). A social attachment is an affiliation of shared interests and fidelity that develops when behavior that is culturally associated with familiar and non-commercial transactions is enacted in the relationship (Blau, 1964; Levinthal and Fichman, 1988); Seabright et al., 1992; Baker et al.,

1998). In this study, enacted social behaviors included: wedding invitations, parties, dining, sports competitions, shows, or other social events that both friends and businesspersons can and do commonly enact through time and that are valued in that persons share these behaviors in exclusive ways with select others. Most relevant for our purposes is recent research on interfirm networks, which suggests that embedding economic exchanges in social attachments can both *create* productive value and motivate exchange partners to *share* that value through integrative rather than distributive solutions to transacting problems.

Embedded ties are thought to promote these outcomes through private knowledge transfer and enhanced governance. Private resources and information identify where the expertise and dependencies of the firm reside and are rationed from public exposure out of fear that they will be misappropriated. This information can contain a large range of knowledge and resources that link information to the conditions under which it was learned and outcomes to the mechanics that created them. For example, it might include unpublished capabilities in products, the need to source a particular material, the strategic blueprints for a new executive succession, growth plans, whether the CFO has embezzled funds, or the rollout date of a new product. While this information can bear on creditworthiness, it furnishes opportunities for banks and firms to distinctively match their competencies and resources or discover unique solutions to their exchange problems. Value is also created in that these solutions may be hard for competitors to imitate because comparable information is inaccessible to firms in the larger market and based on the presence of complex social relations. Public information such as asking and bidding prices can also be a source of value creation but is limitedly so in competitive markets because it is unrestricted and non-unique. For example, Eccles and Crane (1998) found that investment bankers were able to contrive more customized deal structures and innovative risk-reducing financial instruments when they accessed information and resources beyond what firms made publicly available. Baker (1994) reported that Mark Twain Bancshares, a lucrative midmarket bank, routinely accesses private information that it uses to build new value through matching and customizing bank products or creating innovative financial loan structures. Similar outcomes have been found for manufacturers and suppliers who share specific versus stock knowledge (Larson, 1992; Lazerson, 1995; Dyer, 1996).

Our framework treats social embeddedness as a variable and focuses on the quality of the relationship between actors and the configuration of their network of ties to banks. The basic mechanism by which social embedding operates is by creating informal and extra-contractual governance arrangements that facilitate the sharing of private

information. Embedding commercial transactions in social attachments promotes these benefits by enacting expectations of trust and reciprocal obligation that actors espouse as the right and proper protocols for governing exchange with persons they come to know well (Macaulay, 1963; Blau, 1964; Macneil, 1978; Portes and Sensenbrenner, 1993; DiMaggio and Louch, 1998). These expectations reduce fears of misappropriation because transactors anticipate that others will not voluntarily engage in opportunistic behavior that would jeopardize their co-investments or self-identity (Blau, 1964; Granovetter, 1985). Instead, exchange partners expect that each will attempt to find integrative rather than distributive solutions to exchange problems. These motives can enlarge the pool of potential solutions beyond that explored in arm's-length ties, even if such action falls short of pure altruism (Uzzi, 1997). Moreover, because the protocols of embedded ties are borrowed from the protocols of social attachments that were learned in preexisting strictures, they are serviceable for business dealings—potentially freeing up resources for other productive uses (Arrow, 1974; Becker, 1990; Putnam, 1993; Fukuyama, 1995). In this way, embedding does not foreordain cooperative outcomes. Rather, it provides a priming mechanism that promotes initial offers of trust and reciprocity which, if accepted and returned, solidify through reciprocal investments and self-enforcement.

In contrast, the expectations of avaricious action that are anticipated in arm's-length ties are likely to prompt distrust, even if action is credible, except for discrete situations where economic incentives are aligned or third parties enforce fairness (Kollock, 1994). Although the logic of these decision-making processes may seem counter to the conventional model used in economics, there is large literature on decision making in social science that supports these contentions (see Lewin, 1996). Montgomery (1998) summarizes lab research and shows, based on formal analysis, how transactors who assume the identity of "friend" are likely to cooperate while transactors who assume the identity of "businessperson" are unlikely to cooperate, even if commitments are credible, because there is no priming mechanism for trust. The logic of appropriateness, first identified by March (1994) also suggests that decision makers choose actions by asking, "Who am I and what is the appropriate action for my role?" rather than by asking what is optimal self-serving behavior.

Extending the above arguments and findings to lending suggests that a firm's capital availability and costs should vary with the degree to which its commercial transactions with a bank are embedded ties in social attachments. Embedded ties increase the flow of private information that can provide the basis for solutions that better match the expertise and dependencies of the bank and firm as well as motivate the bank and firm to search for integrative solutions to

problems that would otherwise be treated distributively. Building on these relational arguments, how an actor's network of ties affect lending is also pertinent to the embeddedness framework. A network is the collective benefits of the characteristics of the relationships that compose it (Granovetter, 1993). Previous research has argued that a large network of arm's-length ties to banks raises the firm's chance of finding a favorable rate by increasing the pool of potential offers and the firm's ability to play banks off one another (Eccles and Crane, 1988; Baker, 1990). While we partly agree with this logic, our analysis of lending suggests that shopping the market for potential offers is not a complete picture of the lending process. Firms gain loans through "shopping" *and* negotiations over terms, which require the transfer of private knowledge. This suggests that networks that can amplify the firm's ability to "shop *and* negotiate" offer premium benefits, because the properties of different types of ties reinforce another (Baker, 1990; Uzzi, 1996).[1]

Fieldwork

We conducted on-site field research to help formulate our framework in multiple ways. First, given the scarce research on midmarket banking, it furnished an original empirical basis for discovering and describing the pertinent actors, resources, and relationships. Second, it enabled a more refined analysis of bank-borrower ties than is possible with coarser methodological tools, albeit the small sample size moderated generalizability (Miles and Huberman, 1984). Third, it permitted us to triangulate theory with ethnographic and statistical analysis of lending decisions.[2]

We conducted field research at eleven midmarket banks in the Chicago area, a highly competitive bank market. We principally interviewed Relationship Managers (RM), the bank personnel who make lending decisions and interface with clients. We also interviewed two bank CEOs and two bad debt collectors, who deal with fraudulent clients, to understand and cross-examine the viewpoints of other lending officers. We focused our interviews on RMs because they make lending judgments and can consequently reveal how social ties and networks affect lending decisions. We also sharpened and verified the knowledge we gained from RMs regarding the firm's perspective on lending by reviewing quarterly Federal Reserve Bank Opinion Surveys on lending. References to these sources and details of the methods used in the fieldwork are in the Appendix. Our sample of RMs and bankers typified the racial, gender, and educational profiles of bankers, which is largely white, male, and college educated. Table 1 describes the demographic and organizational backgrounds of our 26 interviewees and their 11 banks.

Lending Relationships in Midmarket Banking

The fieldwork revealed that bankers segment the market into three strata: new corporate, midmarket, and entry. While important relational distinctions seem to exist between the new corporate segment and the other two, bankers rarely distinguished their relationships between mid- and entry-market clients and typically assigned both types of firms to the same RM, although entry firms were smaller on average. This suggested that we treat mid- and entry-market firms similarly in our fieldwork and control for any possible size confound in our statistical analysis.

Table 2 summarizes the segments, lending practices, and relationships of banking markets. Consistent with previous research, we found that in the new corporate strata, public and certified financial statements provide banks with ready access to pertinent information about a firm's creditworthiness. Similarly, firms use their large treasury departments or borrow directly from money markets to identify the lowest cost loans or gain bargaining position vis-à-vis banks. Thus, lending ties between big firms and banks tend to be transactional, with banks chasing customers who treat loans and banks as commodities (Mizruchi and Stearns, 1994b).

The lending dynamics and social structure of the midmarket differ substantially from the new corporate level in ways that have important theoretical implications. Firms experience ambiguity in evaluating banks because they lack sophisticated financial expertise and are too small to borrow from money markets. Consequently, they depend on banks for financial advice and credit, yet they lack the clout and know-how to insure a bank's probity, increasing their reluctance to share private information with RMs whom they do not trust.

Although banks control the availability and cost of financial capital, they experience ambiguity in evaluating midmarket firms that are typically not debt rated or certified. In particular, ambiguity results from the bundling of the business and private life of the firm's leaders. Because the firm's and entrepreneur's capital are often intertwined, RMs contemplate how a client's private life affects the firm's economic performance. This condition is an important social precondition in this market because in the course of everyday business discussions, it encourages the sharing of private matters normally associated with social ties. An RM explained,

> It's something you wouldn't think...has to do with major business but... Every social issue is played out in economic form. They [CEOs] have children of unequal talents; the CEO is less talented than the children. Somebody doesn't want to give up stock. Somebody does… Can't see that on

> a balance sheet or P&L [profit and loss statement]. You need to understand what's going on around the individual…and that plays out in 'situations'. That's the dynamic.
>
> So information is not efficient and with that comes the need for the bank to interpret. [I]mperfect information and [the firm's] imperfect awareness of alternatives means that most conversations are negotiations because there needs to be a meeting of the minds… You also will develop, as a by-product of that attention, a relationship…[which is] this interactive process…of digging in and recreating of something so that you understand the components…that's a relationship…a market being made.

While the degree to which interviewees embedded their transactions in social relations varied, increases in embeddedness were linked to the extent to which transactions became governed by the protocols associated with social attachments. RMs expressed this condition the following way:

> A relationship on a social basis tends to break a lot of ice and develop a multidimensional relationship that's more than cold facts, interest rates, and products. It's an emotion-based bond…that's so important to have…[because] the customer will let us know about problems early, so we can correct them.
>
> [A] relationship [means] that you know a person like his family and you feel on a level with him—not pure friends—but that he trusts what you say. That you're taking care of him…[So] the more I know a person, the more he understands why I'm asking these questions. He doesn't feel so defensive. […] Otherwise, with market ties it's a battle.

Other RMs noted that reciprocity characterizes social ties and networks, an outcome which is itself bolstered by expectations of trust.

> On the golf course, at a ball game, or the theater, they'll let their guard down more often. We exchange information—not like a marriage, more like dating. I share information about me as a person. I let them see me and share with them our company's struggles. As I share that information, I get information back. It's kind of a quid pro quo.

Tom, a lead relationship manager at a large midmarket bank, described the process of extending network ties so that they crisscrossed the personal and business lives of entrepreneurs, increasing the multiplexity of the tie or network of ties between the banker and entrepreneur.

In the following quote he refers to his client Jim, Jim's spouse Ellen, and the consequences for governance of this type of embedding.

> For Ellen to tell Jim, "You know, that Tom, I really like him and I trust him a lot," has more impact on his view of me than if his controller told him that. It's sort of the old Nancy Reagan "pillow talk" thing with Ron. They're integral to their spouses' decisions. Getting to know them and having them get to know you, bridges those personal things that you talk about and know about them. And the web gets woven deeper in terms of the personal side.

While these results suggest the material repercussions of social embeddedness, we found that commercial exchanges embedded in social attachments injected sentiments that are not indicative of the antipathy of instrumental exchanges (Hirschman, 1977). We found that even if embedding is initiated for governance and access benefits, the enactment of intimacy imbues the relationship with emotional value that is separate from purely material proviso, yet impinges upon it. For example, one RM declared, "[Y]ou have to maintain that professional distance because you never know when you're going to have to make that tough call. But having said that…I have clients that I'm very close with and in most circumstances it helps. I know their kids' names and when their kids have the flu. I go out socially with my wife and with them and their spouses." Another said concisely of the way embedding broadens the basis of business relationships with expressive content, "It's like a snowball going down a hill. The relationship just keeps getting bigger." Similarly, RMs professed that arm's-length ties lacked the expectations of trust and reciprocity needed for private knowledge transfer and collaboration. To get a lower price said one RM, "Firms got to get comparative information [but]…oftentimes entrepreneurs will negotiate with you and they'll tell you they've got a deal from somebody else and they don't. That's part of where that honesty and integrity and being able to trust the people that you're dealing with becomes very important." Another said arm's-length ties put a "relationship out for bidding. Every opportunity a customer has to get credit they'll shop your deal. [They'll say] 'I've talked to a couple other banks and they're willing to give me this'…It's price oriented… [If] I ask questions about performance and the client is aggressive and that's not fun."

The Bank-Firm Relationship and Capital Acquisition and Costs

By what mechanisms do these properties of embeddedness affect an organization's cost and acquisition of capital? We argued that embedded ties both create value in the dyad and motivate exchange partners to share that value. Sharing is made possible by value creation within the relationship.

We found that embeddedness created several economic benefits for banks. First, they enhanced opportunities for better matching bank-firm competencies through knowledge exchange. Second, they increased client retention by lowering the risk of opportunistic behavior and branding the bank's commodity product. One RM explained, "A relationship…gets the client to perceive or think of me differently…a bond that goes outside just a pure business relationship. So, hopefully when he [CEO] considers my bid, all things being equal, he's got an emotional attachment with me…which should help me keep the business. It's part of mitigating risk from my perspective." "Whereas," said another RM about the value of arm's-length ties, "if you just know someone from across the desk it's tough to do that."

Firms also benefited from embedded ties. Most relevant to our research question are the ways embedded relationships prompted banks to search for unique deal structures that increased the firm's ability to get capital. An exemplary case of this process often recounted by RMs concerned attempts to structure loans in ways that gave firms the benefit of the doubt regarding equivocal performance data that would otherwise result in loan denial or an unfavorable rate. RMs might offer, for instance, a low interest rate the first year that would rise in subsequent years only if the firm failed to maintain its projected performance level. It is interesting to note that this simple contingent structure was often predicated on the strength of the relationship in that banks took risks based on mutual expectations of trust and reciprocity rather than the standard information that could appear in financial statements. In the following quote, a lead RM explained how his embedded tie to an entrepreneur motivated him to search for an integrative solution to the firm's request for credit that resulted in a more favorable interest rate than would otherwise have been offered via arm's-length ties. For him, the greater information flow and levels of trust in embedded ties furnish a better mechanism for integrating the objective and subjective decision criteria of credit evaluation. He said,

> [B]ecause we knew this guy [I said]…"Tell you what we'll do: We'll give you a price of X today. We'll base our pricing as if those expenses were not in your financial statements…But after twelve months…if it's all flushed through you will continue on in this price level. If you don't, boom, your pricing will go up." So, because of the relationship, because we knew the guy and we really believed in him and trusted him, we gave him the benefit of the doubt on the pricing for the first year. He has to continue to perform or it goes up. So, that's a way we would sort of marry the two, the objective and the subjective, if you will.

Embedded ties also benefited firms by motivating bankers to leverage their personal social capital at the bank on the firm's behalf. Unlike the advantages described above, these outcomes were not necessarily attempts to affect the loan's tangible features. Rather, RMs used aspects of their social capital *within* the bank, such as reputation, to positively influence the expectations of other bank decision makers. This phenomena was first observed by Uzzi (1996) who found that the expectations of trust and reciprocity between two firms could be "rolled over" to a new third party, thereby establishing a basis for subsequent commitments to be offered and discharged. In an analogous process, RMs leveraged their social capital in the bank by pledging their social capital on the firm's behalf and by priming first time introductions between other relevant RMs and the entrepreneur with trust and positive expectations—extending the web of shared beliefs. In the following example, an RM described how these strategies played out in a potentially troubled deal. In particular, she noted how the entrepreneur's expression of personal need and her obligee induced her to commit her social capital on the firm's benefit despite the personal risk created by the ambiguity in the firm's financial reports.

> [T]he deal on paper is a tough deal. And he [the CEO] said, 'I'm ————scared.' I said, "Okay, as long as I know where you stand"…Well, obviously that's a long way from I'm ———- scared to there's a deal here. [So], I go to my president and we go through the credit risks. I said, "All the credit risks are blatantly obvious…He said, "Well, how do you overcome it?" [I said] "We've got to go see the business and meet the people." And he agreed and said, "Then I want to see the business and meet the people." Now, I can't control what his "gut" is going to be. But I know the principals of the firm, a regional credit officer who's chairing up a loan committee, my President and senior lender. [So], It's got to be a real bad credit for them to say no, especially when I have a 40 percent growth markup.

These arguments and findings suggest that embedded ties generate surplus value for the bank and firm through matching and problem solving and induce exchange partners to share it rather than selfishly hoard it. *Based on our framework and fieldwork, we expect statistical analysis to show that the more a firm's commercial exchanges with a bank are embedded in social attachments, the more likely the firm is to acquire financial capital at that bank and the lower the firm's cost of financial capital at that bank.*

The Firm's Social Network of Bank Ties and Capital Acquisition and Costs

Dyadic exchanges do not exist in a social vacuum but are affected by the way network structure shapes competition, knowledge creation, and credibility. Some financial and organization theories argue that firms with expansive networks of arm's-length ties to banks are most likely to get capital at favorable rates by optimizing their bargaining power and access to a larger pool of loan possibilities (Burt, 1992; Petersen and Rajan, 1994). Our analysis suggests, however, that corporate financing also depends on embedded ties that facilitate deal making. In essence, our argument is that it is not the size but the organization of the network of ties that increases the range of action available to the firm beyond that which is possible if only one type of tie existed.

We refer to a network's ability to synthesize the benefits of different types of ties as network complementarity. Networks high in complementarity produce premium outcomes because the features of different ties reinforce each other's advantages while mitigating their disadvantages. Thus, while we argue that embedded ties provide special informational and governance benefits with a specific lender, we acknowledge that a firm that maintains a network of only embedded ties risks suboptimal network level outcomes by failing to capitalize on the property of network complementarity.

Heterogeneity in loan structures that competing banks market to clients suggests that networks high in complementarity should enhance a firm's ability to get capital and lower its capital costs. This is because access to capital grows with a firm's ability to (a) shop for a loan structure that is compatible with its credit profile and (b) collaborate with a bank on the creation of a loan structure that custom fits its credit profile. Thus, a firm with a network high in complementarity should enhance a firm's access to capital by promoting both search and collaboration benefits. Arm's-length ties enable the firm to search the market for different loan structures, while embedded ties enable it to prompt a bank to use its private resources as well as the diverse information a firm gains through its arm's-length ties to customize a loan agreement. In contrast, networks of arm's-length ties can effectively search the market but lack arrangements for collaboration. Similarly, networks of embedded ties promote the collaboration of custom loan structures but have limited access to the diverse information needed to innovate.

In our fieldwork, the dual benefits of networks high in complementarity were manifested in several ways. Frequently, bankers noted that entrepreneurs used their arm's-length ties to gather data about prices and structures. They then presented that information to their close lender who incorporated the premium ideas into a customized

deal for the firm, a process that was facilitated by the embedded tie, which imbued market data with credibility and motivated the bank's acceptance of unfamiliar loan conditions. In an example of this process, an RM recounted the dynamics of a recent deal in which he was one of the arm's-length ties in the firm's network. He noted how the entrepreneur used arm's-length ties to access market information about alternative prices and loan structure at use at other banks and then gave that information to his embedded bank, which customized a loan structure using the knowledge that had been accumulated by the entrepreneur. In this way, the firm with a network of embedded and arm's-length ties combined the partnering benefits of embedded ties with the brokering benefits of arm's-length ties. The RM said:

> Three banks were pitching on the same deal and the company said to me "give us a creative idea on how you would structure this financing." [W]e provided a very creative idea with term loans and revolving credit [factors affecting price and structure]. They said, "We really like this structure but X has been our bank for 50 years and we don't want to pull the agency from them." When the term sheet came back from X bank, X bank had basically our term sheet with their name on it. […] So, we gave the banking insight on the marketplace to the firm [but lost the deal].

Thus, based on our framework and fieldwork, we would expect statistical analysis to show that *a firm's ability to acquire financial capital increases when it has a network with an integrated mix of embedded and arm's-length ties and decreases when it has a network that tends towards either purely embedded or purely arm's-length ties.*

Data and Methods

We examined our hypotheses using the National Survey of Small Business Finances, which was administered by the Federal Reserve Bank to investigate how market and organizational characteristics affect capital costs and availability. This in-person survey collected data on firms' lending ties, sources of financing, loans, and organizational and financial characteristics. The random sample consisted of 1,875 corporations and 1,529 partnerships/sole-proprietorships, with up to 500 employees and $154 million in assets, operating in 1989 in the U.S. non-agricultural sector. Depending on the item, the response rate was 70 to 80 percent, reducing the sample size to about 2,300 cases. Nearly 90 percent of the businesses were owner-managed; 12 percent and 7 percent were women-owned and minority-owned, respectively. Table 3 reports descriptive statistics of the variables used in the analysis. Table

3 summarizes the social network, organizational, market, and loan variables that we used in the analysis along with their operationalizations.

Dependent Variables

We examined two dependent variables that correspond to the two stages of the lending decision and our hypotheses. Stage one estimates whether a firm has obtained access to term credit or not. A weakness of most previous research, and ours, is that it is not fully determinable whether a lack of term credit is due to the bank's credit rationing or the firm's self-restricted consumption. The conventional financial theory inference is that, if the factors affecting a firm's need for credit are accounted for, firms without a loan were probably denied credit (Hawley and Fujii, 1991; Cole and Wolken, 1995). This inference follows from several factors. Small- to medium-sized firms are in constant need of credit, so a lack of it suggests that they received overly restrictive loan offers, if any. Since both firms and banks would rather avoid a formal denial (Lummer and McConnell, 1989), banks informally counsel weak applicants to withdraw their requests by charging high interest rates or affixing restrictive covenants, making self-restricted consumption tantamount to denial. Also, the prohibitively high costs of collecting retrospective data on bank denials and firm consumption would unnecessarily hinder progress on this important research topic (Munnell et al., 1992). Since our data coincide with previous research in this area, we followed the above conventions, defining a firm as *credit accessed* (1 = yes) if it had obtained a loan between 1987 and 1989, and zero if not. Moreover, we added a control variable for cash on hand since firms are less likely to seek credit or borrow if internal funds are available (Mizruchi and Stearns, 1994b). This approach allowed us to build on and extend prior research with an analysis of social embeddedness even if a judicious interpretation of this stage of the model is called for. Stage two estimates the *cost of capital*, which we defined as the interest rate on the firm's loan. This definition of the cost of capital is frequently used in research and practice on lending (Petersen and Rajan, 1994; Heckman, 1998).

Statistical Model

We modeled the effect of social ties and networks on the acquisition and cost of capital with a Heckman two-stage selection (Heckman, 1976). This model is used when the value of one dependent variable (e.g., the cost of capital) depends on another dependent variable being observed (e.g., having a loan). In addition, the Heckman selection model provides consistent, asymptotically efficient estimates that correct for the selection bias that would result if regressions were run only on firms with loans.

Fitting variables that correlate with credit access but not with the interest rate helps solve the bias problem, so we chose variables for each stage based on previous research and our field work (Mizruchi and Stearns, 1994b; Petersen and Rajan, 1994). The first stage is a probit regression of whether the firm is credit accessed or not. In our particular analysis, this probit regression takes the following form (see Table 3 for variable definitions and operationalizations):

Access to Credit Equation:

γ_0 + γ_1 Duration of tie + γ_2 Multiplexity of tie + γ_3 Network complementarity + γ_4 Network Complementarity squared + γ_5 Network Size + γ_6 Women owned + γ_7 Minority owned + γ_8 #employees + γ_9 Corp Age + γ_{10} Corp form + γ_{11} Cash on hand + γ_{12} Sales change + γ_{13} Acid ratio + γ_{14} Debt ratio + $\gamma_{15\text{-}24}$ Market Variables + σ

The second stage is an ordinary least squares (OLS) regression that uses the estimated Mills ratio from the first stage to account for selection bias in estimating the interest rate on the outstanding loan. Our OLS regression takes the following form:

Interest Rate on Loan Equation:

β_0 + β_1 Duration of tie + β_2 Multiplexity of tie + β_3 Network complementarity + β_4 Network complementarity squared + β_5 Network Size + β_6 Women owned + β_7 Minority owned + β_8 #employees + β_9 Sales change + β_{10} Acid ratio + β_{11} Debt ratio + β_{12} Prime rate + β_{13} Term Spread + β_{14} Collateral + β_{15} Fixed + β_{16} Competition Variables + σ

The Heckman model can be sensitive in estimates to specification error. We checked our model specifications by estimating the interest rate and an interest rate deviation score (firm's interest rate—prime rate) with OLS regressions. While OLS does not handle selection error, it allows subsets of variables to be entered separately—a nested procedure that tends to bias the Heckman which is sensitive to specification error. We also examined possible distributional artifacts. We truncated the duration variable at its 95^{th} percentile to test for sensitivity to distributional extremes. Similarly, while the lumpy distributions of multiplexity and network complementarity reflect the underlying social structure, they might create statistical biases. Consequently, we ran separate models with duration truncated, multiplexity dichotomized (no vs. multiple services), and network complementarity not equal to 1. These regressions produced results that were substantively identical to those reported below (see Uzzi, 1999).

Results

Probit Stage of the Heckman Results (credit access):[3]

–0.001(Duration of tie) + 0.005(Multiplexity of tie) + **1.772**(Network complementarity) –**1.119**(Network complementarity)^2 + **0.133**(Network Size) **–0.189**(Women owned) –0.180(Minority owned) + 0.000(#Employees) –**0.007**(Corp Age) –**0.132**(Corp form) –0.023 (Cash) + 0.005(Sales change) –**0.025**(Acid ratio) + 0.004(Debt ratio) + (Market Variables) –**1.164**

OLS Stage of the Heckman Results (interest rate on loan):[3]

–**0.013**(Duration of tie) –**0.042**(Multiplexity of tie) –**6.275**(Network Complementarity) + **5.030**(Network Complementarity)^2 + 0.039 (Network Size) + **0.020**(Women owned) + 0.371(Minority owned) –**0.002**(#employees) – 0.022(Sales change) + 0.028(Acid ratio) + 0.070(Debt ratio) + 0.155(Prime) – 0.020(Term spread) –**0.393**(Collateral) + **0.709**(Fixed) + 0.193(Competition) + **11.233**

In accordance with previous financial research, we found that organizations are more likely to be credit accessed and have lower credit costs if they have liquidity, a corporate form, or locations in regions with low credit costs. There was an inverse association between bank competition and interest rates, which is consistent with financial theory arguments that in a market with few banks (low competition), firms can credibly commit to a bank, whereas in markets with many banks (high competition), credible commitment is suspect. Women- and minority-owned firms were less likely to be credit accessed than firms managed by white men. These results provide a validity and reliability check on our equations specification and a base-line model for examining the magnitude of the net effects of social capital. See Uzzi (1999) for full details.

Social Tie Effects

Consistent with our expectations, our two measures of the embeddedness of a relationship in social attachments—duration of a tie between a bank and a firm and the multiplexity of the relationship between a bank and the firm—affected capital costs. Holding all the economic, organizational, and loan variables constant, the results of the OLS stage of the Heckman model showed that the duration of the relationship and the multiplexity of the relationship had large and significant effects on reducing the cost of capital. The coefficient (standard error) of the duration variable is –0.013 (0.005), $p < .05$ (two-tailed test) and the coefficient (standard error) of the multiplexity variable

is –0.042 (0.018), $p < .05$ (two-tailed test). In real terms, the coefficients in the interest rate regression indicate that an additional year in a relationship lowers a firm's interest rate by 1.1 basis points or 0.011 percentage points, while an additional dimension (service) of multiplexity lowers a firm's interest rate by 4.2 basis points or 0.042 percentage points. In this industry, an interest rate reduction on a loan of this magnitude is significant and underscores the importance of relational embeddedness relative to conventional financial and organizational factors that affect interest rates.

It appears, however, that the duration of the relationship and the multiplexity of the relationship does not affect the probability of credit access. These null effects indicate that while the quality of a relationship may influence the competitiveness of a rate, it is unrelated to whether or not a firm "passes the bar" for creditworthiness. This suggests that relationships influence market allocation once a firm has been sorted into the category of creditworthiness but does not independently influence whether a firm is categorized as creditworthy or not. This inference fits with our interview data, which indicated that there is a level of risk at which banks deny loans even if they are close to the client, since no level of confidence in the client's competency can offset the credit risks that emanate from other business factors.

Social Network Effects

Consistent with our expectations, we found that network structure was related to both credit access and the cost of capital. In first-stage regression of credit access, the linear coefficient is positive 1.772 (0.547), $p < .01$ and the squared coefficient is negative –1.119 (0.461) $p < .05$. Conversely, in second-stage regression of interest rate, the linear coefficient is negative –6.275 (1.134) $p < .01$ and the squared coefficient is positive 5.030 (0.960) $p < .01$. Thus, as hypothesized, networks composed of an integrated mix of both embedded ties and arm's-length ties increased capital access and reduced capital costs relative to networks composed of predominately arm's-length or embedded ties. These results suggest that the complementarity of different types of ties in a network produce optimal benefits relative to networks that lack complementarity.

This conclusion is supported by the results of our simple measure of network size. Network size increased the propensity for credit accessibility. In the first equation, it had a coefficient of 0.133 (0.020) $p < .01$ but in the second equation it had a null effect on cost of capital. This is consistent with our argument and field data that arm's-length ties increase a firm's knowledge of market innovations and the availability of different loans and pricing. Taken at face value, a larger network is better than a smaller network for credit access, if price is

not a factor. However, the null effect for network size in regard to capital cost indicates that network size does not affect pricing. This suggests that arm's-length bank ties may effectively shop the market for loan availability but appear to ineffectively motivate banks to incorporate rivals' prices or to price lead on a loan.

Discussion

This study reported excerpts and selections from Uzzi's (1999) study of how the embedding of commercial transactions between banks and small firms in social attachments affects credit access and credit costs (see also Uzzi and Gillespie, 1999a, 1999b). Net of the effects of firm, economic, and market characteristics, we found that the firm's social capital increases its ability to acquire loan financing and get financing at favorable rates.

We measured social capital in three ways (Table 3). At the level of the relationship between the firm and the bank supplying it funds, we measured social capital (1) as the duration of the bank-firm relationship and (2) the multiplexity of the bank-firm relationship. At the level of the firm's network, we measured social capital as the (3) complementarity of the mix of arm's-length and embedded ties that a firm possesses to all its banks, not just the bank providing funds. We argued that while an embedded tie to a bank is most advantageous to a firm for collaboration over loan structures, firms also needed some arm's-length ties to other banks in order to access market information about loan prices and innovative loan structures that other banks might offer. Thus, social networks appear to operate like portfolios of assets in that the value of individual social ties within the network vary. Arm's-length ties are good for searching the market for information but lack cooperative mechanisms. Embedded ties facilitate collaborative exchanges but are limited in that they attend to historical solutions. Thus, networks with a mix of both types of ties maximize the benefits and reduce the risks of each type of tie by offsetting their weaknesses and preserving their strengths. These social mechanics translate into better access to capital and a lower cost of capital because arm's-length ties access the public information of the market (price benchmarks and novel ideas), while embedded ties promote access to the private resources of relationships where partnership deals happen.

The study is distinctive in regard to current work in finance on lending relationships in its emphasis on field data to explicate and corroborate quantitative analyses. Previous analyses in finance on the role of banking relationships for credit access and costs have relied on purely deductive and quantitative analyses of lending (Petersen and Rajan, 1994, 1995; Angelini, DiSalvo and Ferri, 1998; Berger and Udell, 1998; Berlin and Mester, 1998; Cole, 1998). While

these analyses have provided many insights, they make unsupported inferences about the meaning of relationships. This leaves open the question of why the embedding of commercial transactions in social attachments is so prevalent in banking, especially when banks rule over small firms and can access many credit-checking sources (Udell, 1999).

Using ethnographic and statistical evidence, we showed that lending relationships are not simply information conduits as some prior research has intimated. The private information that banks gain is not "information for the asking" but information that must be voluntarily dispensed by the firm to the bank because firms have exit power and banks cannot simply demand information. Consequently, embedding commercial transactions in social structure interjects expectations of trust and reciprocity into the bank-firm transactions, facilitating private information and resource transfers between the bank and borrower, lowering monitoring costs, and motivating the sharing of value creation for mutual benefit. The embedded relationship in effect becomes an extra-contractual governance mechanism that provides for benefits that would not arise in its absence (Macneil, 1999).

In closing, it is worth noting how the social network approach to transacting differs from the transaction cost approach. Both perspectives conceptualize the problem of exchange in the same terms, namely information access and effective governance. The difference lies in the solution to this transacting problem. We presented numerous examples that showed how social trust governed exchange and had an effect on trade even after controlling for the financial capabilities. This distinction is important because favorable interest rates can be viewed as lost financial gains for banks (Berger and Udell, 1998; Spulber, 1998), a result that is difficult to explain from the assumption that "the only reliable human motive is avariciousness" (Willamson, 1996:50), particularly, when banks rule over firms. Networks of ties also play a key role in social network theory, something that is given short shrift in transaction costs. Social network theory and transaction cost approaches are further differentiated in their emphasis on private information and asset specificity, respectively. While these two concepts are not necessarily in conflict, private information is not synonymous with asset specificity. Unlike asset specific information, private information need not be specific to a transacting partner or decrease in value if redeployed to another transacting partner. Rather, its value inheres in and is activated by the quality of relationships and the structure of the network in which they are embedded. Private information about a firm that is pulled from one bank may have equal or greater value at another bank. Finally, although speculative given our cross-sectional work, embeddedness appears to precede transactions of certain types, creating new transactions, rather than the opposite. Thus, the embeddedness

approach does not deny other forms of governance, rather it calls attention to its benefits which have been under-appreciated by other approaches.

The results in this paper summarize the findings of a larger study (Uzzi, 1999) and are meant to show how a focus on social relationships and networks can help advance financial theory on banking and intermediation by introducing in financial work the powerful concept of social capital. Social capital explains how actors win individual and collective advantages through the intricate webs of relations, obligations, and information channels in which they are socially embedded. This approach is unlike research that highlights how an actor's innate capabilities produce success by stressing how social capital impacts actors regardless of their independent choices and capabilities (Macneil, 1980; Granovetter, 1985; Arrow, 1998). The key theoretical argument is that social networks are most beneficial when they facilitate two disjoint activities: the brokering of information that is publicly available but scattered among actors in a market and the partnering of exchanges of unique resources that are shared through social ties. As such, social networks provide conceptual tools for answering broader social science questions about how social capital expands individual opportunity and assists collective action.

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TABLE 1

Fieldwork's Organizational and Sample Characteristics

Bank Profiles			Interviewee Profiles			
Name	Deposits* (Thousands)	Market Niche	Demographics	Industry Tenure (yrs)	# of firms in RM's Portfolio	Time (min)
First Bank of Evanston	104,181	Entry	Male, white	17	21	60
			Female, white	2	9	30
1st National Bank of La Grange	125,475	Entry	Male, white	40+	50	120
			Male, white	8	17	120
			Male, white	3	6	120
1st Midwest Bank	178,825	Entry	Male, white	35	N/A	60
			Male, white	4	17	45
Bank One-Chicago	1,156,874	Midmarket	Male, white	15	50	45
			Male, black	3	12	50
			Female, white	6	26	30
Cole Taylor	1,327,893	Midmarket	Male, white	20	54	45
			Male, white	5	13	50
BankAmerica	3,887,571	Midmarket	Female, white	19	Bad Debt	60
			Male, white	7	15	45
			Female, white	9	35	30
			Male, white	19	50	75
American National Bank	4,357,509	Midmarket	Male, white	9	25	50
Northern Trust	6,301,607	Midmarket	Male, white	25	27	120
			Male, white	7	Bad Debt	60
			Male, white	5	8	30
			Male, white	15	19	70
Harris Bank	8,653,638	Mid/NC	Male, white	7	21	60
			Female, white	9	18	55
			Male, white	12	14	45
LaSalle National Bank	9,761,356	Mid/NC	Male, white	12	25	50
1st National Bank of Chicago	17,961,480	Mid/NC	Male, white	25	50	35
Number of Interviewees	*24*					
Number of Banks	*11*					
Number of Interview Hrs	*26*					

* From *Bank & Thrift Branch Office Data Book* (FDIC 1998). Mid/NC= Midmarket and New Corporate.

TABLE 2

Banking Market Segmentation, Lending Practices, and Relationship Characteristics

	New Corporate	Midmarket	Entry Level
Sales Segmentation and Market Range	❑ 500 million or more ❑ Multi-markets ❑ Multi-product	❑ 10 to 500 million ❑ Single market ❑ Single or Multi-product	❑ Up to 10 million ❑ Single market ❑ Single product
Financial Market Intermediation	❑ Firms are debt rated ❑ Certified financial statements	❑ Firms are rarely debt rated ❑ Unreliable or no certified financial statements	❑ Firms are rarely debt rated ❑ Unreliable or no certified financial statements
Financial Decision Structure: Firms	❑ Treasury Department ❑ Separation of CEO and CFO positions	❑ Limited or no financial staff ❑ CEO is owner manager ❑ No CFO	❑ No financial staff ❑ CEO is owner manager ❑ No CFO
Capital Dependence: Firms on Banks	❑ Firms have multiple sources of external financing besides banks ❑ Firms have multiple sources of internal financing	❑ Banks are major source of external financing for firms ❑ Limited or no internal financing for firms	❑ Banks are major source of external financing for firms ❑ Limited or no internal financing for firms
Role of relationship manager in making deals	❑ Solicits requests for financing from corporate treasury departments ❑ Makes bids on corporate offerings	❑ Assesses financial and managerial creditworthiness ❑ Makes loan decision ❑ Seeks loan approval from bank	❑ Assesses financial and managerial creditworthiness ❑ Makes loan decision ❑ Seeks loan approval from bank

Source: Ettin (1994), Berger, Kashyap and Scalise (1995), Gorton and Rosen (1995), Federal Reserve Bulletins on bank changes (November 1996), Federal Reserve Board senior loan officer opinion surveys, and original field research.

TABLE 3

Variables Used in Heckman Statistical Analysis and Predicted Effects, NSSBF 1987

Operationalization		Hypothesized Effects	
		Probit	OLS
Social Relationship between firm and bank		Credit Access	Credit Cost
Duration of Tie	Number of years the firm has had a relationship with bank	+	-
Multiplexity of Tie	Number of services a firm uses at a particular bank	+	-
Social Network of Firm			
Network Size	Number of banks the firm transacts with	+	-
Network Complementarity	Concentration of accounts a firm has with its bank – see note at bottom of table.	+	-
Network Complementarity ^2	Network coupling squared	+	-
Organizational Characteristics			
Women Managed	Coded yes if top management or ownership is at least 51% female	0	0
Minority Managed	Coded yes if top management or ownership is at least 51% minority	0	0
Number of Employees	Log of the number of employees at the firm	0	0
Firm Age	Log of the number of years the firm has been in business	0	...
Corporation	Coded yes if the firm is incorporated	0	...
Cash Retained	Total cash firm has from retained earnings	0	...
Sales Change	Log of the firm's percentage sales change from the previous year	0	0
Acid Ratio	Current assets minus inventory value, divided by current liabilities	0	0
Debt Ratio	Total liabilities divided by total assets	0	0
Loan Characteristics			
Prime Rate	Base rate that banks use in price loans for most creditworthy firms	...	0
Term Structure Spread	Treasury bill yield minus the yield on a government bond of the same maturity	...	0
Collateral	Coded yes if the firm pledges physical assets as security for the loan	...	0
Fixed rate loan	Coded yes if the interest rate on the firm's loan is fixed	...	0
Market Characteristics			
Bank Concentration	Level of bank competition in the firm's local area	0	0
Regional Location	Northeast, North Central, and South	0	...
Sic1-Sic6	Seven 2-digit SIC codes	0	...

+ = Positive effect on dependent variable; - = negative effect on dependent variable; 0 = no predicted effect, we expect conventional effect shown in prior work (Petersen and Rajan 1994; Berger and Udell 1998); "..." = not in that stage of the Heckman model.

To construct our measure of network complementarity, we followed Baker (1990) who showed that a Herfindahl index, relative of the Gibbs-Martin index of social heterogeneity (Blau and Schwartz 1984), parsimoniously measures the degree of mix of different types of ties in a firm's banking network. The index varies between greater than zero and less than or equal to one. As it nears zero, a firm's network is composed of many arm's -length ties; as it nears one, a firm's network is composed of one or very few embedded ties. At an intermediate value, a firm has an integrated mix of embedded ties and arm's-length ties. The measure is defined as $\sum(P_j^2)$, where j goes from 1 to n banks and (P_j) is the proportion of the firm's banking business that is dedicated to bank j. We defined (P_j) as the sum of three fundamental accounts -- savings, checking, and line of credit accounts which RMs used to indicate the level of business between a firm and a bank. For example, if a firm uses three banks and apportions 70 percent of its business to bank one, 20 percent to bank two, and the remaining 10 percent to bank three, then its network structure score is equal to $[(.70)^2 + (.20)^2 + (.10)^2] = .54$.

Notes

[1] Our concept of network complementarity builds on portfolio theory (Kolb and Rodriguez, 1996), which argues that assets in a portfolio have a contingent value that depends on the other assets in the portfolio, not just the properties of the asset. In a like manner, a tie's value is greatest when other types of ties complement its strengths, while the portfolio's value also rises if the benefits of different ties do not coincide. In this context, a network refers to the firm's ego network of direct ties to banks, not the aggregation of all bank-firm networks in an arbitrary region or industry boundary. Previous research has also referred metaphorically to ego networks as portfolios (Powell et al., 1996).

[2] Lending decisions have two stages. First, a bank decides whether to offer a loan to a customer who made a loan request. Loan denial reflects cases where the bank will not raise the interest rate to make up for a bad credit risk. Second, the bank decides what cost of credit to charge applicants who were deemed creditworthy in the first stage.

[3] Bolded coefficients are significant at the $p < .05$ level (two tailed tests). See Uzzi (1999) for p-values.

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Appendix

Fieldwork Methodology and Sample Characteristics

Our interviewees' names were obtained from the bank's CEO whose name was acquired through the Banking Resource Center, a research institute at our university that conducts research on banking. Table 1 summarizes our sample's organizational characteristics. Banks ranged in size from small community banks (assets < $100,000,000) to high-end mid-market banks (assets < $225 billion dollars). This sample enabled us to examine the range of institutions and persons responsible for lending decisions.

At each bank we interviewed, "Relationship Managers", a widely used title among banks that displaced the former title of Lending Officer in the early 1980's. The title Relationship Manager is sociologically interesting in that it conspicuously connotes the social nature and identity of this role in banks and the manner in which it is enacted with corporate clients. Relationship managers normally attain the rank of vice president, a status reflective of their seniority, success, and decision-making power. Of the 24 interviewees, three were CEOs who have actively been involved in lending and two were bad debt collectors who are presumably more skeptical of social ties than relationship managers given that their typical interactions are with persons and firms that default and defraud on loan agreements. Total interview time amounted to 26 hours and the average number of years of experience was about 10 years. The average number of firms that each interviewee managed ranged from 9 to 50. The gender and race demographics of the sample approximate the population demographics of the industry. Five were women and one was an African American man. Nineteen of our interviewees held the title Relationship Manager, three were CEOs, and two were bad debt collectors.

We used Miles and Huberman's (1994) data collection and analysis methods. Data collection consisted of recording all interviewees on tape and then transcribing them to create a behavioral record for each interviewee. The first author conducted the interviews. Questions were open-ended and moderately directive. Questions focused on the nature of the credit decision, especially access to capital (i.e., who qualifies) and the cost of capital (Roosa, 1951). Follow-up questions focused on the nature, function, and dynamics of bank-client ties. In this sense, there was an active attempt to use the interviews to discover interesting and surprising relationships, rather than as a proxy for survey data. For example, typical questions were, "How does the bank assess the creditworthiness of a corporate borrower?", "What types of things do you discuss with a client in order to assess their creditworthiness?", "What do you typically do when you meet

clients?", "What is the basis of a good relationship with a client?", or "How do relationships between you and the client develop?". To probe sensitive issues and avoid directiveness, we postscripted responses to questions with phrases such as, "Can you tell me more about that?", "I am interested in those kinds of details," "Is there anything else?" or "Would you consider this typical or atypical?".

Data analysis was a two step procedure. First, we formed an organized understanding of the patterns in the data. This task centered on a content analysis and frequency count of the interviewees' data in which their responses were compiled into different factors that decomposed the range of responses (i.e., the variance) into its major components. Second, we worked back and forth between theory and the emerging framework. In this step, evidence was added, dropped, or revised as our working formulation took shape. The formulation's purpose was to explain how social structure influences economic behavior, which in our context considers most fully how relationships and network ties condition a firm's access to capital (qualifies for a loan) and the cost of capital (what is the interest rate on the loan). Similar to psychometric and econometric models, our formulation aims to accurately illustrate the sources of variation in the data rather than to explain all the variance.

The Effect of Personal Bankruptcy Law on Small Firms' Access to Credit

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Introduction

In this paper, we investigate whether and how personal bankruptcy law affects small firms' access to credit. It is well known that the U.S. has separate bankruptcy procedures for individuals versus corporations. Corporations that file for bankruptcy may either reorganize under Chapter 11 or liquidate under Chapter 7. Individuals who file for bankruptcy may either use assets above an exemption level to repay debt under Chapter 7 or propose a plan to use part of their future earnings to repay debt under Chapter 13. What is less well known is that individual bankruptcy procedures also function as a bankruptcy procedure for small firms. When a firm is unincorporated, its debts are personal liabilities of the firm's owners, so that lending to the firm is equivalent to lending to its owner(s). If the firm fails, the owner has an incentive to file for personal bankruptcy in order to obtain discharge of the firm's debts. In contrast when the firm is a corporation, shareholders' limited liability implies that the firm's debts are not personal liabilities of the owner(s), so that personal bankruptcy law is irrelevant. However, lenders to small corporations sometimes require that the owner personally guarantee the firm's debts and/or give the lender a second mortgage on the owner's house. This wipes out the legal distinction between the owner and the corporation for purposes of the particular loan. Sullivan et al., (1989) surveyed a sample of individuals who filed for bankruptcy during the 1980s and estimated that around 20% had debts from a failed business.

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Bankruptcy may affect small firms' access to credit in two different ways. First, if small firms or their owners have filed for bankruptcy in the past, then lenders may be less willing to lend and the supply of credit falls. Second, personal bankruptcy exemptions affect how attractive it is for owners of firms to file for bankruptcy in the future and, therefore, may affect both the supply of and demand for credit.

To see the latter, suppose a non-corporate firm has incurred losses and its owner is considering filing for bankruptcy under Chapter 7. When individuals file for bankruptcy under Chapter 7, they must give up all their non-exempt assets, but they are not required to use any of their future earnings to repay debt. Most unsecured debts, including loans to the firm and personal loans of the debtor, are discharged. While bankruptcy is a matter of Federal law and the procedure is uniform across the country, Congress gave the states the right to set their own bankruptcy exemption levels and they vary widely. The higher the exemption level in a state, 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 discharging their debts. Thus bankruptcy provides debtors with partial wealth insurance and the level of insurance is higher when exemption levels are higher. As long as owners of small firms are risk averse, demand for loans by small firms is predicted to be higher in states with higher bankruptcy exemption levels. But the higher bankruptcy exemption levels are in a state, the less attractive it is for lenders to lend in that state, because borrowers are more likely to file for bankruptcy. Thus, supply of credit to small firms is predicted to be lower in states that have higher bankruptcy exemptions. These predictions apply to non-corporate firms and also may apply to corporate firms, although the effects are likely to be weaker for corporate firms.

This paper presents a simple theoretical model of credit markets which shows that small firms' access to credit is likely to be lower in states with higher bankruptcy exemption levels. We test these predictions using the 1993 National Survey of Small Business Finance (NSSBF). We find that high personal bankruptcy exemptions are associated with an increase in the probability of non-corporate firms being denied credit and a reduction in the size of loans that non-corporate firms receive. Surprisingly, we find evidence that corporate firms, but not non-corporates, pay higher interest rates on loans if they are located in states that have higher bankruptcy exemption levels. We also find that a past bankruptcy filing raises the probability that both types of firms are denied credit by 30 to 40 percentage points.

Literature Review

We know of only one article which examines the effect of bankruptcy law on business credit markets. Scott and Smith (1986) examined the

effect of the new U.S. Bankruptcy Code, adopted in 1978, on business credit markets. They argued that adoption of the Code caused the cost of business loans to increase, and that lenders passed this cost increase on to borrowers in the form of higher interest rates on business loans. They found support for this hypothesis using data on interest rates on small business loans. However, their study did not take into account differences across states in bankruptcy exemption levels, so that it examined only the net effect on interest rates of many changes adopted simultaneously as part of the 1978 Code, all of which applied uniformly in the U.S. Our study, in contrast, focuses on the effects on small business credit of varying a single factor, personal bankruptcy exemption levels, across the states. As part of the 1978 Code, Congress allowed the states to adopt their own exemption levels, so that these vary across states even though other aspects of bankruptcy procedures are determined by Federal law and are uniform across states.[1]

On the personal bankruptcy side, Gropp, Scholz and White (1997) investigated how varying bankruptcy exemption levels across states affect markets for non-business loans. They found that in states with higher exemption levels, applicants were more likely to be turned down for credit, but demand for loans increased. Overall, they found that higher bankruptcy exemption levels tend to shift credit from low asset households to high asset households, since lenders are willing to accommodate the increased demand of the latter, but not the former. Berkowitz and Hynes (1999) reexamined this issue for mortgage loans, distinguishing between the two types of bankruptcy exemptions.

Peterson and Rajan (1994) and (1996) examine small business credit markets using earlier versions of the NSSBF. They are mainly concerned with examining the effects of long term relationships between firms and banks and the effects of concentration in local banking markets on interest rates and availability of business credit.

There are a number of theoretical models which examine the effects of bankruptcy on credit markets. Longhofer (1997) presents a model which predicts tighter rationing of small business credit when bankruptcy exemptions are higher. We test this hypothesis in our empirical work.[2]

Theory

Suppose an owner of an unincorporated firm contemplates borrowing to invest in the firm. The amount to be borrowed in period 1 is denoted B. The loan will be due in period 2. Including principle and interest, the amount owed in period 2 is $B(1 + r)$, where r is the interest rate on the loan. Assuming that the loan is made, the owner's gross wealth next period, including the return on the investment in firm, will be W. The distribution of W is denoted $f(W)$.

The state in which the firm is located is assumed to have a bankruptcy exemption of amount X, where X is the total value of the state's exemptions for home equity, personal property and other assets.[3] If an owner files for bankruptcy, her out-of-pocket cost is assumed to be C_b.

Figure 1 shows the owner's gross wealth next period, W, on the horizontal axis. The vertical axis shows the owner's net wealth in period 2, after either repaying the debt in full or filing for bankruptcy. Examine the solid line. From left to right, it has a rising region, then a flat region, and finally another rising region. In the left-most region, the owner's wealth is less than the exemption level, or $W < X$. Therefore, the owner files for bankruptcy and keeps net wealth of $W–C_b$. In the middle region, the owner's wealth is greater than X, but the owner still files for bankruptcy. Therefore the owner must give up non-exempt wealth equal to $W–X$, but keeps $X–C_b$. Finally, in the rightmost region, the owner does not file for bankruptcy. After repaying the loan in full, her net wealth is $W–B(1 + r)$.[4]

$\tilde{W}$ denotes the level of gross wealth at which the owner is indifferent between filing versus not filing for bankruptcy. Since net wealth is $W–B(1 + r)$ if the owner does not file for bankruptcy and net wealth is $X–C_b$ if the owner files for bankruptcy, we have:

$$\tilde{W} = B(1+r) + X - C_b \qquad (1)$$

Now consider lender's breakeven condition. Owner repays nothing if period 2 wealth turns out to be below X, she repays $W–X$ if her period 2 wealth turns out to be between X and fV–, and she repays in full if her period 2 wealth turns out to exceed$\tilde{W}$. Lender's opportunity cost of funds is assumed to be f and lender pays costs of C_1 if borrower files for bankruptcy. Therefore, lender is willing to lend if expected repayment is greater than or equal to lender's opportunity cost of funds, or if:

$$B(1+\bar{r}) \leq \int_{X}^{\tilde{W}} (W - X - C_l) f(W) dW + \int_{\tilde{W}}^{\infty} B(1+r) f(W) dW. \qquad (2)$$

The amount that owner repays is shown in Figure 2. The first term on the right hand side of expression (2) corresponds to repayment in the rising section of Figure 2, where owner files for bankruptcy, and the second term on the right hand side of (2) corresponds to repayment in the flat section of Figure 2, where owner repays in full.

Now suppose the bankruptcy exemption rises from X to X'. This causes the wealth level at which owners are indifferent between filing versus not filing for bankruptcy to rise from $\tilde{W}$ to$\tilde{W}'$ and, therefore, the probability that owners file for bankruptcy rises. Since owners are less likely to repay in full, lenders must raise the interest rate in order to maintain the same level of expected repayment. Suppose the interest rate at which expected repayment remains constant given the higher exemption level is r, where $r > r'$.

The dashed line in Figure 1 shows owners' net wealth in period 2 when the exemption level is X'. Because of the higher exemption level, owners' net wealth shifts upward in the middle region of the curve. Also because $\tilde{W}$ shifts to the right, owners are more likely to file for bankruptcy. But because the interest rate rises, owners' net wealth falls in the rightmost region where they repay their loans in full and avoid bankruptcy. Thus the rise in the exemption level shifts owners' net wealth from a region of high wealth to a region of intermediate wealth. But owners' expected net wealth falls, because they are more likely to file for bankruptcy and to pay bankruptcy costs of C_b. If owners are risk averse, the rise in the exemption level makes them better off. This is because the higher exemption level provides additional wealth insurance by raising their net wealth when the business fails.[5]

Now consider whether lenders institute credit rationing or tighten credit rationing when the exemption level rises. Thus far, our model has assumed that all owners (potential borrowers) are identical and that all information is common to owners and lenders. In this model there is no credit rationing at low exemption levels, but increases in the exemption level eventually cause a drastic form of credit rationing: lenders cease lending completely. As the exemption level X and the wealth indifference level $\tilde{W}$ both rise, the probability of owners repaying the loan in full falls. In response, lenders raise the interest rate, but owners only pay the higher interest rate when they avoid bankruptcy and repay in full. As the exemption level rises, eventually the probability of bankruptcy becomes so high that no interest rate is high enough to allow lenders' breakeven constraint to be satisfied. At that point, lenders cease lending completely.[6]

Another possibility is that, rather than being identical, owners vary along some dimension that lenders can observe. In particular, we are interested in the effect of some owners' having previously filed for bankruptcy and lenders knowing this information. One possibility is that there are two types of projects—safe and risky. Owners who have previously filed for bankruptcy invest in risky projects, while owners who have not previously filed invest in safe projects. Lenders would then use information concerning whether a potential borrower has filed for bankruptcy to separate borrowers into two homogeneous groups, one that invests in safe projects, and one that invests in risky projects. Lenders would be willing to lend to safe borrowers at an interest rate that satisfies the breakeven condition for that group. But they may not be willing to lend to the group with prior bankruptcies at all, because the probability of default may be so high that no interest rate can satisfy the breakeven condition for the risky group. In this case, those with prior bankruptcies may not be able to borrow at all.

Finally, suppose owners vary along some dimension that lenders cannot observe, i.e., there is asymmetric information. For example,

suppose a group of potential borrowers is identical, given the lender's information. However, half of them will invest in a risky project and the other half will invest in a safe project. To be concrete, suppose the returns from the two types of projects are shown in Figure 3. The safe project has a distribution of returns $f_S(W)$, while the risky project has a distribution of returns $f_R(W)$. The risky project has a higher mean return but also higher variance. When the bankruptcy exemption is X, owners who invest in the safe project always repay the loan in full, but owners who invest in the risky project default and file for bankruptcy whenever $W < \tilde{W}$.

Now consider the effect of an increase in the bankruptcy exemption level, from X to X'. The increase in X causes the level of wealth at which owners are indifferent between filing versus not filing for bankruptcy to rise from $\tilde{W}$ to $\tilde{W}'$. At the higher exemption level, the probability of default by owners who invest in the risky project rises, but suppose the probability of default by owners who invest in the safe project remains at zero. Because lenders raise the interest rate from r to r' to offset the higher probability of default by risky investors, the net wealth of owners who invest in both types of projects falls. One possibility is that, at the reduced return, some or all safe investors may decide that investing is no longer worthwhile, because the safe projects reduced return does not justify the time and effort required. In this case, safe investors would cease to borrow when the exemption level rose. But if the number of safe investors falls, then the mix of borrowers would shift toward risky project. Thus, an increase in the exemption level may cause adverse selection to occur.

In this situation, lenders may react to an increase in the exemption level by raising the interest rate, by ceasing to lend at all, or by rationing credit while holding the interest rate below the market clearing level. Credit rationing may take the form of not lending at all to some potential borrowers or lending less than borrowers would like to borrow at the prevailing interest rate.[7]

Thus, our model generates several empirical predictions. First, interest rates on business loans are predicted to be higher in states with higher bankruptcy exemptions. Second, lenders are predicted to ration credit more tightly in states with higher bankruptcy exemptions. Third, the bankruptcy exemption level is predicted to be an important determinant of credit availability for non-corporate firms, but not for corporate firms. However, the exemption level may also affect lending to corporate firms if lenders commonly "pierce the corporate veil" by requiring that owners personally guarantee loans made to their businesses.[8]

Empirical Tests

Our primary data source is the 1993 National Survey of Small Business Finances. This survey, produced by the Federal Reserve Board and the

U.S. Small Business Administration, covers a representative sample of U.S. nonfinancial, nonfarm businesses that have fewer than 500 employees. The survey asks extensive questions concerning use of credit and financial services.[9] Our sample includes approximately 1,750 non-corporate firms and 2,800 corporate firms. We also use information concerning bankruptcy exemptions by state in 1993, taken from Elias, Renauer, and Leonard (1994).

The NSSBF asks owners whether their firms have applied for credit within the last three years. We define a dummy variable, "discouraged/denied," which equals one if owners applied for credit but were turned down or if they didn't apply for credit because they thought they would be turned down. We treat this variable as a measure of credit rationing and run logit regressions explaining whether firms were denied credit. We run separate regressions for corporate versus non-corporate firms.

The bankruptcy exemption in each state is defined to be the sum of the homestead (home equity) exemption, the personal property exemption, the exemptions for cash and for equity in vehicles, and the wildcard exemption. We divide the distribution of exemption levels into quartiles and assign a separate dummy variable to each quartile, with the lowest quartile omitted. We assign an additional dummy variable referred to as the unlimited category to the seven states that have unlimited exemption values. The "previous bankruptcy" variable equals one if the firm or its principal owner filed for bankruptcy within the past seven years.

We followed Petersen and Rajan (1994) in deciding on many of the firm and market characteristics to include as controls. We include the firm's total employment, the firm's age, the age of the firm's owner, whether the firm is family-owned, whether more than 50% of the firm's equity is owned by a member of a minority group (Black, Hispanic or Asian), the firm's profit in 1993, the firm's ratio of debts to assets, the firm's ratio of profits to interest charges, the rate of growth of sales between 1990 and 1992, and the ratio of profits to interest.[10] A vector of dummy variables for the firm's sector is also included, but the results are not shown.[11] We also include dummy variables for the lender being a bank, for the loan being collateralized by business property, for the loan being collateralized by personal property of the owners, for the owner using funds from a mortgage for the firm, and for whether the owner of the business has loaned money to the firm. We also include the number of lenders that the firm regularly borrows from, the number of years that the firm and the lender have had a relationship, whether the firm has a checking or saving account with the lender and whether the firm buys other services from the lender that enable the lender to acquire information about the firm.[12]

Finally, we include a dummy variable for a high Herfindahl index of bank deposit concentration in the market where the firm is located.[13]

Table 1 shows summary statistics. The probability of being discouraged / denied is nearly the same for corporate versus non-corporate firms: 0.29 for the former versus 0.30 for the latter. Among the important differences between the two types of firms are that corporate firms are larger on average (47 employees for corporations versus 9 for non-corporates), less likely to be family owned (0.75 versus 0.90), less likely to be minority-owned (0.14 versus 0.21), more likely to borrow from banks as opposed to other types of lenders (0.5 versus 0.3), more likely to offer collateral (0.29 versus 0.12 for personal collateral and 0.31 versus 0.13 for business collateral), and more likely to borrow on a floating rate basis (0.29 versus 0.10). About 2.9% of corporate firms and 2.6% of non-corporates have previously filed for bankruptcy.

The results of logit regressions explaining whether firms are discouraged / denied are shown in Table 2. (Asterisks indicate statistical significance at the 5% level)[14] Columns 1 and 2 show the results for non-corporate firms and Columns 3 and 4 show the results for corporations. Both types of firms are significantly less likely to be turned down for loans as the owner's age increases, as the number of years of relationship between the firm and the lender increases, and if the firm has a checking or savings account with the lender. The latter two results support Petersen and Rajan's (1994) hypothesis that relationships between small firms and their lenders reveal information about the firm to the lender and reduce the probability that firms will be turned down for credit. Both types of firms are significantly more likely to be turned down for loans if the owner of the firm is a member of a minority group; if the owner loaned money to the firm; or if the firm's debt to asset ratio is higher. In addition, owners of non-corporate firms are significantly more likely to be turned down for loans if the firm is family-owned; and owners of corporate firms (but not non-corporate firms) are significantly more likely to be turned down for loans if the owner uses funds from a mortgage for the firm; and if the loan involves personal collateral. Being family-owned, presumably, is correlated with firms pursuing objectives other than profit maximization; and using funds from a mortgage or providing personal collateral are likely to be associated with firms being in weak financial condition. Owners of corporate firms are significantly less likely to be turned down for loans if the lender is a bank and if the firm's profit is higher. The fact that variables such as family ownership are significant only in the non-corporate regression suggests that lenders treat the corporate versus non-corporate distinction as meaningful.

Now turn to the bankruptcy exemption variables. For non-corporate firms, being in a state with an exemption in the third category or the unlimited category, relative to the lowest category, is associated

with a significantly higher probability of being turned down for loans. However, for corporate firms, none of the exemption variables is statistically significant and the unlimited category variable has the wrong sign. Now consider the past bankruptcy filing variable. If a firm or its owner has previously filed for bankruptcy, then there is a significant increase in the probability of both types of firms being turned down.

Table 3 shows the effects of both a prior bankruptcy filing and the exemption variables on the predicted probabilities of firms being discouraged/denied. The predictions are evaluated assuming that both types of firms are family-owned, are not minority-owned, and have average values for the other right-hand-side variables. If a non-corporate firm is located in a state whose bankruptcy exemption is in the lowest category and the firm's owner has not previously filed for bankruptcy, then the probability of the firm being discouraged/denied is 0.19. This figure rises to about 0.30 if the firm is instead located in a state with an exemption in either the third category or the unlimited category. These results are striking and suggest that non-corporate firms located in states with high bankruptcy exemptions are much more likely to be credit rationed. For corporate firms, the base-case probability of being discouraged/denied is 0.20 and it does not change significantly when the bankruptcy exemption rises.

Now consider the effect of a previous bankruptcy filing. For non-corporate firms located in low-exemption states, the probability of being denied credit rises from .19 to .51 if the firm or its owner has previously filed for bankruptcy. For corporate firms located in low-exemption states, the increase is from 0.20 to 0.58. Thus, a prior bankruptcy filing raises the probability of firms being credit rationed by a factor of two to three.

For the most recent loan application, the NSSBF also asks the size of the loan that the lender offered, conditional on the loan being approved.[15] We ran an ordinary least-squares (OLS) regression explaining the size of the loan (in log form) for firms that received loans.[16] The independent variables in the regression are factors that affect the profitability of making a larger or smaller loan at the margin, rather than variables that have a fixed effect on the profitability of making the loan in the first place. We expect the coefficients of the regression to reflect a combination of supply and demand considerations. For the exemption variables, the predicted effect of a higher exemption for non-corporate firms is both to increase loan demand and to reduce loan supply. If we observe positive coefficients on the exemption variables in the second stage, then we can conclude that the positive effect on demand of an exemption increase more than offsets the negative effect on supply, and vice versa.

The results are shown in Table 4.[17] For non-corporate firms, the third category exemption variable has a negative sign and is statistically significant, while the highest category exemption variable is negative and marginally statistically significant (p = .076). These results suggest that the positive effect of a higher bankruptcy exemption on loan demand is more than offset by the negative effect of a higher bankruptcy exemption on loan supply. Lenders are not willing to accommodate the increased loan demand that results from higher bankruptcy exemptions, even for firms that they choose to lend to. Holding everything else constant, the size of the loan is predicted to decline by 90–100 percent if the firm is located in a state with a bankruptcy exemption in the top half of the distribution, compared to a state with a bankruptcy exemption in the bottom half of the distribution. For corporate firms, none of the exemption variables are statistically significant. Thus, in deciding on the amount of credit to offer, lenders offer less to non-corporate firms that are located in states with high bankruptcy exemptions, but offer the same amount to corporate firms regardless of the bankruptcy exemption level.

Finally, Table 5 gives the results of estimating reduced form OLS regressions explaining the interest rate on the most recent loan, for firms that received credit. For the corporate firms, all of the exemption variables have the predicted positive signs and the 3rd and 4th category exemption variables are statistically significant. The results suggest that corporate firms located in states whose bankruptcy exemptions are in the top half of the distribution pay interest rates that are 3344 basis points higher. However, for non-corporate firms, none of the exemption variables are significant and they have the wrong signs. Corporate firms whose owners have previously filed for bankruptcy pay significantly higher interest rates when they receive credit. The predicted increase in the interest rate is 136 basis points. However, for non-corporate firms, the previous bankruptcy variable is insignificant. Among the other variables, both types of firms pay significantly lower interest rates when the loan has a floating interest rate, and corporate firms pay significantly lower interest rates when they have higher profits.

To summarize, the results suggest that small firms' access to credit is reduced if they are located in states that have high personal bankruptcy exemptions, but the effects differ for corporate versus non-corporate firms. Non-corporate firms are more likely to be credit rationed and receive smaller loans, when credit is granted, if they are located in states with high bankruptcy exemptions. Corporate firms, in contrast, pay higher interest rates in states with high bankruptcy exemptions, but are not more likely to be credit rationed. Corporate firms pay 3344 additional basis points when they are located in states whose bankruptcy exemptions are in the top half of the distribution.

We also found that a past bankruptcy filing by the firm or its owner raises the probability of firms being credit rationed by a factor of two to three.

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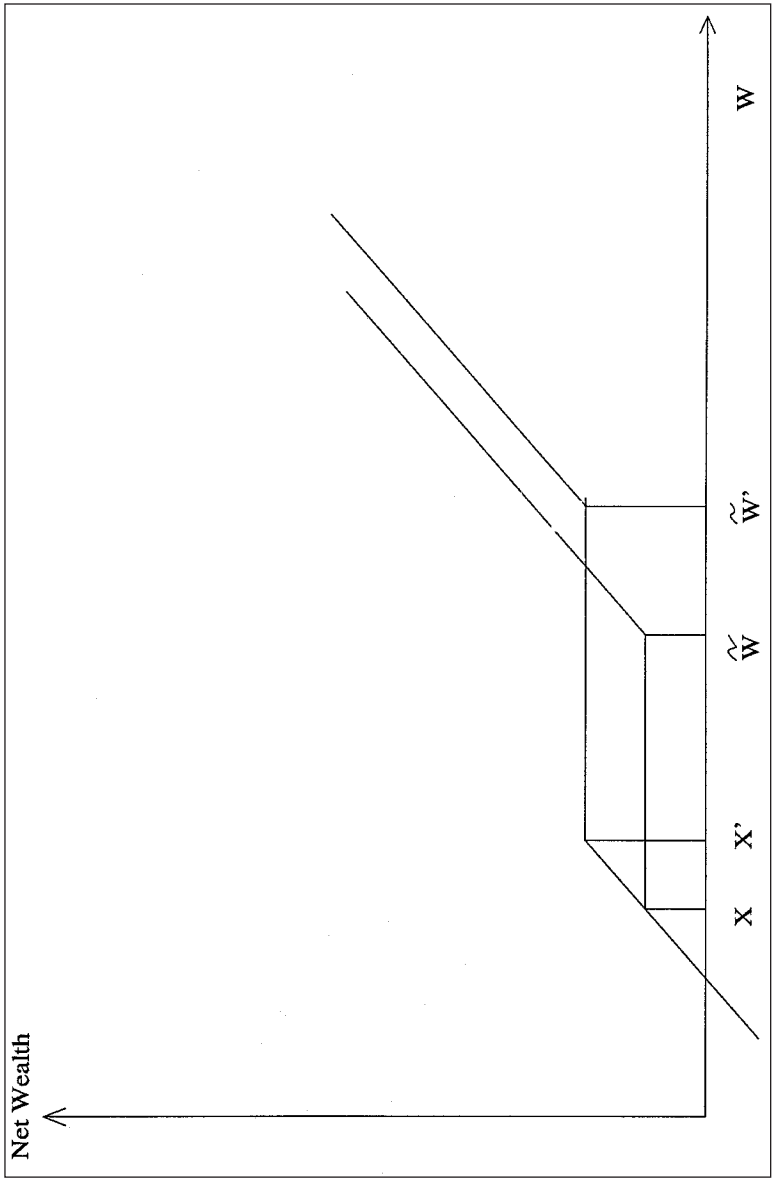

FIGURE 1

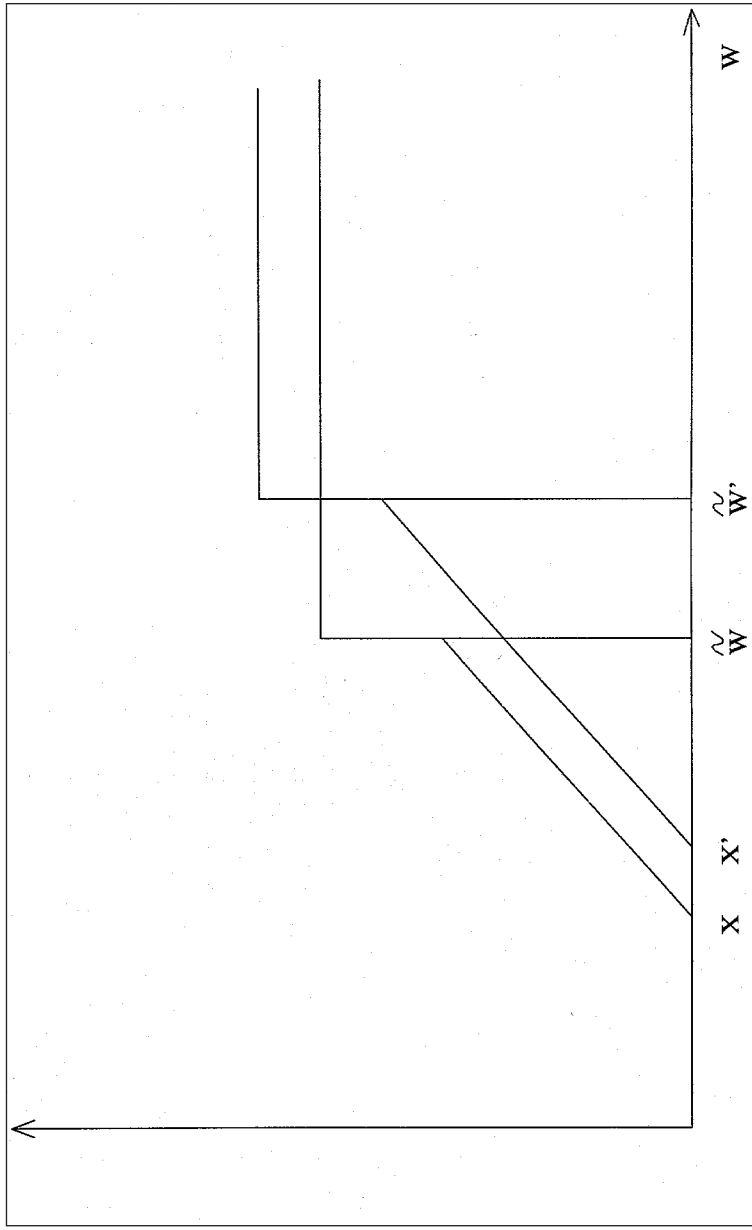

FIGURE 2

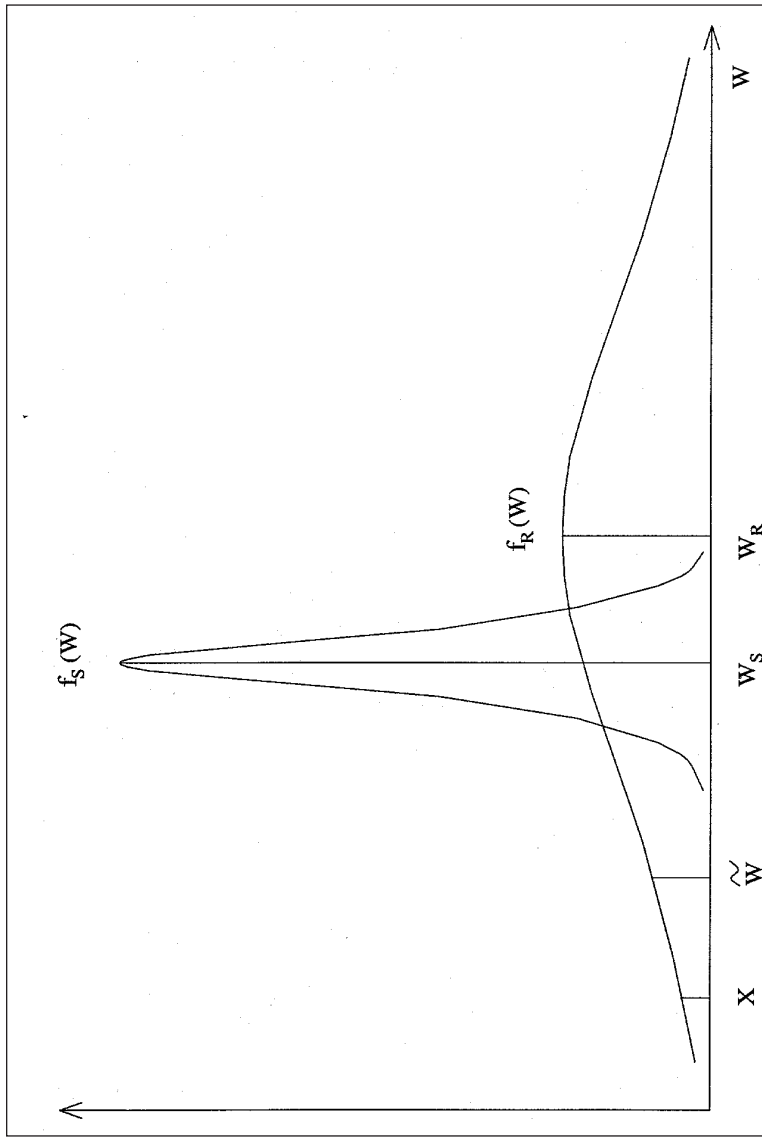

FIGURE 3

TABLE 1

Summary Statistics

Means and Standard Deviations

	Non-Corporate Firms	Corporate Firms
Discouraged/ denied	0.297 (.457)	0.285 (.451)
Bankruptcy exemption	$46,500	$40,500
Prior bankruptcy	0.0263 (.160)	0.0293 (0.169)
Total employment	8.75 (28.6)	46.7 (72.6)
Age of owner	49.2 (11.4)	50.6 (11.2)
Age of firm	14.1 (12.7)	16.1 (14.2)
If family owned	0.904 (.295)	0.753 (0.431)
If minority owned	0.214 (.410)	0.139 (0.345)
Profit/interest	13.6 (29.5)	15.8 (32.0)
Profit	$69,700 (304,600)	$238,000 (600,700)
Debt/assets	0.580 (.831)	0.717 (1-61)
Sales growth	12.4 (361)	2.09 (33.9)
If mortgage from owner	0.094 (0.292)	0.091 (0.288)
If loan from owner	0.0317 (0.175)	0.334 (0.472)
If personal coll.	0.121 (.327)	0.288 (0.453)
If bus. coll.	0.131 (.337)	0.308 (0.462)
If floating rate	0.104 (.305)	0.288 (.453)
If lender is bank	0.300 (.458)	0.505 (.500)
Number of lenders	0.0418 (.297)	0.208 (0.766)
Years of relationship with bank	9.92 (8.33)	10.9 (9.17)
If checking/ savings acct. with bank	0.875 (.331)	0.857 (0.350)
If info. services with bank	0.191 (.393)	0.343 (0.475)
High HHI Log loan demand	0.513 (0.500)	0.474 (0.499)
Log loan demand	3.23 (4.94)	6.32 (6.20)
Average loan size if offered	$611,000 (4.3 million)	$1.33 million (4.97 million)
Interest rate on most recent loan	9.16 (2.78)	8.21 (1.95)

TABLE 2

Results of Logit Regressions Explaining Whether Firms are Discouraged / Denied

	Non-Corporate Firms		Corporate Firms	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Intercept	0.152	(1.48)	1.55	(0,718)
Bankruptcy exemption				
2nd category	0.279	(0.169)	0.176	(0.122)
3rd category	0.411*	(0.160)	0.078	(0.132)
Unlimited	0.326*	(0.171)	-0.155	(0.137)
Prior bankruptcy	1.49*	(0.351)	1.73*	(0.282)
Total employment	0.000854	(0.00246)	-117	(0.00831)
Age of owner	-0.0170*	(0.00609)	-0.0179*	(0.00486)
Age of firm	-0.00644	(0.00794)	0.00229	(0.00466)
If family owned	0.600*	(0.239)	0.178	(0.110)
If minority owned	0.930*	(0.131)	0.850*	(0.129)
Profit	-0.00019	(0.00024)	-0.00046*	(0.00011)
Profit/interest	0.00112	(0.00905)	-0.00452	(0.00514)
Debt/assets	0.205*	(0.0812)	0.332*	(0.0746)
Sales growth	-0.00041	(0.00094)	-0.00194	(0.0668)
If personal collateral	0.201	(0.431)	1.10*	(0.314)
If business collateral	-0.444	(0.350)	0.152	(0.204)
If loan from owner	0.752*	(0.315)	0.789'	(0.0972)
If mortgage from owner	0.268	(0.189)	0.531*	(0.156)
If lender is bank	-0.53	(1.13)	-1.64*	(0.678)
Number of lenders	0.246	(0.185)	0.0512	(0.619)
Years of relationship with bank	-0.0264-	(0.0107)	-0.0360'	(0.00788)
If checking/sav. Acct. with bank	-0.465*	(0.205)	-0.500*	(0.168)
If info. services with bank	0.191	(0.140)	-0.0714	(0.103)
High HHI	-0.133	(0.115)	-0.149	(0.947)

TABLE 3

Predicted Effects of Changes in Bankruptcy Variables on the Probability of Firms Being Credit Rationed (Discouraged / Denied)

	No prior bankruptcy		If prior bankruptcy	
	Non-corp.	Corp.	Non-corp.	Corp.
Lowest exemption category	0.19	0.20	0.51	0.58
Third exemption category	0.31	0.21	0.61	0.60
Unlimited exemption	0.29	0.17	0.59	0.54

TABLE 4

OLS Model Explaining Loan Size (in logs)

	Non-Corporate Firms		Corporate Firms	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Intercept	7.87	1.47	9.44	0.771
Bankruptcy exemption				
2nd category	-0.0259	0.522	-0.255	0.278
3rd category	-1.09*	0.536	0.298	0.305
Unlimited	-0.949	0.534	-0.163	0.303
Prior bankruptcy	-2.14	1.350	-2.31*	0.641
Total employment	0.0229*	0.00610	0.0126*	0.00153
Profit/interest	-0.0133	0.01300	0.000551	0.00195
Profit	0.00000607	0.00051	0.00104*	0.00017
Debt/assets	-0.0577	0.173	-0.273*	0.127
Sales growth	-0.000049	0.000	-0.000755	0.003
If pers. collateral	-0.731	1.17000	-1.75*	0.617
If bus. collateral	0.718	0.79000	0.605	0.388
If lender is bank	-0.146	0.8740	0.270	0.481
Number of lenders	0.490	0.47400	-0.175	0.117
Years of relationship with bank	0.0169	0.0291	-0.00107	0.0154
If check/sav. Acct. with bank	0.684	0.439	-0.240	0.293
If info. Services with bank	-0.103	0.486	0.966	0.250
High HHI	-0.069	0.0644	-0.118	0.0764

TABLE 5

Results of OLS Regressions Explaining the Interest Rates on Loans Supplied

	Non-Corporate Firms		Corporate Firms	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Intercept	10.2	0.407	8.49	0.155
Bankruptcy exemption				
2nd category	-0.546	0.441	0.00673	0.154
3rd category	-0.804	0.484	0.444*	0.168
Unlimited	-0.422	0.462	0.338*	0.164
Prior bankruptcy	-0.932	1.36	1.36*	0.399
Profit/interest	-0.0519	0.101	0.000694	0.000866
Profit	-0.000271	0.000331	-0.000232*	0.0000852
Sales growth	0.000372	0.00144	0.00179	0.00129
If floating rate	-0.739*	0.352	-0.455*	0.125
If checking/saving acct. with bank	0.363	0.369	-0.0893	0.143
If info.-services with bank	0.163	0.432	-0.0569	0.134
If pers. collateral	-0.0404	0.991	-0.257	0.352
If bus. collateral	0.211	1.59	-0.176	0.373

Notes

[1] Under the 1978 Code, Congress adopted a uniform set of bankruptcy exemption levels, but allowed the states to opt out by adopting their own exemptions. All states adopted their own exemption levels by the early 1980s. About one-third of the states allow their residents to choose between the uniform Federal exemption and the state's exemption.

[2] Other theoretical models include Bester (1994), which predicts that firms are less likely to default when loans are collateralized, and Hart and Moore (1989), which predicts that firms are more likely to default when they have a single creditor rather than multiple creditors and when the liquidation value of the firm's assets is lower. We would have liked to test these predictions, but our data on firm default/bankruptcy refers to a default anytime during the seven years prior to the survey, while our data on other firm characteristics is for the time of the survey only. Thus our paper focuses on the effects of bankruptcy exemptions on credit supply and demand, rather than their effects on the default decision.

[3] By assuming that states have a single exemption for all types of wealth, we implicitly assume that debtors can shift assets costlessly among different types of assets. See White (1998a) for discussion of various methods that debtors often use to do so.

[4] Whenever owner defaults on repaying the loan, she is assumed here to file for bankruptcy. See White (1998b) for a model in which debtors default but do not file for bankruptcy.

[5] There is an optimal bankruptcy exemption level. If the exemption level is greater than the optimal level, then further increases in the exemption level make borrowers worse rather than better off.

[6] When either of the bankruptcy cost terms C_b or C_1 increase, lenders cease lending at lower bankruptcy exemption levels. Longhofer (1997) explores an extension of the model in which entrepreneurs apply to borrow different amounts because their equity in the project varies, but all entrepreneurs have the same *ex ante* distribution of returns f (W). Under these assumptions, he shows that lenders are more likely to ration credit to entrepreneurs who apply for larger loans.

[7] The classic model of credit rationing under asymmetric information is Stiglitz and Weiss (1981).

[8] See our working paper, Berkowitz and White (1999), for an extension of the model which distinguishes between homestead exemptions and other types of exemptions and considers how each type of exemption affects small firms' access to credit.

[9] See Cole and Wolken (1995) for a description of the NSSBF. We use the internal version of the dataset, which identifies the state in which the firm is located.

[10] Following Petersen and Rajanm (1994), we truncate sales growth and the ratio of profits to interest at the 95% level.

[11] Gordon and Mackie-Mason (1994) argue that firms have tax incentives to choose corporate versus non-corporate form, which implies that the two types of firms may differ systematically. In particular, owners of money-losing firms have an incentive to choose non-corporate status so that the firm's losses can be deducted against other income of the owner; while owners of profitable firms have an incentive to choose corporate form in order to take advantage of

corporate tax rates that tend to be lower than the top individual tax rate. Thus choice of organizational form may signal the firm's profit level. However because we control for individual firms' profit levels, we do not expect the choice of organizational form to bias our results for the effects of bankruptcy exemption levels.

[12] Variables such as the number of years that the firm and the lender have had a relationship are defined for the firm's primary lender.

[13] The dummy variable for a high Herfindahl index equals one if HHI ≥ 1800.

[14] We did not use weights in the regressions. The NSSBF oversamples firms with more than 200 employees, but 97 percent of the sample consists of firms with fewer than 200 employees.

[15] The NSSBF actually asks how much the firm applied for and how much the lender offered. In theory, these separate measures might allow us to separately observe a demand curve from the former and a supply curve from the latter. However, in practice, the two variables are extremely closely related, with a correlation coefficient of 0.994. Presumably, firms apply for the amount of credit that they expect lenders are likely to grant and lenders may tell borrowers in advance how much they are willing to lend.

[16] In our working paper, we correct for selection into the group of firms that received credit.

[17] Because of missing information, sample sizes in Tables 4 and 5 are much smaller than in Table 2 and the results are therefore less reliable.

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A Comparison of Small Business Finance in Two Chicago Minority Neighborhoods

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A better understanding of small business finance in ethnic communities is important because the availability of capital may depend, in part, on ethnic differences in the use of informal financing (such as loans or gifts from family, friends, or business associates) as well as formal financing from financial institutions. This article reports some findings from surveys of small business finance undertaken in a predominantly Hispanic community and a predominantly Black community.

We find that Black owners start their businesses with significantly less capital than Hispanic owners, even after controlling for industry type and various measures of the owner's human capital. The Black-Hispanic gap in total start-up funding is due to differences in the use of non-personal sources of funding rather than disparities in the amount of personal savings put up by the owner. Black owners are much less likely to owe their suppliers than owners in the other ethnic groups. This is so, in part, because Black owners are less likely to be offered credit by their suppliers, and also because they are less likely to use trade credit if it is offered.

Introduction and Summary

Chicago is enlivened by the presence of many ethnic neighborhoods, which are reflected in the city's small business scene. This variety makes Chicago an excellent location for studying small business finance in ethnic communities. This is an important topic because the availability of capital may depend, in part, on ethnic differences in factors such as

The views presented in this paper are those of the authors and do not necessarily reflect those of the Federal Reserve Bank of Chicago or of the Federal Reserve System. This project was originally funded by the Center for the Study of Urban Inequality of the University of Chicago, with Richard Taub, Marta Tienda, and Robert Townsend as principal investigators, and is cosponsored by the University of Chicago and the Federal Reserve Bank of Chicago. The authors thank Dan Aaronson, David Marshall, and Alicia Williams for helpful comments on an earlier draft.

the use of informal financing and access to ethnic networks. Despite the importance of these issues, we still have much to learn about business access to capital in an ethnic setting. In order to shed some light on these matters, the Federal Reserve Bank of Chicago and researchers from the University of Chicago cooperated in conducting surveys in Little Village, a predominantly Hispanic community, and Chatham, which is predominantly Black. These communities were chosen as the sites of these studies because they are distinct and well-recognized ethnic neighborhoods with viable small business sectors. Although the bulk of the owners interviewed are either Black or Hispanic, other ethnic groups are represented. One of the important features of the surveys is that they are designed to shed light on informal sources of financing, such as loans or gifts from family and friends, as well as formal sources of funds for both households and businesses.

One reason small business access to capital is an important policy issue is because business owners may face funding limits, known to economists as liquidity constraints. Although many observers might take funding limits as self evident, studies have provided evidence that liquidity constraints affect entrepreneurs both upon start-up and after the business is underway.[1] These constraints deter entry into self-employment and force would-be owners to save for longer periods before launching a business. The effects of start-up constraints extend to ongoing businesses, as starting with more capital increases an owner's prospects for survival and growth.[2] Thus, the ultimate success of an entrepreneur will depend, in part, on how successful he/she is in solving the problem of obtaining adequate capital and credit.

The provision of loan guarantees and other programs by the U.S. Small Business Administration are examples of government policies aimed at increasing access to credit for small businesses. Considering access to capital and credit across neighborhoods and across ethnic and racial groups raises other policy issues. Owning a successful business builds personal wealth, and self-employment historically has been an important means for raising the economic status of some ethnic groups. Promoting the success of small business is an important part of community economic development strategies, particularly for minority neighborhoods that have suffered from disinvestment. The purpose of the Community Reinvestment Act is to encourage depository institutions to help meet the credit needs, including the needs of small businesses, of the communities in which they operate, consistent with sound banking practices. The effect of racial discrimination on access to capital for minority business owners and neighborhoods is an important issue. Discrimination in small business lending has been little studied in comparison with empirical studies of discrimination in residential mortgage markets.[3]

In practice, owners meet the challenge of obtaining capital to start and run their businesses by using informal sources of capital, such as family, friends, and business associates, as well as personal assets and loans from formal sources. Informal financing via networks can thus substitute for borrowing in the formal sector, either because formal credit is not offered or because informal financing is preferred. Credit offered by a supplier, which is known as trade credit, is another source of financing that is an alternative to borrowing from financial institutions. Businesses also form networks with their suppliers, and there may be an ethnic dimension to these networks, in that the ethnicity of the supplier may matter for some transactions.

The main contribution of this paper is to provide some facts concerning the use of formal and informal sources of financing. We confirm the importance of personal savings and informal sources of credit in meeting the need for start-up funding. There are pronounced ethnic differences in the amount of start-up funding used by businesses in the sample. In particular, we find that Black owners start their businesses with significantly less capital than Hispanic owners. This difference persists after controlling for industry types and various measures of human capital. The Black-Hispanic gap in total start-up funding is due to differences in the use of non-personal sources of funding rather than disparities in the amount of personal savings put up by the owner.

Turning to the use of trade credit, the most striking finding is that Black owners are much less likely to owe their suppliers than owners in the other ethnic groups. This is so, in part, because Black owners are less likely to be offered credit by their suppliers, and also because they are less likely to use trade credit if it is offered. Trade credit can be a relatively expensive source of ongoing credit, and it is not clear whether using less trade credit indicates a constraint or lack of need. However, being offered credit by a supplier, whether or not it is used, is clearly desirable as a potential source of funds. We find that comparing the ethnicity of owners and their suppliers does not explain ethnic differences in the use of trade credit.

If these results prove to hold beyond these neighborhoods, the findings have wide implications for our understanding of ethnic differences in business survival and growth, the decision to enter self-employment, and income and wealth accumulation. The importance of informal sources of funding suggests that this type of funding has some features that meet the needs of small businesses in these communities. Informal funding may be more flexible and better suited to providing relatively modest amounts of capital compared to the formal sector. However, an important advantage of formal credit institutions is their ability to efficiently mobilize large amounts of capital. Recognition of the strengths of both informal and formal sources of

financing should be a part of programs and policies aimed at encouraging the flow of capital to small businesses.

Before turning to the empirical results, the next section briefly discusses some of the theoretical issues involved in understanding the use of formal and informal sources of capital and credit. One benefit of the Little Village and Chatham studies is the provision of facts that may better inform the process of building more useful theoretical models of financial intermediation. Measurement of the use and nature of informal networks is particularly important because, as discussed below, the theoretical treatment of informal financing is still in its infancy.

Theoretical Overview

Why do individuals borrow or save to go into business?

In a world with perfect information, completely specifiable and enforceable contracts, and without transactions costs, then borrowing, lending, and insurance contracts essentially allow a separation of household consumption and saving decisions from occupational choice and investment decisions. That is, a potential business entrant would evaluate present and future profitability, buy options against future contingencies, and convert income streams into a single present value number. That number when compared to alternatives will determine for the individual which occupation, technology, or type of enterprise to take up, if any. That number plus existing wealth will determine in turn household consumption/saving decisions. These two types of decisions are separate from one another. In practice, household consumption/saving decisions and occupation and business investment decisions seem inter-related, very much so in the present study. We are then left to imagine the reasons why.

One branch of existing theory argues that credit contracts for business start-ups and ongoing financing are very much limited. In some instances, it is imagined that there are no credit possibilities at all, in which case start-ups and operations are limited to accumulated saving and past profitability and also to own educational investments and experience. See Bernhardt and Lloyd-Ellis (1993). In other instances, acquisition of some credit is possible, but there are limits, for example, to some multiple of accumulated wealth or available collateral, as in the use of personal collateral or trade credit backed by the goods supplied. See Evans and Jovanovic (1989), and Hart and Moore (1997).

More recent efforts attempt to describe in greater detail how credit markets function and to make explicit the impediments to exchange that limit the amount or type of credit available. One effort

emphasizes moral hazard problems, that repayment of principal and interest in times of stress leave the household with little or no liquidity. Essentially the lender, e.g., a bank, takes so much of project returns away from the borrower/entrepreneur that it is not worthwhile for the borrower/entrepreneur to work hard or exercise appropriate diligence. Yet, the rational lender can figure all this out, and with ultimate profitability in doubt, will lend even less, if not nothing at all. Those who do manage to borrow, or those relying exclusively on savings, may choose to operate technologies or choose business types with lower variance but lower mean returns. For example, see Stiglitz and Weiss (1981), Morduch (1990), and Lehnert, Ligon, and Townsend (1999).

Another recent effort identifies willingness to repay as the potential problem. In this scenario, credit and insurance markets might seem to operate well over the realizations of a broad range of economic and social risk factors. But, ironically, the temptation to renege when a business does well would limit credit overall. See Kehoe and Levine (1996) and Ligon, Thomas, and Worrall (1997).

These kinds of obstacles to the smooth operation of credit markets clearly can make a difference for occupational choice. Yet, the story doesn't stop there. Limited entry can mean that successful entrants accrue unusually large profits. Some will reinvest those profits in their businesses. They were, after all, relatively underfinanced in the first place. The economy-wide capital stock will grow. Others may be stuck in low-wage labor markets, sometimes, ironically, as employees of the small business enterprises themselves. This can be a nontrivial source of economy-wide employment. We might, thus, see growth with increasing inequality, even within ethnically homogenous communities. The degree of inequality and its changes, the overall rate of growth, and the level of employment are all functions of the nature of the credit markets. Put differently, improvements in credit markets, if possible, can have beneficial implications for growth, employment, and the distribution of income. See Lehnert (1998).

Why does intermediation arise and how do we distinguish formal intermediaries from informal networks?

It is by no means obvious why institutions arise that specialize in the provision of lending and other insurance services. In a world of perfect information, individuals would simply write contracts directly with each other. Theories of intermediation typically depend on information being available only at a cost: intermediaries arise either because they minimize the amount of information production (that is, not all individuals need to do it) or because they have lower costs of intermediation production than other agents. Key papers in this field include Diamond (1984), and Boyd and Prescott (1986). However, the first two force a formal structure on the intermediary by allowing, at most, one

central point of information collection per intermediary, and the last does not distinguish convincingly between a formal structure and an informal network linking individuals. See Bond (1998). In summary, there are no established theoretical reasons for supposing that when intermediation exists it will take the form of a formal institution.

Recent work attempts to remedy that deficiency. The idea is to model networks as groups of households or businesses that have some natural or acquired advantage in dealing with one another relative to a formal financial intermediary. Some of these models emphasize a priori selection, that is, individual joint liability for loans would screen out bad apples, or individuals choose to link to others from whom they can learn. See Rai (1996), Murphy and Becker (1994), Ghatak (1998), and Varian (1990). Other models emphasize better internal risk contingencies, better information on project returns or underlying effort, better internal enforcement of implicit or explicit agreements, or some combination of the three. See Prescott and Townsend (1996), Holmstrom and Milgrom (1990), and Itoh (1991).

We are only beginning to understand from theory how networks might operate, but it seems clear that networks can be important for the welfare of their members. Networks can be important alternatives for more formal and more distant institutions. Another possibility is suggested by theory: Institutions can lend in an evident, measurable way to a handful of individuals, yet as network members, the intermediary and its funds now make their way to the larger community. These theories do suggest the importance of measurement, specifically measurement of the use and nature of networks.

Neighborhood and Survey Description

Little Village is a predominantly Hispanic area, mostly of Mexican origin, on the southwest side of Chicago with a population of 81,155 persons and a median family income of $23,259, as of the 1990 census. Substantial numbers of Hispanics migrated into the community beginning in the 1960s and the area became predominantly Hispanic in the ‘70s. Chatham is a mostly Black community on the south side of Chicago with a 1990 population of 36,779 persons and a median family income of $29,258. Chatham became predominantly Black during the 1950s (Chicago Fact Book Consortium, 1995).

The household and business survey instruments were developed for the Little Village study and were adapted with very minor modifications for the Chatham project.[4] In both communities, the survey universe was constructed by canvassing and enumerating all identifiable existing businesses. A stratified random sample was then drawn. In Little Village, relatively common businesses were drawn at a rate of 35 percent, relatively uncommon business were drawn at a rate of 100

percent, and all other businesses were drawn at a rate of 50 percent. Relatively common businesses in Chatham were drawn at a rate of 22.5 percent, and all other businesses were drawn at a rate of 45 percent. Relatively common businesses in Little Village include eating and drinking places, auto repair shops, and hair salons. Relatively uncommon businesses include bridal shops, bakeries, iron works, and factories. Common businesses in Chatham include eating places and hair salons. In both surveys, medical and legal professionals were excluded from the sample, on the grounds that the educational requirements for these fields result in entrance and financing decisions that have little in common with those of other small businesses. Field staff, bilingual in the case of Little Village, then contacted the businesses in the selected samples for an interview that required about one-and-a-half hours. The fieldwork resulted in response rates of 70 percent for Little Village and 57 percent for Chatham. About one-third of all enumerated businesses were interviewed in Little Village, and the corresponding figure for Chatham is about one-quarter.[5]

Business and Owner Characteristics

The types of businesses by ethnic groups are shown in Table 1. Asian owners are primarily Korean, and the Other category is made up of Arabs and individuals from India and Pakistan.[6] As an example of how Table 1 is organized, the first entry in the "All" column tells us that 5.3 percent of all the businesses are in the manufacturing and wholesale category. For all ethnic groups combined, the bulk of the firms fall into some variety of the retail or service sector. Within groups, Black owners have a relative concentration in the service sector. Manufacturing firms are more common for White owners than for other groups, and Asians have a marked concentration in other retail. Hispanic firms are relatively balanced across the industry types, as no one category contains more than 25 percent of the total. Franchises are relatively uncommon and make up 5.8 percent of the entire sample. The average age of the current business for all groups is about 9 years, and we see that firms owned by Blacks (13 years) and Whites (16 years) tend to be older than the firms in the remaining groups. Most of these firms employ relatively few workers, as the average number of employees for all groups is only 4.5 workers. White-owned firms, and to a lesser extent Black-owned firms, tend to employ relatively more workers on average than those in the other groups.

Some selected demographic and human capital variables for the owners are shown in Table 2. The average firm owner for all groups together is about 47 years old, and Black and White owners tend to be a bit older than owners in the remaining groups. About one-third of all owners are women, and Hispanic, and especially Black owners are

more likely to be women. The majority of the business owners are married, 72 percent overall, and Black proprietors are somewhat less likely to be married than those in the other groups.

Overall, the bulk of the firm owners are at least high school graduates, and about one-third of them have a college degree. However, educational attainment varies across the racial/ethnic groups. The proportion of Hispanics in the sample who do not have a high school degree (42.5 percent) is over twice as high as the corresponding proportion for Blacks (18.1 percent), the group with the next highest figure. Hispanic owners (18.8 percent) are least likely to have a college degree, and Black owners (34.9 percent) are less likely to have a college degree than proprietors in the remaining groups. Hispanic owners (71.2 percent) are less likely to be moderately or extremely proficient in English than the Asian (89.7 percent) and Other groups (91.1 percent). Finally, an appreciable proportion of the entrepreneurs owned a business previous to the current firm. This proportion ranges from 25.7 percent for Blacks to 51.0 percent for Asians.

For comparison, some selected figures from the 1992 Characteristics of Business Owners (CBO) Survey, a national survey produced by the Bureau of the Census, are reported in Table 3. Note that the CBO Survey and the Little Village and Chatham surveys must be compared keeping in mind differences in survey design. One important difference is that the CBO Survey was drawn on the basis of tax returns and thus includes home-based businesses, which are not included in the results reported for the Little Village and Chatham neighborhood surveys. Another difference is that legal and medical services were excluded from the neighborhood surveys. Finally, because of the way the CBO Survey data are categorized, Table 3 reports figures for Black, Hispanic, Asian, Native American, and White men.

A comparison of Tables 1, 2, and 3 shows that retail businesses are much more common in the Little Village and Chatham surveys than in the CBO Survey. This may well be due to the inclusion of home-based businesses, which are unlikely to be retail, in the CBO Survey. Franchise businesses are relatively uncommon, although they are somewhat more common in the neighborhood sample (5.8 percent) compared to the CBO sample (3.1). The proportion of owners who are married is roughly comparable across the surveys, although it is somewhat higher in the CBO Survey (77.7 percent) compared to the neighborhood surveys (72.0 percent). Hispanic owners in Little Village have less education relative to Hispanics in the CBO Survey. In Little Village, 40.6 percent do not have at least a high school degree, compared to 27.2 percent for the CBO Survey, and the proportions with high school and college degrees are correspondingly lower in Little Village. We see the opposite pattern for Blacks, as Black owners in Chatham are more likely to have a college degree or beyond (34.9

percent) compared to the CBO sample (26.7 percent). Finally, owners in each of the ethnic groups in Little Village and Chatham are substantially more likely to have previously owned a business compared to owners in the CBO sample.

Ethnic Differences in Start-Up Financing

An important result of this section is that Hispanic- and especially Black-owned firms have lower levels of total start-up financing compared to firms owned by individuals in the other racial / ethnic groups.[7] Some evidence for this result can be seen in Table 4, which presents some descriptive statistics for total start-up funds. We see that the mean amounts are much higher than the medians, indicating that a few businesses with large amounts of start-up funding are pulling the mean away from the median. Thus, a comparison of mean amounts would put a great deal of weight on a few observations with large dollar amounts. This problem can be avoided by recognizing that start-up funding follows an approximately log-normal distribution. Accordingly, the means of the natural logarithm of start-up costs after conversion to dollar amounts are reported in Table 4, and we will focus on this measure of average funding in the following discussion. Comparing the means of logged start-up funds converted to dollars, we see that the average start-up funding for this sample was fairly modest at $14,737. Further, the amount of start-up funds varies widely by ethnic group. Firms owned by Hispanics ($13,164) and Blacks ($10,812) start with lower amounts of start-up funds on average than the remaining groups.[8]

The table also shows that the distinction between firms that have been started from scratch and those that were bought or acquired by the current owner may be important. We see that the average level of start-up funding for owners of all ethnic groups that started their business from scratch was only $10,743 compared to $27,340 for firms that were bought or acquired. This gap is also seen for all of the ethnic groups taken individually. The ethnic differences noted above are also apparent for start-up funding when the distinction is made between started versus bought or acquired, as Hispanic- and Black-owned firms have lower levels of funding. Focusing on the differences between Hispanic- and Black-owned firms, we see that Black owners start their businesses with about 25 percent less funding than Hispanic owners. This difference holds for both businesses that were started from scratch and for those that were bought or acquired.[9]

These results are interesting but incomplete in that other factors beyond ethnicity may affect the level of start-up funding. For example, a grocery store with a requirement for an extensive stock of inventory on the shelves will likely require more start-up funding than a firm that

provides a service largely based on the human capital embodied in the owner and key employees. The next step is to control for some differences in demographics, human capital, and industry type in a multivariate setting to see what ethnic differences emerge.[10]

Industry types are represented by a number of industry indicator variables ranging from manufacturing and wholesaling to business and personal services. These variables proxy for systematic differences in the required levels of start-up costs across industries.[11] The ease with which business assets acquired at start-up may be used for collateral may also vary by industry type, which might affect the amount of start-up capital that can be obtained. The skills, abilities, and training that an owner possesses when starting a business, often called human capital, might account for some differences in start-up funding. We might expect that more qualified entrepreneurs, all else equal, would be able to attract more funding. The personal wealth available to an individual to start a business would also depend, in part, on his/her human capital. A business owner's human capital is proxied for by variables including education, English proficiency, previous experience owning a business, and age at start-up. A variable that measures how long ago the owner started the business is included to account for the possibility that there has been a shift over time in the level of start-up costs.[12] The indicator variables for ethnicity and gender capture ethnic and gender differences not due to the industry and human capital variables.

The ordinary least square (OLS) regression results for logged total start-up costs for firms that were started from scratch are reported in Table 5. We focus first on the coefficients for the ethnic indicator variables. In order to illustrate the economic effect of the coefficients, we calculate estimated levels of start-up funding for each ethnic group using the following baseline characteristics: eating/drinking place, high school education, proficient in English, no previous experience as an owner, age 37 years, male, business started 12 years ago. For example, the estimated start-up costs for a Hispanic owner with these baseline characteristics are $20,414 and represent start-up funding for a Hispanic owner with the baseline characteristics.[13]

The same sort of calculation can be made for business owners in the other ethnic groups. The estimated start-up costs for owners with the baseline characteristics are $11,104 for Blacks; $54,564 for Whites; $26,921 for Asians; and $30,479 for Others.[14] Thus, a Black owner with the baseline characteristics starts his/her business with an estimated start-up funding that is 46 percent less than a comparable Hispanic owner. A White owner with the baseline characteristics starts with 167 percent more funding than a comparable Hispanic owner, an Asian owner starts with 32 percent more, and an owner in the Other category starts with 49 percent more.[15] These results show that the raw differences in start-up funding shown in Table 4 are still present after accounting for industry

type and several measures of human capital. These ethnic differences are all economically large, but note that Table 5 shows the differences between Hispanic and White, Asian, and Other owners are not statistically significant at conventional significance levels.[16]

The regression results in Table 5 also show that women, owners who do not have a high school degree, and owners who lack proficiency in English have lower start-up costs, whereas those who previously owned another business start the current business with more funds. For the purpose of comparing the economic importance of these differences, note that the coefficient estimates for all these effects (ranging from 0.57 to 0.70 in absolute value) are roughly comparable to the difference between Hispanic and Black owners. Thus, the differences in the estimated dollar amount of start-up costs due to these factors would be roughly comparable to the Hispanic-Black difference discussed above.

The OLS regression results for logged total start-up costs for businesses that were bought or acquired are reported in Table 6. We again use the regression results to illustrate ethnic differences by calculating estimated start-up costs of $23,119 for a Hispanic owner with the same baseline characteristics as above. The estimated start-up costs for an owner with the baseline characteristics are $10,091 for Blacks, $43,792 for Whites, $50,474 for Asians, and $34,168 for Others. Thus, a Black owner with the baseline characteristics starts his/her business with an estimated start-up funding that is 56 percent less than a comparable Hispanic owner. By comparison, a White owner starts with 89 percent more funding than a comparable Hispanic owner, an Asian owner starts with 118 percent more, and an owner in the Other category starts with 48 percent more. Again, we see that the raw differences in start-up funding for acquired firms shown in Table 4 remain after accounting for industry type and several measures of human capital. These ethnic differences are all economically large, but note that Table 6 shows that the differences between Hispanic and White, Asian, and Other owners are not statistically significant at conventional significance levels.[17]

The regression results in Table 6 also show that owners with a college degree bought or acquired their businesses with more start-up funding than the baseline owner, and owners who lack proficiency in English begin with less funding.[18] It is interesting to note that the regression results for bought or acquired businesses show higher start-up funding for college graduates, which was not the case for businesses started from scratch. These results also differ from those for businesses started by the owner in that they show no funding disadvantage for women who bought their businesses.[19]

In order to explore the ethnic differences noted above, we look at the sources of start-up funding used by owners in starting their businesses. The sources listed in the survey have been aggregated into the

following four categories. Personal savings are provided by the entrepreneur from his/her personal resources. Informal funding includes loans, gifts, or equity from family, friends, or business associates. Loans from financial institutions make up the formal financing category, and miscellaneous sources, including trade credit, are included in an other sources category.

We analyze the amount of funding provided by personal savings in a similar fashion to the analysis of total start-up costs discussed above. That is, ethnicity, industry types, and a number of human capital variables are included in a regression analysis. The results of these regressions, not reported here, show that the difference between personal funding provided by Black and Hispanic owners is small and statistically insignificant both for businesses that were started from scratch and for businesses that were bought or acquired.[20] In addition, these results provide no evidence that Black and Hispanic owners used significantly less personal funding than owners in the other ethnic groups.[21] The results of similar regressions on the level of start-up funding provided by the sum of sources other than personal savings show that Black owners began their businesses with less non-personal funding than Hispanic owners.[22]

Up to this point we have discussed results for the levels of total start-up costs and personal funding. We now turn to the proportion of total funding from each source in order to get a view that complements that provided by levels. The proportion of start-up funding provided by each source was calculated for each individual owner. The average proportions were then calculated and reported in Table 7. These average proportions sum to 100 percent down each column category. For example, the first entry in the table shows that personal savings, on average, is the most important source of funding, as 64.0 percent of total funding for all enterprises together fall into this category. There are marked ethnic differences in the proportional use of personal savings, as Hispanic, Black, and Asian owners tend to depend more on personal savings. The importance of personal savings can be emphasized by noting that 55 percent of Black owners, 51 percent of Hispanic owners, and 45 percent of Asian owners started their businesses using only personal savings. By comparison, 36 percent of Other owners and 19 percent of White owners depended solely on personal savings.

As reported in Table 7, informal financing is the second most important source of funding at 18.9 percent for all firms. Black and Hispanic owners depend less on informal financing than owners in the other ethnic categories. Formal financing from banks and other formal lenders at 10.5 percent for all firms is less important, on average, than personal and informal funding, except for White owners. Formal financing accounts for a relatively high proportion of funding

for White and Other owners. The last funding category, other, is the least important for all firms at 6.5 percent. It is also the least important for most ethnic groups except for Hispanics and Asians, for whom formal financing provides the smallest proportion of start-up funding.

Focusing on Black and Hispanic differences, Table 7 shows that Black owners began their businesses with a somewhat higher proportion of start-up funding from personal resources (69.6 percent) than Hispanic owners (66.0 percent). Black-owned businesses were begun with a lower proportion of start-up funding from informal sources (14.9 percent) than Hispanic-owned businesses (19.0 percent).[23] Black owners also began business with a lower proportion of funding from other sources (3.5 percent) than Hispanic owners (7.4 percent). However, the average proportion of formal funding for Black-owned businesses (12.1 percent) is higher than that of Hispanic-owned businesses (7.2 percent).[24]

How does this evidence relate to the regression results that Black owners began their businesses with less funding than Hispanic owners, both for businesses that were started from scratch and for businesses that were bought or acquired? Regression analysis of the funding from personal savings shows that Black and Hispanic owners used similar amounts of personal savings to start their businesses. Since the total is the sum of the parts, this suggests that we must look elsewhere to explain the gap in start-up funding. The remaining sources of funding beyond personal savings are informal, formal, and other sources. Unfortunately, the sample size and the relative infrequence with which these sources of funding are used do not allow us to establish conclusively how each source contributes to the Black-Hispanic funding gap. However, the average proportions of start-up costs provided by each source of funding reported in Table 7 suggest some patterns.

The table shows that, on average, Black owners used a higher proportion of formal financing and lower proportions of informal and other sources of funding compared to Hispanic owners. This evidence suggests that less use of funding from informal and other sources plays an important role in accounting for lower levels of start-up funding for Black-owned businesses relative to Hispanic-owned businesses.

Although the emphasis in this section has been on differences in funding between Black and Hispanic businesses, these businesses are similar in some respects relative to businesses owned by members of the other ethnic groups. As shown in Table 4 and by the regression analysis, Black and Hispanic owners started their businesses with less funding than owners in the other ethnic groups. Black and Hispanic owners also depended on personal savings for a higher proportion of their start-up funding (Table 7), and they were more likely to use personal savings as their only source of start-up funding.

Interpreting the Start-Up Results

Fully explaining these ethnic differences in start-up funding is beyond the scope of this paper. However, we can present some relevant information and make some careful conjectures.

We have already discussed evidence from other studies indicating that the amount of financial capital available at start-up matters because more capital increases a new enterprise's chances of survival. In order to explore whether or not start-up funding is important for the businesses in our sample from Little Village and Chatham, we compare ongoing performance, as measured by annual profit, to the level of start-up capital. Since profit will likely depend on other factors beside start-up capital, we also include ethnic type, industry type, education, business age, and business age squared in the regression analysis. Business age is included as a control because we expect that the impact of start-up funding on future profit will vary with time. The results of this regression analysis indicate that, depending on the functional form, the yearly rate of return on another dollar of start-up capital ranges from 5 to 20 percent at the sample means.[25] This result suggests that the quantity of start-up capital matters for the future performance of the businesses in this sample.

Turning to the interpretation of the start-up funding results, there are a variety of reasons why owners in the various ethnic groups might have begun their businesses with differing funding levels. It is possible that there are cultural differences in attitudes towards risk, or that some ethnic groups lack experience or certain business skills and, therefore, simply choose to begin small and learn through doing. The evidence reviewed in the Introduction suggests that some owners are constrained in the amount of start-up funding that they are able to obtain and, hence, are forced to begin their businesses with less than the optimal amount of capital. Ethnic differences in the level of start-up funding could be the result of differences in personal wealth, or they could be due to some groups facing greater funding constraints than others.

We can start by recognizing that many of the owners who began their businesses using only personal resources did not feel constrained by a lack of access to other sources of funding. Of those who started with only personal funds, 65.1 percent of Hispanic owners and 52.6 percent of Black owners cited "lack of need" as the reason that they did not ask for loans or other financial assistance. Some of these owners wanted outside sources of funding, as 3.5 percent of Hispanics and 11.8 percent of Blacks actively tried to get financial assistance. The remainder, 31.5 percent of Hispanic owners and 35.6 percent of Black owners, did not ask for assistance for some reason.

To the extent that funding constraints are important for some owners in Little Village and Chatham, start-up costs will depend on an

entrepreneur's personal wealth. Start-up funding depends on wealth, in part, because more wealth allows more personal funding of the business. More wealth also provides better collateral for borrowing, and potentially increases the amount of borrowed funding available at start-up.[26]

Unfortunately, the survey results do not provide direct evidence of the owners' personal wealth at start-up, so it is not possible to directly test for the effects of wealth on start-up funding.[27] Thus, the observed ethnic differences in the level of start-up funding may possibly be the result of differences in wealth not captured by the human capital variables included in the regressions. Given that the literature shows that Whites tend to have more wealth than Blacks with similar levels of human capital, it is not surprising that the regression results indicate that White owners began their businesses with more start-up funding than Black owners. However, differences in wealth between Blacks and other minority groups have not been studied as much. In particular, there is little reason to believe that Hispanics have more personal wealth than Blacks for a given level of human capital.[28] Thus, it is doubtful that wealth differences explain our central finding that Black owners began their businesses with less start-up funding than Hispanics owners for a given level of human capital.

We discussed above that the shortfall in start-up funding for Black owners relative to Hispanic owners is not due to differences in the amount of personal resources put into the business. Although not conclusive, the available evidence suggests that Black owners in the sample used less financing from informal sources relative to Hispanic owners. An interpretation of the funding shortfall that is consistent with the evidence presented in this paper is that Black owners, for some reason, have less access to networks that provide informal funding.

Trade Credit and Other Ongoing Financing

Once in operation after the start-up stage, a business may need ongoing financing to meet working capital needs or to expand the business. Trade credit is an important source of ongoing credit, as a national survey shows that 60.8 percent of small businesses in 1993 had outstanding trade credit and that trade credit accounted for 31.3 percent of total debt.[29] As shown in Table 8, trade credit is widely used by businesses in Little Village and Chatham, as 38.2 percent of them owe one or more suppliers.

Whether or not a business uses trade credit depends on the supplier as well as the business owner because the supplier must be willing to extend credit to a given business. Presumably, a supplier would weigh the costs and benefits of extending trade credit to a particular business rather than demanding cash. There are a variety of reasons

why suppliers may have advantages relative to other lenders in supplying credit to their customers. For example, suppliers may extend credit in order to attract future orders from customers, especially growing businesses. Suppliers may also have an advantage in assessing credit risk, monitoring the borrower, or liquidating collateral.[30] Table 8 shows that 56.7 percent of the businesses in the sample have at least one supplier who offers credit, indicating that a substantial number of them do not have access to trade credit. Of those businesses that do have trade credit offered to them, a majority (66.6 percent) make use of it and owe a supplier at the time of the survey. The median amount owed for those owners that do have trade credit outstanding is $3,176.

There are substantial ethnic differences in the use of trade credit. As shown in Table 8, the proportion of Black owners who owe a supplier (20.1 percent) is much lower than that of the other ethnic groups, whereas the corresponding proportion for Asian owners (66.7 percent) is higher. Using the proportion owing suppliers for Hispanic owners (44.4 percent) as a basis for comparison, the Hispanic-Black and the Hispanic-Asian differences in the use of trade credit are statistically significant at the usual levels of significance.[31]

These ethnic differences are due, in part, to differences in the proportion of owners in the various ethnic categories that are offered credit by suppliers. Hispanic (57.6 percent) and especially Black owners (44.8 percent) are less likely to be offered credit by a supplier than owners in the other ethnic categories. Again, using the proportion of Hispanic owners who are offered credit as a basis of comparison, the differences between Hispanic owners and the remaining ethnic groups are statistically significant at the 10 percent significance level.[32] Thus, part of the reason why Black and Hispanic owners are less likely to owe a supplier than owners in other ethnic groups is because they are less likely to be offered trade credit by a supplier.

Business owners must decide whether or not to take up a supplier's offer of trade credit. Table 8 shows that about two-thirds of all the businesses that are offered credit owe a supplier, confirming that trade credit is widely used when available. Compared to the other ethnic groups, Black-owned businesses (44.9 percent) are less likely to owe a supplier given that credit is offered. This proportion for the other ethnic groups ranges from 64.3 percent for White owners to 83.6 percent for Asian owners.[33] Note that Hispanic owners tend to use trade credit when it is available, as their proportion at 75.3 percent lags only with Asian owners.

These findings indicate that the relatively low proportion of Black owners who owe a supplier (20.1 percent) reflects both that they are less likely to be offered trade credit and that they are less likely to take on trade credit given that it is available to them. By contrast, Asian owners have a high propensity to owe a supplier (66.7 percent)

because they are often offered credit and they tend to use trade credit when it is offered. Hispanic owners are an intermediate case in that, like Black owners, they are less likely to be offered credit than owners in the other ethnic groups, but they tend to use it if offered.

Compared to the widespread use of trade credit, Table 8 shows that a relatively small proportion of businesses (17.6 percent) use other ongoing credit at the time of the survey. This proportion is relatively low compared to the use of formal credit by a national sample of small businesses in 1993. Even considering only businesses with less than two employees in order to be more comparable to the neighborhood sample, formal credit was used by 41.9 percent of the businesses in the national survey.[34] Ethnic differences in the prevalence of other ongoing credit are not that apparent, with the exception that Asian owners are more likely to have creditors other than suppliers compared to owners in the other groups.[35] Most of the lenders who extend this ongoing credit are part of the formal sector, as 69.4 percent of all lenders listed by respondents are financial institutions, primarily commercial banks.[36] This finding holds in general for businesses in both Little Village and Chatham. However, there are some ethnic differences in the sources of ongoing credit. Credit cards, whether issued to an individual or a business entity, can be used for business purposes. The use of credit cards is more common among Black owners, as 35.4 percent of their lenders are credit card issuers, whereas no credit card issuers are mentioned by Hispanic owners. Loans from individuals, clearly an informal source of funds, are found in Little Village, as 16.7 percent of the lenders listed by Hispanic owners are identified as individuals. By contrast, no individual lenders were identified in Chatham. This finding is suggestive in that it echoes the evidence that Black owners are less likely to obtain funds from informal sources during startup compared to owners in the other ethnic groups.

Interpreting the Ongoing Credit Results

Explaining these results is beyond the scope of this paper, but some comments about the observed patterns can be made. It is useful to note that trade credit can be a relatively expensive source of ongoing credit. In fact, the use of trade credit has been used in the literature as an indicator that a firm is constrained from borrowing at the lower interest rates available from financial institutions (Petersen and Rajan, 1994). Thus, it is not clear whether using less trade credit indicates a constraint or a lack of need. However, being offered credit by a supplier, whether or not it is used, is clearly desirable as a potential source of funds. In addition, an owner's attitude toward risk and desire to expand the business may have a bearing on how much ongoing credit is demanded.

One possible explanation for these patterns is that the various ethnic groups may differ in their access to ethnic networks formed by businesses and their suppliers. This explanation can be tested by looking at the ethnic relation between businesses and their suppliers. Since a given business may have up to three suppliers listed on the survey, we look at each combination of business and supplier.[37] Asian owners are more likely to deal with suppliers of the same ethnicity, as 46.8 percent of their suppliers are also Asians. By comparison, this proportion is lower for Hispanic (31.5 percent), Black (27.5 percent), and Other owners (20.5 percent).

This finding might suggest that the relatively high proportion of Asian owners who use trade credit is due to some unique features of an ethnic supply network. For example, involvement in an ethnic network may provide superior information on which to base credit decisions, give more incentive for each side to carry out their contractual obligations, or aid in monitoring the credit relationship.

However, looking beyond the ethnic identity of a given supplier undermines this line of reasoning. In general, suppliers of the same ethnicity as the business owner are not substantially more likely to offer trade credit. In addition, minority business owners are not more likely to take up trade credit if it is offered by a supplier of the same ethnicity compared to a supplier of a different ethnicity. Thus, the differences across ethnic groups in the use of trade credit shown in Table 8 are not explained by the simple fact of how the ethnicity of a supplier matches with that of the business owner. For example, a relatively high proportion of Asian owners owe a supplier both because they are likely to be offered credit, regardless of the ethnicity of the supplier, and they are likely to use credit if it is offered to them, again regardless of the ethnicity of the supplier.

Some evidence for the owners' willingness to bear risk can be gleaned from the answers to the following survey question: How willing would you be to risk your house and all your possessions in borrowing money to start another business? The proportions in each ethnic group that responded that they were somewhat or very willing to risk all on a new business are shown in Table 9. Since we might expect that owners nearing retirement age would be less willing to undertake a new business, the figures apply to owners under 55 years of age. This will mute the effect of systematic differences in age across the ethnic groups. We see that this measure of willingness to bear risk ranges from 37.9 percent for Asian owners to 69.3 percent for White owners. The proportion of Black owners willing to risk all (49.4 percent) is somewhat less than that of Hispanic owners (60.5 percent).

Another source of information about financial constraints for ongoing businesses is the response to a question on how the owner would spend a windfall gift of $20,000. The proportion of those

owners under 55 who answered that they would invest it in a new or existing business is shown in Table 9. Economic theory predicts that if an entrepreneur is financially unconstrained, an increase in his/her assets will have little effect on the amount of capital invested in the business. This result follows because the business is already operating with the optimal amount of capital.[38] A business owner who is financially constrained, on the other hand, is operating with less than the optimal amount of capital and will use the windfall gain to increase the capital employed in the business. The proportion of owners who say they would invest the windfall assets in the business ranges from 38.5 percent for White owners to 78.3 percent for owners in the Other category. The relatively high proportion of owners who make this response is consistent with the widespread perception of financial constraints for established businesses.[39] It is interesting to note that Hispanic owners (62.3 percent) are more likely to invest the windfall in a business than Black owners (46.8 percent).

How does this evidence relate to the ethnic differences in the use of trade credit presented in Table 8? We might expect that owners who are more willing to risk all on a new business may be more willing to take on additional ongoing credit. If ongoing credit constraints are indicated by investing a windfall in the business, then we would expect more constrained firms to use more trade credit. The results, however, are not consistent across ethnic groups.

Relative to Hispanic owners, Black owners are less willing to risk all in a new business and are less willing to invest a windfall in a new or existing business. These results are consistent with the finding that Black owners use less trade credit. Asian owners, who are generally less likely to be willing to risk all in a new business and to invest a windfall than most of the other ethnic groups, are more likely to use trade credit, which is the opposite of what we would expect. Thus, these indicators of willingness to bear risk and invest a windfall are consistent with the Black-Hispanic differences in the use of trade credit, but are not consistent with the relatively heavy use of trade credit by Asian owners.

Conclusion

Our results confirm the importance of personal savings and informal sources of credit in meeting the need for start-up funding. Credit from financial institutions is little used by enterprises in the start-up phase. There are also pronounced ethnic differences in the amount of start-up funding used by businesses in the sample. In particular, we find that Black owners start their businesses with significantly less capital than Hispanic owners. After adjusting for industry type, and some demographic and human capital variables, we estimate that a Black owner uses about one-half of the start-up capital obtained by a comparable

Hispanic owner. When we look at the source of funding, we find that the Black-Hispanic gap in total start-up funding is due more to differences in the use of informal sources of funding rather than disparities in the amount of personal savings put up by the owner. We also find that Black owners are much less likely to owe their suppliers than owners in the other ethnic groups. This finding follows because Black owners are somewhat less likely to be offered credit by their suppliers, and also because they are much less likely to use trade credit if it is offered. This result can not be explained by comparing the ethnicity of owners and their suppliers.

The importance of informal sources of funding suggests that it is worth exploring innovative products and institutions that combine the flexibility and informational advantages of informal networks with the formal sector's ability to mobolize capital. Community development financial institutions and micro-lending pools are examples of institutions that in some ways combine the strengths of formal and informal sources of capital.

The ethnic differences in the amount of capital used and the sources of capital illustrate the importance of learning more about how formal and informal capital and credit markets work with regard to ethnic networks and ethnic neighborhoods. These results have wide implications for ethnic differences in business survival and growth, the decision to enter self-employment, and income and wealth accumulation.[40]

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TABLE 1

Characteristics of Businesses in Little Village and Chatham (percent)

	All	Hispanic	Black	White	Asian	Other
Manuf/wholesale/ constr/transport	5.3	6.6	1.8	22.0	2.3	7.9
Retail total	64.3	68.9	49.2	54.2	92.8	89.0
Eating/drinking places	16.8	23.6	11.4	16.6	5.1	20.5
Food stores	11.1	13.3	8.4	3.9	2.6	26.4
Auto service/sales	8.0	11.0	6.0	5.5	2.3	9.9
Other retail	28.4	21.0	23.4	28.2	82.8	32.2
Business/personal services	30.6	24.6	49.1	23.9	4.9	3.1
Franchise	5.8	5.3	6.2	7.7	0.0	13.4
Age of business in years	9.2	6.9	12.6	16.3	4.2	5.8
Number of employees	4.5	3.9	5.1	9.2	2.3	3.6
Observations	416	183	148	25	34	25

Notes: These results are weighted to reflect sample stratification. Retail total is the sum of eating/drinking places, food stores, auto service/sales, and other retail. The Other category is made up of Arabs and owners from India and Pakistan.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 2

Characteristics of Owners in Little Village and Chatham (percent)

	All	Hispanic	Black	White	Asian	Other
Average age (years)	46.9	42.3	52.5	54.3	45.3	41.4
Female	33.0	31.4	43.1	13.2	21.8	16.8
Married	72.0	81.0	59.3	74.0	80.8	76.4
No high school degree	26.1	42.5	18.1	8.6	3.3	13.1
High school degree or some college	42.9	40.6	47.0	27.1	45.2	42.1
College degree or beyond	32.0	18.8	34.9	70.2	51.5	44.8
Proficient in English	86.5	71.2	100.0	100.0	89.7	91.1
Previously owned business	31.1	32.1	25.7	39.2	51.0	24.0
Observations	416	183	148	25	34	25

Note: These results are weighted to reflect sampling stratification.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 3

Characteristics of Businesses and Owners from the 1992 Characteristics of Business Owners Survey (percent)

	All	Hispanic	Black	Asian, Nat Amer	White male
Manuf/wholesale/ constr/transport	20.8	23.5	17.8	15.1	26.1
Retail	14.4	14.0	14.0	21.9	11.8
Business/personal services	56.4	51.4	60.2	55.8	52.8
Agric/unclassified	8.5	11.1	8.0	7.2	9.2
Franchise	3.1	2.8	4.1	4.8	2.9
Married	77.7	75.1	65.8	80.9	80.4
No high school degree	10.0	27.2	17.8	12.5	9.5
High school degree or some college	52.9	50.1	55.7	39.4	51.7
College degree or beyond	37.2	22.7	26.7	47.8	38.6
Previously owned business	23.9	17.9	13.5	28.4	26.7

Notes: Figures for the All category include data for women-owned businesses, which are not reported here. Percentages are calculated excluding non-responses. The survey universe includes entities filing tax reports as sole proprietorships, partnerships, or subchapter S corporations.

Source: 1992 Characteristics of Business Owners Survey, U.S. Bureau of the Census.

TABLE 4

Descriptive Statistics for Total Start-Up Funds (1996 dollars)

	All	Hispanic	Black	White	Asian	Other
All businesses						
Mean	48,503	33,413	42,555	220,435	51,015	71,956
Median	15,650	12,629	12,653	125,391	34,054	42,477
Mean of logged funds converted to dollars	14,737	13,164	10,812	84,112	22,663	35,226
Observations	391	176	140	18	34	22
Started by owner						
Mean	35,201	26,590	34,357	158,561	50,792	59,939
Median	11,328	10,960	11,082	41,383	28,512	27,145
Mean of logged funds converted to dollars	10,743	10,666	8,071	72,782	16,724	21,613
Observations	257	131	89	4	22	11
Bought or acquired						
Mean	74,507	53,563	56,407	237,473	51,474	88,331
Median	31,497	31,489	17,049	133,915	34,055	67,906
Mean of logged funds converted to dollars	27,340	24,500	17,717	87,531	42,386	68,541
Observations	134	45	51	14	12	11

Notes: These results are weighted to reflect sample stratification.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 5

Regression Results for Total Start-Up Funds: Businesses Started by Owner

	Coefficient	Standard Error
Intercept	9.2622	0.6264 **
Black owner	-0.6089	0.2856 **
White owner	0.9831	0.8929
Asian owner	0.2766	0.4592
Owner in remaining ethnic groups	0.4007	0.5544
All other retail	-0.2070	0.3679
Manufacturing/wholesale	-0.7959	0.5970
Grocery and other food store	0.5905	0.4356
Auto/gas sales or service	-0.4338	0.4963
Business and personal services	-0.2052	0.3826
Less than high school degree	-0.6377	0.2779 **
College degree or beyond	-0.0067	0.2749
Proficient in English	0.5738	0.3141 *
Previously owned a business	0.5707	0.2347 **
Owner's age at start-up	0.0041	0.0117
Female owner	-0.6951	0.2460 **
Years since start-up	-0.0055	0.0132

Number of Observations	253
R-Squared	0.1697
Adjusted R-Squared	0.1134

** = Significant at the 5% level
* = Significant at the 10% level

Notes: This table reports OLS regression results for the logged level of total start-up costs. The omitted ethnic category is Hispanic, the omitted industry category is eating/drinking place, and the omitted education category is high school degree or some college. Thus, the coefficients for the other ethnic groups measure differences in start-up funding relative to Hispanics, the coefficients for the other industry types measure differences relative to eating/drinking places, and the coefficients for the other education levels measure differences relative to a high school degree or some college.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 6

Regression Results for Total Start-Up Funds: Businesses Bought / Acquired by Owner

	Coefficient	Standard Error
Intercept	8.4491	0.8154 **
Black owner	-0.8290	0.4026 **
White owner	0.6387	0.5750
Asian owner	0.7808	0.5605
Owner in remaining ethnic groups	0.3906	0.5963
All other retail	-0.8675	0.4693 *
Manufacturing/wholesale	1.0028	0.6152 *
Grocery and other food store	0.5157	0.4872
Auto/gas sales or service	1.0639	0.6125 *
Business and personal services	-0.3859	0.4521
Less than high school degree	0.4047	0.3554
College degree or beyond	1.0595	0.3447 **
Proficient in English	0.8768	0.4927 *
Previously owned a business	0.1239	0.3107
Owner's age at start-up	0.0088	0.0151
Female owner	0.3719	0.3243
Years since start-up	0.0329	0.0167 *

Number of Observations	130
R-Squared	0.3555
Adjusted R-Squared	0.2642

** = Significant at the 5% level
* = Significant at the 10% level

Notes: This table reports OLS regression results for the logged level of total start-up costs. The omitted ethnic category is Hispanic, the omitted industry category is eating/drinking place, and the omitted education category is high school degree or some college. Thus, the coefficients for the other ethnic groups measure differences in start-up funding relative to Hispanics, the coefficients for the other industry types measure differences relative to eating/drinking places, and the coefficients for the other education levels measure differences relative to a high school degree or some college.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 7

Average Proportion of Start-Up Costs by Source of Funds (percent)

	All	Hispanic	Black	White	Asian	Other
Personal	64.0	66.0	69.6	33.2	60.1	44.2
Informal	18.9	19.0	14.9	26.5	23.4	28.9
Formal	10.5	7.2	12.1	35.4	3.1	18.5
Other	6.5	7.4	3.5	4.8	13.4	8.4
Observations	386	176	136	18	33	22

Notes: These results are weighted to reflect sample stratification.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 8

Use of Trade and Other Ongoing Credit (percent)

	All	Hispanic	Black	White	Asian	Other
Owes a supplier	38.2	44.4	20.1	47.6	66.7	53.8
	(393)	(176)	(135)	(24)	(32)	(25)
A supplier offers credit	56.7	57.6	44.8	74.1	79.8	73
	(393)	(176)	(135)	(24)	(32)	(25)
Owes a supplier given credit is offered	66.6	75.3	44.9	64.3	83.6	73.8
	(229)	(101)	(65)	(18)	(26)	(19)
Has credit other than trade credit	17.6	15.5	18.6	16.6	32.7	6.4
	(415)	(183)	(148)	(25)	(34)	(24)

Notes: These results are weighted to reflect sample stratification. The number of observations are in parentheses.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

TABLE 9

Measures of Entrepreneurial Disposition (percent)

	All	Hispanic	Black	White	Asian	Other
Willing to risk all on new business	56.6	60.5	49.4	69.3	37.9	69.6
Would invest windfall in business	57.2	62.3	46.8	38.5	48.3	78.3
(Observations)	304	162	77	13	29	23

Note: Proportion willing to risk all in new business includes those who answered somewhat or very willing to risk all. The sample was limited to those owners less than 55 years of age.

Source: Authors' calculations based on the Little Village and Chatham Surveys.

Notes

[1] Empirical tests of the presence of liquidity constraints can be found in Evans and Jovanic (1989) and Holtz-Eakin, Joulfaian, and Rosen (1994a; 1994b). Note that liquidity constraints were found for White men and higher-income individuals in these studies. Presumably, constraints would be even more evident for minority groups.

[2] Evidence for a positive relation between start-up capital and survival and growth can be found in Bruderl and Preisendorfer (1998) for a sample of German businesses and Bates (1990; 1991) for a sample of Black and White owners in 1982.

[3] Cavalluzzo and Cavalluzzo (1998) examine a national sample of small businesses and find that minorities fare worse than Whites in some respects. See Munnell, et al. (1996) for an influential study of discrimination in mortgage markets.

[4] See Bond and Towsend (1996) for a description and some findings from the Little Village Surveys for households and businesses.

[5] The survey fieldwork was conducted during 1993-94 and 1997-98 in Little Village and Chatham, respectively.

[6] White, Asian, and Other owners are represented in both Little Village and Chatham, but Black and Hispanic owners are almost exclusively located in Chatham and Little Village, respectively.

[7] It is important to note that all the results presented here are conditioned on the survival of businesses to the survey date.

[8] The average start-up costs for firms owned by Whites, Asians, and Others are statistically significantly different from Hispanic firms at the 10 percent significance level or less (based on a t-test).

[9] The significance level for the t-test of the difference in means between Hispanic- and Black-owned firms started from scratch is 26 percent, and the corresponding figure for bought or acquired firms is 32 percent.

[10] Preliminary regression analysis established that splitting the sample according to how the business was started resulted in economically and statistically significant differences in coefficient estimates. Thus, regression results are reported for the split sample.

[11] This would be the case if some industries require start-up costs that are lumpy in the sense of not being completely adjustable. An example would be a manufacturing process that requires a particular piece of equipment to be economically viable.

[12] Some sample selection issues are raised by the fact that the sample includes firms that by definition have survived to the survey date. Another reason to include a trend term is as a crude way of accounting for the possibility that older firms survived because they began with more start-up financing. A variable capturing the state of the business cycle at start-up was found to be without value in preliminary regressions.

[13] The logged value of the estimated start-up costs (9.92398) is calculated as follows: Estimated costs = Intercept + Proficient in English coefficient + Owner's age coefficient * 37 years + Years since start-up coefficient * 12 years. The values for Owner's age and Years since start-up are sample means.

[14] For example, the logged value of start-up costs for a Black owner (9.315061) is calculated by adding the Black coefficient (-0.608927) to the baseline logged value (9.92398). This value converted to dollars equals $11,104.

[15] It is possible that the ethnic differences noted here reflect, in part, location or neighborhood differences. It is not possible to directly test this for Black and Hispanic owners because they are not represented in both neighborhoods. However, White, Asians, and owners in the Other category are in both neighborhoods. A regression was run testing the location effect for these ethnic groups, and the results indicated that the location effect was economically small and statistically insignificant.

[16] The differences between Blacks and all other ethnic groups are statistically significant at the 10 percent level, or less.

[17] The differences between Blacks and all other ethnic groups are statistically significant at the 10 percent level, or less.

[18] The differences in start-up funding implied by the coefficients for college degree and proficient in English are somewhat larger than the difference between Black and Hispanic owners discussed above.

[19] The coefficient for female is positive but not statistically significant at the usual confidence levels.

[20] OLS regression was not used because a number of businesses reported using no start-up funding from personal savings, thus piling up observations on the lower bound of zero. Tobit estimation was used to take this into account. See Greene (1997, pp. 962-74).

[21] In fact, this regression provides evidence that owners in the White and Other categories used less start-up funding from personal resources than Black and Hispanic owners.

[22] Although the ethnic differences in non-personal funding tend to be economically large, they generally are not statistically significant because of high standard errors, probably due to the relatively small number of observations where such funding was used.

[23] Data from the 1982 Characteristics of Business Owners Survey confirm these general findings apply to a national sample of businesses. Asian owners were more likely to have obtained loans or equity from friends and family than Black and Hispanic owners, and in turn, Hispanics obtained more than Blacks. See Bates (1989) and Fratoe (1988).

[24] Comparison of the means of the logged amounts of start-up funding for the various sources of funding provides the same picture as the mean proportions discussed here. The means of logged funding from informal and other sources are higher for Hispanic-owned businesses than for Black-owned businesses, and the means of logged funding from personal and formal sources are higher for Black owners. Splitting the sample into businesses that were started from scratch and those that were bought or acquired does not affect the general results presented here.

[25] Tobit regression was used because profit was not reported for businesses in Little Village that lost money the previous year, resulting in censored observations. The coefficient for start-up funding was statistically significant for the specification in levels but not for the semi-log and log-log versions. The results

are only suggestive in that we do not account for the selection effects of having only ongoing firms in our sample.

[26] The assumption that the borrowing constraint depends on personal assets can be found in standard models of entrepreneurial choice, such as Evans and Jovanivic (1989) and Holtz-Eakin, Joulfaian, and Rosen (1994a). Avery, Bostic, and Samolyk (1998) find that personal collateral and guarantees are widely used as backing for small business loans. However, they find no consistent relationship between wealth and the use of these personal commitments.

[27] Education and other human capital variables are available and plausibly capture differences in permanent income. However, Blau and Graham (1990), Smith (1995), and Menchik and Jianakoplos (1997) provide evidence indicating that income and demographic variables do not fully explain Black-White differences in wealth.

[28] Smith (1995) reports that the coefficients for Black and Hispanic indicator variables in mean and median wealth regressions are quite similar, indicating that relative to White households, Black and Hispanic households have similar levels of wealth conditioned on the variables included in the regression. These results are based on the Health and Retirement Study and so reflect the experience of older households.

[29] The figures come from the 1993 National Survey of Small Business Finance, which defines small businesses as businesses with fewer than 500 employees. See Cole and Wolken (1995, Table A.2) and Berger and Udell (1998, Table 1) for the cited figures on the use of trade credit.

[30] See Petersen and Rajan (1996) and Mian and Smith (1992) for discussions of the theory and practice of managing trade credit.

[31] The statistical significance is based on a logit regression using the ethnic variables. The ethnic differences noted here remain after controlling for a number of factors that might matter for the use of trade credit. This was tested by a logit regression including the ethnic variables, industry types, human capital and demographic variables used in the regressions on total start-up reported above. In addition, the age of the business (logged) and the number of employees (logged) were included to account for some of the differences among the ongoing businesses. A tobit regression of the log of the dollar amount of trade credit shows that Black owners owe significantly less, taking these variables into account.

[32] After controlling for the industry types, human capital and demographic variables, and business characteristics in a logit regression using Hispanic owners as the reference group, only the Hispanic-Asian ethnic difference is statistically significant. If Black owners are the reference group, Black owners are statistically significantly less likely to be offered credit than Asian and Other owners.

[33] The ethnic differences between Black owners and owners in the other ethnic categories reported here are statistically significant, with the exception of the difference between Black and White owners. This result also holds after controlling for industry types, human capital variables, and business characteristics.

[34] Figures from the 1993 National Survey of Small Business Finances (Cole and Wolken, 1995). The cited figure does not include credit card debt.

[35] The difference in the proportion of Asian owners who use other credit relative to Hispanic owners is statistically significant. However, the difference is no

longer significant after controlling for the industry types, human capital and demographic variables, and business characteristics in a logit regression.

[36] Some businesses listed more than one lender.

[37] In the case of corporate suppliers for which there is no clear ethnic identity, the ethnicity of the contact person was reported.

[38] See Holtz-Eakin, Joulfaian, and Rosen (1994a) for an example of a model that applies to an entrepreneur facing a liquidity constraint.

[39] The obvious caveat is that this is a thought experiment, and we do not actually observe what owners do with a windfall gain. An owner's attitude toward risk may also play a part in this decision, as well as the existence of constraints.

[40] For example, Fairlie and Meyer (1996) show that Black men and women have relatively low self-employment rates. Our results may have implications for this finding, since the decision to enter self-employment is clearly related to the amount of start-up capital available.

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THE SMALL BUSINESS LENDING RELATIONSHIP: SESSION B

Discussion Comments
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In addition to commenting on the three papers in this session on relationship lending, this review examines the overall state of the academic literature on relationship lending. I begin with a discussion of the definition of relationship lending and its importance to the literature. This is followed with a discussion of the extant literature on relationship lending and an examination of the key research issues in this area. The three papers in this session are then placed in the context of this literature followed by some specific comments on the papers. I conclude with some thoughts and conjectures on the topic of relationship lending and its connection to organizational issues in banking and to the issue of discrimination in small business lending.

Introduction

Before offering some specific comments on the three papers in this session, I would like to take a step back and say something about the general subject of relationship lending. That is, I would like to provide some context for assessing the contribution of the papers in this session (and the other papers in this conference that address the subject of relationship lending) to the growing literature in this area. I will begin with some very fundamental questions: What is relationship lending? Why is it interesting? What are the key research issues associated with it? Then I will offer some thoughts on where the three papers in this session fit into the literature. I will conclude with a few comments about each of the individual papers.

What is Relationship Lending?

I suspect that most observers of the banking world would agree that an intuitive working definition might look something like this: *Relationship lending* is lending that is based on the entire bank-borrower relationship and information culled from that relationship; and, it stands in contrast to *transactions-based* lending where each loan stands on its own.

If we want to do research in this area, however, a more precise definition is required. The definition typically found in the academic literature on relationship lending in banking usually has these features:

> Relationship lending is associated with the acquisition of private information by a lender through continuous contact with a firm and its owner-manager (the entrepreneur). In part it is produced in conjunction with the provision of multiple financial services. These services include the extension of credit to the business, the provision of deposit services to the business, and the provision of other services to the business. It also includes the extension of credit, and the provision of deposit or other services to the entrepreneur. This information may also be produced in conjunction with activities not directly associated with the provision of banking services such as social interaction between the loan officer and the entrepreneur and an entrepreneur's participation in local community activities about which the loan officer has local or private information. Through these activities the banker is able to observe performance on explicit and implicit contracts with the bank and with others. The private information accumulated in this way is then used to determine the evolution of successive contract terms over time as loans are renegotiated, loans are renewed, and new loans are extended.
>
> Relationship lending is the antithesis of transactions-based[1] lending. Transactions-based lending is associated with straightforward credit analysis of the company based on publicly available information. It may also include quasi-publicly available information such as CPA-prepared financial information and credit checks with other financial institutions. This is information that while not generally available to the public is nevertheless available to lenders just for the asking.

This definition is useful in assessing the literature on relationship lending which began as a distinct area of study about five or six years ago.[2] The key operative words here are 'continuous', 'multiple services' and 'private'. 'Continuous' is important because it implies a time dimension to a lender-borrower relationship. The time dimension has been reflected in early empirical work in this area where the duration of the relationship was the key measure of its strength such as in the work of Petersen and Rajan (1994, 1995); and Berger and Udell (1995). The emphasis on 'multiple services' is important because it captures the issue of the breadth of a relationship—a point

of emphasis in work such as Nakamura (1993); and Mester, Nakamura, and Renault (1998). Finally, it is important to note that relationship lending is about *private* information. Only the lender has this information, although it may be possible that outsiders may infer something about this information by observing the existence of the lending relationship (see Covitz, 1997).

Is this definition complete? Probably not. I suppose that, to some extent, the notion of a "relationship loan" still falls under the category of "we're not quite sure what it is, but we know it when we see it." To some extent, however, our lack of a more precise definition reflects the still immature state of research in this area.

Why is Relationship Lending Interesting?

Relationship lending is an interesting topic for several reasons. First, it is associated with a particularly problematic type of financial contracting: lending to acutely informationally opaque small business borrowers. Theories of contracting under asymmetric information arguably apply more to this type of purchaser of capital than to any other. Indeed, one of the core issues in the study of this topic is explaining precisely how relationship lending mitigates the acute information problems associated with lending to small business.

Because relationship lending appears to characterize such a substantial portion of small business loans, it is also interesting because it may have a significant impact on the implementation of monetary policy. To the extent that monetary policy plays out through a credit channel, it is imperative that we understand how relationship lending works. An important question here is whether relationship loans behave differently during periods of tight money. Some research suggests that relationship lending may provide a mechanism for offering insurance against price or credit rationing in periods of tight monetary policy (see Fried and Howitt, 1980; Berger and Udell, 1992; and Berlin and Mester, 1998). This implies that the credit channel operates principally through transactions-based loans or through loans to small businesses whose banking relationships have not developed sufficiently to obtain this type of insurance.

An understanding of relationship lending may also shed light on a number of key policy issues in bank regulation. For example, recent research on the credit crunch of 1990-92 suggests the possibility that bank examiners may have overreacted by excessively scrutinizing bank commercial loans in their efforts to avoid a crisis of the magnitude experienced in the savings and loan industry (Bizer, 1993; Berger and Udell, 1994; Peek and Rosengren, 1995; and Wagster, 1997).[3] Because relationship lending is by its nature less dependent on objectively quantifiable lending criteria, it may have been more vulnerable to any

tightening in bank examination policies. Thus, to the extent that regulator scrutiny became excessive in 1990-92, valuable bank-borrower relationships may have been the unintended victims of this regulatory regime shift. It should be noted, however, that (at least to the best of my knowledge) empirical evidence on the destruction of bank-borrower relationships in any economically meaningful amount during the 1990-92 credit crunch is lacking.

Securitization of small business loans is another policy issue where relationship lending is a consideration. The process of securitizing small business loans may necessarily destroy the bank-borrower relationship. After being securitized the loan is purchased by a third party, typically a trust whose trustee administers the loan along with the rest of the portfolio in the pool. Arguably this type of arrangement makes renegotiation of any specific loan problematic. Flexibility in loan renegotiation is important because it is such an integral part of relationship lending. Incentives to monitor may also be altered significantly. In addition, securitization probably precludes the kind of intertemporal pricing insurance discussed above where banks agree to extend credit to business borrowers at a lower rate in high interest rate environments with the understanding that these borrowers will pay a higher rate later in lower interest rate environments. For these reasons, the development of the securitized small business loan market may be limited to transactions-based loans where underwriting standards are purely quantifiable and ratio-driven.[4] Government subsidization of this market may be particularly ill-advised if it encourages banks to extend more transactions-based loans at the expense of making relationship loans.

A number of recent papers have found evidence of discrimination in both bank consumer and commercial lending. Discrimination in small business lending may be related to the ability of the banking system to offer relationship lending to minority businesses. I will examine this issue in more detail below.

Finally, relationship lending is both an interesting and topical issue because of the rapid consolidation of the banking industry both here and abroad. I will not go into detail here, however, because a substantial portion of this conference has been devoted specifically to this topic (Berney, Haynes and Ou, 1999; and Dunkelberg and Scott, 1999). In short, the issue is whether the banking industry will reduce the aggregate amount of relationship lending as banks get larger and more organizationally complex through mergers and acquisitions. It is a compelling issue because static cross-sectional analyses show that large banks devote a substantially smaller portion of their assets to small business loans (e.g., Berger, Kashyap, and Scalise, 1995; Keeton, 1995; Levonian and Soller, 1995; Berger and Udell, 1996; Peek and Rosengren, 1996; and Strahan and Weston, 1995). Moreover, dynamic

analyses show that when large banks merge they tend to reduce their small business lending (e.g., Keeton, 1996; Peek and Rosengren, 1996; and Berger, Saunders, Scalise and Udell, 1998).[5] However, evidence from dynamic analyses also suggests a strong external effect: other banks in the market where mergers and acquisitions occur tend to pick up the decrease in small business lending by the participating banks (Berger, Saunders, Scalise and Udell, 1998).

Key Research Issues

Relationship lending is still a relatively immature research area characterized by a number of unresolved and interesting issues. Primary among these are a basic set of questions: How does a relationship develop and what does it look like? Is it with the bank? Or is it with the loan officer? Is it with the firm or the entrepreneur? At one extreme, relationships may be entirely institutional in nature—between the business and the bank; at the other extreme, they may be entirely personal—between the loan officer and the entrepreneur. One reason this issue is interesting, for example, is its connection to the impact of consolidation on small business lending. The motivation behind the work of Goldberg and White (1998); DeYoung (1998); Cole, Goldberg and White (1999); and DeYoung, Goldberg and White (1999) on de novo banking is based on the assumption that banking relationships are fundamentally personal in nature. Thus, bank officers who lose their jobs as a result of a merger or acquisition may start a new bank in part because they can take their customers with them.

Another interesting issue is what determines the strength of a relationship and how do we measure it. A number of papers beginning with Petersen and Rajan (1994, 1995); and Berger and Udell (1995) have measured its strength using the duration of the relationship. As I have noted above, however, its breadth may be equally important (e.g., Nakamura, 1993; and Mester, Nakamura, and Renault, 1998). Arguably these are all imperfect proxies for the information flow that stems from the relationship. Perhaps a measure such as the degree of "mutual trust" used in the survey work of Harhoff and Korting (1998) gets us closer than anything else.

One of the most researched areas in relationship lending is how it affects the evolution of contract terms over time. Evidence suggests that it affects the interest rate pricing of certain loans (Berger and Udell, 1995); the likelihood of pledging collateral (Berger and Udell, 1995; Harhoff and Korting, 1998); the dependence on trade credit (Petersen and Rajan, 1994, 1995); access to credit (Cole, 1998); and lending under distress (Elsas and Krahnen, 1998). The evidence here, however, is not all consistent. For example, Harhoff and Korting (1998) and Blackwell and Winters (1997) found a different result on

pricing using different data sets. I think it is reasonable to say that there is still more work to be done here. Part of the problem is likely related to the specification of a relationship's strength. It may also be related to the type of loans and borrowers examined. Arguably some loans may be so generic and their collateral value so transparent that a relationship simply does not matter—for example, a motor vehicle loan. Some small borrowers may also be so transparent that relationships do not matter. Clearly, there is room for more research here.

Another key issue is the existence of a downside to relationship lending. Specifically, a relationship necessarily gives some monopoly power to the lender. Multiple banking relationships may offset this but only at the expense of depreciating the value of a relationship (with any one of the lenders). Although it is beyond the scope of this review to discuss the growing theoretical and empirical literature on this issue, it is probably safe to say that the extent to which this monopoly power is exploited and reflected in lending terms is still an unresolved issue.[6]

As I noted above, there is considerable concern about the connection between changes in the structure of the banking industry and its impact on the availability of relationship lending. Big banks simply devote less of their assets to small business loans and industry consolidation is producing larger banks who lend less to small businesses. However, as I also noted above, this does not necessarily imply that there will be a contraction of small business lending in general and relationship lending in particular (Berger, Saunders, Scalise and Udell, 1998; Haynes, Ou and Berney, 1999; Dunkelberg and Scott, 1999). More research is clearly needed here to pin down exactly which banks pursue relationship lending and why. Also needed is more research on the impact of consolidation on relationship lending through its impact on market structure and its influence on the organizational structure of surviving banks.

The Papers in this Session

The papers in this session examine many of the issues discussed above. The Uzzi (1999) paper explores the sociological dimension of a bank relationship, i.e., the "embedded ties" that shape it. His approach offers new insight into the issue of what defines a relationship and how we might measure it. Uzzi addresses another unanswered question in the literature by examining how market participants can mitigate the extraction of monopoly rents by having a mix of "embedded ties" and "arms-length ties." The Huck, Rhine, Bond and Townsend (1999) paper suggests that intermediation need not necessarily take the form of a formal institution. They highlight the importance of informal networks which may provide a mechanism for entering into implicit as well as explicit agreements in ways that look a lot like relationship lending.

The Berkowitz and White (1999) paper highlights the importance of the entrepreneur as an actor in small business lending. They also raise a new issue: the importance of the legal environment in determining credit availability and the price of credit to small business.

These papers offer interesting insights into the nature of relationship lending and significantly extend our knowledge of the topic. By way of constructive criticism, I worry in the Uzzi paper that the network and complementarity variables are just proxying for firm size. For example, many larger firms will have deposit accounts at multiple banks just to facilitate cash management but these accounts may serve no other purpose. In the Huck et al., paper, I would have liked to have seen more discussion on the specific nature of the informal sources of funding and what comprises them. Also absent in their paper is a discussion of small business funding "market makers." In particular, accountants and lawyers often play a critical role in connecting lenders and borrowers. The borrowers are their clients so they have private information about borrower quality. They also have long term relationships with lenders and lenders view them as a source of deal flow. Lenders may be able to rely on information conveyed by accountants and lawyers because they have reputations at stake. What role do these agents play in the Little Village and Chatham markets examined here? Does their role differ from other markets, particularly non-minority markets?

With regard to the Berkowitz and White paper, a more extensive discussion of the exemption constraint would have been helpful. The paper's key result turns on an interpretation of the bankruptcy exemption variable. The problem here is that (I suspect) there exist inexpensive ways to pierce the homestead and personal property exemption. Specifically, a lender can take personal property as collateral and avoid the exemption. For example, a bank can take a second mortgage on a residence or have the residence put into a trust and take an assignment of beneficial interest in that trust. To the extent that these mechanisms provide a low-cost end-run around the homestead and personal property exemptions, the paper's results become harder to interpret. Possibly, the presence of tight homestead and personal property exemptions proxy for a state's overall bankruptcy costs that are ex post born by lenders.

Some Thoughts on Future Research

The Uzzi (1999) paper focuses on an aspect of the relationship lending literature that may be the least understood. As I suggested above, fundamentally the borrower-bank relationship may be a personal and not an institutional relationship. That is, the relationship that truly matters is the relationship between the entrepreneur and the loan

officer —the "social attachment" discussed by Uzzi. In my view, the literature lacks any penetrating analysis of the organizational issues surrounding the supply of relationship lending. If relationship lending is delivered principally through the loan officer and his/her relationship with the entrepreneur, then important contracting issues involving the loan officer and the bank must be addressed. Specifically, in the spirit of Cole, Goldberg and White (1999), relationship lending differs from transactions-based lending because it is not an easily quantifiable exercise. The loan officer's judgement based mostly on non-quantifiable and non-verifiable information replaces standard financial ratios and loan-to-value collateral ratios. Arguably, this necessarily implies that banks offering relationship lending must delegate more lending authority to their loan officers. But, delegating more lending authority exacerbates an agency problem between the loan officer and the bank.

Inherently there is a wedge between the interests of loan officers and senior management. Incentives may encourage loan officers to spend too much time generating new business and too little on monitoring existing business, which arguably is the key component in building relationships. They may have an incentive to hide deteriorating loans from senior management. Even more critical is the fact that loan officers may lose their objectivity. This may take the relatively benign form of psychological near-sightedness stemming from a growing friendship with the entrepreneur. In a somewhat less benign fashion, the loan officer may perceive the entrepreneur as a future employer. Casual observation by this author suggests that it is not uncommon for a loan officer to be hired away by one of his borrowing customers as a chief financial officer. In its most extreme form, the loan officer may have an undisclosed financial interest in the borrower's firm or is the recipient of illegal kickbacks. All of these problems are exacerbated by delegating more authority to loan officers.

As discussed by Udell (1989), contracting mechanisms are available to address this agency problem but they are quite costly. This implies that there are significant organizational costs associated with delivering relationship lending. Udell (1989) finds that banks differ significantly in terms of how much they delegate to their loan officers as proxied by their loan committee approval limits (the amount above which all loans must be approved by the loan committee). This suggests that banks may differ significantly in their willingness to make relationship loans and that this may be reflected in how they organize their lending function. Verifying this paradigm, of itself, is an interesting empirical pursuit. Beyond that, what determines which banks are willing to absorb these organizational costs in order to make small business loans? Are these organizational costs less for small community

banks? If so, why? It seems to me that this would be a very fruitful area for future research.

These organizational issues may also be related to the issue of access to credit by minorities raised in a number of papers in this conference including the three in this session. Specifically, delegating authority to loan officers might be a two-edged sword. On the one hand, it may permit the incorporation of relationship factors into bank lending that mitigate credit constraints on other sources of funding such as the informal sources discussed in Huck, et al. On the other hand, it may exacerbate discrimination by giving more weight to the idiosyncratic preferences of the loan officer. Empirical work on this issue could be illuminating.

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Notes

[1] Cole, Goldberg and White (1999) refer to transactions-based lending as "cookie cutter lending."

[2] The relationship literature can be viewed in the broader context of what is often now referred to as the "bank uniqueness" empirical literature whose origin can be traced back to James (1987). This literature emphasizes the role of financial intermediaries as specialized information producers and how this information adds value to bank borrowers.

[3] Regulator scrutiny is one of many hypothesized reasons for the credit crunch of 1990-92. For a summary of these see Berger and Udell (1994).

[4] Whether an active securitized small business loan market will ever develop is still substantially in doubt. Micro business loans may be an exception. These are business loans guaranteed by entrepreneurs that are quite small (typically under $100,000) where the underwriting standards are principally based on the personal credit of the entrepreneur. See Acs (1999) for a more complete discussion of the current status of the securitized small business loan market.

[5] Results vary, however, depending on the size and type of participating banks, the data examined, the econometric techniques, and the window used to examine the change in lending. For example, a number of studies found an increase in small business lending when the participating banks were both small and a difference between mergers versus acquisitions. See Berger, Demsetz and Strahan (1999) for a recent review of this literature.

[6] See Berger and Udell (1998) for a discussion of the theoretical and empirical literature on relationships, monopoly rents, and multiple banking relationships.

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THE SMALL BUSINESS LENDING RELATIONSHIP

Discussion Comments
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Conventional analysis of relationship lending suggests that small and opaque borrowers must establish close ties with one or a few lenders to overcome adverse selection and moral hazard problems. As a result, the market for relationship loans is shaped by three sorts of information asymmetries: one between loan officers and their employer (the lender), another between the lender and the borrower, and a third between the lender and the market. Based on new research, I make three additional points that extend this standard analysis. First, we now have not just theoretical but also empirical reasons to think that credit may be rationed in markets for relationship loans. Second, relationship lending is about more than just information; trust can act as a substitute for information. Third, by raising the costs of relationship lending relative to other kinds of lending, technological innovation may harm these borrowers.

Introduction

Over the past five years, we have seen a large number of papers devoted to the study of relationship lending and financing of small business. The papers in this session by Uzzi (1999), Huck, Rhine, Bond and Townsend (1999), and Berkowitz and White (1999) each advance our knowledge of the small business lending relationship. In my comments, I first summarize the conventional analysis of relationship lending based on the premise that relationships are about information production. Then, I make three points that go beyond the conventional analysis but that, I believe, flow in part from the three papers in this session.

The Conventional Analysis of Relationship Lending

Small businesses have a difficult time raising capital because their prospects are difficult to judge by outsiders and because they have little to lose. In credit markets with asymmetric information, lenders face

The views expressed here are mine and do not necessarily reflect the views of the Federal Reserve Bank of New York or the Federal Reserve System.

an adverse selection problem; borrowers willing to accept a high interest rate will be lower quality than average. If this effect is sufficiently powerful, the market will collapse. Asymmetric information also leads to a moral hazard problem—borrowers may have poor incentives to maximize the value of the lender's stake in the business, and without information, lenders have a hard time forcing borrowers to behave. Lack of both tangible and intangible capital (e.g., reputation) worsen moral hazard problems. If a start-up business has little to lose, the owner's incentive to work hard is reduced, and his incentive to substitute high risk assets for low risk ones is enhanced. Lenders try to mitigate moral hazard problems by monitoring borrowers over time, but costly information raises monitoring costs. Small businesses can overcome these problems by establishing a relationship with a lender. Relationships improve the information flow between the two parties and more information reduces both the adverse selection and moral hazard problems.

Asymmetric information problems of at least three types shape the market for relationship lending. First, because information is collected from a relationship with an individual loan officer (the "RM" or relationship manager), there is likely to be a significant problem of asymmetric information between the RM and the lender's managers and owners. Berger and Udell (1995) emphasize the importance of this internal-to-the-firm agency problem. They argue that large organizations have greater costs associated with making relationship loans because of their greater difficulty monitoring RMs with private information. In fact, we know from a number of recent papers that small banks devote a larger proportion of their lending to small businesses.[1] Some have argued that consolidation in the financial services industry may harm small relationship borrowers by reducing the number of small lenders. The evidence on this point, however, is mixed.[2]

Second, despite the lender's best efforts, there may be substantial residual asymmetry of information between the relationship borrower and the lender. Under these conditions, credit markets may not clear. Because they are less likely to repay the loan, demand for credit from low-quality borrowers is less sensitive to interest rate changes than demand for credit from high-quality borrowers. Thus, profit-maximizing lenders may choose to set interest rates below the level that would clear the market; to do otherwise could scare away the high-quality borrowers, leaving only low-quality borrowers (Stiglitz and Weiss, 1981).

Third, borrowers must generally establish a relationship with a single lender; this avoids both duplication of effort in information collection and improves the lender's incentive to collect information ex ante and monitor the borrower ex post. As a result, information tends to be private. Other potential lenders will not be able to assess the quality of the borrower without making a substantial investment.[3]

Recent evidence suggests that small businesses benefit from having concentrated banking relationships; they receive loans with lower rates and fewer collateral requirements, are less likely to pay late on trade credit, and are better protected against interest rate cycles than other small businesses (Petersen and Rajan, 1994,1995; Berger and Udell, 1995; Blackwell and Winters, 1997; Berlin and Mester, 1998; Cole, 1998; and Hubbard, Kuttner, Palia, 1998).[4]

To summarize, small and opaque borrowers must establish a close relationship with one or a few lenders to overcome information problems (adverse selection and moral hazard). As a result, there is an information asymmetry between the RM and the lender, between the lender and borrower, and between the lender and the market. Next, I make three additional points that extend this standard analysis. First, we now have not just theoretical but also empirical reasons to think that credit may be rationed in markets for relationship loans. Second, relationship lending is about more than just information; trust can act as a substitute for information. Third, by raising the costs of relationship lending relative to other kinds of lending, technological innovation may harm these borrowers.

Markets for Relationship Loans May Not Clear

As noted above, we know from theory that credit markets may not clear when there are information asymmetries between borrowers and lenders, but evidence of credit rationing has been hard to come by. Berkowitz and White (1999), together with an earlier paper by Gropp, Scholz and White (1997), provide some evidence that rationing may be important in credit markets dominated by relationship loans. They exploit cross-state variations in the personal bankruptcy exemption that allows individuals and unincorporated businesses to shield a portion of their wealth following a bankruptcy filing. Some states, for instance, have no limit on the amount of wealth invested in one's residence that can be protected from creditors. These exemptions raise demand for credit and reduce its supply at a given interest rate because less will be collected by the lender if the firm goes belly-up. Thus, if markets clear, we have an unambiguous prediction: the interest rate should be higher in states with more generous exemptions. If markets do not clear due to information problems; however, lenders in states with more generous exemptions may choose to keep interest rates below the market clearing level.

In fact, Berkowitz and White (1999) find just this: the rate of credit denial is higher in states with more generous exemptions, but interest rates are *not* higher. This contrasts with a very similar study of credit card debt, where Gropp et al. (1997) do find higher interest rates on credit card debt in states with more generous personal bankruptcy

exemptions. In credit markets with asymmetric information, lenders seem to prefer not to raise interest rates when more potential borrowers apply for credit. In contrast, in markets with little or no asymmetric information, such as the credit card market, lenders do raise interest rates when faced with strong demand for credit.

It is important, at this point, to mention that Berkowitz and White (1999) do not claim to have found evidence of credit rationing; this is my interpretation of their results. But theory tells us that rationing may occur when borrowers know more than lenders (such as in the small business lending market) and markets should clear when lenders can discern the borrower's type (such as in credit card markets). Further research is called for in order to validate this interpretation. One approach that could be taken would be to split the small business borrowers along a dimension likely to be associated with the degree of the information asymmetry, such as size. Interest rates should respond more to the level of a state's exemption for larger borrowers.

Relationships Are About More Than Just Information

As noted above, moral hazard problems are worse when information is costly because monitoring is more difficult without information. This insight suggests that lenders faced with imperfect information may use other means to mitigate moral hazard problems. Two of the papers on this session suggest that trust between the borrower and the lender may be critical. Uzzi (1999) interviewed 26 loan officers at 11 Chicago banks making small and middle-market loans. Survey data are appropriate for studies of relationship lending. Economists generally prefer data from actual market transactions to survey evidence because people sometimes do not behave as they say. In this case, however, we need to go beyond standard methods. The researcher's problem is the same as the lender's: because these transactions are based on private information, we can not measure all of the relevant characteristics of borrowers. A sensible way to get inside this black box is to ask practitioners what they do.

Uzzi finds that loan officers try to foster personal and social contacts with their borrowers. For instance, one RM said that a "relationship [means] that you know a person like his family and you feel on a level with him—not pure friends—but that he trusts what you say." These personal interactions are important because they enhance the information flow between the two parties; however, they also raise the cost to the borrower of using his informational advantage against the lender. As another RM pointed out, "If I develop a relationship with you, it'll be easier for me to ask you penetrating questions. It'll also be more difficult hopefully for you to screw me in a deal because you'll

be hurt [emotionally] and feel that there's something of value which you would jeopardize."

Huck et al. (1999) look at the start-up financing of small businesses located in two small, minority neighborhoods in Chicago. They find that 64 percent of start-up funds come from the proprietor's personal assets, and 19 percent come from the informal sector (friends, family and business associates). Lenders in the formal financial sector such as banks contribute only 11 percent of total start-up capital. Presumably, these inside lenders have two advantages over lenders in the formal financial sector. First, they have better information about the borrower's prospects due to their longstanding relationship. Second, they may face lower costs from any remaining information asymmetry compared to more arm's-length lenders such as banks because the borrower may be reluctant to exploit their information advantage. As we learned from Uzzi's survey, loan officers try to build a personal relationship with their borrowers. A lender who is also an old friend will be satisfied with less information because he or she trusts the borrower.

The problem for entrepreneurs relying on credit from informal sources is that it places those in low-income neighborhoods at a disadvantage relative to those with access to relatively wealthy friends and family. Huck et al. discuss the importance for new businesses of having access to a network of friends and family that can provide credit. They show that some minority groups receive more capital from these informal networks than others, but, unfortunately, they are not able to explain why. In this particular sample, differences in access to capital through informal networks across ethnic groups does not appear to be due to differences in the wealthiness of those networks. Clearly, more work needs to be done to explore how these networks function. In addition, we need to know how costly the lack of capital may be for start-ups. In particular, are the returns very high in low-income neighborhoods where new businesses have very little capital? We can not begin to think about policy implications without the answer to this question.

Technological Innovation May Harm Relationship Borrowers

The last issue that I want to discuss is the likely impact of technological innovation on relationship borrowers. Looking back over the past two decades, the big story has been the growing importance of financial theory and data processing that has allowed capital markets and arm's-length lending to grow dramatically. Today, it is a simple matter to get a credit card and a mortgage (even a Jumbo) without ever stepping into a financial institution. The reason this is possible is that lenders use scoring technologies to make credit decisions. These technologies have been an important force in allowing these products to be securitized. As a result, we have seen geographic markets

for various kinds of credit instruments broaden in scope. For instance, national markets in credit card loans and residential mortgages have developed. During the 1990's, credit scoring technologies facilitated securitization of consumer loans that in the past had to remain on bank (and other intermediary) balance sheets. Starting from near zero in 1988, about 45 percent of credit card loans are now securitized. While banks are not securitizing their other consumer loans to a high degree, finance companies have done so in recent years. Overall, about 12 percent of all auto loans were securitized in 1998, while about 9 percent of other consumer loans were securitized (Mishkin and Strahan, 1999).

Since the early 1990's, banks and finance companies have also begun to use credit scoring to underwrite loans to small businesses. These models use widely available information about borrower quality, such as the credit history of the proprietor, to estimate the likelihood that a particular small business loan will default; loan applications with a sufficiently low default likelihood (high "score") are granted. Of course, in practice, banks may incorporate judgement based on a loan officer's experience to override the advice of a credit scoring model. Survey evidence suggests that large banks have been the first to use credit scoring for their small business loans, and that these models are generally used only for very small, small business loans such as those under $100,000 (Mester, 1997).

Securitization of small business lending has begun, albeit slowly, because technologies such as credit scoring have made these loans more standardized (i.e., lowered the transactions costs of securitizing them) and more transparent (i.e., lowered the asymmetric information cost of securitizing them). Looking ahead, it seems fairly clear that credit scoring technologies will continue to progress. On the other hand, the technology for making relationship loans leaves little room for technological progress; these loans depend on human contact between lenders and borrowers. Thus, the cost of relationship lending is likely to increase relative to the cost of lending at arm's length. Since both types of lending use similar human and financial inputs, a greater share of loans made going forward will be to borrowers meeting standard underwriting criteria that can be modeled in a systematic way. From an aggregate perspective, technological changes that facilitate arm's length lending are beneficial because they reduce costs. However, relationship borrowers may face a reduction in credit availability.

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Notes

[1] See Berger, Kashyap, and Scalise (1995); Keeton (1995); Levonian and Soller (1995); Berger and Udell (1996); Peek and Rosengren (1996); Strahan and Weston (1996); and Cole, Goldberg, and White (1999).

[2] See Keeton (1996,1997); Peek and Rosengren (1996,1998); Strahan and Weston (1996,1998); Craig and Santos (1997); Kolari and Zardkoohi (1997a,b); Zardkoohi and Kolari (1997); Walraven (1997); Berger, Saunders, Scalise, and Udell (1998); Sapienza (1998); Berger, Demsetz and Strahan (1999); Cole and Walraven (1999); and Jayaratne and Wolken (1999).

[3] For a theoretical treatment of the implications of these kinds of information monopolies, see Sharpe (1990) and Rajan (1992).

[4] For a general review of small business finance, see Berger and Udell (1998).

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