

**Small Business Credit Availability and Relationship Lending:  
The Importance of Bank Organisational Structure**

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### **Abstract**

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

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## **Small Business Credit Availability and Relationship Lending: The Importance of Bank Organisational Structure**

The issue of credit availability to small firms has garnered world-wide concern recently. Models of equilibrium credit rationing that point to moral hazard and adverse selection problems (e.g., Stiglitz and Weiss, 1981) suggest that small firms may be particularly vulnerable because they are often so informationally opaque. That is, the informational wedge between insiders and outsiders tends to be more acute for small companies, which makes the provision of external finance particularly challenging. Small firms with opportunities to invest in positive net present value projects may be blocked from doing so because potential providers of external finance cannot readily verify that the firm has access to a quality project (adverse selection problem) or ensure that the funds will not be diverted to fund an alternative project (moral hazard problem).

Small firms are also vulnerable because of their dependency on financial institutions for external funding. These firms simply do not have access to public capital markets. As a result, shocks to the banking system can have a significant impact on the supply of credit to small businesses. Thus, small firms are subject to funding problems in equilibrium and these problems may be exacerbated during periods of disequilibrium in financial markets.

One of the most powerful technologies available to reduce information problems in small firm finance, and a main subject of this paper, is “relationship lending.” Under relationship lending, banks acquire information over time through contact with the firm, its owner, and its local community on a variety of dimensions and use this information in their decisions about the availability and terms of credit to the firm. Recent empirical evidence provides support for the importance of a bank relationship to small businesses in terms of both credit availability and credit terms such as loan interest rates and collateral requirements (e.g., Petersen and Rajan, 1994, 1995; Berger and Udell, 1995; Cole, 1998; Elsas and Krahn, 1998; Harhoff and Körting 1998a).

It is important to clarify from the outset that our focus here is on the vast majority of small firms

whose access to external finance is nearly entirely limited to the private debt markets. For a relatively small number of firms, however, the market of choice for external finance is the private equity market. These are firms with very high growth potential, often in knowledge-intensive high tech industries, who principally access the private equity markets for early-phase financing. Because these high risk firms generally require large injections of external funding relative to insider financing, have little in the way of tangible assets that may be pledged as collateral, and are subject to significant moral hazard opportunities to change projects, they are ill suited for bank financing and thus tend to have low levels of leverage (Gompers and Lerner, 1999; Carpenter and Petersen, 2002). The most successful of these firms may obtain significant subsequent financing through an IPO, which also facilitates an exit for early-round private equity investors (Carpenter and Petersen, 2002). Our focus in this paper is on the importance of relationship lending in the debt gap controversy as it relates to the relatively large majority of firms who are dependent on external private debt, rather than those in this high growth category with access to external private equity.

Despite the recent academic focus on relationship lending, there is remarkably absent in the literature a fully satisfying analysis of precisely how bank-borrower relationships work.<sup>1</sup> It is generally left unspecified whether the primary relationship is between the bank and the firm or between the loan officer and the firm's owner, who within the bank acquires and stores the relationship information, and how this information may be disseminated within the bank. Relationship information is often "soft" data, such as the information about character and reliability of the firm's owner, and may be difficult to quantify, verify, and communicate through the normal transmission channels of a banking organisation. We argue that part of the problem is that researchers in this area have not viewed relationship lending in an organisational context. Relationship lending is associated with a fundamentally different lending process than other transactions-based lending technologies, such as financial statement lending, asset-based lending, or credit scoring. Therefore, relationship lending arguably requires a different organisational form. By implication, banks that choose to emphasise relationship lending may be

organised quite differently from banks that do not. In this paper we offer a modest first step toward addressing this gap in the literature by examining relationship lending within the context of a simple model of the lending function. This framework may also be useful in examining the impact of shocks to the banking system on the availability of credit to small businesses.

The paper is organised as follows. Section 1 offers a brief overview of small firm financing and highlights the important role that financial institutions play in providing external finance to small business. Section 2 categorises lending into four separate technologies, of which relationship lending is one. Relationship lending is compared with the other technologies in terms of how these technologies are implemented and to whom they are targeted. Section 3 examines the organisational issues associated with structuring the lending function by presenting a simple model of bank lending. The analysis suggests that under relationship lending, the accumulation over time of “soft” information by the loan officer creates agency problems throughout the banking organisation that may best be resolved by structuring the bank as a small, closely-held organisation with few managerial layers. Section 4 uses the model to examine the impact of shocks to the economic environment in which banks and small businesses operate on the availability of credit to small business, including technological innovations (e.g., credit scoring), regulatory regime shifts (e.g., toughened bank supervision), shifts in competitive conditions (e.g., banking industry consolidation), and changes in the macroeconomic environment (e.g., monetary policy shocks). Section 5 concludes.

## **1. A Picture of Small Firm Finance**

Table 1 provides a breakdown of the sources of small firm finance in the United States based on data from the 1993 National Survey of Small Business Finance (adapted from Berger and Udell, 1998, Table 1). Specifically, it shows book value percentages of private equity and private debt weighted to represent all nonfarm, nonfinancial, nonreal-estate United States businesses as a whole, using the Small Business Administration classification of firms with fewer than 500 full-time equivalent employees.

Although the data are drawn from a single nation, we believe that the main points illustrated below – e.g., small firms rely on both debt and equity, small firms use substantial amounts of insider finance, banks are the chief source of debt from financial institutions to small firms, etc. – hold throughout most of the industrialised world.

Panel A of Table 1 shows that small businesses as a whole depend on both equity (49.63%) and debt (50.37%). Funding sources are broken down into four categories of equity and nine categories of debt. Panel A shows the distribution for all firms. The biggest equity category is funds provided by the principal owner – 31.33% of total equity plus debt or about two-thirds of total equity. The principal owner is typically the person who has the largest ownership share and has the primary authority to make financial decisions. Other members of the start-up team, family, and friends are included in the next biggest equity category, other equity, at 12.86%. An estimated 3.59% consists of “angel finance,” although this estimate is less precise than the other figures in the table. Angels are high net worth individuals who provide direct funding to early-stage new businesses. Venture capital provides 1.85% of small business finance. Here, we use the term venture capital to refer to the formal intermediated venture capital market. Elsewhere, venture capital is often used to refer to all sources of non-insider private equity, including angel finance.

It is important to note here that the statistics in Table 1 reflect the financing sources for the “average” small business. These averages mask considerable differences across firms. In particular, the statistics for angel finance and venture capital are driven by the relatively small number of firms with high growth potential that have access to these private equity markets. For those firms, however, private equity likely represents the vast majority of the firm’s external financing while external debt financing is minimal. As mentioned above, this reflects the fact that high tech and other types of firms that fall into this category generally have little in the way of tangible assets and are therefore not typically bankable (Gompers and Lerner, 1999; Carpenter and Petersen, 2002).

Turning to sources of debt for small business, commercial banks provide 18.75% of total finance,

finance companies supply 4.91%, other financial institutions yield 3.00%. Trade credit provides 15.78% and the principal owner supplies 4.10%. The remaining categories (not shown individually) include other business 1.74%, other individuals 1.47%, government 0.49%, and credit cards 0.14%. Panels B and C of Table 1 show the financing distribution by size of small business and by age, respectively.

What conclusions can we draw from Table 1? First, small businesses rely substantially on insider finance both in the form of private equity (the principal owner and, quite likely, most of the “other equity”) and private debt (the principal owner and probably a substantial portion of “other individuals”). The acute informational opacity of small businesses undoubtedly is the driving force behind this dependency consistent with modern information-based theories of security design and the notion of a financial pecking order. Insider finance – which is not associated with information problems – would be first in the pecking order. As well, insider finance may be preferred because it allows the principal owner to have the most control over the firm. For most firms, costly state verification (Townsend 1979, Diamond 1984) or adverse selection problems (Myers, 1984; Myers and Majluf, 1984; Nachman and Noe, 1994) suggest that external debt might optimally follow the exhaustion of insider finance. As indicated above, external equity might alternatively come before external debt for high growth firms in which moral hazard problems dominate. The external debt financing would be principally provided by commercial banks and other financial institutions, as well as by trade creditors. This is also reflected in the data, which indicate that small businesses on average rely on financial institutions for over a quarter of their total financing. In contrast to conventional wisdom, this is true even for the smallest small firms (Panel B) and for start-up firms (Panel C), for which information problems are arguably the most challenging.

## **2. Small Business Lending Technologies**

Small business lending by financial intermediaries can be categorised into at least four main distinct lending technologies – financial statement lending, asset-based lending, credit scoring, and

relationship lending. These technologies are deployed to address the types of problems that can lead to either credit rationing (Stiglitz and Weiss, 1981) or “overlending” (de Meza and Webb, 1987; de Meza, 2002). The first three lending technologies are often referred to as transactions-based lending, under which the lending decisions are based on “hard” information that is relatively easily available at the time of loan origination and does not rely on the “soft” data gathered over the course of a relationship with the borrower.

Financial statement lending places most of its emphasis on evaluating information from the firm’s financial statements. The decision to lend and the terms of the loan contract are principally based on the strength of the balance sheet and income statements. Financial statement lending is best suited for relatively transparent firms with certified audited financial statements. Thus, it is likely the technology of choice in bank lending to large firms. However, some small firms with long histories, relatively transparent businesses and strong audited financial statements also qualify for financial statement lending.

Under asset-based lending, credit decisions are principally based on the quality of the available collateral. This type of lending is very monitoring-intensive and relatively expensive. Generally, the collateral is accounts receivable and inventory, and requires that the bank intensively monitor the turnover of these assets. Asset-based lending is available to small firms of any size, but is expensive and requires that the firm have high-quality receivables and inventory available to pledge.

Small business credit scoring is an adaptation to business lending of discriminant analysis and other statistical techniques long used in consumer lending. In addition to using information from the financial statements of the business, heavy weighting is also put on the financial condition and history of the principal owner, given that the creditworthiness of the firm and the owner are closely related for most small businesses (Feldman, 1997; Mester, 1997). In the United States, the use of small business credit scoring is generally limited to small micro-business loans of up to \$250,000.<sup>2</sup> Small business credit scoring is still a relatively new phenomenon. It was not widely used prior to the introduction of Fair, Isaac’s model in 1995, and as of January 1998, 37% of a sample of the largest banks in the United States



still had not adopted small-business credit scoring (Frame, W. *et al.*, 2001).

Under the final lending technology (and the focus of our paper), relationship lending, the lender bases its decisions in substantial part on proprietary information about the firm and its owner through a variety of contacts over time. This information is obtained in part through the provision of loans (e.g., Petersen and Rajan, 1994; Berger and Udell, 1995) and deposits and other financial products (e.g., Nakamura, 1993; Cole, 1998; Mester, L. *et al.*, 1998; Degryse and van Cayseele, 2000). Additional information may also be gathered through contact with other members of the local community, such as suppliers and customers, who may give specific information about the firm and owner or general information about the business environment in which they operate. Importantly, the information gathered over time has significant value beyond the firm's financial statements, collateral, and credit score, helping the relationship lender deal with informational opacity problems better than potential transactions lenders.

To the best of our knowledge, there are no data on the relative importance of these four lending technologies. Nonetheless, there is some evidence to suggest that relationship lending does play an important role in small business finance. Under relationship lending, the strength of the relationship affects the pricing and availability of credit. Traditionally, empirical studies of relationship lending have measured the strength of the relationship in terms of its temporal length – the amount of time the bank has provided loan, deposit, or other services to the firm (e.g., Petersen and Rajan, 1994, 1995; Berger and Udell, 1995; Angelini, P. *et al.*, 1998; Scott and Dunkelberg, 1999; Ongena and Smith, 2000). More recently, alternative measures of relationship strength used in empirical research include the existence of a relationship (e.g., Cole, 1998), the breadth of a relationship in terms of the bank providing multiple services or multiple account managers (e.g., Nakamura, 1993; Cole, 1998; Mester, L. *et al.*, 1998; Scott and Dunkelberg, 1999; Degryse and van Cayseele, 2000), exclusivity of the relationship in terms of the bank being the sole provider of bank loans to the firm (Harhoff and Körting, 1998b; Ferri and Messori, 2000; Machauer and Weber, 2000; Berger, A. *et al.*, 2001b; Ongena and Smith, forthcoming), the degree

of mutual trust between the bank and the firm (e.g., Harhoff and Körting, 1998a), the presence of a hausbank or main bank (e.g., Elsas and Krahn, 1998).

Empirical studies of small business lending are often consistent with the importance of strong relationships. Stronger relationships, measured in various ways described above, are empirically associated with lower loan interest rates (e.g., Berger and Udell, 1995; Harhoff and Körting, 1998a; Scott and Dunkelberg, 1999; Degryse and van Cayseele, 2000), reduced collateral requirements (e.g., Berger and Udell, 1995; Harhoff and Körting, 1998a; Scott and Dunkelberg, 1999), lower dependence on trade debt (e.g., Petersen and Rajan, 1994,1995), greater protection against the interest rate cycle (e.g., Berlin and Mester, 1998; Ferri and Messori, 2000) and increased credit availability (e.g., Cole, 1998; Elsas and Krahn, 1998; Scott and Dunkelberg, 1999; Machauer and Weber, 2000).<sup>3</sup> In addition, small businesses tend to have long outstanding relationships with their banks, over 9 years on average (Berger and Udell, 1998, Table 2), suggesting that these relationship are important. We turn next to a discussion of relationship lending in the context of the bank's lending function.

### **3. The Bank-Borrower Relationship and the Process of Bank Lending**

The discussion thus far suggests that relationship lending and transactions-based lending differ in important ways. Relationship lending is generally associated with the collection of "soft" information over time through relationships with the firm, the owner, and the local community. This soft information may not be easily observed by others, verified by others, or transmitted to others. In contrast, transactions-based lending is generally associated with the use of "hard" information produced at the time of loan origination. This hard information is based on relatively objective criteria, such as financial ratios in the case of financial statement lending, collateral ratios in the case of asset-based lending, or Fair, Isaac (FICO) credit scores in the case of credit scoring. In this section, we argue that these different types of lending require different organisational structures for the bank. Relationship lending requires that more authority be given to the loan officer, who has the greatest access to the soft

relationship information. This greater authority, in turn, creates agency problems within the bank that necessitate various organisational checks and balances.

A strong argument can be made that the most important relationships in relationship lending involve the loan officer. The loan officer is the person in the bank with the greatest access to the soft information about the firm, owner, and community that are hard to quantify and communicate through the organisational structure. The loan officer generally has the most personal contact with the small business, its owner, and employees. The loan officer also typically lives in the local community and has contacts with other local firms and individuals that have relevant information about the firm and its owner and about the business conditions in local market. Through these contacts, the loan officer is able to observe the firm's and the owner's financial conditions and their performance on explicit and implicit contracts with the bank and with others. This issue has not been explored in any penetrating way in the finance literature, although Uzzi and Gillespie (1999) used a sociological paradigm to frame this relationship in terms of a "social attachment." The loan officer also typically has the most intimate knowledge of the hard data in the loan file and may be in the best position to integrate the two types of information.

If relationship lending is based in substantial part on the loan officer's relationships with the firm, its owner, and the local community, then important organisational issues arise within the bank. We argue that banks offering relationship lending must delegate more lending authority to their loan officers than banks focusing on transactions-based lending, since the soft relationship information known by the loan officer cannot easily be observed, verified, or transmitted to other decision makers within the bank.

This delegation of authority to loan officers in banks offering relationship lending may exacerbate agency problems between the loan officer and the bank as a whole because of differing incentives. Loan officers may have incentives to overinvest in generating new loans, rather than monitoring existing small business relationships because of relatively short horizons or because remuneration is often based on short-term revenues generated by the loan officer (Udell, 1989). This could result in "overlending"

although the motivation here is not an asymmetry of information between banks and firms (de Meza and Webb, 1987; de Meza, 2002), but rather an agency problem between loan officers and their banks. It may also be in a loan officer's interest to hide a deteriorating borrower's condition because of a personal friendship with the owner, the prospect of a future job offer from the firm, an undisclosed financial interest in the firm, or illegal kickbacks. All of these problems are exacerbated by delegating more authority to loan officers.

From the bank's perspective, offering relationship lending is a choice variable that may necessarily require an organisational structure that addresses these inherent agency problems between the bank and the loan officer. Banks that engage in relationship lending may be expected to both delegate more authority to their loan officers and spend more resources monitoring their loan officers and the performance of their loans. Consistent with these arguments, it was found that banks that delegate more authority to their loan officers invest more in monitoring the performance of their individual loan officers' loans through the loan review function (Udell, 1989).

To fully understand these organisational issues and the factors that affect the supply of relationship credit, the loan officer-bank contracting problem must be viewed within the broader organisational issues faced by the bank. In particular, bank lending can be viewed as the outcome of a hierarchy of contracting problems as reflected in the centre panel of Fig. 1.<sup>4</sup> The bank's small business borrowers contract with the bank's loan officers. Bank loan officers in turn contract with the bank's senior management. The bank's senior management in turn contracts with the bank's stockholders. Finally, the stockholders contract with creditors (e.g., subordinated debt holders), and government regulators. Each of these layers is associated with a different kind of agency problem.

Beginning at the first layer of contracting, the commercial loan officer is vested with the responsibility of acting on behalf of the bank in designing a tailored contract with each small business borrower, and monitoring the borrower in a way that addresses information problems. As discussed above, for relationship lending, the loan officers likely have more authority, may have incentives that

differ from those of the bank, and are more difficult to monitor by senior managers because the soft relationship information is not easily observed, verified, or transmitted. Thus, the second contracting problem that needs to be addressed is the one between the loan officer and the bank's management.

The magnitude of the contracting problem between the bank and its loan officers is likely increasing in the proportion of the bank's loan portfolio invested in relationship loans because of the greater information problems and greater authority given to the loan officers. This contracting problem may also depend on the complexity and the size of the banking institution. In the smallest banks, the problem is often resolved with the president of the bank making or reviewing most of the business loans. In effect, a small bank may be able to resolve some of the contracting problems associated with relationship lending by eliminating layers of management and reducing the agency problems between the loan officer and senior management of the bank in Fig. 1. Larger and more complex banks may require more intervening layers of management that introduce Williamson (1967,1988) type organisational diseconomies associated with producing information-driven small business loans alongside their core business of producing transaction-driven loans and other capital market services for large corporations. Large, hierarchical firms may be at a disadvantage in transmitting the type of soft information associated with relationship lending (Stein, 2001). This could lead large institutions to adopt standardised credit policies based on easily observable, verifiable, and transmittable data, i.e., the type of hard data that characterises transactions-based lending, rather than relationship lending.

Small banks are also often closely held with no publicly traded equity or debt, with the principal owner of the bank also serving as its president. This greatly reduces the contracting problems between bank management and shareholders and between shareholders and bank creditors in Fig. 1, and again may make it easier to resolve contracting issues between the small business and the loan officers and between the loan officers and the bank, making it easier to make relationship loans. Large banking organisations typically have publicly-traded equity and debt, with more layers through which at least summary information about relationship loans must pass.

Large banks may also choose to avoid relationship lending because these banks are more often headquartered at a substantial distance from potential relationship customers, aggravating the problems associated with transmitting soft, locally-based relationship information to senior bank management. Consistent with this, a recent theoretical model predicts that relationship lending diminishes with “informational distance,” or the costs of generating borrower-specific information, which is likely to be associated with physical distance (Hauswald and Marquez, 2000).

Thus, we might expect larger institutions to be less likely to make relationship loans, and some empirical evidence supports this view. A number of studies found that large banks tend to devote lower proportions of their assets to lending to small businesses, which more often have information problems that require relationship lending (e.g., Berger, A. *et al.*, 1995). Moreover, the small business loans that are made by large banks tend to be to larger, older, more financially secure businesses, which are most likely to receive transactions-loans, particularly financial statement loans (Haynes, G. *et al.*, 1999). As well, large banks were found to base their small business loan approval decisions more on financial ratios and less on the existence of a prior relationship than small banks, consistent with transactions-based lending by large banks (Cole, R. *et al.*, 1999). Small business loans made by large banks were also found to have lower interest rates and lower collateral requirements than the small business loans made by small banks, consistent with transactions-based loans to relatively safe small businesses by the large banks (Berger and Udell, 1996). Finally, it was found that it is particularly difficult for bank holding companies to control the efficiency of small banks that are located further away from headquarters, consistent with the possibility that small bank activities, possibly including relationship lending, may be difficult to control from a great distance (Berger and DeYoung, 2001). However, other studies found that distance barriers in small business lending may be decreasing over time, perhaps because of improvements in information technology (Cyrnak and Hannan, 2000; Petersen and Rajan, 2000).<sup>5</sup>

The agency costs associated with the next contracting layer –the layer between the senior bank management and stockholders – reflects the standard corporate governance problem. The acuteness of

this problem depends on such factors as concentration of ownership and the depth of the bank take-over market. It can affect lending behaviour, for example, if risk-averse senior managers alter value-maximising behaviour through the substitution of safe loans for more profitable loans.

The final contracting layer is between the bank's stockholders on the one hand and the bank's creditors and government regulators on the other hand. The outcome of these contracts can clearly affect lending behaviour. For example, when the bank is in financial distress, their creditors and regulators often discipline the banks to induce them to reduce risks by cutting back their lending. Some examples of this are given in the following section on shocks to the banking system, which include shocks from changes in regulation.

The economic environment in which the bank and firm operate affects all levels of the contracting hierarchy. As shown in the periphery of Fig. 1, the available technology, innovation, and information infrastructure, market structure, legal and regulatory environment, and business conditions influence these contracting problems, and by inference, the lending policies of the bank. Consider the first layer of contracting between the small business and the loan officer. The structure of these contracts will reflect the level of informational opacity associated with funding this class of issuer and the information infrastructure of the financial system. Reliable financial statements, for example, require a sophisticated accounting infrastructure. Credit scoring models typically require information from credit bureaus as variable inputs or the existence of third-party vendors that prepare scores on a widespread basis. Evaluation of certain types of collateral such as accounts receivable also depend heavily on third-party mercantile credit data. To the extent that relationship lending and the other three lending technologies can address these problems, market failure can be avoided. However, even in the industrialised nations, significant public policy initiatives and government agencies such as the Small Business Administration, and the allocation of considerable public resources have been predicated on the assumption that significant levels of market failure characterise the private debt markets and require government subsidies and intervention.<sup>6</sup>

These arguments suggest that exogenous environmental factors may significantly affect a bank's choice of whether to engage in relationship lending. To the extent that exogenous factors make contracting at each of the levels in the hierarchy more difficult, market failure is more likely to occur. This, in turn, may discourage banks from relationship lending because relationship loans depend on soft information that cannot easily be observed, verified, or transmitted. For example, poor technology and information infrastructure may make it costly for loan officers to assess firm prospects, reduce the efficiency of the loan review function that helps managers assess the performance of loan officers, and make it difficult for shareholders, creditors, and regulators to assess the condition and direction of the bank.

In general, the analysis here suggests that the hierarchy of contracting problems must be solved jointly because each layer affects all the others, and all of the layers are affected by the economic environment. Shocks to this environment can have significant effects on bank lending and on the choice of banks to engage in relationship lending, and we turn next to an analysis of some of these shocks.

#### **4. Shocks to the Economic Environment and the Availability of Relationship Credit**

Shocks to the economic environment in which banks and small businesses operate can significantly affect the contracting hierarchy and the propensity of banks to make relationship loans. These shocks can come in a variety of forms such as technological innovations, regulatory regime shifts, shifts in competitive conditions, and changes in the macroeconomic environment. We offer examples of each of these types of shocks and examine the relevant research evidence.

As an example of technological innovation, securitization of small business loans may be one of the most intriguing. It involves the adoption of the innovative financial technology already used in the mortgage market and elsewhere to the market for small business loans. However, efforts to securitize small business loans have been quite problematic (Acs, 1999). One explanation for this may be the



difficulties associated with securitizing relationship loans. Because relationship lending is based on soft information that is difficult to observe, verify, or transmit, relationship lending may be antithetical to securitization. The contracting problems within the bank discussed in the prior section are likely to be significantly magnified if the loan is sold, as the purchaser of the loan is unlikely to be able to make use of the soft relationship information. Thus, although some relationship loans might be sold based on their associated hard information, much of the benefits of the relationship would be lost. Moreover, securitization without recourse of these loans would likely reduce the production of additional soft relationship information over the course of the loan by reducing monitoring incentives. Government subsidisation of a secondary market for small business loans could have a significant impact by reducing funding costs to small businesses whose loans are securitized and increasing the total number of small business loans granted. However, in some cases, such a policy would encourage the securitization of relationship loans with a resulting loss of relationship benefits. Thus, in considering such a policy, the social benefits would have to be weighed against the possibility that many relationship loans are likely not to be securitized, and the ones that are securitized may lose many of the benefits associated with relationship lending.

Regulatory regime shifts can also have a significant impact on the joint solution to the hierarchy of agency problems discussed in the prior section and result in either more or less relationship lending. For example, the decline in bank business lending during the United States “credit crunch” in the early 1990s has been thought to be caused at least in part by regulatory regime shifts, and several of these potential shifts have been studied empirically. One hypothesis tested was that the decline in lending resulted from implementation of risk-based capital standards under the Basle Accord (e.g., Berger and Udell, 1994; Wagster, 1999). A related hypothesis tested was that the decline was based on higher explicit or implicit regulatory capital standards based on leverage ratios (e.g., Berger and Udell, 1994; Peek and Rosengren, 1994, 1995b; Hancock, D. *et al.*, 1995; Shrieves and Dahl, 1995). Others tested whether tougher supervisory standards in bank examinations played a role, (e.g., Bizer, 1993; Peek and

Rosengren, 1995a; Berger, A. *et al.*, 2001c). The results of these tests were generally consistent with at least some effects of the higher capital ratios based on leverage ratios and tough supervisory examination standards, but not generally consistent with the effects of the risk-based capital standards.

These studies generally used the total business lending of each bank, and were not able to separate out small business lending or relationship lending. It might be argued that relationship loans maybe affected more than transactions-based loans by increased regulatory scrutiny because relationship loans are based on soft information that cannot be easily justified to regulators. Consistent with this, a limited amount of research suggested that small businesses may have suffered more than large business during the credit crunch. One study found that United States small business lending declined by on the order of 38% from 1989 to 1992, while total domestic C&I loans fell by about 23% in real terms (Berger, A. *et al.*, 1995). Another study found that reductions in bank capital affected small bank lending more than large bank lending and was associated with a decline in the health of small businesses in the same state (Hancock and Wilcox, 1998).

There may also have been a regulatory regime shift in 1993 in the United States designed to increase small business lending, particularly relationship lending. The main federal supervisors of banks and thrifts began a joint program of actions designed to alleviate the apparent reluctance of financial institutions to lend (Interagency Policy Statement on Credit Availability, March 10, 1993). For example, under some circumstances, banks were allowed to make loans with minimal documentation to small business customers with whom they had past experience – and not be criticised by examiners for doing so. One study of this potential regime shift found evidence consistent with both a slight reduction in supervisory toughness during 1993-1998 and a small increase in small business lending associated with the reduced toughness (Berger, A. *et al.*, 2001c). A number of shifts in competitive conditions in banking have combined to result in significant consolidation of the banking industry around the globe. While technological change and other factors have played roles in this consolidation, arguably the most

important shifts have come from government deregulation.

The shift to a single banking license in the European Union and the recent repeal of interstate banking restrictions in the United States have sparked rapid consolidation of the banking industries in both places. In addition, the Single Market Programme in the European Union and the Gramm-Leach-Bliley Act in the United States allow for universal banking in which commercial banks may be combined with other financial service companies to form even larger financial entities. As discussed above, the soft information used in relationship lending may create more contracting problems for large institutions. As a result, consolidation may raise an important policy concern if the shift from smaller to larger banking organisations reduces the supply of relationship credit to informationally opaque small businesses that rely on this type of credit. The actual effects of mergers and acquisitions on the supply of small business credit by the consolidating institutions depend not only on the increases in size and organisational complexity of these institutions as we have noted above, but also on other dynamic changes in their behaviour, including possible changes in their organisational focus.

Studies of the effects of bank consolidation on small business lending usually found that mergers and acquisitions involving large banking organisations reduced small business lending substantially, although consolidations between small organisations often increased small business lending (e.g., Keeton, 1996, Peek and Rosengren, 1998; Strahan and Weston, 1998; Berger, A. *et al.*, 1998; Avery and Samolyk, 2000; Bonaccorsi di Patti and Gobbi, 2000). Other studies, however, suggest that consolidation and bank size are not very economically significant. One study found no clear evidence that small business loan applications have a higher probability of being denied by consolidating banks and other banks in their local markets (Cole and Walraven, 1998). Another found that the probability of a small firm obtaining a line of credit or paying late on its trade credit does not depend in a meaningful way on the presence of small banks in the market (Jayaratne and Wolken, 1999). Other research found that

small businesses obtain lines of credit from small banks roughly in proportion to the presence of small banks in the local market, rather than disproportionately more from small banks as might be expected based on the extant literature (Berger, A. *et al.*, 2001d). It was also found that the interest rates charged on small business lines of credit tend to be lower in markets dominated by large banks than in markets dominated by small banks (Berger, A. *et al.*, 2001d). Still other research found mixed effects on how small businesses perceive their treatment by consolidating banks (Scott and Dunkelberg, 1999).

The total effects of the consolidation of the banking industry on relationship lending also depend on whether there are any “external effects” in which other banks in the same local market increase their supply of relationship credit in response to any reduced supply of credit by the consolidating institutions. That is, relationship loans that are dropped by consolidating banks may be picked up by other banks. Several studies found external effects of bank consolidation in which increased lending to small businesses by other banks in the same local markets offset at least part of the negative effects of the consolidating banks (Berger, A. *et al.*, 1998; Avery and Samolyk, 2000; Berger, A. *et al.*, 2001a). There may also be an external effect in which there is increased *de novo* entry – new banks that form in markets where consolidation occurs – although the evidence is mixed (Seelig and Critchfield, 1999; Berger, A., *et al.*, 2000a). These external effects may in part reflect the movements of loan officers from the consolidating banks to other local institutions and continuing their relationships with the firm, its owner, and local community. That is, since the loan officer is the repository of much of the soft relationship information, a loan officer that is fired from or quits a consolidating bank may take this information to an existing local bank or start a *de novo* bank and keep lending to some of the same borrowers.

Importantly, even if the external effects completely offset the reduction in credit by the consolidating banks, there may still be a loss of relationship benefits. If a consolidating bank drops a relationship customer, the soft information accumulated over the course of the relationship may be lost except in cases in which the information has been transported by the continuing loan officer. It may take

considerable time for a new lender to replace this information and the firm may borrow under less favourable loan terms during the interim period.

Much of the current and likely future consolidation activity in banking goes across international borders. This is especially the case in the European Union, given the single banking license. Cross-border consolidation may create additional problems for relationship lending because a foreign-owned bank may come from a very different market environment, with a different language, culture, supervisory/regulatory structure, and so forth. These market differences may make observation, verification, and transmission of soft relationship information even more difficult and compound problems associated with size and distance. Studies of cross-border banking efficiency typically found foreign-owned banks to be less efficient than domestically-owned banks both in the United States (e.g., DeYoung and Nolle, 1996) and in the European Union (e.g., Berger, A. *et al.*, 2000b). Although the relative inefficiency of foreign-owned banks does not necessarily stem from problems with relationship lending, it seems unlikely that this would be an area of comparative advantage for these banks. One study of small business lending in Argentina found that foreign banks headquartered outside of South America (mostly in the United States and European Union) were much less likely than other banks to lend to small businesses, consistent with market differences in language, culture, etc. creating difficulties in extending relationship loans (Berger, A. *et al.*, 2001b).

Finally, we turn to an example of the effects of shocks to the economic environment from macroeconomic events on relationship lending by banks. One macroeconomic event that may affect relationship lending is a shift in monetary policy. In addition to the traditional interest rate and money channels, monetary policy may have more direct effects on bank lending through one or both of two “credit channels.” Under the first credit channel – the “bank lending view” – a monetary tightening reduces bank reserves, which force banks to contract their lending. This contraction may have particularly strong effects on small businesses that rely on relationship lending and do not have easy access to public capital markets or other sources of external finance. Empirical evidence suggests that

tight monetary policy reduces bank lending (e.g., Kashyap and Stein, 1997) and lowers the growth and investment of small businesses (e.g., Gertler and Gilchrist, 1994; Bernanke, B. *et al.*, 1996), consistent with the bank lending view.

Under the second credit channel – the “balance sheet channel” – a monetary tightening raises interest rates, depressing the financial ratios on the balance sheets of potential borrowers, reducing the value of their collateral, and/or lowering their credit scores. In turn, these deteriorations in creditworthiness may make it more difficult to obtain bank credit. These deteriorations in creditworthiness may apply more to small business borrowers who rely on transactions-based lending technologies, such as financial statement lending, asset-based lending, or credit scoring, rather than relationship borrowers whose soft information may be less affected by these external shocks. Empirical evidence also supports the balance sheet channel as affecting the condition of small businesses (e.g. Bernanke and Gertler, 1995; Bernanke, B. *et al.*, 1996).

## **5. Conclusion**

Changes in the economic environment in which banks and small businesses operate – such as domestic and cross-border consolidation of the banking industry – have heightened concern about the availability of credit to small businesses. Part of this concern reflects the fact that small businesses are often informationally opaque and have far fewer alternatives to external finance than large companies. Not surprisingly, the empirical evidence suggests that many small businesses are highly dependent on banks for external finance.

One of the most important technologies employed by banks in extending credit to informationally opaque small businesses is relationship lending. Although relationship lending has been the subject of considerable recent research interest, the process of relationship lending is not well understood. A clear understanding of how the relationship lending technology works and how the organisational structure of the bank affects its ability to deliver this service are needed to assess how recent changes in the economic

environment are likely to affect the availability of credit to small businesses. This paper models the inner workings of relationship lending, the implications for bank organisational structure, and the effects of shocks to the economic environment on the availability of relationship credit to small businesses.

The technology of relationship lending is based on the accumulation of information over time through contact with the firm, its owner, and its local community on a variety of dimensions. The information is often “soft” data – such as the information about character and reliability of the firm’s owner – that may be difficult to quantify, verify, and transmit through the layers of management and ownership of a banking organisation. Relationship lending differs from transactions-based lending technologies that are based on “hard” information that may more easily be observed, verified, and transmitted. The transactions-based technologies of financial statement lending, asset-based lending, and credit scoring are based primarily on quantitative financial ratios, collateral ratios, and credit scores respectively. Relationship lending, in contrast, allows informationally opaque small businesses without strong financial ratios, collateral, or credit scores to obtain bank financing by augmenting relatively weak hard information with soft information gained through contact over time.

Considerable effort has been expended on relationship lending research in measuring the strength of bank-borrower relationship, and in testing the degree to which small businesses appear to benefit from these relationships by obtaining better credit availability and lending terms. However, largely missing from the finance literature is analysis of the organisational context in which relationship lending takes place. We argue here that relationship lending is associated with a fundamentally different lending process than the transactions-based lending technologies. Moreover, the use of the relationship lending technology creates agency problems throughout the organisation that may be resolved better by some bank organisational structures than others. We offer a modest first step toward addressing this gap in the literature by examining relationship lending within the context of a simple model of the lending function. This framework enables us to analyse the impact of shocks to the banking system on the availability of credit to informationally opaque small businesses.

Our model identifies three key characteristics of relationship lending. First, relationship lending depends on “soft” information about the firm, its owner, and the local community. This soft information may not be easily observed, verified, or transmitted. Second, the loan officer typically has the most important relationships with the firm, owner, and community and is the main repository of the soft relationship information that is difficult to share with other individuals in the bank. Third, an agency problem arises between the loan officer and bank management because of the soft nature of relationship information. This agency problem is nested in a hierarchy of contracting problems involving the borrower, the loan officer, bank senior management, bank stockholders, and bank creditors and regulators. The joint solution to these problems helps determine the capacity of the bank to deliver relationship lending.

The model suggests certain organisational structures may be better able than others to resolve the contracting problems associated with relationship lending. In particular, small banking organisations with few managerial layers may have less severe contracting problems between the management and the loan officer. Small banks may also be able to avoid the organisational diseconomies and co-ordination problems often associated with large, multi-layered institutions that may lead to standardised credit policies based on hard information. In addition, small banks are more often headquartered closer to potential relationship customers, reducing problems associated with transmitting soft information about the local firm, owner, and community to senior management. Relationship lending may also be facilitated by having closely-held organisational forms with no publicly traded equity or debt. Such forms reduce contracting problems between bank management and external claimants. This may make it easier to resolve contracting issues with the loan officer and the borrower, since information about the relationship loans has to be transmitted to fewer parties.

Shocks to the economic environment in which banks and small businesses operate can significantly affect the contracting hierarchy and the propensity of banks to make relationship loans. Within the context of our model, we analyse the effects of a number of these shocks on the availability of



relationship credit to small businesses and review the relevant research evidence. The findings may shed light on a number of relevant policy issues, including, but not limited to, 1) whether a secondary market for small business loans should be created or subsidised, 2) the effects of regulatory regime shifts -- such as a change in bank capital requirements or a toughening of supervisory standards -- on the supply of relationship credit, and 3) the effects of macroeconomic changes, such as shifts in monetary policy, on relationship lending to small business.

Rather than reviewing these findings, we focus the remainder of this concluding section on what may be the policy issue of most widespread concern – the effects of consolidation of the banking industry on the supply of relationship credit to informationally opaque small businesses. The theory predicts that as banking organisations grow larger and more organisationally complex through consolidation, these organisations are less likely to choose to make relationship loans. For the most part, the available empirical evidence is consistent with this prediction. Large banks were found to devote lower proportions of their assets to lending to small businesses, and mergers and acquisitions involving large banking organisations reduced small business lending substantially. However, the empirical evidence also suggests that there may be significant external effects of consolidation in which relationship loans that are dropped by consolidating banks may be picked up by other existing banks in the local market or by de novo banks that start operations after consolidation in these markets. To some extent, these external effects may reflect the movements of loan officers from the consolidating banks to other local institutions and continuing their relationships with the firm, its owner, and local community.

Looking ahead, cross-border consolidation may be of greatest concern, particularly in the European Union, where legal restrictions on cross-border ownership have been virtually eliminated. Cross-border ownership may exacerbate the challenges associated with delivering relationship lending because foreign-owned banks may come from a very different market environment, with a different language, culture, and so forth. The only direct study of which we are aware of the effects of foreign ownership on small business lending found that foreign-owned banks headquartered in the United States

and European Union were much less likely than other banks to lend to small businesses in Argentina. Unfortunately, there is no direct empirical evidence on the impact of cross-border banking consolidation in the European Union on relationship lending. However, studies of data on cross-border bank ownership in both the United States and European Union found that foreign-owned banks tend to be less efficient than domestically-owned banks in these nations. It seems likely that these general inefficiencies associated with cross-border ownership may reflect in part inefficiencies in delivering relationship lending services, but it is difficult to extrapolate from this limited information. Clearly, additional research is needed on the direct effects of cross-border ownership on small business lending and any related external effects, particularly in the European Union, where substantial cross-border consolidation is most likely to occur.

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## Footnotes

<sup>1</sup>See Berger and Udell (1998) and Boot (2000) for reviews of this literature and the empirical evidence on relationship lending.

<sup>2</sup>Discriminant analysis and other statistical techniques are also used in lending to larger businesses but typically as secondary criteria, monitoring mechanisms, or as part of portfolio management (see Saunders, 2000).

<sup>3</sup>Notably, some research did not find that credit terms improve with the strength of the relationship. For example, some found that longer relationships were not associated with lower loan rates (e.g., Petersen and Rajan, 1994; Blackwell and Winters, 1997; Angelini, P. *et al.*, 1998).

<sup>4</sup>This discussion of the contracting hierarchy and its connection to relationship lending builds on Udell and Wachtel (1995).

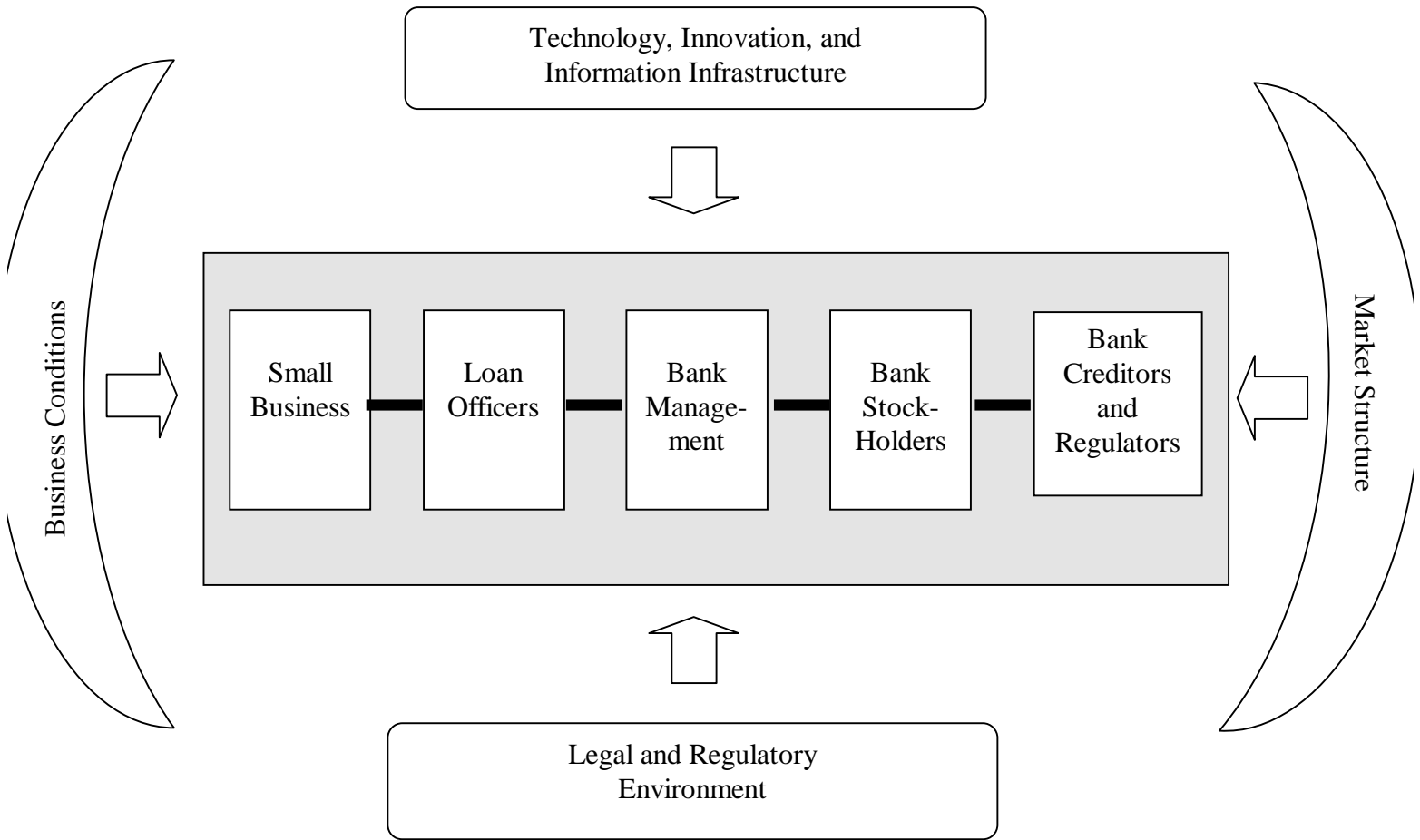
<sup>5</sup>Some have also examined the effects of organisational complexity (e.g., out-of-state ownership, multibank holding company affiliation) on small business lending, with mixed results. Some studies found negative effects of complexity on small business lending (e.g., Keeton, 1995; DeYoung, R. *et al.*, 1999), others found no effects (e.g., Whalen, 1995), whereas still others specified multiple dimensions of organisational complexity and found positive effects of some dimensions and negative effects of other dimensions (e.g., Berger and Udell, 1996; Berger, A. *et al.*, 1998; Berger, A. *et al.*, 2001a).

<sup>6</sup>Similarly, arguments have been made that market failure characterises the private equity markets, justifying public subsidies (Lerner, 2002).

**Table 1**  
**Estimated Distributions of Equity and Debt for U.S. Small Businesses**  
**(Percent of Total Equity Plus Debt)**

	Sources of Equity					Sources of Debt					Total Equity plus Debt		
	Principal Owner	Angel Finance	Venture Capital	Other Equity	Total Equity	Commercial Banks	Finance Companies	Other Fin. Insts.	Trade Credit	Principal Owner		Other Debt	Total Debt
<b>A: All Nonfarm, Nonfinancial, Nonreal-Estate Small Businesses</b>													
	31.33%	3.59%	1.85%	12.86%	49.63%	18.75%	4.91%	3.00%	15.78%	4.10%	3.83%	50.37%	100.00%
<b>B: Breakout by Size of Small Business</b>													
“Smaller” ( $< 20$ employees & $< \$1$ mill. sales)	44.53%	n.a.	n.a.	n.a.	56.00%	14.88%	3.08%	3.53%	11.81%	5.59%	5.11%	44.00%	100.00%
“Larger” ( $\geq 20$ employees or $\geq \$1$ mill. sales)	27.22%	n.a.	n.a.	n.a.	47.67%	19.94%	5.47%	2.83%	17.01%	3.63%	3.45%	52.33%	100.00%
<b>C: Breakout by Age of Small Business</b>													
“Infant” (0 - 2 years)	19.61%	n.a.	n.a.	n.a.	47.90%	15.66%	8.33%	3.84%	13.40%	6.04%	4.83%	52.10%	100.00%
“Adolescent” (3 - 4 years)	17.37%	n.a.	n.a.	n.a.	39.37%	30.84%	2.51%	2.36%	13.42%	6.19%	5.31%	60.63%	100.00%
“Middle-Aged” (5 - 24 years)	31.94%	n.a.	n.a.	n.a.	48.00%	17.86%	5.85%	2.87%	17.10%	3.91%	4.41%	52.00%	100.00%
“Old” (25 or more years)	35.42%	n.a.	n.a.	n.a.	56.50%	17.25%	3.28%	3.38%	13.86%	3.68%	2.05%	43.50%	100.00%

**Sources:** Adapted from Berger and Udell (1998, Table 1). Most of the underlying data are from the 1993 National Survey of Small Business Finance.



**Figure 1**  
**LOAN CONTRACTING, ORGANIZATIONAL STRUCTURE, AND ENVIRONMENTAL FACTORS**