Bank Relationships: A Review[•]

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The banker ... is not so much primarily a middleman in the commodity "purchasing power" as a producer of this commodity. He is essentially a phenomenon of development (and) makes possible the carrying out of new combinations, authorizes people, in the name of society as it were, to form them.

Joseph Schumpeter (1934), *The Theory of Economic Development*

The right relationship is everything.

Corporate Slogan, Chase Manhattan Bank

1 Introduction

As a bank provides an array of services through time to a customer, it gains substantial knowledge about its customer's financial needs. The bank can use this knowledge to establish a close kinship with the customer. This kinship can, in turn, lead to benefits for both the customer and the bank. For example, as a bank learns more about a customer's payment habits, it can tailor contracts to directly suit the financial requirements of the customer. A loyal customer will be more willing to purchase all of its financial services from the bank it trusts, aiding the bank in the marketing of profitable new products. Indeed, as the Chase Manhattan slogan suggests, bankers often perceive the creation of strong customer *relationships* to be a core element of the services they offer. Irwin Teich, president of Fleet Capital Corporation, mirrors this view, "the marketing philosophy of customer satisfaction, based on long-term relationships, must permeate all of the (bank's) functions. Relationship-building is a specific process we go through with our customers" (Teich (1997), p.12).

Despite the perception of its importance, the value in a modern economy of a close relationship between the bank and customer is unclear. Many of today's financial transactions are executed via automated, anonymous markets that require little relationship-building. For instance, the total dollar value of deposits into U.S. money market mutual funds in December 1997 was 1.5 times greater than the value of all demand and checkable deposits (Federal Reserve Bulletin, 1998). During the same period, the total value of commercial paper and corporate bond issues in the U.S. exceeded consumer and industrial bank loans by a factor of 1.21 (Federal Reserve Bulletin, 1998). The global trends toward deregulation, disintermediation and securitization appear to only accelerate the transition from relationship-intensive services to more market- or transactions-oriented financial products. Yet relationship-intensive financing may be a fundamental ingredient in the nurturing of developing firms and economies.

This chapter of the volume reviews the existing evidence from the financial economics literature on the value of bank relationships. In so doing, the chapter attempts to answer the following questions: What measured benefits accrue to banks and their customers via a

relationship? How does competition influence the services provided by banks? What types of customers gain the most from a close relationship with their bank? And finally, what impact do bank relationships have on the macroeconomy? Following the financial economics literature, our review does not emphasize retail bank relationships, but instead focuses on commercial bank relationships with firms as customers.

Early research into the value of bank relationships by Hodgman (1963), Kane and Malkiel (1965) and Wood (1975) emphasizes the influence of the relationship on the credit channel through which monetary policy affects the economy. The motivation for the more recent research originates from the observation by Fama (1985) and James (1987) that bank loans to companies possess unique characteristics, compared to alternative forms of financing. Fama (1985) conjectures that a bank's role as an "insider" distinguishes bank loans from market loans. James (1987) documents the curious result that stock prices increase on the announcement of company financing by a bank loan, but decrease on the announcement of public financing.

Research interest into bank relationships has grown to include several different strands of literature. One area concentrates on the value of bank relationships to small firm financing, because small firms typically have difficulty obtaining investment funds from public sources. Another line of research focuses on evaluating the cross-sectional differences in financial systems. Some financial systems, such as those in Germany and Japan, are said to be *relationship-intensive* because they are dominated by long-term bank relationships. Following the original works by Hodgman (1961), Kane and Malkiel (1965) and Wood (1975), a third area is devoted to examining the role of bank relationships in transmitting monetary policy. We draw on research from all of these areas because they share a common emphasis on quantifying the value of bank relationships.

In this review, we strive not to duplicate the work available in other reviews on the existence, nature, and role of financial intermediaries. Berlin (1996), for example, provides a perceptive introduction to the bank relationship literature using three hypothetical case studies, while Bhattacharya and Thakor (1993), Bernanke (1993) and Freixas and Rochet (1997) contain broader coverages of current research issues in banking. Our review is organized into eight sections. Section 2 begins by defining a bank relationship. This discussion is followed by an introduction to the early theoretical papers that have prompted much of the current academic interest in bank relationships. Section 3 focuses on the impact a bank relationship has on the performance of the firm as customer. We examine both the impact of bank loan announcements on owner's wealth and the influence of the bank relationship on firm financing, corporate control and the confidentiality of information. In Section 4, we turn to measures of the strength of a bank

relationship and their impact on bank performance. We focus on three areas emphasized by the literature: duration, scope, and extended bank relationships. Section 5 is devoted to multiple bank relationships and credit market concentration. We round out our review in Section 6 with a look at how bank relationships influence the macroeconomy. This section also touches upon the influence of bank mergers and bank defaults on bank relationships. Section 8 summarizes and discusses some outstanding issues that warrant further research.

2 Introduction to bank relationships

2.1 Definition of a bank relationship

In its most basic form, a *bank* is an institution whose primary activities are the granting of loans and the taking of deposits from the public. As an intermediary between individuals wishing to save and those that need to borrow, a bank is similar to a securities market. The bank creates and exchanges financial contracts to facilitate the movement of funds between savers and borrowers. Historically speaking, a bank has also provided liquidity and safety not available through securities markets. As Carey (1817), an advocate for improved banking practices in 19th century America, writes,

> In times of distress and difficulty, and stagnation of trade and commerce, policy, as well as humanity, dictates an extension of accommodation, and of course in the most imperious manner forbids Banks to press upon their debtors (p. 11).

A bank is expected to "lean against the wind" and accommodate its debtors during difficult financial times. Such flexibility is not available in an anonymous securities market. To ensure its credibility as a savings institution, a bank is also counted on to quickly redeem deposits to savers *on demand*. Rajan (1997, 1998) argues this ability to continuously offer liquidity to both borrowers and savers distinguishes a bank from "arm's-length" securities markets.

In providing such financial flexibility, a bank requires a close association with each of its customers. Such an association can be termed a relationship. In its most general form, we define a bank relationship to be *the connection between a bank and customer that goes beyond the execution of simple, anonymous, financial transactions*. The benefits of a relationship may include the transfer of proprietary information, a commitment to continue doing business together through financially tough times, or the offer and delivery of services at prices different from costs. A bank relationship can be more specifically defined along two dimensions. The first is time. The importance of a relationship will depend on the length or *duration* of the interaction between the customer and bank. Wood (1975), for example, believes a loan customer relationship exists

when "the current quantity of loans extended affects the strength of future loan demand" (p.11) and Rajan (1997) explains that "relationships may evolve in situations where explicit contracts are inadequate, but a long term interaction between two parties is mutually beneficial" (p.12). The second dimension is *scope*, which pertains to the breadth of services offered by the bank to its customer. Hodgman (1963) asserts that a customer relationship is, "that strategic nexus of customer service, loans, and deposits which gives to commercial banks their unique character" (p.113).

Maintaining a relationship often means that the customer and bank are willing to make temporary sacrifices in favor of obtaining future benefits. For example, a bank may attract borrowers by offering up-front interest rates that are below-cost, with the hope of charging higher rates to the same customers later to recoup initial losses. Conversely, a firm may be willing to initially accept above-cost interest loans, if a long relationship promises a lower permanent rate in the future. Such pricing decisions will influence the expected duration of the bank relationship. The bank could also offer below-cost loans to a customer, with the hope of recovering the losses through customer purchases of other services from the bank. Such pricing decisions then impact the scope of the relationship.

A bank relationship will be influenced by a variety of external factors, including the competitive environment of the banking system, the level of development of arm's-length securities markets, the types of regulation faced by investors, and the degree of technological development. Throughout this chapter, we discuss the influence of these factors directly on the bank relationship and indirectly on the performance of the firm-customer and bank. We now turn to a discussion of the early research on bank relationships.

2.2 Theories on bank relationships

Drawing on a comprehensive survey of senior managers at 18 commercial banks, Hodgman (1960, 1961, 1963) is the first to investigate the importance of customer relationships in banking. Hodgman focuses on *deposit* relationships. He hypothesizes that the value of a deposit relationship arises in response to competition between banks. Competition forces rents earned from lending to be passed onto the suppliers of loanable funds - the depositors. Since the interest directly paid on deposits (for example, demand deposits) is capped by regulation, banks compensate loyal depositors by offering below-cost loans. Therefore, a deposit relationship leads to a customer receiving more favorable loan conditions than non-depositors.

Kane and Malkiel (1965) build on the intuition in Hodgman to argue that strong deposit relationships also reduce the variability in loanable funds, which in turn increases the return-per-

unit-of risk of the bank's loan portfolio. A key point made by Kane and Malkiel (1965) is that an incumbent bank gains an *informational advantage* over competitors by privately observing the payment behavior of its depositors. This leads the incumbent bank to offer below-cost loans to its best depositors - those customers with the most stable deposits. The cheap loan preempts competing loan offers from drawing away the stable depositors because competing banks are unable to offer the same loan rates without also attracting unprofitable, poor depositors.

Wood (1975) recognizes that a *lending* relationship may develop independently of a customer's deposit behavior because, "current accommodation of prospective borrowers by a bank influences future demands for credit from the bank" (p.11). He notes that a bank may find it profitable to offer easy or low-cost credit in one period in hopes of charging higher rates to a customer in the future. In order for the bank to have the ability to charge higher rates in the future, some mechanism must lock the customer into the current relationship. Wood (1975) conjectures that such "holdup" problems may occur when the borrower faces search costs for transferring business to a competing lender.

Leland and Pyle (1977), Diamond (1984), Ramakrishnan and Thakor (1984), Fama (1985) and Boyd and Prescott (1986) argue that it is a bank's ability to reduce information asymmetries between borrowers and savers that makes a bank unique relative to other financial institutions. We motivate the intuition behind these theories using Fama's argument. Fama points out a paradox. He observes that firms willingly borrow from a bank, although they must bear an additional cost – the opportunity cost of non-interest bearing reserves held by the bank against certificates of deposit (CDs) – that is absent from non-bank lending sources. Like Kane and Malkiel (1965), Fama reasons that a bank gains proprietary knowledge of its firm-customer through deposit services. Fama also recognizes that a bank learns a substantial amount of information when it initially screens the borrower for the loan, has the ability to closely monitor the behavior of firm management over the course of the loan, and can even influence decisions made by management. The fact that the bank has such wide access to private information about its borrowers leads Fama to term the bank an "inside debtholder".

Fama (1985) alludes to the importance of the firm-bank relationship as it affects a firm's ability to raise capital, both from within the bank, and through other non-bank sources. His reasoning is as follows. Bank loans are typically short term. Each time a bank renews a short-term loan contract, the renewal acts as an accreditation of the ability for the firm to meet the bank obligation. This renewal creates two positive externalities. It enables other providers of financing to avoid duplicating the evaluation process of the bank, and it provides accreditation to the public

that the firm will be able to produce enough cash flows in the future to meet its fixed obligation. Periodic evaluation and subsequent renewals are features of a developing firm-bank relationship.

3 Bank relationships and firm performance

Given the short theoretical introduction in Section 2, we begin this section with a review of studies that measure the impact on a firm's stock price when it publicly reveals information about a bank relationship. The information release may be related to new debt financing from the bank, a loan renewal, or a backing of other firm activities. Some of the evidence is summarized in Table 1. We return to the theoretical literature to analyze the benefits and costs of a bank relationship as they could impact firm performance.

3.1 Shareholder wealth effects of bank loan announcements

Motivated by Fama's conjectures regarding the uniqueness of bank loans, James (1987) studies the average stock price reaction of firm's that publicly announce a bank loan agreement or renewal. Such an "event study" measures the perceived impact on firm value of a loan, as measured by changes in stockholder wealth on the announcement date. A positive, abnormal, price reaction indicates that the bank loan will either lead to future increases in firm cash flows, or it reveals positive information about the future value of the firm (see Chapter 4 of Campbell, Lo and MacKinlay (1997) for a discussion of event study methodology). James (1987) compares the stock price reaction to announcements of both privately placed and publicly issued debt. Investors in private placements share some of the characteristics of a bank, since they also have the opportunity to obtain inside information from the borrowing company.

The results in James (1987) are interesting. The first row of Table 1 summarizes his findings. He finds that bank loan announcements are associated with *positive* and statistically significant stock price reactions, while announcements of privately placed and public issues of debt experience zero or negative stock price reactions. This result holds independently of the type of loan and the default risk and size of the borrower. The positive stock-price reaction supports the Fama (1985) argument that a bank loan provides accreditation for a firm's ability to generate a certain level of cash flows in the future.

The results in James (1987) also suggest that the value added by a bank relationship goes beyond simply being an inside lender. Although holders of privately placed debt also have access to inside information from the firm, James (1987) finds a negative, though insignificant, price reaction on the announcement of the private placement. More recent research has produced results that conflict with this finding from James (1987). Once they control for the credit rating of

the lender, Billett, Flannery and Garfinkel (1995) find the price reaction of private placements to be similar to bank loans. Moreover, Carey, Post and Sharpe (1998) use loan-specific data to demonstrate that differences between privately-placed loans to non-bank finance companies and loans by banks are due to variations in the riskiness of the loans, not to information-related differences.

Numerous other event studies have expanded on the results in James (1987). For example, Slovin, Sushka and Hudson (1988) show that announcements of public commercial paper issues backed by stand-by letters of credit from a bank have a positive and significant impact on the share price of the borrowing firm. James and Wier (1990) and Slovin and Young (1990) find that initial public offerings (IPOs) of firms with an existing bank lending relationship are significantly less underpriced than IPOs for firms with no bank relationship. Similarly, in Hirshey, Slovin and Zaima (1990), announcement of a corporate divestiture decision by a firm with bank debt results in positive announcement day abnormal returns while a selloff by a firm with little bank debt does not result in abnormal returns.

More recently, Billett et al. (1995) study the relationship between lender quality and loan announcement-day returns. They conjecture that loans from high quality lenders are more likely to be viewed as positive news by stockholders than loans from low quality lenders. Consistent with their conjecture, Billett et al. (1995) find that loans from higher quality lenders, as proxied by the institution's credit rating from Moody's, are associated with positive and statistically significant price reactions, while loan announcements from lower rated institutions are associated with negative, though insignificant returns. Shockley and Thakor (1998) find the announcement of bank loan *commitments* to be positive and statistically significant only for those firms that pay up-front usage fees. Hadlock and James (1997) argue that a positive price response to a bank loan announcement should be largest for undervalued firms that also have public financing as a viable option. Consistent with this prediction, Hadlock and James (1997) find the two day abnormal return around a bank loan announcement to be larger when a firm already has public debt in its capital structure and when the ex-ante likelihood of borrowing from a bank is low.

3.2 Bank loan announcements and bank relationships

Lummer and McConnell (1989) divide bank loan announcements into first-time loan initiations and follow-up loan renewals. Because loan initiations are loans to new customers while renewals are loans to established customers, the difference in stock price reactions between the two categories should act as a measure of the value of an established relationship. Consistent with this argument, Lummer and McConnell (1989) find that stock price reactions to bank loan

announcements are driven by renewals. The event period abnormal returns associated with announcements of initiations are not statistically different from zero, while favorable renewals are positive and statistically significant.

The results in Lummer and McConnell (1989), however, have been difficult to duplicate. Slovin, Johnson and Glascock (1992), Wansley, Elayan and Collins (1992), Best and Zhang (1993) and Billett et al. (1995) document positive and significant price reactions to both initiation and renewal announcements and find little difference in price reactions between the two categories. Best and Zhang (1993) do find that price reactions to renewal announcements are significantly larger than initiations when analyst uncertainty about the loan customer is high. In their study, Billett et al. (1995) argue that the Lummer and McConnell (1989) results may be driven by their system for classifying loans into initiation and renewal categories. Lummer and McConnell (1989) classify any loan announcement that does not mention "renewal" as an initiation. Overall, the evidence on the differential wealth effects of loan renewals versus initiations is inconclusive.

Another important event study containing direct evidence on the value of the bank relationship is Slovin, Sushka and Polonchek (1993). They examine the influence of the 1984 impending insolvency of Continental Illinois on the stock price of firms with an ongoing lending relationship with the bank. Slovin et al. (1993) report an average abnormal two-day return of -4.2 percent around the insolvency announcement and an abnormal increase of 2.0 percent upon the announcement of the FDIC rescue. They argue that such large price changes are estimates of the potential value tied directly to the firm-bank relationship. The existence of these quasi-rents implies that borrowers are bank stakeholders.

Motivated by the potential holdup problems of a strong bank relationship (See Section 3.4), Kracaw and Zenner (1998) examine the influence of interlocking directorships on loan announcement returns. An interlocking directorship occurs when either a senior officer of a lending bank sits on the customer's board of directors ("strong interlock"), a representative from the borrowing firm sits on the bank's board ("weak interlock") or the borrowing firm and lending institution share a common board member ("weak interlock"). Kracaw and Zenner (1998) find that loan announcement abnormal returns for strong interlocks are reliably negative, while weak interlocks are associated with positive or zero abnormal returns. They argue their evidence suggests that firm-bank relationships that are "too strong" can actually harm firms.

3.3 Benefits and cost to the firm of a bank relationship

The event studies suggest that stockholders in publicly-traded firms view bank lending and, more generally, contact with a bank, as value-increasing activities. Announcements of bank loans convey positive information to other investors, reducing the firm's cost of capital from public sources. There are also circumstances where firms will choose bank or inside financing to the exclusion of public, arm's-length financing. Financing through public capital markets may be so expensive for some firms that a relationship with a bank is the only way to obtain capital. In this section, we introduce four reasons for why bank relationships improve financing possibilities, create value and ultimately, improve firm performance. Bank relationships improve contracting flexibility between the customer and bank, reduce agency problems through increased control, enable reputation-building, and ensure confidentiality. We also discuss in this section one potential cost of a strong relationship, the so-called "holdup" problem.

Armed with the information it privately observes, a bank can exploit the length of a relationship to increase *ex-ante* loan contracting flexibility. Boot and Thakor (1994) derive a framework where firms optimally choose to enter an infinite-period lending contract with a bank, rather than borrow directly from the capital market. In their equilibrium, a bank offers a contract that initially requires the firm to pledge a high amount of collateral and to pay above-cost interest rates. However, the contract also stipulates that once the bank has privately observed successful completion of a financed project, the bank reduces both the interest charged and required collateral on the project. von Thadden (1995) investigates the relationship between debt contract flexibility and the firm's investment horizon. von Thadden (1995) shows that a debt contract resembling a line of credit, which requires periodic monitoring and contains a clause allowing the lender to deny continuation, induces firms to avoid myopic investment behavior. Such myopia is present in public market contracts.

Bank relationships not only allow for more flexible *ex-ante* contracting, they also increase the ease with which contracts can be renegotiated *ex-post*. For a firm experiencing difficulty meeting contracted loan payments, a bank can re-adjust the terms of the contract and either accommodate the firm with new lending or refuse future lending, conditional on actions taken by the firm during and after the distress period. Thus, banks have the ability to exert control over the management of firm assets. In Rajan (1992), bank debt is beneficial exactly because of this corporate control feature, a bank's threat to withdraw funding induces the firm manager to accept positive net present value (NPV) projects. Longhofer and Santos (1998) conjecture that bank debt seniority may play an important role in encouraging the formation of ongoing bank-firm relationships. As senior creditors, banks will benefit first from additional investment in a

distressed firm. Hence banks will have incentives to build relationships that allows them to determine the value of such investment.

Since repeated lending from a bank provides credible certification of payment ability, borrowers may establish a relationship in order to gain a reputation for making timely loan payments. Reputational concerns can therefore influence a firm's choice between bank financing and arm's-length financing. Diamond (1991) argues that reputation building through bank borrowing serves as a means for establishing enough credibility to eventually borrow through public markets. Higher quality firms care most about establishing a reputation and find it therefore most costly to default on a monitored bank loan. Eventually, a high quality firm's reputation grows to such an extent that the cost of default - through loss of reputation - is so high that the firm can seek unmonitored, public debt. In Hoshi, Kashyap and Scharfstein (1993), only firms with low investment opportunities bond themselves by choosing to be monitored by a bank. High growth firms require no such bonding and instead finance using public debt.

Finally, bank relationships also enable a firm to obtain financing without disclosing valuable information to the public. Campbell (1979) is the first to recognize that inside debt contracts are preferable when a firm manager wants to maintain confidentiality. Bhattacharya and Chiesa (1995) argue that the confidentiality of bank lending protects proprietary information and facilitates screening and monitoring. In their model, the improved confidentiality encourages investment in research and development (R&D), when public disclosure of accumulated R&D knowledge creates a free-rider problem. Yosha (1995) argues that high-quality firms will choose bilateral bank financing to avoid information leakage through multilateral or public financing. Hence, confidentiality of the bilateral bank-firm relationship encourages the flow of information.

3.4 The holdup problem

The ability for a bank to privately observe proprietary information and maintain a close relationship with its customer can also impose costs on the customer. Sharpe (1990) argues that long-term bank relationships arise in a competitive loan market because an incumbent bank has the ability to offer only above-cost loans to its best customers and holdup customers from receiving competitive financing elsewhere. The incumbent bank gains this monopoly power through its informational advantage over competitors. A high-quality firm that tries to switch to a competing uninformed bank gets pooled with low-quality firms and is offered an even worse, breakeven interest rate. Motivated by the suggestion in Wood (1975), Greenbaum, Kanatas and Venezia (1989) model the holdup problem by assuming that firms must invest resources in searching for competing bank offers. The fixed search cost creates an option-like feature in the

bank's profit function. As the bank gleans more information from its customers through time, uncertainty about a given customer's cash flow declines, mitigating the holdup problem. Holdup costs are also present in the model of Rajan (1992), since the bank has the power to withdraw financing when it perceives the firm to be inadequately managing the financed assets. This degree of control can be costly because it reduces the incentives of the firm manager to exert effort managing the assets.

The extent to which any one bank can exploit an information monopoly is unclear. Sharpe (1990) predicts that an incumbent bank's monopoly power will be mitigated by accurate public signals of the firm's ability to pay. Greenbaum et al. (1989) argue that the value of the holdup rents decline in the length of the relationship. Similarly, repeated borrowing from one inside bank may increase the firm's reputation for payment ability, allowing for easier access to public markets (Diamond (1991)). Schmeits (1997) argues that the potential for moral hazard problems associated with asset substitution increases as the bank charges higher interest rates, thus limiting the bank's monopoly power. The information monopoly rents of the inside bank may also be contained by loan commitments (Houston and Venkataraman (1994)), or eroded through market driven information leaks and information-sharing sources like credit registers (Padilla and Pagano (1997), Van Cayseele, Bouckaert and Degryse (1994)).

One seemingly simple solution to the holdup problem is for a firm to establish more than one inside bank relationship and have the banks compete away the monopoly rents. Rajan (1992), however, warns that such competition can be a "double-edged sword". Any outside lender that competes with an existing inside bank by offering a lower interest rate at an interim stage of financing will suffer from a winner's curse problem. The inside bank will offer a competitive bid for good firms while allowing bad firms to take the outside lender's offer (a similar point is made by von Thadden (1998)). When competition ensues between more symmetrically informed banks, monopoly rents can be eliminated, but only at the expense of reduced control over firm investment behavior. Hence competition at the outset between an insider and outsider has the benefit of reducing the monopoly rent one bank can charge, but also reduces its ability to control the investment behavior of the firm. Moreover, Petersen and Rajan (1995) reason that credit market competition reduces the availability of credit to firms that benefit most from relationship lending. We address the issue of competition from multiple banks in more detail in Section V.

The costs arising from holdup problems may also be tempered by the bank's reputation. Sharpe (1990) argues that banks build valuable reputations by refraining from extracting monopoly holdup rents. In Chemmanur and Fulghieri (1994), banks use the ability to renegotiate as a means of acquiring a valuable reputation and reputation-building provides the bank with an

incentive to establish a relationship with a firm. In their model, banks have the choice between liquidating the firm when distressed or renegotiating the loan contract. Banks wishing to establish a reputation for financing productive firms, monitor the firm more intensively, which in turn leads to more efficient continuation decisions in renegotiation. If bank reputation is positively correlated with a credit rating, then the results in Billett et al. (1995) are consistent with the theory in Chemmanur and Fulghieri (1994). Firms that are financed by more reputable banks experience the largest positive value increases upon announcement of the loan.

In the next section, we introduce measures of the strength of a bank relationship and relate empirical estimates of strength to the performance of banks.

4 Measures of Relationship Strength and the Performance of Banks

We begin this section by investigating two measures of relationship strength: duration and scope. We then examine the influence of relationships between bank and customer that extend beyond the standard services provided by a bank.

4.1 The duration of a relationship

An important observable measure of the strength of a bank relationship is its *duration*. As the duration of a bank relationship lengthens, the bank has the opportunity to observe, learn and utilize the private information about its customer, has more flexibility in writing, committing to, and enforcing contracts and can credibly build a reputation for quality service. The ability for a given bank to preserve a relationship will depend on the price and quality of services offered, the quality of the customer and the competitive environment in which the bank operates.

Table 2 summarizes the international evidence from recent papers on the average length of bank relationships. At first glance, Table 2 suggests that the duration of Japanese and continental European bank relationships tend to be greater than their counterparts in the US. This pattern is consistent with the idea that Japan and continental European countries tend to be bank-dominated economies, where relationship-based financing plays a dominant role (see for example, Cable (1985) and Aoki and Patrick (1994)). Elsas and Krahnen (1998) estimate the mean duration of a bank relationship in their sample of German companies to be 20 years, while in Horiuchi, Packer and Fukuda (1988), the estimate for Japanese firms is between 21 and 30 years. The estimates from Norway and Sweden are of the same order of magnitude. In contrast, most of the US estimates of duration are less than ten years. Cole (1998), for example, finds the mean duration of US firms in his sample to be seven years.

However, the estimates in Table 2 are deceiving because the cross-country data vary greatly according to the characteristics of the sample firms and by how duration is estimated. For example, the size of the firms from all of the available U.S. studies is comparatively small. Petersen and Rajan (1994), Berger and Udell (1995) and Cole (1998) all use data from the National Survey of Small Business Finances (NSSBF), a data set collected for the US Small Business Administration and limited to firms with less than 500 employees. By contrast, Elsas and Krahnen (1998) and Horiuchi et al. (1988) employ a sample of large industrial firms. A German study that utilizes a data set comparable to the NSSBF data is Harhoff and Körting (1998b). They report the average duration of a bank relationship to be around twelve years – an estimate of the same magnitude as the estimate from the U.S. data.

A second problem with the duration estimates in Table 2 is censoring. Censoring induces inconsistent estimates of duration and occurs when either the beginning of the relationship, end of the relationship, or both is not observed by the empiricist. A simple illustration of the censoring problem can be made using the NSSBF cross-sectional data. Firms surveyed at one point in time about their incumbent bank relationship cannot provide information about when the relationship will end. The duration of the firms is thus "right-censored" since the maximum length of the relationship is limited by the survey year. Moreover, the duration is limited by the age of the firm. The average age of a firm is 11 years in the 1988 NSSBF survey and 12 years in the 1993 survey, limiting the maximum duration of the bank relationship for each firm to a relatively short time span.

Ongena and Smith (1998a) use a panel data of connections between Oslo Stock Exchange-listed firms and their banks for the period 1979-1995, enabling them to observe the entire evolution of some of the bank relationships in their sample. Still, 75 percent of their observations are censored. Many of the bank relationships begin before 1979 or continue after 1995, censoring the maximum observable duration to sixteen years. Firms also list and delist during the sample period, compounding the censoring problem. To obtain consistent estimates of relationship duration, Ongena and Smith (1998a) adopt censored-robust estimators of the *hazard function.* A hazard function measures the likelihood of ending a bank relationship conditional on its duration. The influence of censoring is clear in the data set used by Ongena and Smith (1998a). The mean length of an observed bank relationship with no adjustment for censoring is six years. After adjusting for censoring, the estimate of mean duration varies between 15 and 21 years.

Ongena and Smith (1998a) is also the only study listed in Table 2 that investigates the determinants of bank relationship duration. Using a sample of 357 bank relationships observed

over the period 1979-199, Ongena and Smith (1998a) find that long-standing bank relationships are more likely to be terminated than shorter relationships. Such behavior is consistent with the conjecture in Greenbaum et al. (1989) that the value to the bank of a relationship decreases as the relationship lengthens. Ongena and Smith (1998a) also report that bank relationships tend to be shorter for small, young, and relatively high-leveraged firms; suggesting that those firms most in need of bank financing maintain relationships for relatively shorter periods of time. Moreover, Ongena and Smith (1998a) report that firms that maintain multiple simultaneous bank relationships end a given bank relationship sooner than a firm with one bank relationship.

Consistent with the results reported in Ongena and Smith (1998a), recent US evidence suggests that the benefits from a bank relationship may accrue only in the earlier part of the relationship. In a study updating the Petersen and Rajan (1994) and Berger and Udell (1995) papers, Cole (1998) uses the 1993 NSSBF survey to show that credit availability increases in the length of the relationship over its first year, but does not increase thereafter.

Petersen and Rajan (1994) investigate the impact of relationship duration on the terms offered by the bank to its customer, enabling them to measure the value of a "strong" relationship for the credit policy of a bank. Petersen and Rajan (1994) study a sample of over 3,000 firms from the 1987 NSSBF survey. The NSSBF study is unique because it contains detailed information on the financing behavior of the sample firms, including information on the source and type of all outstanding loans, as well as detailed contract information on a firm's most recent loan. Petersen and Rajan (1994) find that the reported duration of the relationship has no statistically significant influence on the loan rate offered by a bank to the firm. Instead, Petersen and Rajan (1994) find that firm age is the most important explanatory variable in explaining cross-sectional variation in loan rates, with older firms receiving more favorable terms. However, duration does appear to positively influence the availability of bank credit to customers. Firms with longer bank relationships tend to rely less on expensive trade credit than firms with shorter bank relationships.

In a follow-up paper using the same data set, Berger and Udell (1995) argue that Petersen and Rajan (1994) fail to find a relation between interest rates and duration because they do not focus on the most important form of commercial bank lending, the line of credit. Berger and Udell (1995) find that the interest rates charged on lines of credit fall as time in a relationship lengthens. In addition, firms in longer bank relationships are less likely to pledge collateral against the loan. Berger and Udell (1995) argue that their results are consistent with the idea that a bank relationship involves revelation of valuable private information that improves contracting terms for the firm and that banks themselves appear not to price loan as if they had monopoly

power. Blackwell and Winters (1997) also find in a sample of small firm loan contracts from 6 U.S. banks that longer relationships lead to lower monitoring frequency, and lower cost of credit.

The results reported by Berger and Udell (1995) and Blackwell and Winters (1997) do not appear to carry over to European data. Elsas and Krahnen (1998), drawing from credit file data from large German "house" banks and Harhoff and Körting (1998b), using data from a survey of German firms similar to those in the NSSBF survey, also study rates charged on lines of credit, but find no significant impact of duration on cost of credit. From a sample of nearly 18,000 loans from one Belgian bank, Degryse and Van Cayseele (1998) document a *positive* relation between relationship length and contract interest rate, implying the bank is able to earn monopoly rents through holdup. Angelini, Di Salvo and Ferri (1998) obtain similar results using a small firm survey from Italy. Moreover, Degryse and Van Cayseele (1998) are unable to uncover a relation between duration and the probability of pledging collateral in Belgian firms.

The European studies do, however, broadly confirm the US results on credit availability. For example, Harhoff and Körting (1998b) and Angelini et al. (1998) show that credit availability for small firms typically increases with the length of the relationships and Elsas and Krahnen (1998) finds that German house banks continue to lend to customers after deterioration in the customer's credit rating.

4.2 Scope of the relationship

The strength of a bank relationship may also be measured by its *scope* at one point in time. Scope is defined in terms of the breadth of services offered by the bank and utilized by the firm. In addition to lending, a U.S. bank relationship can currently include deposit and investment activities, check clearing, cash management and currency exchange services. In many other countries and through holding companies in the U.S., a bank can also provide investment banking, brokerage, insurance and other financial services. The use of these services gives a bank the opportunity to learn more about a firm's loan payment ability, provides the bank with additional contracting flexibility and allows the bank to set pricing policies across different services. Following the early emphasis by Hodgman (1961), Hodgman (1963), Kane and Malkiel (1965), Wood (1975) and Black (1975), Nakamura (1993), Vale (1993) and Rajan (1998) argue that it is the special information received through checking account transactions that enables a bank to be an informed and efficient lender. If the bank provides most of the firm's payment services, the bank can draw an adequate and reliable picture of the firm's operational and financial activities, which may assist in deciding on the firm's current or future loan applications.

There is little evidence documenting the influence of the scope of a bank relationship on the performance of banks or firms. The primary reason for the paucity of evidence stems from the data demands analysis of scope requires. Detailed financial data at the service-level is typically proprietary and unavailable. Even more aggregated estimates of scope efficiency appear to be unreliable (Berger, Hunter and Timme (1993)).

In his survey of managers at top commercial banks, Hodgman (1963) finds that managers consider the quality of a deposit relationship to be the most important criterion in deciding whether or not to extend a loan. Petersen and Rajan (1994) control for whether a firm maintains deposits or purchases other non-lending services from its bank in their interest cost and credit availability regressions. They are unable to uncover a relation between the scope variables and contracted interest costs, but do find that firms that purchase other services from the bank are less credit constrained. Berlin and Mester (1998) present results to suggest that banks with strong market power in deposits are more accommodative with lending. Banks holding a large proportion of a region's core deposits maintain loan contracts that are less sensitive to economic fluctuations. Cole (1998), however, finds the dependence between the purchase of financial services and credit availability to be negative. Degryse and Van Cayseele (1998) find that the purchase of other information-sensitive services from a bank lowers the interest rate charged to the customer and Angelini et al. (1998) find that members of cooperative (mutual) banks obtain easier access to credit at lower interest rates than non-members.

4.3 Extended bank relationships

A bank-customer relationship can extend beyond the usual banking activities of deposit-taking, lending and related ancillary financial services. For example, a bank can exert direct, ownership-type control over a firm by participating in an external supervisory role or by holding voting equity in the firm. The relationship-based banking systems of Germany and Japan are often defined in terms of this close control.

Board-of-director interlocks, where firms and banks share common board members, provide a extra mechanism for the bank to facilitate information transfer and control managerial decision-making. This degree of control may enhance the benefits of the relationship by, for example, strengthening a bank's commitment to be accommodative during difficult financial times, but may also accentuate a bank's monopoly power over the firm. Kracaw and Zenner (1998) examine stock price reactions to 378 US bank loan announcements over the period 1980-1989 for firms that have interlocking directorates with their banks. They find lower stock price reactions at the announcement of a bank loan for "strong" interlocks. This result is especially

strong for smaller firms. They interpret their results as implying that strong board interlocks intensify holdup problems. Berglöf and Sjögren (1995) find that Swedish firms maintaining interlocking directorates (and where banks indirectly own part of the firm) rarely switch banks. Van Ees and Garretsen (1994) examine a panel of 76 larger Dutch firms between 1984 and 1990 and find that sharing of board members, which link about half the sample firms to a "main" bank, reduces liquidity constraints.

Bank equity ownership of German firms is found by Elston (1995) and Harm (1996) to decrease the sensitivity of investment to internal liquidity constraints. But the positive impact of equity-holding banks on the performance of Germans firms has decreased through time in sync with the decline in the frequency of block holding (Gorton and Schmid (1996)).

Overall, banks are often conjectured to play a much less dominant role in corporate finance in the US, Canada, and UK, than in Continental Europe and Japan. A growing literature describes and dissects the merits and drawbacks of the Anglo-Saxon, transactions-based financial system relative to the Continental European and Japanese relationship-based systems (for example, see Macey and Miller (1995) or the Winter 1997 issue of the *Journal of Applied Corporate Finance* for recent published debates on the subject. Edwards and Fisher (1994) and Corbett and Jenkinson (1997) question whether there actually is a large distinction between the different countries).

The studies place particular emphasis on the so-called "main" banks in Japan and "house" banks in Germany. A Japanese main bank is defined by Hoshi, Kashyap and Scharfstein (1990) to be a bank that "provides debt financing to the firm, owns some of its equity, and may even place bank executives in top management positions" (p. 68). A German house bank is defined by Elsas and Krahnen (1998) as "the premier lender of a firm, being equipped with more relevant and, more timely information than any "normal", non-house bank" (p.1). Both definitions emphasize the strength of the relationship between the bank and firm.

A relatively large literature exist exploring the influence of Japanese main banks. Japanese main bank ties are reported to reduce the cost of firm financial distress (Hoshi et al. (1990)), debt capacity constraints (Fukuda and Hirota (1996)), investment sensitivity to liquidity (Hoshi, Kashyap and Scharfstein (1991)), managerial entrenchment (Kang and Shivdasani (1995); Kaplan (1994); Kaplan and Minton (1994)), inflexibility in restructuring (Kang and Shivdasani (1997)), and capital constraints (Weinstein and Yafeh (1998)). Weinstein and Yafeh (1998) report, however, that firms with main bank relationships face higher interest charges and experience slower growth rates than non-main bank firms. In addition, Kang and Stulz (1998) find that firms with close banking relationships performed worse during and after the 1990-1993

deflation of the Japanese stock market because banks themselves were facing financial problems. Using data from the period 1994-1995, Gibson (1997b) reports that bank-dependent firms invest significantly less when their main bank is rated low.

Elsas and Krahnen (1998) compare the contract terms and credit availability of house banks versus normal banks in Germany. They find that the loan pricing practices of house banks are indistinguishable from normal banks. However, they also provide evidence that house banks follow relatively more accommodative policies to customers facing rating downgrades.

5 Multiple Bank Relationships and Credit Market Concentration

In this section, we explore two related extensions of the study of bank relationships to the competitive environment in which banks and firms interact. The first area relates to the observation that many firms maintain multiple-bank relationships. When a firm maintains multiple bank relationships, it can improve the terms of its financial contracts by forcing banks to compete. The second area focuses on the degree to which a few banks dominate the banking industry in a particular market. The first area relates to concentration of banking at the firm level, while the second concerns bank concentration at the economy level. The two measures of concentration are related, because more concentrated bank economies imply fewer bank relationships per firm, though less concentrated markets need not imply more bank relationships per firm. Before discussing these two issues separately, we first present some summary evidence on number of bank relationships and market concentration across different countries and data sets.

5.1 International Summary Statistics

Table 3 assimilates estimates of average number of bank relationships per firm across of variety of countries and data sets. We list details on the sample period, sample size, country of origin and average size of the firm within each sample. For the 20 European countries covered in Ongena and Smith (1998b), we also list the proportion of the country's bank assets owned by the three largest banks. This provides a measure of country-level credit market concentration.

There is large variation across data sets in the average number of bank relationships per bank, though multiple-bank relationships are a common feature to nearly all of the data sets. The first thing to note from the table is that multiple bank relationships are common across almost all the data sets. Small firms tend to maintain fewer bank relationships than studies large firms. For example, US studies using the NSSBF data estimate the mean number of banks per firm to be two and the median to be one. There is also appears a strong country effect. Firms in the UK, Norway and Sweden maintain relatively few bank relationships - less than three on average -

while firms in Italy, Portugal, Belgium and Spain maintain on average ten or more bank relationships. Ongena and Smith (1998a) show that the relative rankings in Table 3 of the European countries holds after controlling for firm size (along with other firm characteristics). Thus, although firm size is important in describing the number of bank relationships per firm, the size of firms within a country does not alone explain the variation in average number of bank relationships across countries.

The third thing to note in Table 3 is the negative correlation between number of bank relationships and credit market concentration. Firms in markets where a few banks own a relatively large proportion of total bank assets tend to maintain fewer bank relationships.

5.2 Single versus Multiple-Bank Relationships

Why do we observe or few bank relationships as the norm in some data sets and multiple bank relationships as the norm in others? In Diamond (1984), a single bank arises as the optimal mechanism for channeling loans from investors to firms when costly information asymmetries exist between the investors and project insiders. Many of the other information-based theories of banking build on the similar idea that by *coordinating* investors, a bank can efficiently reduce information asymmetries and improve the flexibility in writing and renegotiating loan contracts. These theories imply that a firm should only borrow from one bank, since borrowing from more than one bank implies duplication of information production or increased costs of contracting.

By inviting competition from other banks, a firm can reduce the possibility for its incumbent bank to extract monopoly rents. Thus, in the presence of holdup costs, one bank relationship may no longer be optimal. However, competition among banks may actually harm a borrower if competition forces rents to the point where it is no longer profitable for either bank to lend to the firm. Petersen and Rajan (1995) model the dependency of a firm's ability to borrow on the market power of the lending bank. They show that borrowing from banks with large market power facilitates intertemporal sharing of rent surplus and hence increases the value of a single relationship, while competition in the credit markets hinders such accommodative policies. Such intertemporal surplus sharing is crucial for smaller or younger firms, which Petersen and Rajan (1995) argue are most in need of bank financing.

Evidence on the impact of multiple-bank relationships on credit availability, contract pricing and firm performance is mixed. Petersen and Rajan (1994) find those firms that maintain multiple-bank relationships face *higher* interest payments and are more credit constrained than single-bank firms are. In line with the results in Petersen and Rajan (1994), Cole (1998) finds

multiple-bank firms are denied credit more frequently than single-bank firms and Harhoff and Körting (1998b) documents lower availability of credit to multiple-bank firms.

On the other hand, Houston and James (1996) demonstrate that, for their sample, a single-bank firm's reliance on bank debt is negatively correlated with future growth potential, while the relation between bank debt level and growth for multiple-bank firms is positive. Houston and James (1995) find that single-bank firms are more sensitive to investment cash flow constraints, hold larger stocks of liquid assets and pay lower dividends. Overall, Houston and James (1995) conclude that single-bank firms are *more* credit constrained than multiple-bank firms. Ongena and Smith (1998a) show that firms with multiple-bank relationships end a bank relationship sooner than single-bank firms, suggesting that a given bank relationship is less valuable to multiple-bank firms.

5.3 Credit Market Concentration

Petersen and Rajan (1994) show that small firm borrowing in the US is highly concentrated. Even when firms have multiple lending sources, they tend to concentrate their borrowing from one source. This pattern becomes less apparent as the size of the firm grows. The level of credit market concentration, measured by the Herfindahl index of lenders within a firm's region, is found by Petersen and Rajan (1994) to be positively related to credit availability. This latter result is studied in greater detail (using the same data set) in Petersen and Rajan (1995). In this paper, they find that young firms are more likely to obtain bank financing in concentrated credit markets, while older firms borrow less from institutions and are less influenced by the concentration of the market. With respect to the cost of lending, Petersen and Rajan (1995) find that young firms pay lower interest rates in concentrated markets, while older firms receive better rates in competitive markets.

5.4 More on Multiple-Bank Relationships

Multiple-bank relationships may be beneficial for reasons other than reducing the holdup rents accruing to one bank. First, if there exists an exogenous chance that a firm will lose a valuable bank relationship, firms may invest in establishing multiple-bank relationships to "diversify" the risk of losing its connection to a bank. Second, there may arise situations in which *lack of coordination* among lenders aids in resolving information asymmetries.

An example of the diversification argument is Detragiache, Garella and Guiso (1997). They study an economy where inside bank relationships are valuable, but banks are also susceptible to exogenous liquidity shocks. When a liquidity shock occurs, the bank cuts off

financing to the firm, forcing a single-bank firm to borrow from expensive, outside lending sources. Firms have an incentive to insure themselves against a bank loss by investing in more than one bank relationship. In Detragiache et al. (1997), the optimal choice of number of bank relationships is shown to be a function of the fragility of a country's banking system and the efficiency of its bankruptcy process.

Dewatripont and Maskin (1995) compare the impact of centralized versus decentralized concentrated banking systems on the incentives of borrowers within the system. Decentralized economies inhibit bank commitments to finance unprofitable, long-term projects because dispersed banks with limited capital find it costly to communicate or coordinate actions. Knowledge of such renegotiation costs induce firm managers to make efficient accept-reject decisions on long-term projects. Bolton and Scharfstein (1996) argue that borrowing from multiple lenders decreases the incentive for a firm manager to strategically default and "take the money and run", since the manager must coordinate a restructuring plan with multiple claimants. Borrowing from multiple sources also increases the cost of renegotiation in cases where a firm requires project refinancing. The choice of optimal number of lenders balances the benefits from disciplining the borrower with the increased inefficiencies that arise when liquidity is required to continue a positive NPV project. Bolton and Scharfstein (1996) predict that the number of lenders should be *decreasing* in the default risk of the firm, the complementarity of firm assets and in the liquidation value of the firm's assets.

Ongena and Smith (1998b) study the determinants of multiple bank relationships using survey evidence from 1129 firms in 20 European countries. Their most interesting results come from the exploration of the cross-country variation in average number of bank relationships. They find that, after controlling for firm and industry-specific characteristics, the average number of bank relationships per firm is related to the fragility of a country's banking system, though in the opposite direction than hypothesized by Detragiache et al. (1997), and negatively related to the efficiency of its bankruptcy process and enforcement of creditor rights. In addition, they find that concentration of the banking system and the degree of stock market development reduce the number of bank relationships, while public bond markets have a complementary effect and increase the average number of banks per firm.

6 Importance of Bank Relationships in the Macroeconomy

Following the original motivation of Kane and Malkiel (1965) and Wood (1975), Bernanke and Blinder (1988) argues that monetary policy influences real output through a so-called "credit channel", i.e. decreasing the money supply reduces the volume of bank credit. In Kashyap, Stein

and Wilcox (1993) this model is further enriched by modeling a bank relationship benefit, which depends on the total amount that firms borrow from banks. In such a model, monetary policy consequently has implications for the firms' financial structure, providing testable hypotheses about the importance and strength of the credit channel. In Gibson (1997a), a bank's optimal policy is to drop long-term customers following contractionary monetary policy, especially when the fraction of a bank's assets devoted to loans is high. Hence, this model links the strength of the bank lending channel to the composition of bank assets.

Bank relationships can also directly impact the macroeconomy when relationships are lost in bank default. When default occurs, it disrupts lending to loan customers. Single-bank firms that rely only on bank lending may have to reduce real investments. More generally, increased risk in the banking sector may decrease the expected benefits firms can derive from their bank relationship, increasing the expected cost of corporate finance, and reducing the level and growth of real activity (Gray and Ongena (1996)).

In addition, bank defaults may create deadweight costs when customer reputations gained through the relationship are lost and future borrowing is hampered (de Lange (1992)). Stiglitz (1992) argues that uninformed banks that choose to lend to one of a failed bank's customers must bear the cost of becoming informed. Loss of financing to firms after a default could also exert excess pressure on other banks in the system. For example, Gale (1993) conjectures that bank failures may accelerate market collapse, as the influx of cut-off firms seeking financing from other banks may congest the available reduced information processing capacity. On the other hand, the existence of bank relationships may lessen the likelihood of bank default. If bank relationships create franchise value for the bank (Demsetz, Saidenberg and Strahan (1996)), banks managing many strong relationships with their customers, will operate more conservatively and will be less likely to default (Keeley (1990)).

Besides bank liquidation, formal actions (see for example Peek and Rosengren (1995)), dispositions of failed or failing banks, and voluntary bank mergers will also cause temporary disruptions in banking services. Armed with contract-specific information on lending relationships of Italian firms, Sapienza (1998) argues that the impact of a merger on a bank relationship depends on the market share of the consolidated banks and on the size of the firm-customer. Both Berger, Saunders, Scalise and Udell (1998) and Sapienza (1998) find that loan contracts to smaller firms become less attractive after a merger and that small firms are more likely to leave their bank after a merger.

7 Concluding Remarks

We conclude here with a summary and discussion of future research ideas. According to both practitioner beliefs and recent theoretical papers in banking, it is through the close relationship formed with its customers that a bank distinguishes itself as an independently important, functioning intermediary between savers and users of funds. A relationship can facilitate the screening and pruning of loan customers, reveal information important to establishing future credit terms, and may be an integral part of controlling the behavior of firm managers. The strength of a relationship can be measured by the duration of the relationship through time, and by the scope of services offered by the bank to it customer.

Several empirical patterns stand out from the growing evidence on bank relationships. First, announcements by companies of bank loan agreements, as well as other private lending arrangements, generate positive abnormal stock returns. In contrast, announcements of public debt offerings are associated with zero or negative abnormal returns. The reasons for this pattern are unclear. Early evidence reported by James (1987) and Lummer and McConnell (1989) suggested that announcements by *banks* with *established lending relationships* were responsible for the high abnormal returns. Later studies, however, are unable to uncover meaningful differences between banks and other private lenders and question the result that established relationships generate higher abnormal returns than new ones. Still, the investigation of the underlying causes of these prices reactions is in its infancy. The increasing availability of detailed, contract-specific information will allow for more powerful tests to distinguish between competing hypotheses. New, international data will help to more closely relate the features of a loan contract to the event-day abnormal return.

Second, small, private firms and family-owned businesses, which rely primarily on banks for external financing, appear to be less credit constrained when they maintain one bank relationship over relatively long periods of time. Petersen and Rajan (1995) find that small and young US firms tend to also be less credit constrained and to receive better lending rates when they borrow from one bank and operate in a concentrated credit market. The Petersen and Rajan results therefore suggest that competition between banks hurts small and young borrowers. By contrast, the results in Houston and James (1996) demonstrate that large, exchange-listed U.S. firms benefit from multiple-bank relationships and are hindered by single-bank lending. In line with the evidence in Houston and James (1996), Ongena and Smith (1998a) find that exchange-listed Norwegian firms with multiple bank relationships are more active in ending a given bank relationship than a single-bank firm. Ongena and Smith (1998a) also document that small,

exchange-listed firms do not value long-term relationships. Instead, small firms are more likely to end a bank relationships than larger, exchange-listed firms.

Third, multiple-bank relationships are quite common in the cross-section of countries for which relationship data are available, and the average number of bank relationships across these countries varies considerably. In many countries, even small firms maintain multiple-bank relationships. This observation makes it unlikely that these firms suffer from large holdup problems. The differences in average number of bank relationships across countries is related to factors such as the fragility of the banking system, the efficiency of the bankruptcy process and legal system, the degree of development of public capital markets and the level of bank concentration within an economy. Because these characteristics are certainly interrelated, causal judgements are difficult. For example, if the level of bank concentration within a country is exogenously determined (say by regulation), then the observed relation suggests that multiple-bank relationships and competitive, unconcentrated markets are optimal in an unregulated environment.

There are several questions related to the strength and value of bank relationships that have received very little attention in the existing literature. These questions can be usefully grouped according to their focus on firm, bank or aggregate economy.

First, more evidence on the relation between the decision to switch banks and subsequent *firm performance* could be useful. Large firms may actually screen and monitor the performance of their banks. They do so by choosing only highly reputable banks with the intent of maximizing their own reputational effects (Hadlock and James (1997)). These same firms will shy away from low-rated banks as they fear the considerable disruptions to business caused by bank default.

Second, we need to better understand the impact of bank relationships on *bank performance*. Is it profitable, as the Chase Manhattan motto suggests, for banks to engage in intensive relationship-building? Or should banks focus on becoming multi-faceted "transactions centers"?

Third, we know very little about the impact of relationship scope on either the firm or the bank. To what extent does the scope of the entire bank relationship determine the characteristics of the lending relationship? Or is the importance of the lending relationship subordinate to other services (deposit, clearing, cash management) offered by the bank? And how does cross-selling of services work?

Fourth, we need more evidence on cross-border bank relationships to aid in understanding how deepening global integration of the financial service sector may affect banks, firms, and regulators. How do international bank relationships differ from domestic bank relationships? Are

cross-border bank relationships as durable and numerous as their domestic counterparts? What type of firms and banks engage in cross-border relationships? And, do factors such as financial fragility and judicial efficiency, which may play a role in the firm's decision regarding the number of domestic bank relationships, also affect the choice of the country of origin of the banks the firm engages?

Finally, a better understanding is required of how banks and bank relationships fit into the operation of financial systems as a whole and how the performance of the financial sector determines aggregate economic growth. The average number of bank relationships across different countries reported here is but one indication of the variation present in financial systems around the world. There is anecdotal evidence that the close relationships between firm and bank have created and exacerbated the financial problems in Japan. Some argue that relationships have been "too cozy", leading to a vast misallocation of credit in a number of other East-Asian countries. As more and more previously underdeveloped or heavily regulated countries adopt lower regulations and freer markets, the understanding of how to develop a well-functioning financial system becomes more pertinent.

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TABLE 1. EVIDENCE ON BANK RELATIONSHIPS: EVENT STUDIES

Paper	Sample Period	Average (Median) Firm Size	Announcement (Number of Events)	Two Day, -1 and 0, Mean Abnormal Return (is difference significant?)
James (1987)	1974-1983	Liabilities: 675 (212)	Bank Loan Agreement (80)	1.93***
Slovin et al. (1988)	1982-1985	7303	Commercial Paper Offering (35) through Note Issuance Facility (18) or Letter of Credit Backed (17)	1.39**
Lummer and McConnell (1989)	1976-1986	n/a	Bank Credit Agreements (728) Revised (357) / New (371)	0.61*** 1.24*** / -0.01 (n/a)
Best and Zhang (1993)	1977-1989	n/a	Bank Credit Agreement (491) Renewals (304) / New (187) Renewals and Noisy [a] (156) / New and Accurate [a] (187)	0.32** 1.97** / 0.26 (no) 0.60** / -0.05 (*)
Billett et al. (1995)	1980-1989	Equity Market: 316 (79)	Loan (626) Renewals (187) / New Banks (51) Banks' Rating: AAA (78) / < BAA (29)	0.68*** 1.09*** / 0.64* (no) 0.63*** / -0.57 (no)
Hadlock and James (1997)	1980-1993	Assets: 2181 (238) 3252 (485) / 315 (143)	Bank Loan (120) Public Debt: With (64) / Without (56)	0.91*** 1.50* / 0.19 (*)
Shockley and Thakor (1998)	1989-1990	n/a	Loan Commitments Purchases (189) Usage Fees: With (137) / Without (52)	1.95*** 2.47*** / 0.54 (***)
Kracaw and Zenner (1998)	1980-1989	Equity Market: 296 (65)	Bank Loan (378) Clear and Potential Strong Interlocks (32) / No (346)	n/a -0.89 / 0.96 (*)

Notes: Average (Median) Firm Size is the size of the firms in millions of US$ in the last year of the sample. [a] Prediction. *** Significant at 1%, ** significant at 5%, * significant at 10%.

TABLE 2. EVIDENCE ON BANK RELATIONSHIPS: DURATION

Paper	Country	Sample Year(s)	Sample Size	Average (Median) Firm Size	Average (Median) Duration
Cole (1998)	US	1993	5356	Book Assets: 1.63	7.03
Blackwell and Winters (1997)	US	1988	174	Book Assets: 13.5	9.01
Petersen and Rajan (1995)	US	1987	3404	Book Assets: 1.05 (0.3) Employees: 26 (5)	10.8
Angelini et al. (1998)	Italy	1995	1858	Employees: 10.3	14.0
Harhoff and Körting (1998b)	Germany	1997	994	Employees: ± 40 (10)	± 12
Elsas and Krahnen (1998)	Germany	1992-1996	125 / year	Turnover: (30-150)	22.2
Ongena and Smith (1998a)	Norway	1979-1995	111 / year	Market Equity: 150	(15.8 - 18.1)
Zineldin (1995)	Sweden	1994	179	Employees: (<49)	(>5)
Sjögren (1994)	Sweden	1916-1947	50	Largest Firms	> 20 (5-29)
Degryse and Van Cayseele (1998)	Belgium	1997	17776 loans	Employees: (1)	7.82
Horiuchi et al. (1988)	Japan	1962-1972 1972-1983	479 668	Largest Firms	(21) (30)

Notes: Sample Size is the number of firms (unless indicated otherwise). Average (Median) Firm Size is the size of the firms in millions of US$ in the last year of the sample or if indicated the number of employees. Average (Median) Duration is the duration of bank relationships in years.

TABLE 3. EVIDENCE ON BANK RELATIONSHIPS: NUMBER AND CONCENTRATION

Paper	Country	Sample Year(s)	Sample Size	Average (Median) Firm Size	Average (Median) Number	Concentration
Ongena and Smith (1998b)	*Average 20 countries*	*1996*	*1129*	*Sales: 750*	*5.6*	
	Italy		*70*	*1500*	*15.2*	*35.9*
Detragiache et al. (1997)	Italy	1989-1993	±1000 / year	Employees: 926 (293)	16.4 (13)	
Pagano, Panetta and Zingales (1998)	Italy	1982-1992	19274	Employees: 737 (258)	13.9 (11)	
Rossignoli and Chesini (1995)	Italy	1993	1527		14.8	
Angelini et al. (1998)	Italy	1995	1858	Employees: 10.3	2.4	
Cesarini (1994)	Italy	1993	263376	Credit line: < 1 bln. Lira	1.6	
				Credit line: > 500 bln. Lira	33.2	
	Portugal		*43*	*750*	*11.5*	*38.1*
	France		*25*	*1500*	*11.3*	*63.6*
	Belgium		*10*	*3500*	*11.1*	*44.4*
	Spain		*68*	*1500*	*9.7*	*50.1*
	Germany		*67*	*3500*	*8.1*	*89.5*
Elsas and Krahnen (1998)	Germany	1992-1996	125 / year	Turnover: (30-150)	6.0 (5.0)	
Harhoff and Körting (1998a)	Germany	1997	994	Employees: ± 40 (10)	1.8 (1 or 2)	
	Greece		*41*	*750*	*7.4*	*98.3*
	Austria		*37*	*1500*	*5.2*	*61.4*
	Luxembourg		*8*	*375*	*5.0*	*17.2*
	Czech Rep.		*59*	*< 100*	*4.7*	
	Hungary		*44*	*175*	*4.0*	

	Finland		*89*	*750*	*3.6*	*93.8*
	Switzerland		*39*	*3500*	*3.6*	*79.8*
	Denmark		*51*	*750*	*3.5*	*63.7*
	Netherlands		*49*	*1500*	*3.5*	*59.0*
	Poland		*13*	*175*	*3.3*	
	Ireland		*67*	*750*	*3.2*	*93.6*
	UK		*142*	*1500*	*2.9*	*29.1*
	Sweden		*50*	*1500*	*2.5*	*86.6*
Zineldin (1995)	Sweden	1994	179	Employees: (<49)	(1)	
Berglöf and Sjögren (1995)	Sweden	84, 90, 93	± 30 / year	Large Firms	(1)	
	Norway		*41*	*750*	*2.3*	*48.8*
Ongena and Smith (1998a)	Norway	1979-1995	111 / year	Market Equity: 150	1.4 (1)	
Horiuchi (1993), Horiuchi (1994)	Japan	1990	126 / 309	Employees: <300 / >300	3.4 / 7.7	28.3
		1992	175 / 189	Employees: <10 / > 10	2.9 (3) / 3.1 (3)	
Petersen and Rajan (1995), Berger and Udell (1995)	U.S.	1987	3404	Book Assets: 1.05 (0.3) Employees: 26 (5)	1.4 (1)	13.3
Houston and James (1996)	U.S.	80-85-90	±250 / year	Market Assets: 1502 (112)	5.22	

Notes. Sample Size is the number of firms (unless indicated otherwise). Average (Median) Firm Size is the size of the firms in millions of US$ in the last year of the sample or if indicated the number of employees. Average (Median) Number is the number of bank relationships. The Concentration Ratio is the percentage of total banking system assets accounted for by the largest three banks in 1993. Source: for Norway: Nordal and Nærland (1995), Table 2b; for all other countries: Barth, Nolle and Rice (1997), Table 3.

TABLE 4. NUMBER AND DURATION OF BANK RELATIONSHIPS AND COST AND AVAILABILITY OF CREDIT

	Data Source (firms size)	**Cost of Credit**			**Availability of Credit**		
		Measure	*Impact on the Cost of Credit of*		*Measure*	*Impact on the Availability of Credit of*	
			Number	Duration		Number	Duration
Cole (1998)	1993 NSSBF (small)				extension of credit	negative	positive
Blackwell and Winters (1997)	6 Banks (small)	Spread Revolver/ Prime Rate		no			
Berger and Udell (1995)	1987 NSSBF (small)	Spread Line of Credit / Prime Rate		negative	no collateral		positive
Petersen and Rajan (1994)	1987 NSSBF (small)	Most Recent Loan Rate (Prime on RHS)	positive	no	% trade credit paid on time	negative	positive

Harhoff and Körting (1998b)	German Survey (small)	Line of Credit	no	no	no collateral	negative	positive
Elsas and Krahnen (1998)	5 German Banks (larger)	Spread Line of Credit / FIBOR		no			
Degryse and Van Cayseele (1998)	1 Belgian Bank (mostly small)	Loan yield till next revision		positive	no collateral		no
Angelini et al. (1998)	Italian Survey (small)	Line of Credit	negative	positive (non-CCB) negative (CCB member)	no rationing	negative	positive

Notes. CCB: Italian Cooperative Bank. NSSBF: National Survey of Small Business Finances. RHS: Right Hand Side.