# ESSAYS ON THE SYNDICATED LOAN MARKET

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By

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## ABSTRACT

Title: ESSAYS ON THE SYNDICATED LOAN MARKET

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The syndicated loan is become more and more important for firm's financing. We study three important aspects of loan syndication: the lead arranger's reputation effect on syndicated loan pricing, the switching behavior for repeat syndicate loans and the effect of country-specific bank-firm ownership structure on syndicated loan pricing and bank-firm relationship of repeat loans.

The first chapter analyzes the reputation effect of the lead arranger on syndicated loan pricing, based on a sample of loan facilities to non-financial U.S. firms over the 1994-2006 period. Theory suggests that the reputation/spread relationship should generally be positive because more reputable lenders usually employ more costly loan screening and monitoring techniques and therefore must be compensated with a higher spread. After controlling for endogeneity in lender-borrower matching, the empirical results show that the reputable arrangers charge a "reputation premium" for monitoring and due diligence, and the commitment against extracting the information rent from borrowers. The results also show that the less-reputable arrangers offer a "reputation discount", since the market competition from both the loan market and bond market makes it more difficult for less reputable arrangers to sustain the reputation mechanism. In addition, the reputation effect on pricing becomes less significant when the

borrower enters a repeat loan relationship with a prior or existing lender. Finally, the study finds that the arranger's reputation can reduce the lead share retained by the lead arranger in its loan portfolio, which serves as evidence that reputation also mitigates the information asymmetry between the lead arranger and participant banks.

The second chapter analyzes the switching behavior for two types of repeat loans: migrating loans that remain within the same bank reputation class and loans migrating to a different reputation class. The theoretical literature argues that banks (lenders) and firms (borrowers) benefit from entering into a relationship-lending arrangement. In the syndicated loan market, however, it is very common for repeat loans to switch from one bank to another. We present a model that establishes conditions for implementing empirical investigations relating to relationship lending and the characteristics of the separating equilibrium in the loan market. Using explanatory variables describing firms, loans, and loan syndicates, we find that lending within the high quality bank sector reveals evidence that is consistent with relationship lending. That is, some firms forego longer maturity loans and less oversight to remain with their original lender. A similar finding does not hold for repeat lending in the lower quality bank sector. Regarding loans that migrate in either direction between the high and low quality banking sectors, firm risk is the most important determinant. Relatively riskier firms move down to lower quality lenders while relatively safer firms move up to higher quality lenders.

The third chapter investigates the determinants of loan pricing and repeat loan relationship for a sample of 6,180 non-U.S. firm-loan observations for the period 1998-2007. This paper focuses on the relation between a country-specific governance indicator and country-specific bank-firm ownership structures on loan pricing and the management of a lending

relationship between the syndicate bank and firm. We evaluate the relationship between country-specific bank ownership structure and the main characteristics of loan, which are mainly measured by loan pricing and loan switching decision. The paper examines three interrelated questions: 1.How is loan pricing affected by country-specific bank-firm ownership structure? 2. Does country-specific bank-firm ownership structure influence the decision to switch lenders in the repeat loan market? 3. Is country-specific bank-firm ownership structure more important for a borrower to migrate to a higher reputation lender than to a lower reputation lender?

We use loan-characteristic, bank-characteristic, and firm-characteristic variables as well as country-specific corruption and country-specific bank-firm ownership structure variables to explore the effect on loan pricing and loan-switching decisions. Using logistic regression analysis, we find that loan switching is less likely for firms when the bank controls the firm, especially in the case of a bank-controlled firm borrows from a low reputation syndicated loan lender. However, when the firm controls a local bank, there is no impact on the firm's switching decision in the syndicated loan market. The bank-controlling firm is as likely to switch as a firm that does not control a bank even though the firm is more opaque to the financial market. Our results suggest that in the international syndicated loan market, the bank-firm relationship is partly shaped by country-specific characteristics and information asymmetry of firms to the financial market.

These chapters explores the bank and firm behavior in the syndicated loan market and make the contribution to the literature by offering further knowledge and deeper understanding about the bank-firm relationship and behavior in the loan syndication structure.

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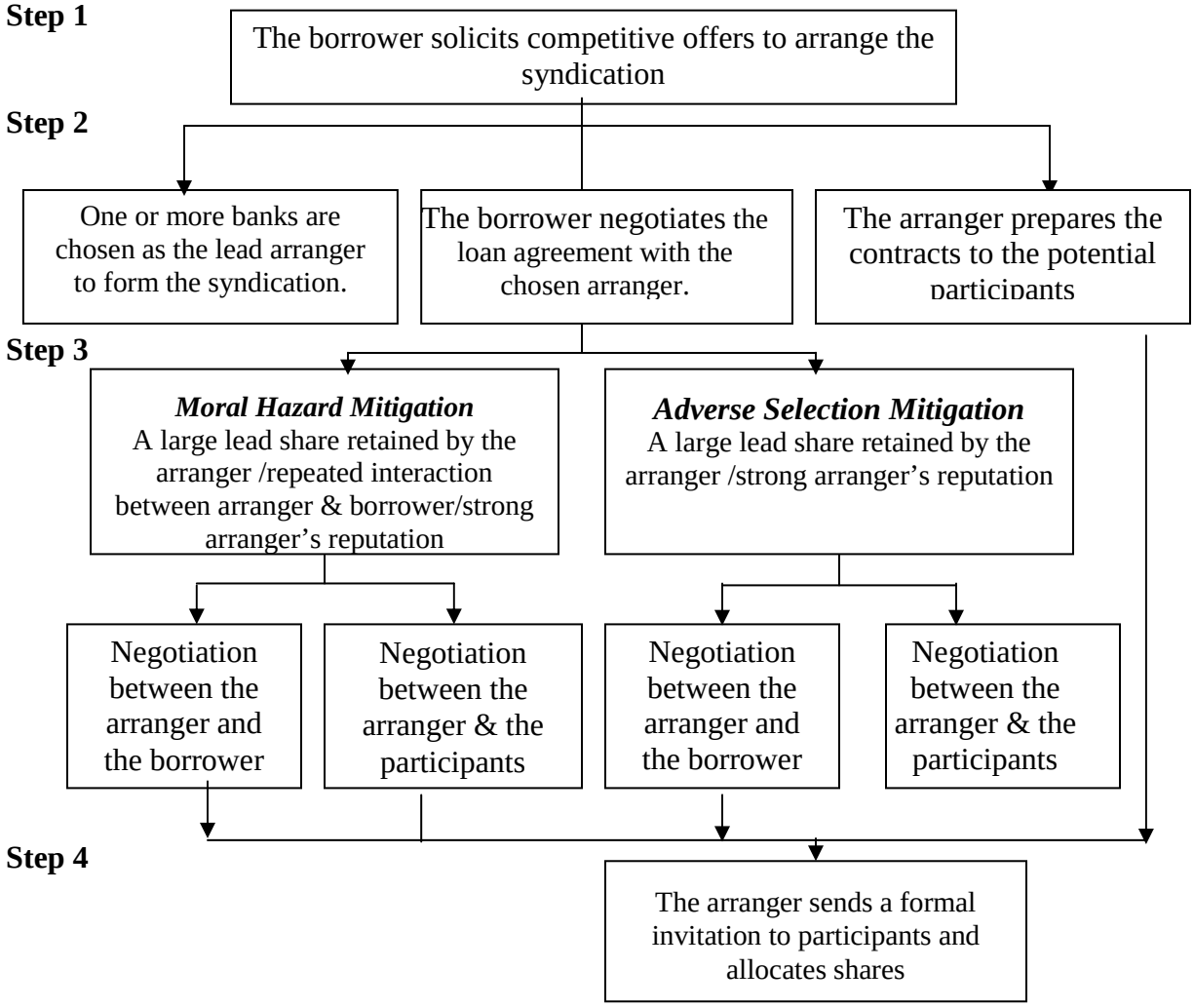
# CHAPTER 1

# THE REPUTATION EFFECT ON LOAN PRICING IN THE SYNDICATED LOAN MARKET

## 1.1. Introduction

Bank loan syndication is a sequential process, as shown in Figure 1.1. During this process, the firm solicits syndication offers to arranger bank that are mandated to form syndication, and negotiates the loan agreement with the chosen arranger. The arranger prepares the loan contract and allocates loans among syndicate members.

**Figure 1.1 Syndication Loan Origination Process**



The loan syndication provides benefits to borrowers, arrangers and participant lenders, though it also comes with costs and the most prominent one is an agency problem due to information asymmetry between the arranger and participant members. In the syndicated market, to control for cost inefficiency and free-rider problem associated with multiple lenders[1], the monitoring role is generally delegated to one or more lead loan arranger. The lead arranger acts as an "informed lender" while potential participants are "uninformed lenders" who rely on the information and monitoring conducted by the arranger[2]. This dependence raises the possibility that syndicate members may be exploited by the arranger bank[3]. When information asymmetry of the borrowing firm is severe, to mitigate the problem of moral hazard and adverse selection, the participating members generally require arranger to "signal" the quality of the loan by retaining a financial stake in the borrowing firm to ensure diligence and commitment against exploit its information monopoly. In additional to retaining a loan share in its portfolio to reduce the moral hazard and adverse selection problems of information asymmetry, the arranger's reputation can also act as a strong tool to mitigate the agency problem between the arranger and participating members. Sufi (2007) shows that asymmetric information between the lender and the borrower affects the structure of the loan syndication, and the lead arranger and borrower reputation can mitigate information asymmetry problems in the syndication.

This paper analyzes the syndicated loans lent to non-financial U.S. firms from 1994-2006 to explore reputation effects on the pricing of the syndicated loan. Three theoretical foundations of corporate finance are explored: information asymmetry, bank-borrower relationship and the

[1] Holmstrom(1997), Holmstrom and Tirole (1997), and Gorton and Pennachi (1995).
[2] Simons (1993) notes that syndicated participants evaluate the credit of the borrower by relying on the information provided by the syndication arranger.
[3] Hauswald and Marquez (2000) show the financial intermediary can appropriate its informational monopoly. Panyagometh and Roberts (2002) show that the lead bank may syndicate out a large proportion of a potentially problematic loan to syndicated members.

reputation mechanism. Specifically the paper analyzes how a lead arranger's reputation affects the pricing of a loan, under different subsets of bank-borrower relationships and arranger's reputations.

Theoretical studies on reputation effect generally predict a positive correlation between the reputation of a producer and both the prices and quality of the goods. Theoretically, Sharpiro (1983), Allen (1984), and Chemmanur and Fulghieri (1994) demonstrate that to maintain the equilibrium, premium fees need to be charged to compensate for the cost of investment in reputation. Empirically, Fang (2005) demonstrates that a fee premium is required to induce honest information production in the bond market.

One problem with previous studies is that many of those researches assume that the lender's return is independent of the competition, as pointed out by Dinc (2000). He examines how credit market competition changes the effectiveness of bank reputation to enforcing bank's commitment. His model demonstrates that relationship lending attracts competition not only from other banks but also from the bond market, and bank's incentive to keep commitment is derived as a function of its reputation, the number of competitors, the competitors' reputation and competition from the substitutive market. This dual competition constrains bank's ability to extract informational rents from lending relationships.

Our application of the Dinc's theory would be: the level of competition determines the relative benefits and costs of keeping its commitment and correspondingly determines how reputation affects loan price. To better measure the reputation effect of the lender on the pricing of syndicated loans, this study runs the sample as a full sample and repeat loan sample separately. By separately focusing on the repeat loans, this study partially controls the effects of

measurable and non-measurable information asymmetry on the loan pricing and correspondingly obtains a clearer view of the pure reputation effect.

This study assumes that the non-monotonic levels of competition faced by banks induce non-monotonic reputation effects on pricing. The syndicated loan market is highly concentrated. There are a small number of large commercial banks dominating the market[4]. The much larger number of smaller banks accounts for a small market share and survives by selling a limited line of "specialized" or "discounted" loan services. In all industries, the demand curve plays a role in price setting; however, the particular role the demand curve plays in an industry depends on the particular "industry structure" or "competition level" in that industry. As a result, it's not surprising that the most reputable banks and less-reputable banks face quite different levels of competition. Thus the impact of reputation on pricing is not necessarily linear, but would rather demonstrate a non-monotonic relationship among reputable and less-reputable lead arrangers. Our empirical results demonstrate that the top reputable lead arranger is capable of charging a premium for its monitoring and certification roles and its commitments against exploiting the information advantages about borrowers and participants. The less-reputable arranger, on the other hand, provides a reputation discount to compete with the top reputable banks in this highly concentrated and intensely competitive market.

[4] From year 1993 to 2005, the largest 4 commercial banks account for about 50% of the syndicated loan market share, and the largest 8 commercial banks account for about 70% of the market share (Table 3 Panel B). At the banking holding company level, the concentration level is even higher: the largest 4 banking holding companies account for approximately 75% of the syndicated market share and the largest 8 bank holding companies account for about 80% to 85% of the share from 1993 to 2005 (Table 3 Panel A).

We also test the effects of arranger reputation on the loan share retained by the lead arranger in its portfolio. The results show that in almost all sub samples, lead arranger's reputation has a significantly negative effect on the loan share retained in its portfolio.

This study contributes to the prior research in the syndicated loan area in the following ways. First, the study focuses on both the full loan sample and the subset of repeat syndicated loans and partially control the moral hazard problem; as a consequence, the research is able to provide a greater insight into the effect of arranger reputation effect on reducing adverse selection and correspondingly, its effect on the loan spread charged to borrower. Second, the paper analyzes the reputation effect on the loan spread under different borrow-lender settings and market competition levels. To the best of our knowledge, there has been no study on the reputation effect on the loan spread that considers both relationship lending and different levels of competition simultaneously.

The paper proceeds as follows. Section 2 discusses the related literature. Section 3 describes the theoretical framework and shows how to implement this framework empirically. Section 4 describes the dataset and major variables. Section 5 gives the empirical results and section 6 conducts some robustness checks. The last section concludes the study.

### 1.2. Related Literature

Financial intermediaries reduce the information asymmetry about firms and partially resolve the agency problem by assuming the role of 'delegated monitors' (Berge and Udell (1995), Boot and Thakor (1994), Diamond (1984), Holmstrom and Tirole (1997) etc.), though

the bank-firm relationship also comes with costs. Boot and Thakor (2000), Sharpe (1990), and Rajan (1992) demonstrate that the lead bank or a relationship lender has the ability to exploit its information monopoly over borrowers and syndicated participants. Consistent with this view, Steffen and Wahrenburg (2008) finds that undercapitalized banks charge higher loan spread for loans to firms facing a high switching cost. On the other hand, Ivashina (2009) finds prior relationship tend to reduce the information advantage of relationship banks and is associated with a lower loan spread.

The function of the syndication loan arranger is comparable to that of the underwriting investment bank. Chemmanur and Fulghieri (1994) show that reputable arrangers underwrite less risky issues, obtain higher prices for the issuers, and receive higher compensation. James (1992), and Livingston and Miller (2000) find that reputable investment banks charge lower fees in comparison to their less reputable rivals in IPO underwriting and bond underwriting market, respectively. Fang (2005) shows that more reputable investment banks obtain lower yields for issuers and these banks charge higher fees, which are considered as reputation rents. The mixed empirical evidence can possibly be explained by the endogeneity in the matching between issuer firms and arrangers (or underwriters). Fernando et al. (2005) and Fang (2005) show that high quality issuers are more likely to link with high quality underwriters.

Research closet to this study is those analyze the influence of the arranger's reputation on the syndicated loan structure and spread. Dennis and Mullineux (2000), Lee and Mullineux (2001), and Panyagometh and Roberts (2002) find that borrowers pay lower interest spreads by choosing a reputable arranger. Sufi (2007) find that a larger share of the loan is syndicated out when the arranger is reputable and arranger reputation can partially reduce information

asymmetry. In contrary, using European syndication loan data, Bosch and Steffen (2007) find no evidence of lower spread for the opaque borrower who borrows from the reputable arranger, suggesting the arranger's reputation does not mitigate the information asymmetry.

The mixed results of reputation in the syndicate loan market may due to the endogeneity in the matching between the borrowing firm and the syndicate arranger or due to the non-monotonic levels of competition faced by the syndicate arrangers. Dinc (2000) presents a model to determine a bank's market power and its strategy as a function of the competition. In his model, banks offer the rescue commitment to borrowers. The entry of new banks that offer a rescue commitment would increase the number of reputation banks, and hence converge the information rent to zero and make the reputation mechanism more difficult to sustain. Additional competition may benefit the reputation mechanism when the number of banks is small; hence an intermediate number of banks are optimal. Whereas the entry of new banks that offer no rescue commitment would make the reputation mechanism easier to sustain and lower the minimum credit quality demanded for relationship lending.

### 1.3. The Model and Hypotheses

Dinc (2000)'s model has the following empirical implications for the syndicate bank loan market. First, the effects of credit market competition are different for different types of bank lending. Second, the impact of a change in competition may not be monotonic but may show qualitative differences at different levels. Based on Dinc (2000)'s model, we derive the following hypothesis. For a reputable arranger, the average credit quality of the borrowers, who are offered

relationship lending that requires more monitoring and due diligence, decreases if the bank faces competition from the bank that cannot offer a high-level of monitoring and due diligence. For the reputable arranger, the interest rate spread and the share of relationship lending in the bank's loan portfolio increases. For a less-reputable arranger, as the number of banks with good reputation increases, the reputation rent converges to zero; hence it becomes more difficult for the less-reputable arranger to sustain the reputation mechanism. Therefore, the interest rate charged by the less-reputable arranger decreases.

The reputable arranger should be more committed against opportunistic behavior. Therefore, other things equal, the spread on a syndicated loan by the reputable arranger should be higher than that of a comparable loan by a less-reputable arranger since the more reputable arranger provides a guarantee against the exploitation of its private information.

The syndicated loan market is dominated by the largest commercial banks[5]. Thus, the degree of competition within the large bank and small bank sectors may be quite different, leading to a non-monotonic effect on the reputation mechanism.

Consider the benefit and cost of a commitment for reputable and less-reputable banks respectively. The small bank sector is more competitive, which imply a smaller return for relationship lending and thus predicatively greater the benefits of breaking its commitment. A reputable arranger holds relatively more reputation assets in its portfolio and faces less competition. Breaking its commitment will allow it to switch into arm's length lending.

$$Benefits_{\ reputable} < Benefits_{\ non\text{-}reputable} \qquad (1.1)$$

[5] From year 1993 to 2005, the largest 4 commercial banks account for about 50% of the syndicated loan market share (Table 1.3 Panel B).

Since the reputable arranger also faces a relatively lower competition level than the less reputable arranger; the punishment for breaking the loan commitment is relatively smaller. This implies that the cost of breaking the commitment is also lower.

$$Costs_{\,reputable} < Costs_{\,non\text{-}reputable} \tag{1.2}$$

For the reputable and for less-reputable arrangers, the relative sign of the ratio of costs to benefits of breaking the commitment is ambiguous.

$$\left(\frac{Costs}{Benefits}\right)_{reputable} \leq \geq \left(\frac{Costs}{Benefits}\right)_{non\ -\ reputable} \tag{1.3}$$

To encourage both reputable arrangers and less-reputable arrangers to keep the commitment to the relationship lending, premium is required. On the other hand, the arranger in the intermediate range has the comparable benefits and costs of breaking the commitment; therefore, a premium is not essentially required.

We first run the regression of reputation on the loan spread by using the variable *Market Share* and the variable *Squared Market Share,* to determine the presence of a non-monotonic relation between reputation and the loan spread. Then we split the sample into two groups: one group consists of loans syndicated by reputable banks, which represent approximately 75% of the total syndicated loan market share between 1994 and 2006, and the other group consists of loans syndicated by less-reputable banks, which represent less than 25% of the total syndicated loan market share over the same period. We expect that the reputable and less-reputable banks will charge different prices for a comparable loan due to the different levels of competition they face.

*$H_1$: The reputable and less-reputable arrangers face different levels of competition in the loan market; therefore, the reputation effects on pricing differ between them and represent a non-monotonic relationship.*

For the full sample, the general form of the regression examines the relation between the arranger's reputation, as measured by the lead arranger's market share in the previous year and the syndicated loan spread, as measured by the All-in-Drawn Spread[6].

$$AISD = \alpha + \beta_1 * Reputation + \beta_2 * (Reputation)^2 + \gamma * Control\ Variables + \varepsilon \qquad (1.4)$$

To obtain a clearer look at the reputation effect, we also divide the sample into two groups: loans syndicated by reputable banks, and loans syndicated by less-reputable banks. The regression follows:

$$AISD = \alpha + \beta * Reputation + \gamma * Control\ Variables + \varepsilon \qquad (1.5)$$

The expected sign of $\beta$ for the reputable arranger group is positive, implying that for a reputable arranger, the higher the arranger's reputation, the higher the loan spread it charges. On the other hand, the expected sign of $\beta$ for the less-reputable arranger group is negative, indicating a possible reputation discount offered by the less-reputable arranger.

Information asymmetry is more severe for a private firm and especially for a borrower who enters the syndicated loan market for the first time. We expect that the different reputation effects on pricing will be more significant for private borrowers, while for a borrower who enters

[6] The amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. The drawn all-in spread equals the coupon spread plus the annual fee. Most spreads are measured as a markup over LIBOR. In cases where they are based on another benchmark, Loan Pricing Corporation makes adjustments to the drawn all-in spreads.

the syndicated market for the second time with the same arranger (or the acquiring arranger who inherits the prior relationship), the different reputation effects would largely disappear.

*$H_2$: Different reputation effects on pricing between reputable and less-reputable arrangers are more significant for private borrowers than for public borrowers.*

We divide the sample into the two groups: one group consists of loans syndicated to public borrowers, and the other group consists of loans syndicated to private borrowers. As the same as for the Hypothesis 1, we redo the two regressions separately for both the public and private groups.

In the first regression which uses both reputation and the square of reputation as independent variables, the expected sign of reputation should remain negative and the expected sign of the square of reputation should remain positive for both groups. However the significance levels among the two groups should be different. The second regression is the same as in (1.5).

The expected sign of $\beta$ for the reputable arranger group should remain positive, but the coefficients would be larger for the private sample than for public sample, indicating that the higher the arranger's reputation in this sample, the higher the premium the arranger charges the private borrower vs. the public borrower. On the other hand, the expected sign of $\beta$ for the less-reputable arranger group should remain negative.

This study also analyzes whether a repeat loan relationship has an effect on the loan spread. Prior or existing relationship lending between the borrower and the lender reduces moral hazard, in that the lead arranger would charge a lower fee in comparison to fees charged to a new borrower. However, because the lead arranger has acquired private information, the probability

that it might exploit its information monopoly against the participating banks increases, which raise the likelihood of adverse selection. Hence participants would demand a higher spread on a repeat loan to compensate for the higher risk of exploitation. The price change on a repeat loan therefore depends on the relative sign of the offsetting impacts due to moral hazard and adverse selection.

*$H_3$: A repeat loan relationship reduces the arranger's information asymmetry about the borrower but raises the arranger's ability to exploit its private information. If the moral hazard dominates, a repeat loan would show a lower loan spread; if adverse selection dominates, a repeat loan would show a higher loan spread.*

$$AISD = \alpha + \beta * Reputation + \gamma * Control\ Variables + \varepsilon \quad (1.6)$$

A negative value for $\beta$ shows that the moral hazard problem effect on a repeat loan has fallen more than the adverse selection effect has increased. The opposite indicates a positive $\beta$.

The study also analyzes whether the significant reputation effects remain on repeat loans. Reputation is supposed to reduce the explanatory power of information asymmetry by the lead arranger and the moral hazard behind the borrowers. In the first loan to a borrower, moral hazard is a dominant determinant of the spread. In a repeat loan, adverse selection becomes an important factor. A lender with a low reputation should therefore require greater compensation for the potentials and hence a huge spread. This implies that a negative coefficient for the interactive term of repeat dummy times reputation.

*$H_4$: Different reputation effects on pricing between reputable and less-reputable arrangers are less significant when the borrower enters a repeat loan relationship with the same*

*arranger (or the acquiring arranger who inherit the prior relationship) if the relationship lending reduces the extent of moral hazard more than it raise the extent of adverse selection, and vice versa.*

This study divides the repeat loan sample into three groups: all repeat loans; repeat loans to public borrowers, and repeat loans to private borrowers. In each group, the sample is further divided into loans syndicated by reputable arrangers and loans syndicated by less-reputable arrangers. The study runs the regression separately for the three groups.

$$AISD = \alpha + \beta * Repeat\ Dummy + \gamma * Control\ Variables + \varepsilon \quad (1.7)$$

Under the repeat loan context, the expected sign of $\beta$ for the reputable arranger group would be positive. From $H_3$, we expect that in repeat loans, moral hazard dominates information asymmetry; hence, it is expected that reputation has less impact on the pricing of the repeat loans because the relationship lending reduces moral hazard more than it increases adverse selection. However, for private borrowers, the agency problem of adverse selection by the arranger could be more severe and the coefficient could be more likely to be insignificant or ambiguous for the private repeat loan sample vs. public repeat loan sample. The expected sign of $\beta$ for the less-reputable arranger group would remain negative, and the coefficient would be larger for the private repeat loan sample vs. public repeat loan sample, but the significance level is expected to be lower.

In the empirical analysis, we estimate a cross-sectional model of loans between paired lender-borrower relationships. To partially control for the moral hazard problem, we also redo

the analysis for the sample restricted to the repeat loans with prior or existing lender-borrower relationships.

Ivashina (2009) indicates that the lead share held by the arranger and loan spread are simultaneously determined. Under the case of severe information asymmetry, if the participating members think the arranger holds negative information, they will require a risk premium. This risk premium will be lower if the lead arranger holds a larger loan share in its portfolio. This paper also examines the relationship between the lead arranger's reputation and the lead share retained by the arranger. It is expected that the lead arranger's reputation mitigate its use of information asymmetry to exploit participants. Therefore, the higher the lead arranger's reputation, the lower the percentage of the lead share retained in its portfolio.

*$H_5$: The higher is the arranger's reputation, the lower is the percentage of lead share retained in its portfolio.*

The general form of the regression examining the link between the lead arranger's reputation and the lead share retained by the lead arranger is:

$$Lead\ Share = \alpha + \beta * Reputation + \gamma * Control\ Variables + \varepsilon \quad (1.8)$$

The expected sign of $\beta$ in (1.8) is negative.

To account for firm specific effects of informational opaqueness, this study includes several controls for default risk, such as the log of the borrower's assets, R&D expenses, leverage ratios, ROAs, and S&P senior debt ratings at close. If the borrower is not a public firm, the study includes the firm's sales at loan close date, and whether the parent company has a

ticker to control for possible information opaqueness. The study also controls for important loan contract characteristics, such as the loan facility size, facility type, loan purpose, loan maturity, loan covenants, and whether the loan facility is sponsored or secured.

### 1.4. Data And Sample Description

The data are derived from several sources. Loan information, including borrower identity, lead lender, participants, origination date, all-in-drawn spread, loan amount, maturity, loan purpose, loan type, borrower credit rating, and borrower's sales at closing come from Reuters Loan Pricing Corporation's (LPC) DealScan. LPC reports loan data at the "facility" level as well as the "deal" level. [7] As syndicate structure and size as well as contract terms (e.g., maturity, loan amount, spread) and facility types (e.g., term loan or revolver line) differ across facilities in one deal, the analysis in this paper is at the facility level. The study exclude syndicated loans without detailed loan information (e.g., loan spread, loan amount, loan maturity, market share and lead share of arrangers, or number of participating banks.)

Firm financial characteristics are from Compustat. Since LPC does not provide a reliable identifier that can be used to merge the loan data with other sources, we hand match the borrowers in LPC DealScan to Compustat by using borrowers' names. The data we collect are similar to Bharath et. al. (2006). For loans made in calendar year *t*, I use fiscal year *t* data if the loan origination date is at least 6 months after the end of the fiscal year; otherwise, we use fiscal year *t-1* data.

[7] The basic unit of observation in DealScan is a facility ("loan"). If firms enter into multiple facilities at the same time, different facilities are syndicated into one deal.

Data availability limits the sample period to 1994-2006. The coverage of syndicated loans from DealScan improves dramatically after 1994. In this study, we only consider dollar-denominated loans to U.S. companies. And we remove loans to borrowers with one digit SIC code 6 (financial institutions).

Loan pricing is measured by "all-in-spread drawn", the total annual spread paid over LIBOR or other base rate (e.g. Prime) for each dollar drawn. To control for loan characteristics, the analysis includes the loan amount, loan maturity, whether the loan is secured or not, loan type, loan purpose, whether the loan has covenants, and whether the loan is sponsored. To control for borrower credit risk and information opacity, we include S&P senior debt credit rating, borrower's total assets, leverage, R&D, ROA and the current ratio. For private firms, we include the borrower's sales size, and parent ticker as a dummy variable.

In the last two decades, many mergers and acquisitions occurred in the banking industry. This study tracks all mergers and acquisitions among arranger banks; following Ljungqvist, Marton and Wilhelm (2006), we assume that acquiring banks inherit prior relationships and market shares of the target banks.

As in the previous literature, this study uses the loan market share as a proxy for bank reputation. Market share has frequently been used as a proxy for reputation. The market shares of the leading banks are a proxy for the stream of fee income at stake for underwriting banks. From the perspective of economic rent, large banks have large revenues to lose.

In addition to using a continuous measure of reputation based on market share, this study dichotomizes the sample in a similar fashion to Fang (2005). The sample banks are split into two

groups: reputable banks and less-reputable banks. This separation allows the study to ignore the assumption that a continuous measure of reputation can be captured precisely with a constant effect on the interest spread. Instead this study assumes that the continuous measure of reputation can be captured to some extent, but the effect on the interest spread might not be constant among two groups. The loan market share of bank *i* in year t is defined as the dollar amount of loans in year *t-1* divided by the total dollar amount of loans in year *t-1*.

The empirical literature indicates that the loan share held by the arranger and the loan spread are simultaneously determined. Ivashina (2009) finds that a 10% decrease in the loan share held by an arranger increases the loan spread by about 50 bps. Bosch (2007) uses European market data and finds that a 10% decrease in the loan share retained by an arranger increases the required information premium of uninformed participants by about 28 bps. To capture the effect of the retained loan share on the loan spread, this study includes the arranger's lead share as an independent variable with an expected negative sign.

There are several loan characteristics that affect the structure of the loan and corresponding loan spread. Loan size is expected to be positively related to the syndicate structure and negatively related to the loan spread. The maturity of the loan is normally associated with greater monitoring costs as a long-term loan associated more with the presence of collateral and covenants. As a consequence, loan with longer maturity would require a higher loan spread. In addition, the loan maturity has a positive relation to credit risk[8] and should increase the loan spread. Though empirically, Dennis and Mullineaux (2000) show that credit risk and maturity are negatively related, indicating a correspondingly smaller loan spread. Given the mixed empirical results of the maturity on loan spread, its expected sign is ambiguous.

[8] Flannery (1986); Agbanzo et al. (1999)

There are several characteristics (e.g., loan sponsorship, loan covenants etc.) that provide some protection to the lenders in the case of default. As a result, loans with these characteristics should have lower spread. Although "the observed-risk hypothesis"[9] argues that these loan characteristics are added to the contract only because the lender observes a possible higher risk. As a result, banks would ask for more protective provisions from riskier borrowers. Therefore the expected sign of loan provisions is also ambiguous.

To control for loan provisions, this study assigns dummy variables equal to one if the loan is secured (or is sponsored, or has covenants, respectively) and zero otherwise. The expected signs of these characteristics are ambiguous giving previous theoretical forecasting and empirical results.

### 1.5. Empirical Result

Table 1.1 presents a summary of the data by year and industry. The initial dataset had observation of 60, 159 loan facilities. After deleting observations that do not have detailed loan information and borrowing firm information, we have sample of 7,707 loan facilities, as shown in Panel 1.1.A. Panel 1.1.B and 1.1.C provide the sample distribution by year and by industry respectively.

9 There is a commonly accepted view that collateral is associated with greater risk, as mentioned by Berger and Udell (1990).

**Table 1.1 Summary of Sample Selection and Sample Distribution**

**Panel 1.1 A Sample Selection**

| | |
|---|---|
| Initial Sample Size (Facility) | 60,159 |
| Loan Facilities have available Information on AISD | 50,445 |
| Loans Facilities with Detailed Loan Characteristics | 7,707 |

e

**Panel 1.1 B Number of Loan Facility by Year**

| Year | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. | 756 | 686 | 825 | 961 | 519 | 656 | 640 | 493 | 599 | 559 | 458 | 374 | 181 |

**Panel 1.1 C Frequency of Loan Facilities by Industry**

| Two-digit SIC Code | Industry Description | Number |
|---|---|---|
| 00-09 | Agriculture, Forestry, and Fishing | 125 |
| 10-19 | Mining | 623 |
| 20-29 | Construction | 1328 |
| 30-39 | Manufacturing | 1917 |
| 40-49 | Transportation and Communications | 1233 |
| 50-59 | Trade | 1189 |
| 70-79 | Business Service | 836 |
| 80-89 | Legal, Educational and Social Service | 441 |
| 90-99 | Public Administration | 15 |
| | Total | 7707 |

Table 1.2 presents three panels of descriptive information about the sample. Panel 1.2 A provides definitions of the variables.

**Table 1.2 Variable Definition and Descriptive Statistics**

**Panel 1.2.A Variable Definition**

| Variable | Definitions |
|---|---|
| **Loan-Contract Variables (Source: DealScan)** | |
| All-in-Drawn Spread | The amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. The drawn all-in spread equals the coupon spread plus the annual fee. Most spreads are measured as a markup over LIBOR. In cases where they are based on another benchmark, Loan Pricing Corporation makes adjustments to the drawn all-in spreads. |
| Maturity | The number of months between the loan origination and the maturity. |

**Table 1.2 (continued)**

| | |
|---|---|
| Lead arranger Share | Loan share retained by the lead arranger. |
| # of Lenders | The total number of lenders (lead manager and participants) in a syndicate |
| Deal Amount | Total deal size in US dollars. A deal may include several loan facilities at the same time. The most typical arrangement is a loan agreement that comprises a term loan and a revolver credit line. |
| Facility Amount | Facility size in US dollars. |
| Senior | Dummy variable that is equal to one if the loan is senior. |
| Secured | Dummy variable that is equal to 1 if the loan is secured. |
| Guaranteed | Dummy variable that is equal to 1 if the loan is guaranteed. |
| Sponsored | Dummy variable that is equal to 1 if the loan is sponsored. |
| Covenants | Dummy variable that is equal to 1 if the loan has any kind of covenants. |
| Lead share | Share of the loan that is retained by lead arranger at loan origination. |
| Year | Dummy variables for the calendar years in which a loan agreement is signed. |
| Loan Type | Dummy variables for ‘‘Revolver,’’ ‘‘Revolver Term Loan,’’ ‘‘Bridge Loan,’’ ‘‘Delay Draw Term Loan,’’ ‘‘364-day facility,’’ and ‘‘Term Loan’’ The omitted case is ‘‘Others.’’ |
| Loan Purpose | Dummy variables for ‘‘Acquisition line,’’ ‘‘CP backup,’’ ‘‘Debt repay,’’ ‘‘DIP financing,’’ ‘‘Corp. purposes,’’ ‘‘LBO/MBO,’’ ‘‘Project finance,’’ ‘‘Real estate,’’ ‘‘Recapitalization,’’ ‘‘Securities purchase,’’ ‘‘Spin off,’’ ‘‘Stock buyback,’’ ‘‘Takeover,’’ and ‘‘Working capital.’’ The omitted case is ‘‘Others.’’ |
| **Borrower Variables** | **(Source: Compustat and DealScan)** |
| Log (Asset) | Natural logarithm of book value of assets (6) from Compustat. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Log (Sales) | Natural logarithm of borrower’s sales at the time of loan origination from DealScan. |
| ROA | Profitability from Compustat. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| R&D | Research and development expenses divided by total assets. |
| Current ratio | Current assets over current liabilities. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Leverage | Total liabilities over total assets. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Public | Dummy variable equal to one if the borrower is a public traded company. |
| Senior debt rating | S&P senior debt rating at close. Numbers from 1 to 22 (i.e., AAA, AA+, AA, AA-, etc., through D) |
| Industry | Dummy variables for the one-digit SIC industry code |

Panel 1.2 B provides the means, medians, maximum and minimum values, and standard deviations for the key variables in the sample.

**Panel 1.2 B Descriptive Statistics**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| **Loan Variable** | | | | | | |
| Deal Amount (thou $) | 7707 | 449438 | 188000 | 2000 | 24000000 | 917354 |
| Tranche Amount (thou $) | 7707 | 301799 | 125000 | 850 | 24000000 | 678349 |
| AISD | 7707 | 159.6924 | 137.5000 | 6 | 1300 | 116.91409 |
| Upfront Fees | 5572 | 12.3967 | 0 | 0 | 367 | 31.41407 |
| Annual Fees | 7707 | 3.6934 | 0 | 0 | 571 | 12.18439 |
| Maturity | 7707 | 1363.55 | 1442 | 1 | 7669 | 731.97824 |
| Financial Covenants | 7707 | 0.7559 | 1 | 0 | 1 | 0.42956 |
| General Covenants | 7707 | 0.8257 | 1 | 0 | 1 | 0.37936 |
| Secured | 7707 | 0.4964 | 0 | 0 | 1 | 0.50002 |
| Sponsored | 7707 | 0.1017 | 0 | 0 | 1 | 0.30231 |
| **Lender Variable** | | | | | | |
| Lead Share | 7707 | 0.05579 | 0.01412 | 0 | 0.9849 | 0.18849 |
| Number of Lenders | 7707 | 10.4262 | 7 | 1 | 163 | 9.67757 |
| Market Share | 7707 | 0.05579 | 0.01412 | 1.3881E-6 | 0.28639 | 0.07535 |
| **Firm Variable** | | | | | | |
| Sales (thou $) | 7509 | 2706218 | 582906 | 930 | 548957000 | 9950882 |
| Credit Rating | 7707 | 5.5217 | 0 | 0 | 21 | 6.28523 |
| Log(Firm Size) | 4111 | 6.93450 | 6.80636 | -0.31334 | 13.65695 | 1.76126 |
| ROA | 4111 | 0.03625 | 0.04263 | -3.12586 | 1.12770 | 0.11554 |
| R&D intensity | 4111 | 0.01618 | 0 | 0 | 6.25000 | 0.10639 |
| Leverage | 4111 | 2.42766 | 1.51006 | 0 | 104.23866 | 3.09179 |
| Current Ratio | 4111 | 1.71098 | 1.49084 | 0 | 58.24571 | 1.76716 |

Panel 1.2 C shows the results of difference of means tests for firm and loan characteristics between reputable and less-reputable arrangers.

**Panel 1.2 C Mean difference between loans from reputable arranger and non-reputable arranger**

| Variable | Reputable=1 | Non-reputable=0 | Difference |
|---|---|---|---|
| AISD | 138.79 | 181.32 | 42.532*** |
| Tranche Amount (thou $) | 4.27E5 | 1.73E5 | -254E3*** |
| Upfront Fees | 10.052 | 15.01 | 4.9578*** |
| Annual Fees | 4.2075 | 3.1615 | -1.046*** |
| Maturity | 1374.8 | 1351.9 | -22.87 |
| Financial Covenants | 0.7742 | 0.7371 | -0.037*** |
| All Covenants | 0.8497 | 0.8010 | -0.049*** |
| Secured | 0.4351 | 0.5599 | 0.1249*** |
| Sponsored | 0.1138 | 0.0892 | -0.025*** |
| Arranger Share | 0.2061 | 0.3262 | 0.1201*** |
| Number of lenders | 13.206 | 7.5499 | -5.657*** |
| Sales (thou $) | 3.83E6 | 1.53E6 | -23E5*** |
| Rating | 7.1623 | 3.8244 | -3.338*** |
| Total assets (m$) | 8077.3 | 3416.7 | -4661*** |
| ROA | 0.0401 | 0.0317 | -0.008** |
| R&D intensity | 0.0186 | 0.0134 | -0.005* |
| Leverage | 2.5718 | 2.2593 | -0.313*** |
| Current Ratio | 1.5408 | 1.9098 | 0.369*** |
| NOBS | 3919 | 3788 | |

Table 1.3 shows the level of concentration for the largest parent financial institutions (Panel A) and largest financial institutions (Panel B) in the syndicated loan market between 1993 and 2005, respectively. The data show that the largest 4 commercial banks account for about 50% of the syndicated loan market share and the largest parent banking holding companies account for approximately 75% of the syndicated loan market share between 1993 and 2005.

**Table 1.3 Panel A**
Concentration by Largest Parent Financial Institutions in the Syndicated Loan Market: 1993- 2005
(As percentage of total)

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **4 Largest** | 79.11 | 78.73 | 74.76 | 74.10 | 77.30 | 71.07 | 76.34 | 77.24 | 76.73 | 75.38 | 70.26 | 70.68 | 66.49 |
| **8 Largest** | 88.16 | 87.33 | 84.29 | 82.98 | 85.32 | 82.05 | 85.23 | 85.20 | 83.20 | 82.83 | 80.33 | 81.11 | 76.59 |
| **20 Largest** | 94.97 | 94.37 | 93.93 | 94.15 | 95.33 | 93.64 | 94.10 | 93.64 | 92.24 | 92.54 | 92.08 | 92.29 | 91.85 |
| **50 Largest** | 99.82 | 99.58 | 99.41 | 99.39 | 99.37 | 99.44 | 99.42 | 99.31 | 99.05 | 98.80 | 98.87 | 99.21 | 99.02 |
| **Total** | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

**Table 1.3 Panel B**
Concentration by Largest Financial Institutions in the Syndicated Loan Market: 1993-2005
(As percentage of total)

| | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **4 Largest** | 49.70 | 49.06 | 49.13 | 48.04 | 54.40 | 46.44 | 58.32 | 63.88 | 60.27 | 49.08 | 42.85 | 44.40 | 47.33 |
| **8 Largest** | 68.83 | 66.98 | 66.04 | 64.31 | 68.71 | 63.34 | 67.40 | 73.02 | 69.61 | 59.74 | 56.32 | 58.24 | 60.16 |
| **20 Largest** | 84.99 | 83.56 | 82.36 | 81.19 | 81.97 | 80.47 | 78.64 | 83.82 | 79.53 | 75.12 | 74.47 | 77.58 | 76.84 |
| **50 Largest** | 95.49 | 94.06 | 93.38 | 93.04 | 92.59 | 92.03 | 91.81 | 93.24 | 92.06 | 90.45 | 90.06 | 91.90 | 91.90 |
| **Total** | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

Table 1.4 presents estimates of the influence of the lead arranger's reputation on the loan spread, controlled on firm characteristics, non-spread loan characteristics, and industry and year dummies.

**Table 1.4 Estimates of Arranger's Reputation Effect on the Loan Spread**

This table reports regression analysis of reputation on syndicated loan All-in-drawn spread. Reputation is measured by arranger's previous year market share in loan market; the control variables include information asymmetry variables, loan characteristics variables and firm variables. *P*-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | **Private** | **Public** |
|---|---|---|---|
| NOBS | 7707 | 3637 | 4111 |
| Intercept | 691.9622*** | 836.2458*** | 497.2831*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Reputation | -115.8425*** | -212.2941** | -32.7288 |
| | (0.0036) | (0.0116) | (0.4628) |
| $(\text{Market share})^2$ | 590.8172*** | 934.8496*** | 200.0112 |
| | (0.0003) | (0.0085) | (0.2679) |
| Lead share | 45.8423*** | 46.4609*** | 29.6194*** |
| | (<0.0001) | (0.0002) | (0.0002) |
| Log tranche | -19.4114*** | -23.5041*** | -18.1055*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Log sales | -7.2132*** | -7.2802*** | -2.7722*** |
| | (<0.0001) | (<0.0001) | (0.0004) |
| Financial covenants | -5.974* | -11.2562* | 5.9236 |
| | (0.0653) | (0.0574) | (0.1533) |
| All covenants | -5.6394* | -6.8499 | -5.0556 |
| | (0.0997) | (0.2807) | (0.2397) |
| Rating | -0.9302*** | -1.1919*** | -0.6923*** |
| | (<0.0001) | (0.0035) | (0.0037) |
| Sponsored | 39.1861*** | 37.6604*** | 32.7902*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Secured | 69.1684*** | 71.7605*** | 62.7230*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Maturity | -0.3577*** | -0.2042** | -0.3475*** |
| | (<0.0001) | (0.0289) | (<0.0001) |
| Repeat dummy | -5.4643 | 4.2772 | -11.6461*** |
| | (0.1598) | (0.8714) | (0.0079) |
| # Lenders | 1.1330*** | 1.1964*** | 1.0477*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Public dummy | -11.3267*** | | |
| | (0.0045) | | |
| Log assets | | | -4.2692*** |
| | | | (0.0005) |

**Table 1.4 (continued)**

| | Full Sample | Private | Public |
|---|---|---|---|
| ROA | | | -116.7424*** |
| | | | (<0.0001) |
| R&D | | | -14.3652 |
| | | | (0.1574) |
| Leverage | | | 1.7721*** |
| | | | (<0.0001) |
| Current ratio | | | -1.7674*** |
| | | | (0.0061) |
| Loan purpose dummy | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes |
| Industry & year dummy | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.5475 | 0.5124 | 0.5879 |

The results indicate that bank reputation, which is measured by the arranger's market share in the previous year, has significantly negative effect on the loan spread in both the full sample and the private borrower sub-sample. However the coefficient of square of market share is significantly positive in both of these samples. The finding implies that reputation has a non-monotonic effect on the loan spread, roughly an inverted U-shaped curve between the lead arranger's reputation and the loan spread. More importantly, for public borrower, the reputation effect is not significant. The different significance to the public and private reputation coefficients is supportive of the monitoring theory. Private firms are opaque, while public firms are transparent. Reputations, which mainly serve as a commitment for due diligence and monitoring borrowers, and a commitment against the use of private information, should have significant value when the borrowers are opaque to the market and the participant bank.

Table 1.5 presents estimates of the lead arranger's reputation on the percentage of the lead share retained in its loan portfolio.

**Table 1.5 Estimates of Arranger's Reputation on Lead Share Retained by the Arranger**

This table reports regression analysis of reputation on lead share held by the arranger. Reputation is measured by arranger's previous year market share in the syndicated loan market; the control variables include information asymmetry variables, loan characteristics variables and firm characteristics variables. *P*-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | **Private** | **Public** |
|---|---|---|---|
| NOBS | 7707 | 3637 | 4111 |
| Intercept | 1.1298*** | 1.1099*** | 1.1372*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Reputation | -0.8076*** | -0.4209*** | -0.9604*** |
| | (0.0036) | (0.0002) | (0.0036) |
| AISD | 0.0001*** | 0.0001*** | 0.0001*** |
| | (<0.0001) | (0.0028) | (0.0002) |
| (Market share)$^2$ | 2.4389*** | 1.2948** | 2.8318*** |
| | (<0.0001) | (0.0296) | (<0.0001) |
| Log tranche | -0.0241*** | -0.0189*** | -0.0262*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Log sales | 0.0094*** | 0.0140*** | 0.0002 |
| | (<0.0001) | (<0.0001) | (0.8905) |
| Financial covenants | -0.0104* | -0.0046 | -0.01798* |
| | (0.0732) | (0.6426) | (0.0327) |
| All covenants | -0.0066* | -0.0016* | -0.0042 |
| | (0.2781) | (0.8812) | (0.6295) |
| Rating | -0.0006* | -0.00005 | -0.0006* |
| | (0.0817) | (0.9386) | (0.0817) |
| Sponsored | -0.0367*** | -0.0427*** | 0.0025 |
| | (<0.0001) | (<0.0001) | (0.8360) |
| Secured | 0.0084* | -0.0046 | 0.0118** |
| | (0.0508) | (0.5577) | (0.0463) |
| Maturity | -0.0004*** | -0.0004** | -0.0005*** |
| | (<0.0001) | (0.0182) | (0.0005) |
| Repeat dummy | -0.0427*** | 0.0367 | -0.0387*** |
| | (<0.0001) | (0.4071) | (<0.0001) |
| Public dummy | 0.0265** | | |
| | (0.0002) | | |
| Log assets | | | -0.0062** |
| | | | (0.0134) |
| ROA | | | -0.0621*** |
| | | | (0.0022) |
| R&D | | | -0.0445** |
| | | | (0.0311) |
| Leverage | | | -0.0020** |
| | | | (0.0125) |
| Current ratio | | | 0.0019 |
| | | | (0.1328) |
| Loan purpose dummy | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes |
| Industry & Year dummy | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.4362 | 0.4379 | 0.4197 |

For the full sample and both the public and the private sub-samples, the lead arranger's reputation has a significantly negative effect on the percentage of the lead share retained in its portfolio. The results provide evidence that the lead arranger's reputation also mitigates the adverse selection problem between the lead arranger and the participants.

Table 1.6 presents the results of the arranger's reputation on the loan spread for divided sub-samples. For the full sample, reputation has a positive effect on the loan spread at 5% significance level. However, when the sample is subdivided into high or low reputation samples, in contrast to Table 1.4, the top reputable lead arrangers and for loan syndicated by less-reputable lead arrangers show quite different pricing behavior: top reputable banks charge a "reputation premium"[10], while less-reputable banks offer a "reputation discount" to compete with top banks[11]. Both results are significant at the 1% level.

When the study looks at the sub samples of loans to private borrowers and loans to public borrowers, similar results hold. Although reputation has no significant effect on the loan spread in general for the total of loans to public firms and loans to private firms, a further division of the samples to public firms and loans to private firms into loans by top reputable arrangers and less-reputable arrangers, a similar pattern is found: the top reputable lead arranger banks charge a "reputation premium"[12], while less-reputable

[10] 63.33 bps increase of All-in-Drawn spread on every percentage of previous year market share increase

[11] -1417.18 bps decrease of AISD on every percentage of previous year market share change.

[12] For loans to private borrowers, 90.47 bps increase of AISD on every percentage of previous year market share increase; for loans to public borrowers, 40.04 bps increase of AISD on every percentage of previous year market share increase

banks offer a "reputation discount"[13]. The results not only indicate that reputable and less-reputable lead arrangers represent different reputation effects on loan pricing but also indicate that the different reputation-pricing effects are more significant for loans to private borrowers.

[13] For loans to private borrowers, 2704.35 bps decrease of AISD on every percentage of market share change; for loans to public borrowers, 1995.44 bps decrease of AISD on every percentage of market share increase

**Table 1.6 Estimates of Arranger's Reputation on the Loan Spread**

This table reports regression analysis of reputation on syndicated loan All-in-drawn spread. Reputation is measured by arranger's previous year market share in the syndicated market; the control variables include information asymmetry variables, loan characteristics variables and firm borrower variables. *P*-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | | | **Private** | | | **Public** | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Top | Non-top | All | Top | Non-top | All | Top | Non-top |
| NOBS | 7707 | 3919 | 3788 | 3637 | 1681 | 1956 | 4111 | 2215 | 1896 |
| Intercept | 588.032*** | 553.486*** | 726.810*** | 613.966*** | 519.898*** | 727.372*** | 465.902*** | 413.014*** | 538.565*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Reputation | 30.018** | 63.331*** | -1417.179*** | 29.488 | 90.467*** | -2704.35*** | 22.727 | 40.035** | -1995.435*** |
| | (0.0268) | (<0.0001) | (0.0036) | (0.2181) | (0.0012) | (0.0005) | (0.1672) | (0.0269) | (0.0024) |
| Lead share | 43.693*** | 60.645*** | 7.371 | 42.002 *** | 54.843*** | 16.952 | 26.599*** | 41.907*** | 4.8667 |
| | (<0.0001) | (<0.0001) | (0.4666) | (<0.0001) | (0.0003) | (0.3118) | (0.0016) | (<0.0001) | (0.7318) |
| DIP Financing | 168.045*** | 144.408*** | 186.985*** | 182.728*** | 98.183*** | 225.202*** | 96.367* | 74.79** | 104.7*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.0038) | (<0.0001) | (0.0821) | (0.0309) | (0.0023) |
| Log tranche | -23.538*** | -16.702*** | -19.027*** | -30.315*** | -34.385*** | -25.281*** | -16.487*** | -16.945*** | -16.233*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Log sales | -7.097*** | -4.261*** | -8.396*** | -4.555*** | -4.450** | -5.574*** | -4.308*** | -1.267 | -8.095*** |
| | (<0.0001) | (<0.0001) | (0.7452) | (0.0009) | (0.0169) | (0.0065) | (0.0017) | (0.4669) | (0.0002) |
| Log assets | | | | | | | -2.065 | -4.3741** | -0.341 |
| | | | | | | | (0.1945) | (0.0249) | (0.8973) |
| Covenants | -12.928*** | -17.729*** | -7.834 | -12.787** | -13.534* | -7.672 | -8.403* | -19.341*** | 2.075 |
| | (0.0002) | (<0.0001) | (0.137) | (0.0239) | (0.0798) | (0.3608) | (0.0648) | (0.0007) | (0.7752) |
| Rating | -0.777*** | -0.965*** | -0.269 | -1.173*** | -2.018*** | -0.404 | -0.7376*** | -0.9802*** | -0.4172 |
| | (<0.0001) | (<0.0001) | (0.4084) | (0.0008) | (<0.0001) | (0.4573) | (0.0025) | (0.0005) | (0.3313) |
| Sponsored | 43.618*** | 42.634*** | 52.121*** | 38.245*** | 33.718*** | 52.346*** | 35.296*** | 32.5803*** | 39.872*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.0063) |
| Secured | 70.284*** | 69.070*** | 72.575*** | 71.258*** | 64.293*** | 77.889*** | 61.530*** | 59.513*** | 59.929*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Maturity | -0.4516*** | -0.294*** | -0.503*** | -0.256*** | -0.111 | -0.393*** | -0.5621*** | -0.3818*** | -0.707*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (0.0048) | (0.3803) | (0.0024) | (<0.0001) | (<0.0001) | (<0.0001) |
| ROA | | | | | | | -106.62*** | -191.785*** | -55.277*** |
| | | | | | | | (<0.0001) | (<0.0001) | (0.0004) |

**Table 1.6 (continued)**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| R&D | | | | | | | -21.379** | -13.631 | -118.623*** |
| | | | | | | | (0.0469) | (0.1717) | (0.0091) |
| Leverage | | | | | | | 3.9466*** | 3.6384*** | 4.3203*** |
| | | | | | | | (<0.0001) | (<0.0001) | (<0.0001) |
| Current ratio | | | | | | | -2.594*** | -3.434** | -1.8797 |
| | | | | | | | (0.0062) | (0.0115) | (0.1634) |
| Loan purpose dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.5050 | 0.5508 | 0.4456 | 0.4671 | 0.4917 | 0.4913 | 0.5170 | 0.5786 | 0.4382 |

Table 1.7 presents the empirical results for the sub-samples of repeat loans. For repeat loans to public firms, the lead arranger's reputation has a significantly negative effect for loans syndicated by the top reputable arrangers, but has no significant effect on loans syndicated by less-reputable arrangers. This result suggests that the top reputable arranger offer discounts when they decide to attract certain public borrowers. A similar finding is not present for the less reputable arrangers because public borrowers may have a lower probability of renewing with a less reputable lender.

What is interesting is the finding for repeat loans to the private borrowers. The reputation effect generally disappears. None of the sub-samples show significant reputation effects. The underlying rationale might be that for loans to private borrowers, the moral hazard is the dominant part of information asymmetry. In the repeat loan sample, the moral hazard is largely controlled and the reputation of lead arranger has no significant effect any more. An alternative explanation may be that in the sample of repeat loans to private borrowers, the adverse selection is much more serious than in the sample of repeat loans to public borrowers, reputation has no significant effect on reducing adverse selection in the private loan sample because the information for private borrowers is highly unobservable, the present value of exploiting information monopoly for short term gain does not necessarily lower than the present value of inducing honest information to maintain reputation for future long term gain.

**Table 1.7 Estimates of Arranger's Reputation on the Loan Spread – Repeat Loan Sample**

This table reports regression analysis of reputation on syndicated loan All-in-drawn spread for repeat loan sample. Reputation is measured by arranger's previous year market share in syndicated market; the control variables include information asymmetry variables, loan characteristics variables and firm variables. P-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Repeat Syndicated Loan** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Full Repeat** | | | **Private Repeat** | | | **Public Repeat** | | |
| | All | Top | Non-top | All | Top | Non-top | All | Top | Non-top |
| NOBS | 1846 | 1063 | 782 | 1071 | 585 | 486 | 787 | 478 | 296 |
| Intercept | 702.384*** | 610.488*** | 418.819*** | 660.834*** | 550.845*** | 708.262*** | 643.383*** | 520.870*** | 912.912*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Reputation | -30.412 | 7.928 | -2193.348** | 10.592 | 51.913 | -1174.472 | -97.153*** | -97.062*** | -539.973 |
| | (0.2511) | (0.8020) | (0.0347) | (0.787) | (0.2696) | (0.3836) | (<0.0034) | (0.0055) | (0.7637) |
| Lead share | 6.147 | 18.044 | 34.375 | 17.886 | 27.281 | 14.017 | 14.286 | 25.444 | 10.164 |
| | (0.6421) | (0.2834) | (0.1077) | (0.3264) | (0.2627) | (0.6174) | (0.4097) | (0.1760) | (0.7954) |
| DIP financing | 156.856*** | 100.263*** | 206.566*** | 142.498*** | 46.532 | 225.766*** | | | |
| | (<0.0001) | (0.0003) | (<0.0001) | (<0.0001) | (0.2743) | (<0.0001) | | | |
| Log tranche | -18.202*** | -19.423*** | -9.722*** | -18.924** | -19.694*** | -15.211*** | -16.406*** | -14.645*** | -23.539*** |
| | (<0.0001) | (<0.0001) | (0.0008) | (<0.0001) | (<0.0001) | (0.0012) | (<0.0001) | (<0.0001) | (0.002) |
| Log sales | -9.988*** | -5.801*** | -6.116** | -4.786* | -1.496 | -8.891** | -10.478*** | -6.128*** | -16.316*** |
| | (<0.0001) | (0.0066) | (0.0395) | (0.0572) | (0.6529) | (0.0237) | (<0.0001) | (0.0077) | (0.0014) |
| Covenants | 0.606** | -10.208 | 16.828 | -3.143 | -1.994 | 8.504 | -9.236 | -17.710* | 4.528 |
| | (0.9385) | (0.3076) | (0.1986) | (0.7807) | (0.8983) | (0.6171) | (0.3606) | (0.0831) | (0.8615) |
| Rating | -0.945** | -2.037*** | -0.888*** | -1.267** | -2.755*** | 0.474 | -1.240*** | -1.150* | 0.0869 |
| | (0.0319) | (0.0001) | (<0.2400) | (0.0286) | (0.0002) | (0.6104) | (0.0545) | (0.0743) | (0.9599) |
| Sponsored | 48.713*** | 42.304*** | 71.044*** | 34.784*** | 16.554 | 59.953*** | 55.777*** | 71.124*** | -80.717 |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.1414) | (<0.0001) | (<0.0001) | (<0.0001) | (0.1493) |
| Secured | 49.657*** | 43.429*** | 58.526*** | 82.230*** | 84.690*** | 84.894*** | 16.017** | 2.757 | 27.878* |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.0106) | (0.6715) | (0.0650) |
| Maturity | -0.592*** | -0.2704* | -0.916*** | -0.624*** | -0.220 | -1.085*** | -0.668*** | -0.457** | -1.015*** |
| | (<0.0001) | (0.0561) | (<0.0001) | (<0.0001) | (0.2802) | (<0.0001) | (<0.0001) | (0.0118) | (0.0048) |

**Table 1.7 (continued)**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ROA | | | | | | | -134.710*** | -229.698*** | -78.289* |
| | | | | | | | (<0.0001) | (<0.0001) | (0.0516) |
| R&D | | | | | | | -1.505 | -5.791** | 6.886 |
| | | | | | | | (0.5960) | (0.0431) | (0.3491) |
| Leverage | | | | | | | 76.973*** | 55.140*** | 122.814*** |
| | | | | | | | (<0.0001) | (<0.0001) | (<0.0001) |
| Current ratio | | | | | | | -4.789** | -4.666* | -4.281 |
| | | | | | | | (0.0338) | (0.0813) | (0.3030) |
| Loan Purpose dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.4900 | 0.4917 | 0.4244 | 0.4920 | 0.5125 | 0.4817 | 0.5100 | 0.6050 | 0.5142 |

There are a few main points regarding the results for the loan, borrower and lender characteristics variables. In Table 4, the coefficient of the number of lenders has a significantly positive effect on loan pricing is positive and significant, indicating that as more banks participate in the loan syndication, the higher is the loan spread charged to the borrower. The rationale for this result is likely to be the agency problem associated with a large number of participants, which require compensation in the form of a larger spread. Esty and Megginson (2003) argue that a syndicated loan with a large number of lenders can deter strategic default by making it more costly to default. The agency problem that exists in a disperse syndication would drive the loan spread higher.

Contrary to the previous finding by Ivashina (2009) and Bosch (2007)[14], this study finds that the percentage of lead share retained by the lead arranger has a positive effect on the loan spread. The estimated coefficients are significant in most of the sub-samples. It is believed that the underlying rationale is consistent with the information asymmetry theory: the higher the information asymmetry of any specific loan, the higher the percentage the lead arranger needs to hold to signal a willingness to commit against extracting the information rent, therefore the higher the loan spread charged for this higher information asymmetry loan.

Regarding loan characteristics, debt-in-process financing always has a significantly positive effect on the loan spread. Both the natural log of the loan amount and the natural log of the borrower's sales have significantly negative effects on the loan spread. Covenants also have a significantly negative effect on the loan spread in most cases. The results of the loan facility type

[14] Ivashina (2009) finds that a 10% decrease in the loan share held by the arranger increases the loan spread by about 50 bps. Bosch (2007) uses European market data and finds that a 10% decrease in the loan share retained by the arranger increases the required information premium of uninformed participants by about 28 bps.

on the loan spreads (not reported in the tables) are as follows: a 364-day facility[15] normally has a significantly negative effect on the loan spread; the revolver line[16] normally has a negative relationship with loan spread, but the effect is not always significant; on the contrary, term loans[17] have a positive and significant relationship with the loan spread in most sub samples. Loan maturity almost always has a significantly negative effect on the loan spread, indicating that as the maturity of the loan increase, the spread decreases. This result is consistent with Dennis et. al. (2000), which finds that credit risk and maturity are negatively related, indicating a corresponding smaller loan spread.

Empirical results also support "the observed-risk hypothesis". For example, sponsored or secured loans generally have significantly higher spreads at the 1% level for all the sub-samples. Thus, riskier borrowers are more likely to have been asked by the lead arranger or participants to set their loans as secured or sponsored to reduce the higher credit risk. The positive effects are more noticeable for loans to private borrowers, which is consistent with higher information asymmetry for private borrowers.

Regarding firm characteristics, the credit rating provided by a third party always has a significantly negative effect on the loan spread. The log of borrower sales and the log of borrower assets have significantly negative effects on the loan spread in most of the sub-samples. ROA always has a significantly negative effect on the spread for loan to public borrowers. Leverage, on the other hand, has a significantly positive effect on the loan spread.

[15] A revolving credit that runs 364 days. Regulatory capital guidelines set a one-year cut off on whether banks must reserve capital against unused amounts under revolving credits. Therefore, banks offer more attractive undrawn fees (commitment and/or annual fees) on 364-day facilities than on multi-year revolvers.

[16] Borrowers can draw down, repay and re-borrow under the facility. The facility acts much like a credit card, except that borrowers are charged a fee on unused amounts.

[17] Installment loans. The borrower may draw down the loan during a given commitment period. Then it repays the loan based on a scheduled series of repayments (or a one-time payment at maturity).

**Table 1.8 Estimates of Arranger's Reputation on Lead Share Retained by Lead Arranger**

This table reports regression analysis of arranger's reputation on the percentage of retained loan share held by lead arranger. Reputation is measured by arranger's previous year market share in syndicated market; the control variables include information asymmetry variables, loan characteristics variables and firm variables. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | | | **Private** | | | **Public** | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Top | Non-top | All | Top | Non-top | All | Top | Non-top |
| NOBS | 7707 | 3919 | 3788 | 3637 | 1681 | 1956 | 4111 | 2215 | 1896 |
| Intercept | 1.9797*** | 1.4776*** | 1.9841*** | 2.0836*** | 1.752*** | 1.9636*** | 1.7201*** | 1.3218*** | 2.3186*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Reputation | -0.2788** | -0.2261*** | -3.1911*** | -0.1708*** | -0.1236** | -2.0614 | -0.3695 | -0.2718*** | -3.009*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.0160) | (0.1255) | (0.1255) | (<0.0001) | (0.0080) |
| Log tranche | -0.01367*** | -0.0468*** | -0.0719*** | -0.0796*** | -0.05717 | -0.1021*** | -0.0559*** | -0.04143*** | -0.0872*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Log sales | -0.00683*** | -40.0134*** | -0.0136*** | -0.0089*** | -0.00964*** | -0.008** | -0.0010 | -0.0065 | -0.0273 |
| | (<0.0001) | (<0.0001) | (<0.0001) | (0.0002) | (0.0047) | (0.0164) | (0.7131) | (0.1151) | (0.4671) |
| Rating | -0.00101*** | -0.00159*** | -0.00197*** | -0.0009 | -0.00177** | -0.00139 | -0.0007 | -0.0003 | -0.00086 |
| | (0.0037) | (0.0005) | (0.0003) | (0.1246) | (0.0338) | (0.1407) | (0.1175) | (0.6600) | (0.2469) |
| Sponsored | -0.02138*** | -0.0245*** | -0.0493*** | -0.03643*** | -0.04227*** | -0.05705*** | 0.02397* | 0.03429** | 0.00444 |
| | (0.0021) | (0.0070) | (<0.0001) | (0.0001) | (0.0010) | (0.0003) | (0.0821) | (0.0326) | (0.8599) |
| Secured | 0.02163*** | 0.0214*** | 0.01024* | 0.01623** | 0.002274** | -0.00122 | 0.01712*** | 0.0806 | 0.01667** |
| | (0.0002) | (0.0002) | (0.0788) | (0.0185) | (0.0232) | (0.9052) | (0.0019) | (0.2970) | (0.0281) |
| Maturity | -0.0004*** | -0.00055*** | -0.0006*** | -0.00028* | -0.00066*** | -0.0003 | -0.0006*** | -0.393*** | -0.0005** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (0.0725) | (0.0046) | (0.1251) | (<0.0001) | (0.0024) | (0.0151) |
| ROA | | | | | | | -0.0598*** | -0.0838*** | -0.03637 |
| | | | | | | | (0.0041) | (0.0101) | (0.1744) |
| Current ratio | | | | | | | 0.00172 | -0.00778** | -0.00273 |
| | | | | | | | (0.3497) | (0.0073) | (0.2416) |
| Loan type Dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Tranche type Dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.4126 | 0.3041 | 0.3579 | 0.4077 | 0.3623 | 0.3154 | 0.4163 | 0.2976 | 0.4367 |

Table 1.8 shows the results of the lead arranger's reputation on lead share retained in its portfolio, for the full sample and various sub-samples.

The results show that the lead arranger's reputation has a significantly negative effect on proportion of loan held by lead arranger in its portfolio in almost all sub-samples, except for loans to private borrowers by less-reputable lead arrangers, where the negative effect disappears. The result in this sub-sample is consistent with Sufi (2007), in which he finds that only the most reputable lead arrangers are able to hold a smaller portion of the loan.

Table 1.9 shows the results of the lead arranger's reputation on lead share retained in its portfolio, for repeat loan samples. The results show that the lead arranger's reputation has a significantly negative effect on proportion of loan held by lead arranger in sample of all repeat loans, sample of repeat loans syndicated by top arranger, sample of private repeat loans and sample of private repeat loans syndicated by top arranger. The results are consistent with Sufi (2007) that only the reputation of most reputable lead arrangers can reduce the portion of loan held in their portfolio. The results also are consistent with the information asymmetry story, which shows that the reputation of the lead arranger reduce the information asymmetry of private borrowing firms, even in repeat loan case. For public repeat loan sample, the lead arranger's reputation has no significantly effect on proportion of loan held by the lead arranger, either for reputable or less-reputable arranger. The results show that for public borrowing firms accessing the repeat loan market, because the information asymmetry of borrowing firm is substantially reduced by both the public information of the borrower and the information gained from the repeat interaction with the loan market, the reputation generally loses its explanatory power.

**Table 1.9 Estimates of Arranger's Reputation on Lead Share Retained by Lead Arranger – Repeat Loan Sample**

This table reports regression analysis of arranger's reputation on lead share held by lead arranger for repeat loan sample. Reputation is measured by arranger's previous year market share in syndicated market; the control variables include information asymmetry variables, loan characteristics variables and firm variables. P-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Repeat Syndicated Loan** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **Full Repeat** | | | **Private Repeat** | | | **Public Repeat** | | |
| | All | Top | Non-top | All | Top | Non-top | All | Top | Non-top |
| NOBS | 1846 | 1063 | 782 | 1071 | 585 | 486 | 787 | 478 | 296 |
| Intercept | 1.6403*** | 1.437*** | 1.514*** | 1.6382*** | 1.5688*** | 1.769*** | 1.549*** | 1.199*** | 2.1035*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) |
| Reputation | -0.125*** | -0.124** | -1.257 | -0.2098*** | -0.19143** | -0.979 | -0.1017 | -0.0185 | -0.6096 |
| | (0.0077) | (0.0336) | (0.4771) | (0.0016) | (0.0193) | (0.6634) | (<0.1715) | (0.8338) | (0.8558) |
| Log tranche | -0.04929*** | -0.0396*** | -0.0196*** | -0.04792*** | -0.0433*** | -0.0510*** | -0.0465*** | -0.0279*** | -0.08406*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.0003) | (0.0003) |
| Log sales | -0.01864*** | -0.0175*** | -0.0426*** | -0.02200*** | -0.0174*** | -0.0305*** | -0.01499*** | -0.02193*** | -0.0076 |
| | (<0.0001) | (<0.0001) | (<0.0001) | (<0.0001) | (0.0026) | (<0.0001) | (0.0018) | (0.0001) | (0.4170) |
| Rating | -0.00356*** | -0.00326*** | -0.006*** | -0.00302*** | -0.00311** | -0.0026* | -0.00436*** | -0.00406** | -0.00411 |
| | (<0.0001) | (0.0009) | (<0.0001) | (0.0021) | (0.0158) | (0.0932) | (0.0026) | (0.0125) | (0.2022) |
| Sponsored | -0.03287*** | -0.0262* | 0.00422*** | -0.04708*** | -0.0552*** | -0.02468 | 0.02623 | 0.02137 | 0.29906*** |
| | (0.0073) | (0.0840) | (0.8470) | (0.0014) | (0.0047) | (0.3038) | (0.3209) | (0.4395) | (0.0037) |
| Secured | 0.00845*** | 0.00495 | 0.00545*** | 0.00737 | 0.01607 | -0.00469 | 0.00944 | 0.01208 | 0.0314 |
| | (0.2947) | (0.6337) | (0.6876) | (0.5093) | (0.2905) | (0.7826) | (0.5023) | (0.4631) | (0.2628) |
| Maturity | -0.0008*** | -0.00113*** | -0.00056* | -0.00075*** | -0.00136*** | -0.000014 | -0.00119*** | -0.00059 | -0.00212*** |
| | (<0.0001) | (<0.0001) | (0.0558) | (0.0028) | (0.0001) | (<0.9695) | (0.0013) | (0.1945) | (0.0012) |
| ROA | | | | | | | 0.12586** | 0.1414* | 0.03164 |
| | | | | | | | (0.0185) | (0.0992) | (0.6720) |
| Current ratio | | | | | | | 0.01017** | 0.01556** | -0.00551 |
| | | | | | | | (0.0445) | (0.021) | (0.476) |
| Loan and tranche type Dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.3759 | 0.3368 | 0.3140 | 0.3583 | 0.3551 | 0.3169 | 0.4015 | 0.3400 | 0.4824 |

## 1.6. Robustness Check

The regression analysis above focuses on whether the lead arranger's reputation has an effect on loan pricing for comparable syndicated loans. However, the decision of choosing a reputable or less-reputable arranger could be endogeneous. Hence, this paper also checks the possibility that the results are spuriously driven by an unobserved but nonrandom selection criterion.

To test for selection bias, this study estimates a two-stage least-squares regression, and the result is reported in Table 1.10. Two-stage least-squares regression can be used to test for selection bias in order to reject the hypothesis that self-selection or other forms of selection into the two groups accounts for differences in the dependent variable.

**Table 1.10 Instrumental Variable Regressions: Arranger's Reputation on the Loan Spread**

This table reports results of instrumental-variable, two-stage least square regressions of the predicted value of arranger reputation on syndicated loan spread. For the full sample, the predicted value of reputation is the predicted value of a regressing market share on the natural log of borrower sales at the time of the loan origination, the credit rating for the S&P issuer credit rating at the time of the loan close, and public dummy for the full sample; for private firm sample, the public dummy is dropped from independent variables at the first stage regression; for the public firm sample, natural log of book value of assets, ROA, leverage ratio, R&D intensity and current ratio are added to independent variables at the first stage. All regressions include dummy variables for loan purposes, tranche types, one-digit SIC codes and for each year of the sample period. *P*-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | **Private** | **Public** |
|---|---|---|---|
| NOBS | 7707 | 3637 | 4111 |
| Intercept | 562.1988*** | 722.2880*** | 471.9103*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Market share | -798.892*** | -1006.33** | -615.595*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| $(\text{Market share})^2$ | 141.6490** | 81.9892 | 96.8834 |
| | (0.0361) | (0.5710) | (0.2124) |
| Lead share | 48.3755*** | 49.2188*** | 32.9477*** |
| | (<0.0001) | (0.0019) | (0.0005) |

**Table 1.10 (continued)**

| | | | |
|---|---|---|---|
| Log tranche | -19.6831*** | -23.9502*** | -18.7099*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Financial covenants | -5.8621 | -11.1385 | 6.8696 |
| | (0.1442) | (0.1449) | (0.1778) |
| All covenants | -6.1187 | -7.0783 | -5.7414 |
| | (0.1489) | (0.3881) | (0.2768) |
| Sponsored | 40.4922*** | 38.1922*** | 32.7902*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Secured | 69.4240*** | 71.8854*** | 62.7230*** |
| | (<0.0001) | (<0.0001) | (<0.0001) |
| Maturity | -0.3501*** | -0.2046** | -0.3488*** |
| | (<0.0001) | (0.0884) | (<0.0001) |
| Repeat dummy | -13.3582*** | 4.0984 | -11.5535** |
| | (<0.0001) | (0.9044) | (0.0313) |
| # Lenders | 1.1088*** | 1.1553*** | 1.0177*** |
| | (<0.0001) | (0.0023) | (<0.0001) |
| Loan purpose dummy | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.4397 | 0.3827 | 0.4753 |

Instrument variables are used in the first stage of 2SLS to create the new variables which replace the problematic causal variables. This is accomplished using OLS regression, with the problematic causal variable as the dependent and instrumental variables as the independents. The predicted values of this regression equation are values of the new causal variable which replaces the problematic causal variable. The new variable will be uncorrelated with the disturbance term of the endogenous variable. The study then proceeds to stage 2 of 2SLS, by using the newly-created instrumental variables.

In particular, the study first estimates a selection probability model that relates the probability of the firm borrowing from a reputable arranger to firm characteristics. For the full sample, the study estimates the selection probability (whether the borrowers get a syndicated loan from the reputable arranger or not) to firm sales, firm ratings, and firm public dummy. For

the public firm sample, the study not only includes the above variables, but also includes firm size, ROA, R&D expenses, leverage, and current ratio. After controlling for potential selection bias, the results generally remain robust. The selection-adjusted coefficient estimates are similar to those from the simple OLS model. For the 2SLS model, in general, the effects are more pronounced than for OLS model.

Some previous literature suggests that that loan rates and fees are substitutes, that is, banks sometimes charge lower loan rates with the expectation of extracting higher upfront fees from borrowers. The lead arranger's total compensation also includes upfront fees which are not shared with the rest of the syndicate participants and spread. To test for the possibility of whether upfront fees, rather than loan spread should be used to reward the lead arranger bank as a reputation premium, we substitute the loan spread with upfront fees as an alternative measure variable for loan pricing. Using upfront fees as the dependent variable, we rerun the key regressions for the sample where upfront fees are available. Approximately 21.6% of the sample includes information of upfront fees. When upfront fees are used as the dependent variable (Table 1.11), there is a significant drop in explanatory power, but the main results remain the same. For both the full sample and private firm sample, the fixed payment upfront fees charged by reputable lead arrangers are positively related to the change in reputation, whereas the upfront fees charged by less-reputable lead arrangers are negatively related to the change in reputation. For the public firm sample, the reputation effect on loan pricing generally disappears.

**Table 1.11 Estimates of Arranger's Reputation on Up-front Fees**

This table reports regression analysis of arranger's reputation on the loan up-font fees. Reputation is measured by arranger's previous year market share in syndicated market; the control variables include information asymmetry variables, loan characteristics variables and firm variables. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | | | **Private** | | | **Public** | | |
|---|---|---|---|---|---|---|---|---|---|
| | All | Top | Non-top | All | Top | Non-top | All | Top | Non-top |
| NOBS | 1668 | 725 | 943 | 627 | 247 | 380 | 749 | 351 | 398 |
| Intercept | 91.4939*** | 71.5682 | 125.1540** * | 161.6755** * | 130.6546 | 86.0426 | 48.7894 | 52.9614 | 37.8738 |
| | (0.0030) | (0.1473) | (0.0030) | (0.0064) | (0.1123) | (0.2364) | (0.1884) | (0.3787) | (0.5374) |
| Market share | 38.0589** | 39.1828* | -592.3595* | 53.5052* | 111.6135*** | -1048.8130* | -7.8564 | -3.8945 | -512.4007 |
| | (0.0147) | (0.0673) | (0.1000) | (0.0903) | (0.0043) | (0.0995) | (0.6646) | (0.8780) | (0.3184) |
| Log tranche | -1.8523 | 1.4279 | -4.5115** | -5.0125** | 0.7736 | -8.3539*** | -1.8523 | -0.6837 | 0.4103 |
| | (0.1743) | (0.4937) | (0.0149) | (0.0287) | (0.8232) | (0.0058) | (0.1743) | (0.8062) | (0.8761) |
| Log sales | -0.8243 | -2.4218 | -0.2757 | 0.5056 | -2.3436 | 3.1672 | -0.8243 | -1.6616 | -0.5273 |
| | (0.4287) | (0.1443) | (0.8441) | (0.7857) | (0.4120) | (0.1874) | (0.4287) | (0.2361) | (0.7072) |
| Rating | -0.1231 | -0.6246* | 0.4787 | -0.9110* | -1.7610*** | -1.7610*** | -0.1231 | 0.7960** | 0.7960** |
| | (0.6214) | (0.0849) | (0.1827) | (0.0544) | (0.0076) | (0.0076) | (0.6214) | (0.0403) | (0.0403) |
| Sponsored | 12.3607*** | 12.7071** | 10.9222** | 11.5379** | 15.0568* | 10.6334 | 12.3607*** | 0.4017 | 0-0.2207 |
| | (0.0007) | (0.0170) | (0.0457) | (0.0474) | (0.0773) | (0.2105) | (0.0007) | (0.9579) | (0.9817) |
| Secured | 18.4639*** | 16.1318*** | 19.7059*** | 16.1037*** | 12.7559* | 17.2959*** | 18.4639*** | 20.3385*** | 14.3873*** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (0.0007) | (0.0722) | (0.0039) | (<0.0001) | (<0.0001) | (0.0002) |
| Maturity | -0.0139 | 0.0433 | -0.0515 | 0.0967 | 0.1803 | 0.0636 | -0.0139 | -0.1358 | 0.0201 |
| | (0.8040) | (0.6453) | (0.4828) | (0.3543) | (0.2479) | (0.6449) | (0.8040) | (0.2592) | (0.8266) |
| Log assets | | | | | | | -1.1734 | -0.8752 | -0.0805 |
| | | | | | | | (0.4309) | (0.7317) | (0.9700) |
| ROA | | | | | | | -76.7681*** | -56.9764*** | -101.555*** |
| | | | | | | | (<0.0001) | (0.0083) | (<0.0001) |
| Leverage | | | | | | | 1.6095*** | 1.5405* | 1.4245** |
| | | | | | | | (0.0020) | (0.0925) | (0.0366) |
| R & D | | | | | | | -9.4731* | -9.9324* | -17.4851 |
| | | | | | | | (0.0671) | (0.0905) | (0.7032) |

## 1.7. Summary and Conclusion

This study analyzes loan facilities to non-financial U.S. firms from 1994 to 2006 to investigate the effects of the arranger's reputation on syndicated loan pricing, under different bank-borrower relationship settings. Theory suggests that reputation requires a premium. When market share is used as a proxy for reputation, the results tend to confirm theory, especially for borrowing by private firms. The paper finds a non-monotonic relationship between loan spread and the lead arranger's reputation. Specifically, a reputable arranger charges a reputation premium for its monitoring and due diligence and its commitment against exploitation of information rent; while a less-reputable arranger actually offers a reputation discount. A possible explanation is: the levels of loan market competition faced by reputable and less reputable arrangers, which come from both the bank loan market and the substitutive bond market, are quite different. A less reputable arranger offers a reputation discount to compete with the reputable arranger in this highly concentrated and competitive market. Additionally, the arranger's reputation effect on pricing becomes less significant as the borrower enters a repeat lending relationship with existing lender, because the repeat loan substantially reduce moral hazard between the borrower and the lender. The syndicated loan market also gives rise to adverse selection between the lead arranger and participants. The study finds that the arranger's reputation can reduce the lead share retained in its portfolio, which serves as evidence that reputation also mitigates adverse selection between the lead arranger and participants.

Market share is however a problematic reputation proxy because it can also be related to market power, which would also affect the loan spread. Study on examining how alternative approaches to address the reputation proxy problem can be a future research interests.

# CHAPTER 2

# CHANGING PARTNERS FOR BETTER OR WORSE:

# A CLOSE LOOK AT LOAN MIGRATION IN THE SYNDICATED LOAN MARKET

## 2.1. Introduction

The theoretical literature in banking argues shows that banks (lenders) and firms (borrowers) benefit from entering into a relationship-lending arrangement. For banks, these benefits arise mainly because they can produce information - that cannot be easily observed by or transferred to outsiders - about their borrowers, which can then be used to make more accurate credit decisions in the future [18]. For firms, it is argued that relationship banks tend to smooth their borrowers' loan rates in response to interest rate shocks[19] or in responses to changes in firms' credit risk[20]. In reality, however, it is common for firms to switch to new banks when seeking a repeat loan. Gopalan, Udell and Yerramilli (2007) report that in the syndicated loan market, 44% of the repeat loans involve new bank-borrower relationships. If banking relationships confer significant benefits, why do firms and banks forgo them and migrate lending and borrowing to new partners?

The existing literature proposes a number of hypotheses for these repeat loan migrations, several of which are consistent with the notion of a separating equilibrium in the loan market. One explanation is based on the "graduation hypothesis" that has been documented in the IPO and bond underwriting markets, in which firms tend to move to more prestigious underwriters in

[18] See Leland and Pyle (1977), Fama (1985), Diamond (1984), and Diamond (1991).
[19] Berger and Udell (1992).
[20] Petersen and Rajan (1995), and Berlin and Mester (1998).

subsequent securities offerings.[21] When applied to repeat lending, this hypothesis could explain a loan migration from a less to a more reputable lender, but cannot rationalize loan migrations within the same lender reputation class or migrations from a more to a less reputable lender. As we show later, these latter two types of migrations account for a large proportion of repeat loans. A variant of the "graduation hypothesis"[22] is based on the attributes of banks. Essentially, banks are separated into two classes based on size. Each class possesses unique strengths and therefore specializes in lending to different types of borrowers[23]. Small banks have a better ability to process information and are more likely to lend to information-problematic borrowers, while large banks specialize in lending to larger firms. According to "graduation hypothesis", newer, smaller firms with severe information asymmetry will tend to borrow at small banks. As firms grow, they would more likely to enter into a new relationship with a larger bank due to their increased borrowing needs, enhanced information transparency, and other capital market services needs[24]. As with the 'graduation hypothesis', the bank size explanation is consistent with repeat loans migrating from less to more reputable lenders but cannot rationalize the movement to a different lender within the same lender reputation class. Bank-borrower relationships may also be affected by competition from other lenders who may provide either a superior product or a lower loan rate. In addition, firms and banks may switch partners due to ad hoc factors such as mergers, acquisitions and restructuring. Neither of these two latter explanations, however, focuses on a systematic set of factors underlying the pattern of loan migration.

[21] Krigman, Shaw and Womack (2001): Firms "graduate" to more prestigious underwriters whenever possible and strategically acquire additional and more influential analyst coverage through their choice of underwriters.

[22] Diamond's (1991) model's model demonstrates that borrowers "graduate" from bank loans to public debt by establishing a solid credit reputation. Gopalan, Udell and Yerramilli (2007) term the situation as the "graduation hypothesis" for the reason that the switching of firms to large banks for their repeat borrowing is similar to the switching of firms to more reputable investment banks for their underwriting business.

[23] Berger et al. (2005) and Kano et al. (2006).

[24] Hadlock and James (2002), Gopalan, Udell and Yerramilli (2007).

This paper focuses on two questions: 1. What are the factors that lead to repeat loan migrations? 2. What are the factors that create a separating equilibrium in the repeat loan market? As stated, these two questions are interrelated since a borrower that migrates to a higher reputation lender must have discontinued a pre-existing relationship with a lower reputation lender. Thus the same model must be used to answer both questions; the differences, if any, will appear in the empirical estimates. To address these questions, we examine two different types of repeat loans, *intra*-class migration loans and *inter*-class migration loans. *Intra*-migrating loans are repeat loans that have switched from one lender to another but the new lender remains within the same reputation class as the original lender. Thus this type of loan cannot be informative about the separating equilibrium properties of the loan market. Rather, the loan must pertain primarily to the benefit/cost calculations made by the borrower and lender when discontinuing one relationship and establishing another. The second type of *inter*-migrating loan refers to one in which the new lender inhabits a different reputation class than the old lender. Here we need to distinguish between repeat loans migrating to a higher reputation class and those migrating towards a lower reputation class. These repeat loans represent separating equilibrium loans and we argue below that their empirical estimates reveal information about the cost/benefit calculations made by lenders.

We define the bank-borrower relationship in a syndicated loan as one arising between the borrower and the lead lender because prior research has shown that the lead lender is the one who is responsible for monitoring the borrower[25]. Our empirical work uses a number of explanatory variables that are designed to capture various elements of the loan, borrower and lender. These include: the cost of borrowing, as measured by the loan spread and fees charged to the borrower; characteristics of the borrowing firm such as leverage, size, and Tobin's Q; loan

[25] Sufi (2007).

characteristics including maturity and covenants; and characteristics of the lead-bank lender such as the number of participant banks used to finance the loan. We use a logit model to contrast the impact of the above determinants on migrating loans relative to repeat loans that remain with the same lender.

Our results can be briefly summarized as follows. Lending within the high quality bank sector reveals evidence that is consistent with relationship lending. That is, some firms forego lower interest rates and longer maturity loans to remain with their original lender. A similar finding does not hold for repeat lending in the lower quality bank sector. Regarding loans that migrate in either direction between the high and low quality bank sectors, firm risk is the most important determinant. Relatively riskier firms move down to lower quality lenders while relatively safer firms move up to higher quality lenders.

The outline of the paper follows. A review of the relevant literature is provided in Section 2. Section 3 presents a model of the loan-migration process and discusses the empirical hypotheses that can be derived from the model. The data is described in Section 4. Section 5 presents and discusses the empirical results. Section 6 concludes the paper with a brief summary.

**2.2. Related Literature**

There is a significant body of literature on financial intermediation that documents the benefits and costs of banks as relationship lenders in a variety of situations. Campbell (1979) Fama (1985), Diamond (1984, 1991) shows that the relationship lending ensures monitoring and

screening and can substantially reduce information asymmetry. A bank-borrower relationship is a mutual commitment and it leaves for negotiation and flexibility. La Porta et al. (2003) show that a firm with close ties to its bank is less liquidity constrained and is able to obtain better financing terms than a firm without close connections to its relationship bank. Berlin and Mester (1998) show that the relationship lending smoothes loan prices in responses to interest rate shocks, suggesting a feature of bank lending is a multi-period lending relationship between firm and bank in which loans need not to be break-even periodically. For public firms, James (1987), Lummer and McConnell (1989), and Shockley and Thakor (1992) document that the existence or renewal of a bank relationship or a loan commitment sent positive signal to the borrowers' abnormal stock returns. For small businesses, Petersen and Rajan (1994) find that a lending relationship leads to increased credit availability, while Berger and Udell (1995), and Boot and Thakor (1994) show that a relationship lending lowers the collateral requirement on loans. For large U.S. firms, Bharath et al. (2006) document that a *strong* banking relationship translates into loans with a lower interest rate, a larger loan amount, and reduced collateral requirements. The advantage of relationship lending can also be inferred *indirectly* from the work of Ioannidou and Ongena (2006). Using a Bolivian loans data set, they answer the question of what is the reduction in the loan rate needed to induce a borrower to break a pre-existing banking relationship. Their results indicate that a new loan granted by an outside bank carries a loan rate that is more than 80 bps lower than the rate on a comparable new loan available from its current inside bank. Firms, therefore, that remain in a relationship with the same bank must be receiving relationship benefits whose value is at least equal to 80 bps.

Closer to our research interests are several papers dealing with the dissolution of banking relationships. Gopalan, Udell and Yerramilli (2007) find that U.S. firms switch to new banks mainly to obtain a larger loan amount; they do not find any evidence of a lower loan yield

following the firms' switch. This finding is at odds with the work of Ioannidou and Ongena (2006) on Bolivian loans discussed above. The difference in firm characteristics between the U.S. and Bolivia, therefore, must also play a role in determining the likelihood of breaking a pre-existing relationship. Regarding the influence of firm characteristics, Ongena and Smith (2001) investigate the banking relationships of Norwegian firms and find that small, highly-leveraged firms are more likely to transit from small banks to large banks.

Bank competition may also influence the proportion of lending in banking markets that is based on relationships because the degree of competition can influence both the magnitude of the monopoly rent received by the relationship bank and the ease at which firms can switch among lenders. The extant theoretical literature on this question, however, is sparse and thus it is an open empirical issue

One problem with the above empirical research is that it treats all lending identically. However, some lending activity is not primarily motivated by relationship banking; rather it more closely resembles a process that can be characterized as movement to a separating equilibrium within the loan market. In our analysis below we distinguish between two types of loans - repeat loans made by the same firm with the same lender and repeat loans made by the firm with a different lender. The first type should provide information about the characteristics of relationship lending while the second type should reveal important factors that give rise to a separating equilibrium in the loan market. If this view is correct, the interpretation of the regression coefficients for the two types of loans should be quite different. To the best of our knowledge, this is the first study to use disaggregated repeat loan data to estimate the differences between intra- and inter-migration loans.

## 2.3. The Model and Hypotheses

In our empirical work we use a logit model and set the dummy at 0 for a non-switching loan and 1 for a switching loan. To interpret the coefficients of the logistic regression, we present a simple model describing the decisions made by borrowers and lenders in the repeat loan market.

There are two classes of lenders: high reputation (H) and low reputation (L). Reputation is defined by the total amount of lending conducted by the bank in the syndicated loan market, so the larger is the amount of the bank's loans, the higher is the bank's reputation. Each borrower can be classified as an initial H or L borrower. When the borrower enters the repeat loan market, either the original lender (O) issues the new loan or the borrower switches to a new lender (N). For a non-switched repeat loan, there are two outcomes: HH, in which the borrower remains with a lender of high reputation, and LL, in which the borrower remains with a lender of low reputation. For a switched repeat loan, there are two *intra*-loan migrations, H→H (the loan switches from a high reputation lender to another high reputation lender) and L→L (the loan switches from a low reputation lender to another low reputation lender), and two *inter*-loan migrations, H→L (the loan switches from a high reputation lender to a low reputation lender), and L→H (the loan switches from a low reputation lender to a high reputation lender).

### 2.3.1. Firm Behavior in the Repeat Loan Market

Let $Z_F$ represent the borrower's net benefit when switching to a new lender. We define $Z_F$ as,

$$Z_F = R^{NB} - R^{OB} + T^{NB} - T^{OB} \quad (2.1)$$

where $R^{NB}$ and $R^{OB}$ represent the firm's net relationship benefit with the new bank (NB) and the old bank (OB) and $T^{NB}$ and $T^{OB}$ represent the terms of the repeat loan including the interest rate, maturity structure and covenants with the new and old lender. A (non-switching) borrower desires to remain with the old lender when $Z_F < 0$ and a (switching) borrower desires to contract with a new lender when $Z_F > 0$.

To apply (1) in our logistic regression framework, we assume that, on the basis of the information acquired in its dealings with the old lender, the firm knows the value of $R^{OB}$ that it will receive if it remains with the old lender. This value will vary firm by firm and thus firms can be ranked according to their perceived value of $R^{OB}$. This ranking is of course unobservable to the econometrician. The firm, however, must project the value of $R^{NB}$ because it lacks information about its potential new lender. We assume that the projected value of $R^{NB}$ is uncorrelated with the $R^{OB}$ ranking of firms and, for simplicity, assume that firms within each class (H or L) make an identical projection of $R^{NB}$.

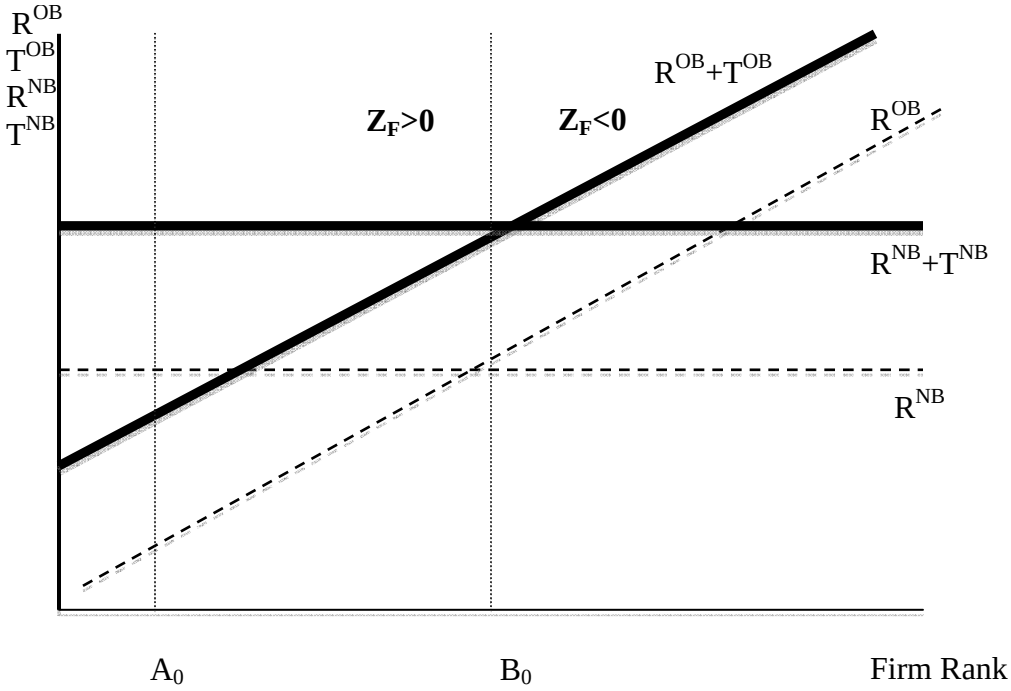



Figure 2.1.A: Determinants of $Z_F$

$Z_F$ defines a firm's net benefit of switching a loan from one lender to another. $R^{OB}$ and $R^{NB}$ are the firm's relationship benefits with the old and new lender. $T^{OB}$ and $T^{NB}$ are indexes that represent the firm's valuation of the loan offer (including interest rate, maturity and covenants) from its old lender and new lender, respectively.

Figure 2.1.A graphs the components of $Z^F$ in (1). Each firm is located on the horizontal axis based on its ranked value of $R^{OB}$. The vertical axis measures $R^{OB}$ and $R^{NB}$, the latter of which is assumed to be constant and invariant to firms' rank of $R^{OB}$. The loan terms, $T^O$ and TN, measure the outcome of a process that aggregates the various components of a loan (interest rate, maturity, and covenants) into a single value. We assume that $T^O$ and $T^N$ are negatively related to the loan rate and the number of covenants and positively related to maturity. In the repeat loan market $T^O$ and $T^N$ are negotiated between each firm and bank(s) and thus will vary firm by firm. For purposes of illustration, however, we assume that $T^O$ and $T^N$ are constant and do not depend on the firm's rank. In Figure 1a the point B0 divides firms into $Z^F > 0$ and $Z^F < 0$ groups. Firms

in the $Z^F > 0$ group have a greater incentive and thus likelihood to migrate their loans to a new lender whereas the reverse is the case for firms in the $Z^F < 0$ group. Consider the logistic regression contrasting H→H to HH repeat loans. Our maintained hypothesis is that a significant majority of the migrated loans arise in the $Z^F > 0$ region while a significant majority of non-migrated loans arise in the $Z^F < 0$ region. Since these two regions demarcate two different parts of the $R^{OB}$ line, the logistic regression could provide information about how firms' characteristics shape the relative properties of $R^{OB}$ lying to the left and $^{right}$ of $B_0$ in Figure 1a. For example, some firms may find that their potential for moral hazard behavior increases over time because they come into possession of valuable asymmetric information. The firm's view of its benefits derived from an established banking relationship ($R^{OB}$) may therefore decline relative to $R^{NB}$ because the monitoring activity by the original lender during the period of the old loan has provided the old bank with an enhanced ability to detect the firm's future moral hazard behavior, leading the firm to seek a different lender to exploit its information asymmetry. Thus a variable, which proxies for the degree of information asymmetry between firms and their lenders, may be associated with a higher likelihood of intra-loan migration when compared to repeat loans that remain with the original lender.

The literature has especially focused on the T components of $Z^F$. Specifically, the models of Sharp (1990) and Rajan (1992) predict that in a relationship banking arrangement the terms of a renewal loan with the same lender worsen relative to the terms available from alternative lending sources. In Figure 2.1A, this prediction implies that $T^{NB}$ increases relative to $T^{OB}$, which shifts $B_0$ rightward and increases the desirability and therefore the likelihood of intra-loan migration. In a logistic regression of say, H→H to HH repeat loans, the likelihood of H→H should be positively correlated with $T^{NB} - T^{OB}$.

### 2.3.2. Bank Behavior in the Repeat Loan Market

Lenders also make a calculation similar to (1). Lenders need to decide whether to renew a loan with a current borrower or to seek a new borrower. Let $Z_B$ represent the bank's net benefit of switching its lending to a new borrower. $Z_B$ is defined as,

$$Z_B = R^{NF} - R^{OF} + T^{NF} - T^{OF} \qquad (2.2)$$

where R and T represent net relationship benefits and loan terms, respectively, and NF and OF represent the new firm borrower and old firm borrower. As in the case of firms, the bank loan terms, $T^{NF}$ and $T^{OF}$, are index numbers that aggregate the various components of the loan (interest rate, maturity and covenants) into a single value. The bank seeks a new borrower when $Z_B > 0$ and renews the loan with its old borrower when $Z_B < 0$.

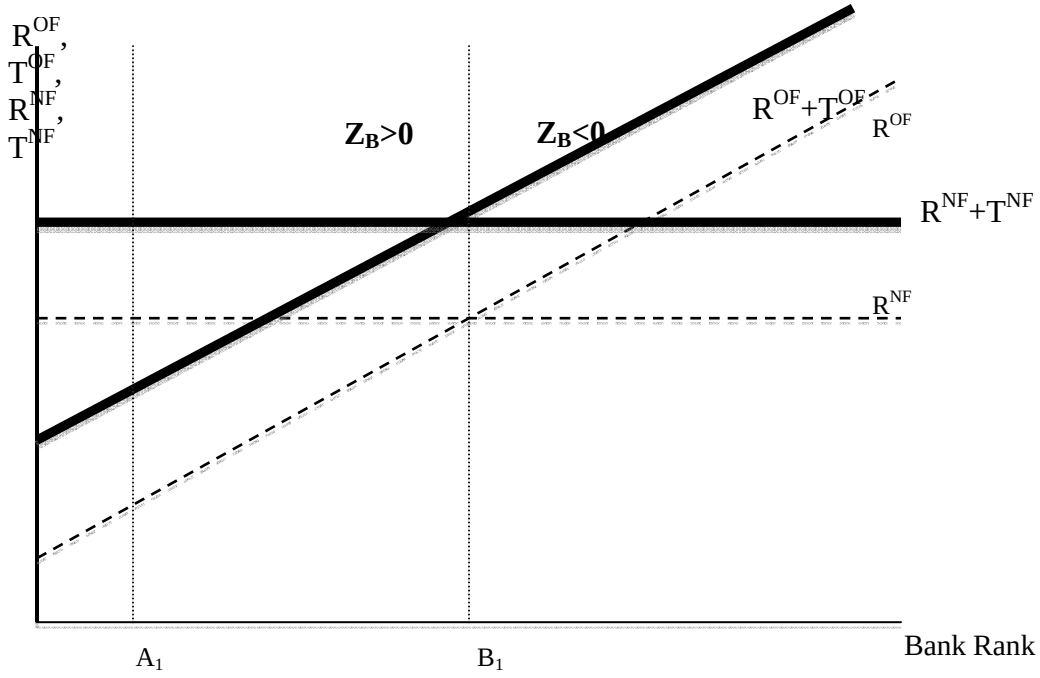



Figure 2.1B: Determinants of $Z_B$

$Z_B$ defines a bank's net benefit of offering a loan to a new borrower. $R^{OF}$ and $R^{NF}$ are the bank's relationship benefits with the old and new borrower. $T^{OF}$ and $T^{NF}$ are indexes that represent the bank's valuation of its loan offer (including interest rate, maturity and covenants) to its old borrower and new borrower, respectively.

Figure 2.1B graphs $Z_B$. As in the previous section, each bank is assigned a rank based on its perception of the relationship benefit that it will obtain when it renews a loan with an old borrower. The positively sloped line, $R^{OF}$, indicates that banks will have differing views of the relationship benefits provided by their old borrower and that some banks will assign a low value relative to the value expected from a loan to a new borrower, $R^{NF}$. For example, if the original firm becomes more complex, as proxied say, by firm size, the bank's projected monitoring cost may rise above the cost level expected when the original loan was made, leading to a decline in $R^{OF}$. Thus the distribution of firm size can influence $R^{OF}$, so that larger firms may be associated with a greater likelihood of intra-loan migration.

In Figure 2.1B, $B_1$ is the dividing line between the $Z_B > 0$ and $Z_B < 0$ regions. Banks lying to the left of $B_1$ would be more likely to seek new borrowers while banks lying to the right would be more likely to renew loans with their old borrowers. Thus the empirical properties of intra-migrated loans would tend to be dominated by the set of underlying determinants that shape the portion of $R^{OF}$ to the left of $B_1$ while the underlying determinants of non-migrated loans would dominate the shape of $R^{OF}$ to the right of $B_1$.

The values of $T^{NF}$ and $T^{OF}$ also influence the bank's loan renewal decision. As noted above, Sharpe (1990) and Rajan (1992) hypothesize that when a bank continues to lend to an old borrower, it takes advantage of its relationship by charging higher than market interest rates. This implies that $T^{NF}$ is generally smaller than $T^{OF}$, which tends to shrink the $Z_B > 0$ region. Thus the Sharpe-Rajan hypothesis leads to an expansion in the banks' $Z_B < 0$ region and a desired increase in non-migration loans, but for firms the hypothesis implies a contraction in their $Z_F < 0$ region and a desired increase in intra-migration loans. Of course, these two offsetting forces are

resolved in negotiations between banks and firms as part of the adjustment to equilibrium in the repeat loan market.

### 2.3.3. Using Intra- and Inter-Migration Loans for Empirical Hypotheses

Our empirical work contrasts repeat loans that have migrated to a different lender with repeat loans that have been renewed by the original lender. How can we use the above model to interpret our empirical results in logistic regressions of intra- and inter-migrating loans?

Consider intra-migrating loans. First, the assumptions that $R^{NF}$, the projected relationship benefit received by a bank switching to a new borrower, is identical across the banks and that $R^{NB}$, the projected benefit received by a firm from switching to a new bank, is identical across the firms would be highly improbable if data for all H and L banks and all H and L firms were used in the same regression. Thus, the two assumptions justify splitting the data into H and L sectors. Second, the firms who originally borrowed within the H-bank class and the H banks who lent to these firms represent an initial separating equilibrium in the loan market. Holding bank reputation constant helps to support the assumption that $R^{OF}$ and $R^{OB}$ can be represented as smooth functions in Figures 2.1 A and 2.1 B with a single point dividing the migration and non-migration regions. If all H and L banks and firms were used in the same regression, there would be two dividing points in Figures 2.1 A and 2.1 B and thus a potentially large overlapping area in the two figures where, for example in figure 1a, L firms desired to remain with their original lender but H firms desired to migrate. The coefficients in the regression therefore would be a mixture of firms in both the H and L sectors.

While holding the reputation class of banks constant does solve a mixture problem, it does not address a basic identification problem. Equilibrium in say, the H repeat loan market implies that $T^{OF}$, $T^{NF}$, $T^{OB}$, and $T^{NB}$ are configured so that the amount of repeat loans extended by banks to both non-migrating and migrating borrowers equals the quantity desired by each class of borrower. Essentially, the value of the T variables in Figures 2.1 A and 2.1 B adjust until the migration and non-migration regions in each figure produce an amount of lending/borrowing that satisfies banks and firms for both migrating and non-migrating loans. Without loss of generality, assume that the loan market equilibrium occurs at the same point in Figures 2.1 A and 2.1 B ($A_0 = B_0$). The available loan data can be sorted into migrating and non-migrating regions. However, the sorting outcome is due to simultaneous decision-making by both banks and firms as expressed in $R^{OB}$ and $R^{OF}$. The data therefore cannot distinguish between a bank- or firm-induced loan migration. Since the variables in the logistic regression are likely to affect $R^{OB}$ and $R^{OF}$ simultaneously, the estimated regression coefficients capture only a net effect. In other words, the underlying coefficients of $R^{OB}$ and $R^{OF}$ are unidentified in the *intra*-migration regressions.

We argue that the coefficients in the *inter*-migration regressions are identified. Our reasoning is as follows. Let Figure 1a refer to firms in the L sector. Any L firm that desires to move to the H sector will lie in the subset of L firms to the left of $B_0$. Moreover, firms that want to move up to the H lender class must have a strong incentive to search for a new lender in the higher reputation class. In our view such firms would be concentrated on the horizontal axis lying on the left of $A_0$ in Figure 1a because firms in this region have the largest projected gain from switching lenders (to new lenders in either the H or L sector). Of course, not all of these firms would desire to move up and some of those with this desire would not be successful. To identify the logistic regression coefficients, however, we only need to assume that a significant

majority of L firms moving up to the H sector are concentrated to the left of $A_0$. To see the effect of this assumption, let Figure 1b refer to banks in the H sector. Loans to the inter-migrating firms would then be spread throughout the region lying to the left of $B_1$ in Figure 1b since this defines the group of H Banks who are seeking new borrowers. Placing the restricted portion of Figure 1a lying to the left of $A_0$ on top of Figure 1b shows that $R^{NB}$ in Figure 1a overlaps with only a small portion of $R^{NF}$ in Figure 1b. In this overlapping area the inter-loan migration data cannot distinguish between $R^{NB}$ and $R^{NF}$. However, the data will provide information about $R^{NF}$ outside of this overlapping region because only a few L firms lying between $A_0$ and $B_0$ in Figure 1a will migrate to the $A_1 - B_1$ region in Figure 1b. As a result, the regression will estimate the shape of $R^{NF}$ between $A_1$ and $B_1$. As discussed above, the movement of L firms to the H sector describes a separating equilibrium in the loan market. Our analysis suggests therefore that the coefficients referring to firm characteristics in the associated logistic regression represent assessments made by H banks of L→H borrowers. That is, the coefficients describe attributes of the inter-migrating firms that attract loans from H banks.

We use a similar approach to interpret the coefficients in the logistic regression of H→L migrating loans. In a separating equilibrium, borrowers, whose repeat loans migrate from the H sector to the L sector, should be among the worst relationship borrowers as viewed by H banks. This assumption implies that these borrowers would be concentrated among the H banks lying to the left of $A_1$ in Figure 1b. When expelled from the H sector, these firms will end up borrowing from L banks within the L sector's $\mathbf{Z_F > 0}$ region in figure 1b since this region contains the L banks seeking to find new borrowers. Loans to the expelled borrowers should therefore be distributed along $R^{OF}$ lying to the left of $B_1$. Thus the data for migrating H→L loans provides information about how L banks view the characteristics of firms migrating to the lower reputation sector.

Summarizing the above discussion, the influence of economic factors that determine *intra*-migrating loans cannot be estimated separately for borrowers and lenders. The estimated coefficients for this type of loan are combinations of the underlying behavioral parameters of the borrowing firms and lending banks. For *inter*-migrating loans, identifying restrictions regarding the motivating source of the loan migration can be imposed. These restrictions imply that a set of coefficients can be viewed as the estimated responses of banks to underlying economic factors.

### 2.3.4. Structure of the Logistic Model

The explanatory variables include the characteristics of the bank lender, the characteristics of the loan, including the spread, fees, loan amount, and covenants, and firm characteristics such as size and leverage. Formally, the logistic regression is given by,

$$\textit{Switch Dummy} = \alpha + \beta_1 \textit{Loan Characteristics} + \beta_2 \textit{Firm-specific Variables} + \beta_3 \textit{AISD} + \beta_4 \textit{Control Variables} \quad (2.3)$$

Where the switch dummy is 1 for a switched loan and 0 for a non-switched loan, and AISD is the drawn all-in-one spread. The latter is defined as the amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. We estimate two sets of logistics regressions. In the first set, the dummy is 1 for H→H switches and 0 for HH non-switches or 1 for L→L and 0 for LL. Here the dummy in the logistic regression approximates the probability (Pr) of loan switching (S) versus non- switching (NS),

$$\textit{Switch Dummy} = \Pr\{(Z_F + Z_B)_S / (Z_F + Z_B)_{NS}\} \quad (2.4)$$

As (2.4) indicates, the probability depends on valuations about the tradeoff between the net benefits of a banking relationship and the terms of the loan made by both the borrower (firm) and lender (bank). Equation (4), therefore, is a reduced-form that describes the joint behavior of firms and banks. Furthermore, (4) assumes that loan market equilibrium prevails in both the H and L banking sectors. That is, the terms of the loan are mutually acceptable to the switching firms and to the banks that extend loans to these firms,

$$T^{NB} = T^{NF} \tag{2.5}$$

A similar condition applies to repeat loans that remain with the same firm and bank,

$$T^{OB} = T^{OF} \tag{2.6}$$

Thus, the empirical estimates of the coefficients of the loan characteristics, firm characteristics and AISD variables in (2.3) ($\beta_1$, $\beta_2$ and $\beta_3$) are mixtures of both the firm's and bank's assessments of their impact on the loan switching outcome.

As noted above, loan switches across the two bank reputation classes most likely arise because of movement to a separating equilibrium in the loan market. In this view, the $\beta_i$ coefficients in the logistic regression, for which the dummy is 1 for H→L and 0 for HH, can be interpreted from the perspective of the L bank. Given that the borrower is being demoted from the H sector, what firm characteristics are associated with the loan that the L bank finances? For the logistic regression, in which the dummy is 1 for L→H and 0 for LL, the L firm is moving up and the coefficients can be viewed from the perspective of the H bank. We interpret the coefficients as providing answers to the question, what characteristics motivate the H bank to promote a borrower to the higher reputation sector?

## 2.4. Data and Descriptive Statistics

Table 2.1 provides information about the loan, firm and bank variables used in our empirical work. Loan data, including the borrower's identity, lead lender, participant banks, origination date, all-in-drawn spread, loan amount, maturity, loan purpose, loan type, presence of general and financial covenants, and borrower's sales at the time of loan origination are obtained from the Loan Pricing Corporation's (LPC) DealScan series for the sample period, January 1990 to June 2007.

**Table 2.1 Definitions of the Variables**

| Variable | Definitions |
|---|---|
| **Loan Contract Variable** | |
| All-in-Spread Drawn | The amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. The drawn all-in spread equals the coupon spread plus the annual fee. Most spreads are measured as a markup over LIBOR. In cases where they are based on another benchmark, Loan Pricing Corporation makes adjustments to the drawn all-in spreads. |
| Maturity | The number of days between the loan origination and the maturity date |
| Length | The number of days between the n th and n+ 1th loan. |
| Facility Size | Total facility size in U.S. dollars. A deal may include several loan facilities at the same time. The most typical arrangement is a loan agreement that comprises a term loan and a revolver credit line. |
| Year | Dummy variables for the calendar years in which a loan agreement is signed. |
| Loan Purpose | Dummy variables for ‘‘Acquisition line,’’ ‘‘CP backup,’’ ‘‘Debt repay,’’ ‘‘DIP financing,’’ ‘‘Corp. purposes,’’ ‘‘LBO/MBO,’’ ‘‘Project finance,’’ ‘‘Real estate,’’ ‘‘Recapitalization,’’ ‘‘Securities purchase,’’ ‘‘Spin off,’’ ‘‘Stock buyback,’’ ‘‘Takeover,’’ and ‘‘Working capital.’’ The omitted case is ‘‘Others.’’ |
| Financial Covenants | Dummy variable that is equal to 1 if the loan has at least one financial covenant. |
| General Covenants | Dummy variable that is equal to 1 if the loan has at least one general covenant. |
| **Borrower Variable** | |
| Tobin's q | Tobin's q is the ratio: [(Book Value of Total Assets) + (Common Share Outstanding * Calendar End Year Close Price)-(Book Value of Common Stocks)]/ (Book Value of Total Assets)] |

**Table 2.1 (continued)**

| | |
|---|---|
| Log (Asset) | Natural logarithm of book value of assets from Compustat. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Log (Sales) | Natural logarithm of borrower's sales at the time of loan origination from DealScan. |
| PE Ratio | Price-earnings ratio, calculated by dividing calendar end year close price by earnings per share. |
| ROA | Profitability from Compustat. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Leverage | Total liabilities over total assets. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Market to Book | the ratio of the market value of total assets to the book value of total assets of the borrower |
| Industry | Dummy variables for the one-digit SIC industry code |
| **Lender Variable** | |
| Bank Market Share | The size of the bank market share in the syndicated loan market from previous year. |
| Bank Rank | The rank of lead arranger in the syndicated loan market from previous year |

LPC reports loan data at the "facility" level as well as at the "deal" level. A deal can be structured into different facilities, defined by the origination date, loan type, loan amount, and maturity. The observation used in the paper is loan facility at the deal level. To control for the possibility of multiple facilities in one deal contaminating the sample, we choose only one facility for each deal.

We use several variables to characterize a firm's growth opportunities and financial risk. Growth opportunities are proxied by price/earnings ratio (PE), return on assets (ROA), and Tobin's Q. For financial risk we use the log of firm size, debt ratio, current ratio and leverage ratio. Following Bharath et. al. (2005), for loans made in calendar year *t*, we use fiscal year *t* data if the loan origination date is at least 6 months after the fiscal-year end; otherwise, we use fiscal year *t-1* data. Detailed variable definitions are summarized in Table 2.1.

Table 2.2 provides information about the sample of repeat loans.

**Table 2.2 Panel 2.2.1 Sample Selection**

| | |
|---|---|
| Initial sample size (1990-2007) | 12669 |
| Less: Missing DealScan data, e.g. AISD, Facility Maturity date, facility amount etc. | -1189 |
| Less: Missing Bank Market Share data | -2202 |
| Less: Missing COMPUSTAT data | -903 |
| Less: First Time Loan | -2095 |
| Final Sample Size | 6280 |

We exclude loans to foreign entities and consider only dollar-denominated loans to U.S. public corporations. We also focus only on loans to commercial corporations and delete loans to borrowers with a one-digit SIC code of 6 (financial institutions). In the last two decades, many mergers and acquisitions occurred in the financial intermediation industry. Following Ljungqvist, Marton, and Wilhelm (2006), we track all mergers and acquisitions among arranger banks and assume that the acquiring bank inherits the prior relationships of the target bank. Finally, we exclude loans with incomplete information about the details of the loan, firm and/or lender. As shown in Panel 2.2.1 in Table 2.2, there are 6280 usable observations of repeat loans.

**Panel 2.2.2 Time Series for Loan Migration**

| Year | Repeat Loans | No Migration | Migration | Intra-Migration | Inter-Migration | L→H | H→L |
|---|---|---|---|---|---|---|---|
| 1990 | 49 | 15 | 34 | 17 | 17 | 11 | 6 |
| 1991 | 84 | 28 | 56 | 34 | 22 | 16 | 6 |
| 1992 | 117 | 65 | 52 | 33 | 19 | 8 | 11 |
| 1993 | 179 | 95 | 84 | 56 | 28 | 13 | 15 |
| 1994 | 266 | 164 | 102 | 73 | 29 | 11 | 18 |
| 1995 | 282 | 172 | 110 | 47 | 63 | 26 | 37 |
| 1996 | 372 | 229 | 143 | 83 | 60 | 28 | 32 |
| 1997 | 483 | 291 | 192 | 99 | 93 | 52 | 41 |
| 1998 | 340 | 213 | 127 | 64 | 63 | 31 | 32 |
| 1999 | 411 | 218 | 193 | 102 | 91 | 44 | 47 |
| 2000 | 572 | 331 | 241 | 140 | 101 | 43 | 58 |
| 2001 | 526 | 303 | 223 | 107 | 116 | 62 | 54 |
| 2002 | 527 | 291 | 236 | 100 | 136 | 100 | 36 |

**Panel 2.2.2 (continued)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2003 | 492 | 288 | 204 | 101 | 103 | 79 | 24 |
| 2004 | 526 | 306 | 220 | 129 | 91 | 55 | 36 |
| 2005 | 470 | 279 | 191 | 104 | 87 | 46 | 41 |
| 2006 | 389 | 237 | 152 | 78 | 74 | 32 | 42 |
| 2007 | 195 | 119 | 76 | 47 | 29 | 8 | 21 |
| Total | 6280 | 3644 | 2636 | 1423 | 1213 | 662 | 581 |

Panel 2.2.2 in Table 2.2 provides information about the time series properties of repeat loans. On a yearly basis, the number of repeat loans grew significantly from a relatively low number of 49 deals in 1990 to a peak of 572 in 2000. This surge in repeat loans reflects, of course, the growth in the overall syndicated loan market. The number of repeat loans remained in the 400 to 500 range until 2007, the year corresponding to the onset of the financial crisis, when repeat loans declined to 195, an order of magnitude similar to the number of repeat loans in the early part of the 1990 decade. The no-migration and migration columns in panel 2.2 shows that the same lead arranger financed approximately 58% of the repeat loans during the sample period. This percentage, however, was substantially smaller in 1990-91. It jumped up sharply in 1992, and has remained in the 55%-60% range since that year. The next two columns, intra-migration and inter-migration, show the migratory pattern of repeat loans. Over the entire sample, more loans have migrated within the same bank-reputation class than across the two classes, although in several years inter-migration loans exceeded intra-migration loans. As discussed above, inter-migration loans can be viewed as loans that characterize the separating equilibrium properties of the loan market. This separating process affected approximately 20% of the total number of repeat loans during the sample period. Of the two directions of movement for inter-migrating loans, slightly more than half were upward-moving L→H loans, although this observation primarily reflects the relatively high number of L→H loans in 2002. In fact, H→L

movement characterizes most of the sample years, except for the 2001-05 years. Determining whether lax loan standards could account for this observation is a potential research topic.

**Panel 2.2.3 Frequency of Loan Migration by Industry**

| One-digit SIC Code | Industry Description | Migration | No Migration |
|---|---|---|---|
| 1 | Mining | 258 | 388 |
| 2 | Construction | 412 | 601 |
| 3 | Manufacturing | 748 | 945 |
| 4 | Transportation and Communications | 390 | 567 |
| 5 | Trade | 421 | 540 |
| 7 | Business Service | 277 | 427 |
| 8 | Legal, Educational and Social Service | 140 | 176 |
| | Total | 2636 | 3644 |

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of the total number of repeat loans during the sample period. Of the two directions of movement for inter-migrating loans, slightly more than half were upward-moving L→H loans, although this observation primarily reflects the relatively high number of L→H loans in 2002. In fact, H→L movement characterizes most of the sample years, except for the 2001-05 years. Determining whether lax loan standards could account for this observation is a potential research topic.

Panels 2.3.1 to 2.3.7 in Table 2.3 provide detailed information about the loan, firm and lender characteristics for the total sample of repeat loans and various sub-samples broken down into the six patterns of intra- and inter-migrating loans.

**Table 2.3 Descriptive Statistics for Regression Variables**

**Panel 2.3.1 All Repeat Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| **Firm Variable** | | | | | | |
| ROA | 6280 | 0.03373 | 0.0400 | -2.8857 | 39.9091 | 0.5221 |
| Current Ratio | 5974 | 1.8779 | 1.5761 | 0 | 98.3265 | 1.9957 |
| Debt Ratio | 6277 | 0.6126 | 0.6010 | 0 | 22.5513 | 0.3896 |
| R&D intensity | 6101 | 0.04427 | 0 | 0 | 137.1207 | 1.7636 |
| PE Ratio | 6204 | 20.4065 | 15.9295 | -5500.00 | 6343.75 | 186.2912 |
| Net Profit Margin | 6256 | -0.03406 | 0.04018 | -259.293 | 3.2518 | 3.3490 |
| Leverage | 6277 | 0.3075 | 0.2885 | 0 | 4.9545 | 0.2279 |
| Quick Ratio | 5921 | 1.3102 | 1.0533 | -7.2793 | 98.3265 | 1.8840 |
| Gross Profit Margin | 5357 | 0.1435 | 0.1264 | -8.1266 | 0.8947 | 0.2609 |
| Tobin's Q | 6273 | 1.7847 | 1.4301 | 0.0521 | 96.4013 | 1.7979 |
| Log(Firm Size) | 6280 | 2.9688 | 2.9324 | -1.6576 | 6.1715 | 0.7994 |
| Log (sales) | 6256 | 6.7974 | 6.7686 | -4.0745 | 12.7541 | 1.7835 |
| **Loan Variable** | | | | | | |
| Tranche Amount (thousand $) | 6280 | 302,813 | 133,700 | 100 | 24,000,000 | 647267804 |
| AISD | 6280 | 150.9888 | 125 | 8 | 1450 | 116.8749 |
| Maturity | 6280 | 1197.68 | 1096 | 1 | 7979 | 705.7648 |
| Length | 6280 | 725.17 | 500 | 1 | 5740 | 668.7050 |
| Financial Covenants | 6280 | 0.6148 | 1 | 0 | 1 | 0.4866 |
| General Covenants | 6280 | 0.5571 | 1 | 0 | 1 | 0.4968 |
| **Lender Variable** | | | | | | |
| Number of Lenders | 6280 | 7.6674 | 5 | 1 | 113 | 8.3409 |
| Rank | 6280 | 83.2092 | 15 | 1 | 1452 | 166.5637 |
| Market Share | 6280 | 0.0385 | 0.0121 | 6.6048E-7 | 0.2056 | 0.0495 |

For the summary statistics of firms linked to Compustat, Panel 2.3.1 shows that the averages are 3.37% for ROA, 20.40 for the PE ratio, 0.307 for leverage, and 1.78 for Tobin's Q. The average loan is $302 million with a maturity of 1197 days and an all-in-spread drawn of 151 bps. About 61% and 56% of the 6280 loans include financial and general covenant terms, respectively. Regarding the structure of the loan syndicates, the average loan has between seven and eight lenders and the lead arranger has a 3.85% market share and rank of 83. [26] Of course, these averages mask a considerable difference among the firms and banks in the repeat loan market.

To better illustrate these differences, panels 2.3.2- 2.3.7 in Table 2.3 present statistics for the six classifications of intra- and inter-migrating loans. Data on non-migrating HH and migrating H→H loans are provided in panels 2.3.2 and 2.3.3.

**Panel 2.3.2 HH Non-Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| ROA | 1914 | 0.0599 | 0.0428 | -2.8857 | 39.9091 | 0.9191 |
| R&D intensity | 1857 | 0.0166 | 0 | 0 | 4.9545 | 0.0428 |
| PE Ratio | 1886 | 13.0479 | 16.9222 | -5500 | 3025.00 | 218.2515 |
| Leverage | 1913 | 0.3182 | 0.3017 | 0 | 4.9545 | 0.2471 |
| Gross Profit Margin | 1599 | 0.1638 | 0.1433 | -6.4304 | 0.8297 | 0.2414 |
| Tobin's Q | 1912 | 1.8315 | 1.4924 | 0.3147 | 20.2740 | 1.2410 |
| Log(Firm Size) | 1914 | 3.2860 | 3.2568 | -1.6576 | 5.8754 | 0.7281 |
| Tranche Am (M$) | 1914 | 481.439 | 250 | 0.1 | 24000 | 1.5 |
| AISD | 1914 | 113.2585 | 87.5000 | 8.5 | 725 | 96.0144 |
| Maturity | 1914 | 1170.41 | 1096 | 1 | 5287 | 717.7660 |
| Length | 1914 | 555.1834 | 379.5000 | 1 | 4510 | 456.2737 |
| Financial Covenants | 1914 | 0.5455 | 1 | 0 | 1 | 0.4981 |
| General Covenants | 1914 | 0.5502 | 1 | 0 | 1 | 0.4976 |
| Number of Lenders | 1914 | 10.5162 | 8 | 1 | 85 | 9.8490 |
| Rank | 1914 | 4.0465 | 3 | 1 | 23 | 3.7893 |
| Market Share | 1914 | 0.0763 | 0.0707 | 0.0100 | 0.2056 | 0.0491 |

**Panel 2.3.3 H→H Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| ROA | 519 | 0.0401 | 0.0400 | -0.4688 | 0.4645 | 0.0783 |

[26] Market share and rank information are from DealScan League table.

**Panel 2.3.3 (continued)**

| | | | | | | |
|---|---|---|---|---|---|---|
| R&D intensity | 509 | 0.0172 | 0 | 0 | 0.2459 | 0.0392 |
| PE Ratio | 512 | 21.9335 | 16.0467 | -1401.67 | 1312.50 | 122.469 3 |
| Leverage | 519 | 0.3237 | 0.3113 | 0 | 1.4017 | 0.1909 |
| Gross Profit Margin | 393 | 0.1667 | 0.1380 | -1.5221 | 0.8526 | 0.1729 |
| Tobin's Q | 518 | 1.7095 | 1.4121 | 0.5883 | 10.9833 | 0.9882 |
| Log(Firm Size) | 519 | 3.3964 | 3.4124 | 0.2538 | 5.6928 | 0.7695 |
| Tranche Am (M$) | 519 | 452.817 | 250 | 3 | 10000 | 702.801 |
| AISD | 519 | 116.3376 | 87.5000 | 14.25 | 650 | 99.9791 |
| Maturity | 519 | 1250.92 | 1258 | 70 | 6209 | 760.5128 |
| Length | 519 | 891.8882 | 671 | 1 | 5740 | 809.2432 |
| Financial Covenants | 519 | 0.5183 | 1 | 0 | 1 | 0.5001 |
| General Covenants | 519 | 0.5048 | 1 | 0 | 1 | 0.5004 |
| Number of Lenders | 519 | 9.8901 | 7 | 1 | 113 | 11.0148 |
| Rank | 519 | 4.8921 | 4 | 1 | 23 | 4.5266 |
| Market Share | 519 | 0.0714 | 0.0582 | 0.0100 | 0.2056 | 0.050478 |

On average, H→H firms borrow smaller amounts with a longer maturity and a higher AISD spread. The differences, however, are not substantial. For example, the average H→H firm borrows $30 million less than an HH firm, pays about 3 BP more, and receives a loan that is 80 days longer in maturity. The differences in firm characteristics, however, are somewhat more marked. On average, the assets of an H→H firm are larger and it has a lower ROA than an HH firm. Moreover, the H→H firm has a lower Tobin's Q and a higher PE ratio. Leverage, however, is approximately the same for both types of borrowers.

Panel 2.3.4 refers to LL borrowers and 2.3.5 to L→L borrowers. For non-migrating and migrating borrowers within this reputation class, differences in the structure of the loans seem to be more pronounced than in the H class. For example, L→L firms borrow an amount that, on average, is 85% of the amount borrowed by LL firms. The comparable ratio for H→H borrowers is almost 94%. Moreover, and in sharp contrast between the two classes, L→L borrowers pay approximately 23 BP more than LL borrowers. These statistics suggest that the repeat loan market operates somewhat differently within the two reputation classes: H→H loan

migration appears to be less costly and more accommodative in amounts borrowed than L→L migration. Looking at the firm characteristics of the L class loans, the only distinguishing factor is ROA. On average, the ROA for L→L firms is .33% and 2.77% for LL firms, so that within-firm operating efficiencies may partly account for the differences in the structure of LL and L→L loans.

**Panel 2.3.4 LL Non-Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| ROA | 1233 | 0.0267 | 0.0422 | -1.4806 | 0.7321 | 0.1411 |
| R&D intensity | 1204 | 0.1466 | 0 | 0 | 137.1207 | 3.9674 |
| PE Ratio | 1225 | 18.2688 | 16.3517 | -1133.33 | 987.50 | 83.8832 |
| Leverage | 1232 | 0.2874 | 0.2750 | 0 | 1.4842 | 0.2054 |
| Gross Profit Margin | 1102 | 0.1407 | 0.1174 | -2.8363 | 0.8039 | 0.1804 |
| Tobin's Q | 1233 | 1.8423 | 1.4335 | 0.3456 | 39.1188 | 1.9889 |
| Log(Firm Size) | 1233 | 2.5814 | 2.5661 | 0.8443 | 5.9037 | 0.6795 |
| Tranche Am (M$) | 1233 | 144.390 | 80 | 0.6 | 3600 | 226.936 |
| AISD | 1233 | 180.5371 | 162.50 | 11.50 | 1000 | 114.6024 |
| Maturity | 1233 | 1211.78 | 1096 | 2 | 6209 | 683.4253 |
| Length | 1233 | 616.4691 | 442 | 0 | 3557 | 524.4109 |
| Financial Covenants | 1233 | 0.6788 | 1 | 0 | 1 | 0.4674 |
| General Covenants | 1233 | 0.5815 | 1 | 0 | 1 | 0.4935 |
| Number of Lenders | 1233 | 5.4023 | 4 | 1 | 41 | 5.3451 |
| Rank | 1233 | 160.7470 | 79 | 14 | 1386 | 197.5211 |
| Market Share | 1233 | 0.0025 | 0.0018 | 6.60488E-7 | 0.099 | 0.002505 |

**Panel 2.3.5 L→L Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| ROA | 991 | 0.0033 | 0.0338 | -2.5534 | 0.9852 | 0.1912 |
| R&D intensity | 991 | 0.0266 | 0 | 0 | 3.1437 | 0.1201 |
| PE Ratio | 991 | 18.5007 | 13.9706 | -308.3333 | 1325.00 | 76.0334 |
| Leverage | 991 | 0.2999 | 0.2682 | 0 | 2.2821 | 0.2408 |
| Gross Profit Margin | 991 | 0.1204 | 0.1037 | -1.8016 | 0.8947 | 0.1911 |
| Tobin's Q | 991 | 1.7645 | 1.3685 | 0.1991 | 96.4013 | 3.1924 |
| Log(Firm Size) | 991 | 2.5271 | 2.4874 | 0.2170 | 5.9037 | 0.7339 |
| Tranche Am (M$) | 991 | 120.891 | 50 | 0.35 | 5100 | 299.685 |
| AISD | 991 | 203.2864 | 200 | 8 | 980 | 126.5932 |
| Maturity | 991 | 1141.75 | 1096 | 24 | 3979 | 647.1476 |
| Length | 991 | 979.4990 | 762 | 1 | 4851 | 856.5525 |
| Financial Covenants | 991 | 0.7049 | 1 | 0 | 1 | 0.4563 |
| General Covenants | 991 | 0.5355 | 1 | 0 | 1 | 0.4990 |
| Number of Lenders | 991 | 4.0141 | 2 | 1 | 67 | 5.6311 |
| Rank | 991 | 206.2505 | 105 | 13 | 1452 | 237.3150 |
| Market Share | 991 | 0.0020 | 0.0011 | 8.11423E-7 | 0.099 | 0.0023314 |

Panel 2.3.6 refers to loans extended to former H borrowers whose repeat loans are financed by L banks.

**Panel 2.3.6 H→L Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| ROA | 542 | 0.0105 | 0.0329 | -1.5169 | 0.8202 | 0.1744 |
| R&D intensity | 530 | 0.0232 | 0 | 0 | 0.5352 | 0.0621 |
| PE Ratio | 538 | 38.4324 | 14.4611 | -1075 | 6343.75 | 303.1295 |
| Leverage | 542 | 0.3195 | 0.2637 | 0 | 2.5302 | 0.2546 |
| Gross Profit Margin | 456 | 0.1237 | 0.1156 | -2.8363 | 0.8093 | 0.2603 |
| Tobin's Q | 542 | 1.6996 | 1.3115 | 0.0521 | 10.0020 | 1.1436 |
| Log(Firm Size) | 542 | 2.9906 | 2.452 | 0.2560 | 6.1715 | 0.8156 |
| Tranche Am (M$) | 542 | 225.183 | 100 | 0.1 | 7000 | 529.718 |
| AISD | 542 | 174.2005 | 150 | 15 | 1450 | 132.5772 |
| Maturity | 542 | 1214.70 | 1096 | 15 | 4383 | 734.7063 |
| Length | 542 | 859.6310 | 686 | 0 | 4922 | 741.1073 |
| Financial Covenants | 542 | 0.6033 | 1 | 0 | 1 | 0.4897 |
| General Covenants | 542 | 0.5221 | 1 | 0 | 1 | 0.4999 |
| Number of Lenders | 542 | 5.6015 | 3 | 1 | 57 | 6.5200 |
| Rank | 542 | 146.1089 | 73 | 13 | 1277 | 193.4544 |
| Market Share | 542 | 0.0027 | 0.0020 | 2.1802E-6 | 0.0100 | 0.002593 |

Comparing these loans with LL and L→L loans shows that H→L borrowers are, not surprisingly, larger in size and therefore borrow an average amount that is substantially larger than the amounts borrowed by either LL or L→L borrowers. The firm characteristics of the H→L borrowers are closer to those of L→L borrowers. For example, the ROA for H→L firms differs by .7% from L→L borrowers, but by 1.6% from LL borrowers. Moreover, Tobin's Q for H→L firms is 1.69, which is closer to the value of 1.76 for L→L firms than the 1.84 value of LL firms. Finally, leverage is highest for the H→L borrowers and lowest for the LL borrowers. On the basis of firm characteristics, the statistics suggest that H→L firms are better credit risks than L→L borrowers. Yet, H→L firms pay on, average, 6 BP less than and LL firms and 29 BP less than L→L.

Panel 2.3.7 refers to L→H loans, in which the borrower moves from the lower to the higher reputation sector of the repeat loan market.

**Panel 2.3.7 L→H Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| ROA | 585 | 0.02778 | 0.0387 | -1.4713 | 0.3071 | 0.1123 |
| R&D intensity | 585 | 0.0177 | 0 | 0 | 0.6572 | 0.0545 |
| PE Ratio | 585 | 30.3423 | 15.6681 | -431.60 | 6343.75 | 269.6642 |
| Leverage | 585 | 0.2968 | 0.2787 | 0 | 2.0281 | 0.2060 |
| Gross Profit Margin | 585 | 0.1439 | 0.1160 | -1.2063 | 0.8321 | 0.1532 |
| Tobin's Q | 585 | 1.6564 | 1.3958 | 0.4292 | 8.5696 | 0.9153 |
| Log(Firm Size) | 585 | 2.9107 | 2.8597 | -1.2366 | 5.9311 | 0.7509 |
| Tranche Am (M$) | 585 | 240.254 | 125 | 1 | 7000 | 456.205 |
| AISD | 585 | 157.7594 | 125 | 15 | 1100 | 119.7734 |
| Maturity | 585 | 1328.87 | 1443 | 42 | 3979 | 720.3458 |
| Length | 585 | 903.4631 | 704 | 2 | 4851 | 784.3042 |
| Financial Covenants | 585 | 0.5832 | 1 | 0 | 1 | 0.4935 |
| General Covenants | 585 | 0.5592 | 1 | 0 | 1 | 0.4969 |
| Number of Lenders | 585 | 7.2556 | 5 | 1 | 83 | 7.8097 |
| Rank | 585 | 5.8250 | 4 | 1 | 23 | 5.5010 |
| Market Share | 585 | 0.06479 | 0.05306 | 0.01008 | 0.2056 | 0.049725 |

How do the L→H loans compare to the HH and H→H loans? The average amount for L→H loans is much smaller and the AISD spread is substantially larger than the corresponding statistics for both HH and H→H loans. For example, the AISD spread is 51 BP higher compared to H→H loans, while the amount of the L→H loan is smaller by $212 million. The size of the L→H firm is also smaller, on average, and its ROA is lower.

In summary, Table 2.3 indicates that there are substantial differences in both the loan and firm characteristics among non-migrating, intra-migrating and inter-migrating loans. Comparing the H and L sectors, H sector loan amounts are larger and have smaller spreads. Firms within the H sector also exhibit a higher average ROA but have approximately the same Tobin Q values even though L firms have a much higher R&D intensity than H firms (0.146 versus 0.026). Since R&D contributes to a firm's opaqueness to the financial market, Table 3 suggests that this may be an important characteristic that separates borrowers into the two sectors of the loan

market. However, within each reputation sector (either H or L), differences between the characteristics of non-migrating and intra-migrating loans tend to be fairly narrow, while differences between *inter*-migrating and non-migrating loans are more substantial.

## 2.5. Empirical Results

### 2.5.1. Intra-Migration Loans

Tables 2.4 and 2.5 provide estimates of the logistic regressions for intra-migration loans within the H and L-bank sectors, respectively. In each table Model 1 uses only firm characteristics as regression variables, Model 2 uses only loan characteristics, Model 3 uses only syndicate characteristics, and Model 4 uses all three types of variables. While it is tempting to view Models 1 – 4 from the point of view of either the firm-borrower or bank-lender, our analysis in Section 3 shows that they should be interpreted as reduced-form equations.

The most complete reduced-form is Model 4, so our discussion focuses on this model. In Table 4 the probability that a loan will migrate between H banks is positively related to firm size, the maturity of the loan, and the length of time between the previous and current loan, and negatively related to the amount borrowed and the presence of general covenants. In Table 5, which refers to loan migration in the L bank sector, the probability of migration is positively related to leverage, the AISD spread, and the length between contracts, and negatively related to the amount borrowed and the number of lenders in the syndicate.

An interpretation of these results is best achieved by contrasting Tables 2.4 and 2.5.

**Table 2.4 Logistic Regressions Explaining the Likelihood of Switched H→H to Non-Switched HH**

The dependent variable in each logistic regression is a binary variable equal to one for a borrower switching its repeat loan from a highly reputable arranger to another highly reputable arranger and zero for borrower whose repeat loan is with the same highly reputable arranger. Model 1 refers to firm variables only; model 2 refers to loan variables only; model 3 refers to bank variables only; and model 4 includes all variables. Independent variables are *ROA, PE ratio, Leverage, Tobin's q, Firm Size, AISD, Log of Tranche Amount, Loan Maturity, Loan Purpose, Financial Covenant Dummy, General Covenant Dummy, Year Dummy, and one-digit industry dummy*. All other explanatory variables are as defined in Table 1. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 for two-tailed levels, respectively.

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Intercept | **-1.6133*** | **-3.0802**** | -1.0029 | -2.1702 |
| | (0.0807) | (0.0222) | (0.2580) | (0.1527) |
| ROA | 0.3808 | | | 0.3269 |
| | (0.5345) | | | (0.6477) |
| PE Ratio | 0.000196 | | | 0.000223 |
| | (0.5099) | | | (0.4750) |
| Leverage | -0.0370 | | | -0.2587 |
| | (0.8893) | | | (0.4061) |
| Tobin's Q | **-0.1210**** | | | -0.0580 |
| | (0.0361) | | | (0.3210) |
| Firm Size | **0.1949***** | | | **0.7079***** |
| | (0.0090) | | | (<.0001) |
| AISD | | 0.000132 | | 0.00113 |
| | | (0.8433) | | (0.1297) |
| Log Tranche | | 0.0552 | | **-0.3879**** |
| | | (0.6178) | | (0.0688) |
| Maturity | | 0.000116 | | **0.000161**** |
| | | (0.1837) | | (0.0499) |
| Length | | **0.000964***** | | **0.00101***** |
| | | (<.0001) | | (<.0001) |
| Financial Covenants | | 0.0919 | | 0.2079 |
| | | (0.5904) | | (0.2306) |
| General Covenants | | **-0.3753**** | | **-0.3039*** |
| | | (0.0229) | | (0.0719) |
| # of Lenders | | | -0.00586 | -0.00711 |
| | | | (0.2660) | (0.2849) |
| Market Share | | | **-3.1899 ***** | |
| | | | (0.0049) | |
| Loan Purpose Dummy | No | Yes | No | Yes |
| Tranche Type Dummy | No | Yes | No | Yes |
| Industry Dummy | Yes | Yes | Yes | Yes |
| Year Dummy | Yes | Yes | Yes | Yes |
| NOBS | 2389 | 2389 | 2389 | 2389 |

In Table 2.4, the probability that a loan migrates depends importantly on structural features of the loan such as maturity and the presence of general covenants but not on the loan's interest rate. Since migrated loans have a longer maturity and fewer general covenants than non-migrated loans, switching firms are able to receive enhanced loan benefits from their new lenders without needing to a pay an additional cost in the form of a higher interest rate. Alternatively stated, firms that do not switch to a new H lender pay a higher interest rate than is needed for the relatively shorter maturity and additional number of general covenants that characterize their repeat loans. We view this as evidence that these non-migrating firms receive relationship benefits and thus are in fact located to the right of $B_0$ in Figure 2.1A. The alternative explanation, in which banks act as monopolies against their old borrowers and exploit their advantage by offering relatively more onerous terms when renewing a loan, also has some support because loan migration depends significantly on firm size. Firm size can proxy for 'transparency' and thus serve as a signal of the ease by which a firm is able to generate alternative loan offers. In this case, a smaller firm is placed in a disadvantageous position when negotiating with their current H lender. However, other firm characteristic variables such as ROA, which could be viewed as an indicator of bargaining power by the firm, do not significantly affect the probability of intra-loan migration in the H-bank sector. If H-banks systematically tried to exploit their monopoly position, ROA should be significantly positive in Model 4 of Table 2.4. Overall, therefore, Table 2.4 lends support to the hypotheses that non-migrating firms receive relationship benefits and migrating firms are induced to switch principally on the basis of more favorable loan terms.

Table 2.5 presents both a different and similar picture for repeat loans in the L sector.

## Table 2.5 Logistic Regressions Explaining the Likelihood of Switched L→L to Non-Switched LL

The dependent variable in each logistic regression is a binary variable equal to one for a borrower switching its repeat loan from a less reputable arranger to another less reputable arranger and zero for a borrower whose repeat loan is with the same less reputable arranger. Model 1 refers to firm variables only; model 2 refers to loan variables only; model 3 refers to bank variables only; and model 4 includes all variables. Independent variables include *ROA, PE ratio, Leverage, Tobin's q, Firm Size, AISD, Log of Tranche Amount, Loan Maturity, Loan Purpose, Financial Covenant Dummy, General Covenant Dummy, Year Dummy, and one-digit industry dummy.* All other explanatory variables are as defined in Table 1. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 for two-tailed levels, respectively.

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Intercept | 0.9221 | 0.8395 | 0.9196 | 0.7637 |
| | (0.3119) | (0.4831) | (0.3024) | (0.5565) |
| ROA | **-0.6275**** | | | -0.3328 |
| | (0.0316) | | | (0.2864) |
| PE Ratio | 0.000190 | | | 0.000590 |
| | (0.7329) | | | (0.3142) |
| Leverage | 0.3400 | | | **0.5624**** |
| | (0.1220) | | | (0.0212) |
| Tobin's Q | -0.0118 | | | -0.0132 |
| | (0.5089) | | | (0.5090) |
| Firm Size | **-0.1307*** | | | **0.5131***** |
| | (0.0589) | | | (<.0001) |
| AISD | | **0.00113***** | | **0.000990*** |
| | | (0.0081) | | (0.0661) |
| Log Tranche | | -0.1572 | | **-0.3580***** |
| | | (0.1107) | | (0.0082) |
| Maturity | | -0.00004 | | 3.996E-6 |
| | | (0.6199) | | (0.9593) |
| Length | | **0.000796***** | | **0.000861***** |
| | | (<.0001) | | (<.0001) |
| Financial Covenants | | 0.1145 | | 0.2119 |
| | | (0.4443) | | (0.1704) |
| General Covenants | | -0.1525 | | -0.1483 |
| | | (0.2439) | | (0.2680) |
| # of Lenders | | | **-0.0546***** | **-0.0462***** |
| | | | (<.0001) | (0.0006) |
| Market Share | | | **-58.8624***** | |
| | | | (0.0025) | |
| Loan Purpose Dummy | No | Yes | No | Yes |
| Tranche Type Dummy | No | Yes | No | Yes |
| Industry Dummy | Yes | Yes | Yes | Yes |
| Year Dummy | Yes | Yes | Yes | Yes |
| NOBS | 2224 | 2224 | 2224 | 2224 |

In this sector the estimates in Model 4 show that the probability of repeat-loan migration is positively related to the interest rate spread, firm leverage and firm size. The higher interest rate is not, however, accompanied by an offsetting change in loan terms involving maturity and covenants. Thus, in contrast to H-migrating firms, which essentially obtain more favorable loan terms at no estimated cost, L- migrating firms pay a higher interest rate to compensate banks for the banks' exposure to more highly leveraged, migrating borrowers. This is a standard trade-off. Regarding the hypothesis that non-migrating loans provide an opportunity for L-banks to earn monopoly profits based on the information asymmetry between the L bank and the loan market, the results in Table 2.5 are consistent with those in Table 2.4. Asset size, a proxy for transparency, is positively related to the probability of loan migration. However, even though firms in the L-sector are likely to have less absolute bargaining power than firms in the H-sector, the strength of the L-firms' bargaining power relative to their L-bank lenders is the crucial factor in loan negotiations. Assuming that firms' bargaining power is positively correlated with ROA, the coefficient of this variable is not significantly different from zero in Table 2.5, indicating that L banks are not able to systematically exploit their bargaining power in the repeat loan market.

### 2.5.2. Inter-Migration Loans

Section 3 analyzed loan migration between the H and L sectors. The idea is that inter-sector loan migration can be informative about the loan characteristics that the banks in the importing sector extend to the firms from the exporting sector. Consider Figure 2.1B. H-sector banks lying to the left of $A_1$ have lent to firms that provide relatively low relationship benefits and who, therefore, are the most likely to be evicted from the H sector. Some of these firms will end up with new loans from L-sector banks and will be distributed to the left of $A_2$ in Figure 1b

when the figure depicts the L sector banks. To model this transference empirically, we first estimate a logistic regression with H→L and HH loans and then contrast the regression results with those in Table 2.4. This comparison should reveal the specific loan and firm characteristics that differentiate inter-migrating H→L sector loans from intra-migrating H→H loans. We interpret these differences as indicative of the factors that motivate lending by L sector banks to exiting H sector firms.

Table 2.6 presents the results for the logistic regression of H→L and HH loans.

**Table 2.6 Logistic Regressions Explaining the Likelihood of Switched H→L to Non-Switched HH**

The dependent variable in each logistic regression is a binary variable equal to one for a borrower switching its repeat loan from a high reputable arranger to a less reputable arranger and zero for a borrower whose repeat loan is with the same high reputable arranger. Model 1 refers to firm variables only; model 2 refers to loan variables only; model 3 refers to bank variables only; and model 4 includes all variables. Independent variables include *ROA, PE ratio, Leverage, Tobin's q, Firm Size, AISD, Log of Tranche Amount, Loan Maturity, Loan Purpose, Financial Covenant Dummy, General Covenant Dummy, Year Dummy, and one-digit industry dummy.* All other explanatory variables are as defined in Table 1. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 for two-tailed levels, respectively.

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Intercept | -0.5183 | 3.1738 | 70.6105 | 0.6643 |
| | (0.6653) | (0.0474) | (0.5361) | (0.7042) |
| ROA | -0.4741 | | | -0.5346 |
| | (0.1821) | | | (0.1735) |
| PE Ratio | **0.000538**** | | | **0.000531*** |
| | (0.0420) | | | (0.0527) |
| Leverage | 0.1282 | | | 0.0189 |
| | (0.5789) | | | (0.9419) |
| Tobin's Q | -0.0723 | | | 0.0213 |
| | (0.1364) | | | (0.6613) |
| Firm Size | **-0.6032***** | | | **0.5035***** |
| | (<.0001) | | | (<.0001) |
| AISD | | **0.00167***** | | **0.00198***** |
| | | (0.0028) | | (0.0015) |
| Log Tranche | | **-0.9956***** | | **-0.9397***** |
| | | (<.0001) | | (<.0001) |
| Maturity | | 0.000135 | | **0.000212**** |
| | | (0.1312) | | (0.0196) |
| Length | | **0.000852***** | | **0.000882***** |
| | | (<.0001) | | (<.0001) |

**Table 2.6. (continued)**

| | | | | |
|---|---|---|---|---|
| Financial Covenants | | **0.4114**** | | **0.5269***** |
| | | (0.0204) | | (0.0036) |
| General Covenants | | -0.2287 | | -0.0785 |
| | | (0.1768) | | (0.6497) |
| # of Lenders | | | -0.1033 | **-0.0604***** |
| | | | (0.1314) | (<.0001) |
| Market Share | | | **-1736.5***** | |
| | | | (<.0001) | |
| Loan Purpose Dummy | No | Yes | No | Yes |
| Tranche Type Dummy | No | Yes | No | Yes |
| Industry Dummy | Yes | Yes | Yes | Yes |
| Year Dummy | Yes | Yes | Yes | Yes |
| NOBS | 2423 | 2423 | 2423 | 2423 |

The significant differences between Tables 2.4 and 2.6 are in the interest rate spread, type of covenants and PE ratio. An H→L loan is likely to have a higher interest rate than an H→H loan. The former loan is also more likely to contain financial covenants, which tend to be more intrusive than the general covenants in H→H loans. The two tables suggest that only a single firm characteristic accounts for the different loan structures. Assuming that the PE ratio is a proxy for potential growth, exiting H firms are likely to be viewed as more dynamic and significantly riskier than non-migrating H→H firms. L banks in turn accept this added risk in exchange for a higher interest rate and a greater degree of influence over the operation of the firm in the form of financial covenants.

Tables 2.4 and 2.6 indicate that the syndicated loan market tends to separate borrowers in the H sector. The separation, however, is not based on observable firm characteristics such as leverage and size, but rather on the market's perception of the firm's potential for growth. The results suggest that when the stock market values an H firm at a relatively high PE ratio, the H sector of the syndicated loan market has a markedly different view of the firm, namely, that a high PE ratio is reflective of risk-taking activity above the risk-tolerance level established for lending to typical H-sector firms. The firm then departs the H sector and enters the L sector, in

which it pays a higher interest rate and is more closely watched by the L lender. This form of separation seems to be quite appropriate for the loan market.

The second inter-sector movement in the syndicated loan market is from the L sector to the H sector. We assume that L firms, lying to the left of $A_0$ in Figure 2.1A, are the principal participants in the L→H migration. These firms are then distributed to the left of $B_1$ in Figure 2.1B and thus should be able to provide information about the loan and firm characteristics that induce H banks to extend loans to migrating L firms. To derive this information, we first estimate a logistic regression of L→H loan migration relative to LL migration and then compare the estimates to the logistic regression of L→L relative to LL migration. Table 2.7 provides results for the L→H regression.

**Table 2.7 Logistic Regressions Explaining the Likelihood of Switched L→H to Non-Switched LL**

The dependent variable in each logistic regression is a binary variable equal to one for a borrower switching its repeat loan from a low reputable arranger to a high reputable arranger and zero for a borrower whose repeat loan is with the same low reputable arranger. Model 1 refers to firm variables only; model 2 refers to loan variables only; model 3 refers to bank variables only; and model 4 includes all variables. Independent variables include *ROA, PE ratio, Leverage, Tobin's q, Firm Size, AISD, Log of Tranche Amount, Loan Maturity, Loan Purpose, Financial Covenant Dummy, General Covenant Dummy, Year Dummy, and one-digit industry dummy.* All other explanatory variables are as defined in Table 1. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 for two-tailed levels, respectively.

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| Intercept | -0.4221 | -5.3110 | -81.1926 | -2.2500 |
| | (0.6972) | (0.0003) | (0.8780) | (0.1572) |
| ROA | -0.2031 | | | -0.5405 |
| | (0.6631) | | | (0.2835) |
| PE Ratio | 0.000427 | | | 0.000429 |
| | (0.3310) | | | (0.2975) |
| Leverage | -0.2446 | | | -0.1695 |
| | (0.4078) | | | (0.5818) |
| Tobin's Q | **-0.1055**** | | | **-0.1228**** |
| | (0.0412) | | | (0.0307) |
| Firm Size | **0.7383***** | | | **0.6934***** |
| | (<.0001) | | | (<.0001) |

**Table 2.7. (continued)**

| | | | | |
|---|---|---|---|---|
| AISD | | -0.00029 | | 0.000015 |
| | | (0.5951) | | (0.9804) |
| Log Tranche | | **0.7867*** ** | | 0.1585 |
| | | (<.0001) | | (0.3274) |
| Maturity | | 0.000098 | | 0.000108 |
| | | (0.2664) | | (0.2346) |
| Length | | **0.000884*** ** | | **0.000954*** ** |
| | | (<.0001) | | (<.0001) |
| Financial Covenants | | **-0.5006*** ** | | **-0.4792*** ** |
| | | (0.0048) | | (0.0089) |
| General Covenants | | 0.00466 | | 0.0148 |
| | | (0.9779) | | (0.9320) |
| # of Lenders | | | -0.0753 | **0.0200*** |
| | | | (0.1061) | (0.0946) |
| Market Share | | | **1334.7*** ** | |
| | | | (<.0001) | |
| Loan Purpose Dummy | No | Yes | No | Yes |
| Tranche Type Dummy | No | Yes | No | Yes |
| Industry Dummy | Yes | Yes | Yes | Yes |
| Year Dummy | Yes | Yes | Yes | Yes |
| NOBS | 1803 | 1803 | 1803 | 1803 |

Comparing model 4 in Tables 2.5 and 2.7 shows that the principal differences involve leverage, Tobin's Q, the interest spread and the presence of covenants. In contrast to L→L migration, leverage has no estimated influence on L→H migration. The principal firm characteristic that H banks appear to seek in L firms is stability in the form of a lower value for Tobin's Q, as indicated by the significantly negative coefficient in Table 2.7. Assuming that Tobin's Q is positively related to innovation, H-banks prefer L firms that are less innovative than the remaining firms in the L sector. Furthermore, H banks do not impose a higher spread on the L→H migrating firms to extract immediately from them a portion the firm's enhanced relationship benefits associated with moving to the H sector. Financial covenants are likely, however, to be imposed, which suggests a greater degree of oversight by H banks relative to the monitoring conducted by L banks over L firms.

Tables 2.5 and 2.7 indicate that L→H migration in the loan syndicate market is consistent with the notion of a separating equilibrium. More highly leveraged L firms remain within the L sector, while less risky L firms tend to migrate to the H sector, without any financial penalty but with more oversight. This finding, combined with the finding that H→L migrating firms appear to be riskier than H→H firms and also pay a higher spread to compensate L banks for their enhanced risk, indicates that the process of separation is about risk. In our empirical work, ROA has no systematic influence on inter-sector migration in either direction. Thus, there is no estimated risk-return pattern associated with loan migration. H→L and L→H migrations in the loan syndicate market simply involve a reallocation of risk.

## 2.6. Summary and Conclusion

The theoretical literature predicts that firms and banks benefit from relationship lending. Empirically, however, a significant proportion of repeat loans in the loan syndicate market involves firms borrowing from different lenders. This paper models this loan migration process and empirically identifies significant firm and loan characteristics that are associated with loan switching. To focus closely on the influence of relationship lending benefits, we divide the sample into two groups: loans that have migrated within either the high or low quality bank sector and loans that have migrated from one quality sector to the other. The latter group of loans is relevant for investigating the separating equilibrium properties of the syndicated loan market. In any loan both the lender and borrower acquire information about each other. On the basis of this information, does a higher quality borrower, whose original lender was of low

quality, gravitate towards a higher quality lender? And if so, what are the costs associated with this movement?

We find that loans migrating within the high quality H sector are associated with a longer maturity but not a higher interest rate as compared to repeat loans that remain with the original lender. Migrating H firms therefore forego relationship benefits with their original lenders in exchange for improved loan terms, while non-migrating H firms are willing to accept the same loan terms because they do not want to forego the relationship benefits received from their original lenders. Loan migration is different in the L sector. Here migrating firms are riskier than non-migrating firms and therefore pay a higher interest rate to compensate the new lender for added risk. While relationship lending may be at work in the L sector, our results do not explicitly identify any relationship-specific characteristic. Rather, the results seem to be more indicative of a movement towards a separating equilibrium within the L sector, in which one group of banks takes on relatively more risky borrowers.

Loans that migrate between the L and H sectors are consistent with the description of a separating equilibrium. Relatively less risky borrowers move from the L to the H sector and relatively more risky borrowers move from the H to the L sector. The first movement is similar to the "graduation hypothesis"; the second reflects an efficient reallocation of lower quality borrowers to lower quality lenders.

# CHAPTER 3

# DO COUNTRY-SPECIFIC CHARACTERISTICS MATTER? EVIDENCE FROM LENDING WITHIN INTERNATIONAL SYNDICATED LOAN MARKET

## 3.1. Introduction

Information asymmetry, which is prevalent in the U.S. domestic financial market, is more problematic in the international financial market, especially in developing countries or in countries with poor governance and/or a high level of corruption. The finance literature shows that firms benefit from banking relationships mainly due to reduced information asymmetry[27].

Moreover, Shleifer and Vishny (1986) show the importance of concentrated shareholdings because they provide an incentive to monitor. Mahrt-Smith (2006) develops a model to show that a small equity stake held by the bank can have a significantly positive impact on the lending relationship between the bank and the firm.

This paper focuses on the relation between a country-specific governance indicator and country-specific bank-firm ownership structure on loan pricing and the lending relationship between the syndicate bank and the firm. Previous studies of ownership structures in the 1980s and 1990s show that banks in Germany and Japan exert control over "group" firms and that, in general, German and Japanese firms benefit from the active involvement of the main bank in their corporate governance. In contrast to the German and Japanese bank-firm ownership structure, in many developing countries, banks are typically controlled by stockholders who also own or control non-financial firms. Countries with this structure include Bangladesh, Bolivia, Bulgaria, Brazil, Chile, Colombia, Ecuador, Estonia, Guatemala, Hong Kong, Indonesia,

[27] Leland and Pyle (1977), Fama (1985), Diamond (1984), and Diamond (1991) etc.

Kazakhstan, Kenya, Korea, Latvia, Paraguay, Peru, Philippines, Russia, South Africa, Taiwan, Thailand, Turkey, and Venezuela. [28]

We estimate the relationship between the country-specific bank-firm ownership structure and the main characteristics of the loan, in the context of both loan pricing and the repeat loan relationship. The paper examines three interrelated questions: 1.How is loan pricing affected by the country-specific bank-firm ownership structure? 2. Does the country-specific bank-firm ownership structure influence the decision to switch lenders in the repeat loan market? 3. Is the country-specific bank-firm ownership structure more important for a borrower who migrates to a higher reputation lender rather than to a lower reputation lender?

Compared to the domestic financial market, there are three parties in the international syndicated market, namely the firm, syndicate bank, and local bank. Our model predicts that additional monitoring costs are present in both bank-controlled and bank-controlling ownership structure countries, which will have a positive impact on the loan spread within these countries. Similar analysis applies to the prediction for a repeat loan relationship. The presence of a third party (local bank), either in bank-controlled or bank-controlling situations reduces relationship benefits for both the firm and syndicate bank. Correspondingly, loan migration becomes more difficult and less frequent in both bank-controlled and bank-controlling countries.

This paper investigates the determinants of loan pricing for a sample of 6,180 non-U.S. firm-loan observations for the period 1998-2007. We use loan-specific, firm-specific, country-specific governance, and bank-firm ownership structure variables to explore their effect on loan pricing and loan-switching decisions. Using logistic regression analysis, we find that loan

[28] La Porta (2003) lists that in those developing countries, banks are typically controlled by stockholders who also own or control non-financial firms.

switching is less likely for firms when the bank controls the firm, especially when the firm is related to a lower quality bank. Surprisingly, when the firm controls the bank, there is no impact on the switching decision. The bank-controlling firm is as likely to switch as a firm that does not control a bank. In general the loan-specific characteristic variables lose their explanatory power for the firms' switching decision while the firm-specific financial variables confirm the information asymmetry hypothesis. Our results suggest that in the international syndicated loan market, the syndicate bank-firm relationship is shaped by country-specific characteristics and information asymmetry of the firm to the syndicate bank and the financial market.

This study contributes to the prior research into the determinants of loans in the international capital market. To the best of our knowledge, there has been no study of the effect of the country-specific ownership structure on the loan spread and the bank-firm relationship in the international syndicated loan market.

The outline of the paper follows. A review of the relevant literature is provided in Section 2. Section 3 presents the empirical hypotheses. The data is described in Section 4. Section 5 presents and discusses the empirical results. Section 6 concludes the paper with a brief summary.

### 3.2. Related Literature

The literature on the international determinants of firm capital structure was developed in the last two decades. Whether a firm's capital structure is influenced only by firm-specific characteristics, or is also influenced by country-specific factors is a major research question. Rajan and Zingales (1995) are among the first research to examine the difference in leverage and

its determinants in the G-7 countries. They find that aggregate leverage and capital structure are generally identical across these industrial countries. La Porta et. al. (1998) find that the extent of legal variation affect firm's capital structure worldwide. Booth et al. (2001) show that capital structures in developing countries are affected by similar variables as in the developed countries. In contrast, Jong, Kabir and Nguyen (2008) analyze the importance of firm-specific and country-specific factors in the firm's capital structure and find that firm-specific determinants of leverage differ across 42 countries worldwide. Fan, Titman and Twite (2008) also find that the country in wich the firm is located is an important factor on how the firm is financed and suggest that institutional differences across countries have an influence on the firm's capital structure.

Information asymmetry between the lender and borrower is prevalent in the international financial market, especially in developing countries or countries with poor corporate governance and/or a high level of governmental corruption. In general, a bank lending relationship is an effective and commonly used tool to reduce information asymmetry since banks have the ability to produce information about their borrowers that cannot be easily observed by or transferred to outsiders[29].

The effect of ownership structure is a key topic in the corporate governance literature and typically focuses on how bank equity in a firm affects the bank's incentive to monitoring. Berlin et al. (1996) examines the effect of bank's equity stake in its borrowing firms under routine financial conditions to prove that a distressed firm is financially healthy. Mahrt-Smith (2006) develops a model to show that the equity held by bank can help to reduce the agency problem of extracting information rents. In addition, when the bank holds a small equity stake in the firm, there is a positive impact on the bank-firm lending relationship. Li et al. (2006) compare institutions' shareholding patterns across countries and find significant differences in the extent

[29] Leland and Pyle (1977), Fama (1985), Diamond (1984), and Diamond (1991) etc.

to which there are large shareholders. These variations are largely determined by macro corporate governance factors such as shareholder protection, law enforcement etc. Thomsen et al. (2006) find an insignificant association between blockholder ownership and firm value in the U.S. and the U.K. vs. a negative relation between blockholder ownership and firm value in Continental Europe. Chen, Harford and Li (2007) suggest that independent institutions with long-term investments, compared to grey institutions (bank trust, insurance firms etc.), are more of active monitors. Regarding banks, Ferreira and Matos (2008) indicate that foreign and independent financial institutions, which have potentially fewer business ties to firms, are more capable corporate monitors. Baert and Vennet (2008) find a negative relationship between financial institution ownership and the market leverage of European listed firms, suggesting a contradiction to the monitoring hypothesis.

In several developed countries, such as German and Japan, there is a close bank-firm relationship and generally banks exert control over "group" firms through their equity stake. This bank ownership structure is often considered as reducing agency cost, improving the monitoring and extending the access to capital[30]. Though banking literature also documents that main bank exploit the private benefits and incur potential conflicts of interests in this type of bank-based system, and correspondingly, there is a negative relationship between bank-equity stake and firm performance[31].

Worldwide, especially in developing countries and continental Europe, where ownership concentration is relatively higher and the level of investor protection is relatively lower [32] , it is

[30] Aoki (1994), Hoshi, Kashyap and Scharfstein (1990)
[31] Kang and Shivdasani (1995), Gorton and Schmid (2000), Morck and Nakamura (1999), Morck et al. (2000), Weinstien and Yafeh (1998)
[32] Counties listed by La Porte (2003) include Bangladesh, Bolivia, Bulgaria, Brazil, Chile, Colombia, Ecuador, Estonia, Guatemala, Hong Kong, Indonesia, Kazakhstan, Kenya, Korea, Latvia, Paraguay, Peru, Philippines, Russia, South Africa, Taiwan, Thailand, Turkey, and Venezuela.

more typical that controlling shareholders exercise power on banks, through the use of pyramids structures (La Porta et al. (1999, 2000) and La Porta (2003)). La Porta (2003) further examines the related lending [33] in Mexico and finds evidence that related lending is a manifestation of looting.

### 3.3. The Model and Hypotheses

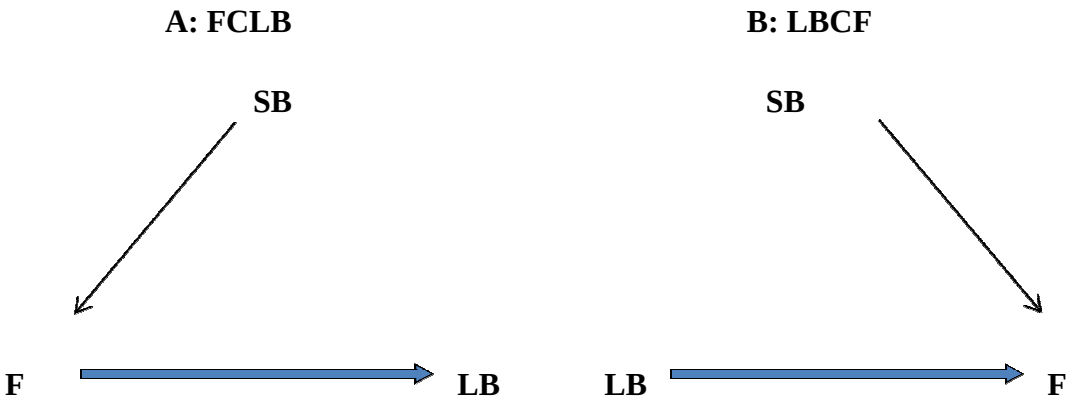
The aim of this paper is to determine the role of the country-specific bank-firm ownership structure on corporate loan pricing and relationship lending outside the U.S.

In our empirical work we use a logistic regression which sets the dummy at 1 for a switching loan and 0 for a non-switching loan. We present a model similar to that in Kopecky and Xiao (2009) to describe the decisions made by borrowers and lenders in the repeat loan market and to interpret the coefficients of the logistic regression.

There are two classes of lenders: high reputation (H) and low reputation (L). Compared to the domestic financial market, there are three parties in the international syndicated market. We define the three parties as the firm, syndicate bank, and local bank, as shown in Figure 3.1.

[33] La Porta define a related loan as a loan for which the borrower is either: (1) a shareholder with 1% or more of the voting rights of the bank; (2) a person who has family ties with a shareholder of 1% or more of the voting rights of the bank; (3) a director, officer, or employee of a company or trust fund that holds 1% or more of the voting rights of the bank or a director, officer, or employee of the bank itself with the power to engage into contracts or transactions under the name bank; or (4) a person holding 10% or more of the voting rights of a company that holds 1% or more of the shares in the bank.

**Figure 3.1 The Relationship between Syndicated Bank, Local Bank and Firm**

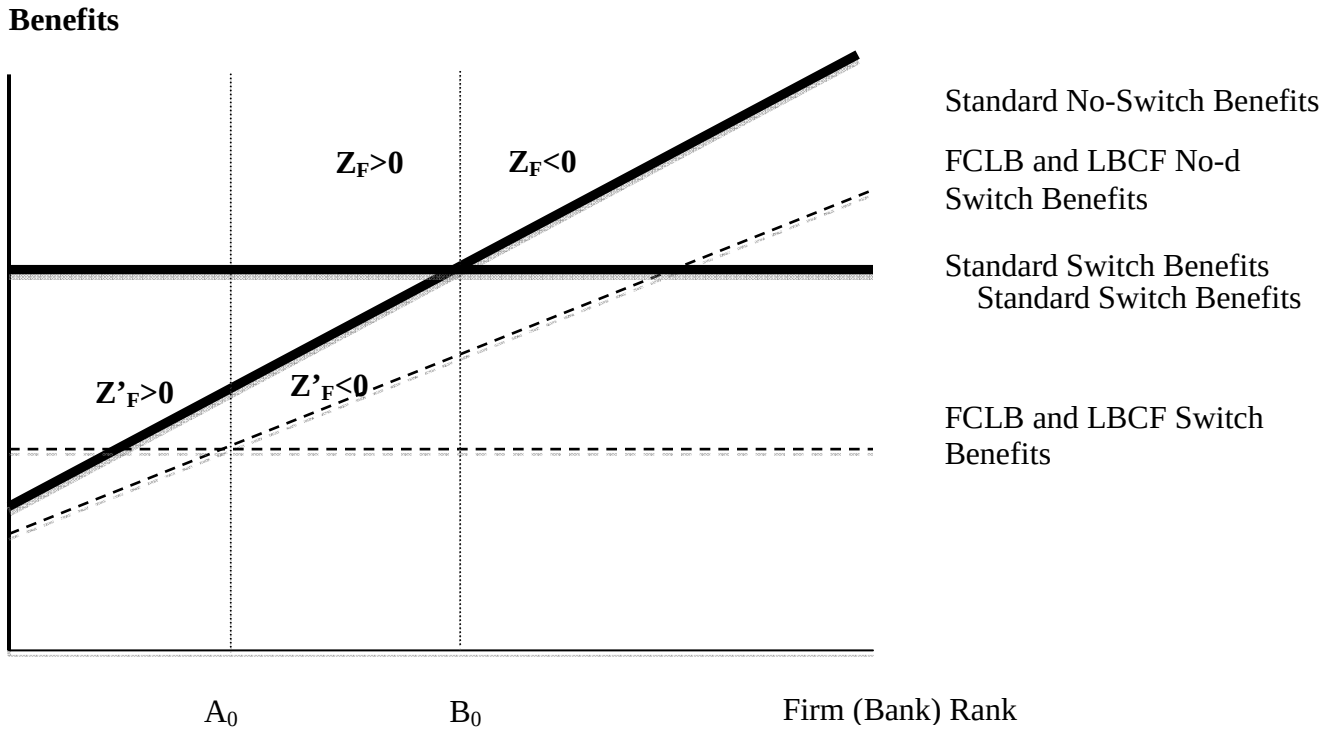



The symbols are defined as
FCLB: Firm controls local bank
LBCF: Local bank controls firm
SB: Syndicate Bank
LB: Local Bank
F: Firm

In both A and B, the syndicate bank will incur additional monitoring cost because of the presence of the third party local bank. Higher monitoring cost should lead to an increased spread in FCLB and LBCF countries.

In the counties (FCLB) in which the bank-firm ownership structure is characterized as the firm acting as a blockholder to control the local bank, the syndicate bank incurs additional monitoring costs and faces a more severe adverse selection problem, due to the complicated interrelated relationship between the local bank and the bank-controlling firm. This additional looser of control makes monitoring the firm and communicating between the firm and syndicate bank more difficult. Similar analysis applies to countries (LBCF) in which the bank-firm ownership structure is characterized as the local bank controlling its borrowing firm. The presence of additional monitoring costs and a raised averse selection problem in both bank-controlled and bank-controlling countries predicts a positive relation between the loan spread and the borrowing firm's residency in these countries.

**Figure 3.2 Determinants of Switching Decision**




The solid lines refer to the standard case, the dashed lines for the FCLB and LBCF cases. The upward-slope ranks the benefits of not-switching among firms (banks). The horizontal line defines the benefits of switching. $B_0$ is the indifference point in the standard case, $A_0$ is the indifference point in the FCLB/LBCF case. Assuming that FCLB/LBCF represents increased opaqueness to the international financial market, $A_0$ lies to the left of $B_0$. As a result, loan switching is less often in the FCLB/LBCF case.

Figure 3.2 presents a graphical analysis of the bank-firm relationship in a repeat loan situation. The vertical axis measures the firm's (syndicate bank's) net relationship benefits with the new syndicate bank (firm) and the old syndicate bank (firm). The horizontal axis represents the firm (syndicate bank) rank based on its perception of the benefits received from the current syndicate bank (firm). The solid lines refer to the standard case, the dashed lines for the FCLB and LBCF cases. The upward-slope ranks the benefits of not-switching among firms (banks). The horizontal line defines the benefits of switching. The presence of a third party (local bank), and correspondingly the presence of additional monitoring costs and raised adverse selection

problem, in both FCLB and LBCF countries, reduces the relationship benefit for both the firm and syndicate bank. The impact is to shift both the standard switch benefits line, and the standard non-switch benefits line downwards for firm residing in both bank-controlled and bank-controlling countries. In a pure domestic bank-firm relationship situation, a non-switching firm (syndicate bank) desires to remain with the old syndicate bank (firm) when $Z_F<0$ and a switching firm (syndicate bank) desires to contract with a new syndicate bank (firm) when $Z_F>0$. $B_0$ is the indifference point in the standard case. The downward shifts of benefits line represent increased opaqueness to the international financial market. $A_0$ is the indifference point in the FCLB and LBCF cases. The presence of a third party (local bank) shift the domestic loan migration area ($Z_F>0$) further left to the new loan migration area ($Z'_F>0$) under bank-controlled or bank-controlling situations, and cause $A_0$ lies to the left of $B_0$ ,indicating that for borrowing firms residing in bank-controlled or bank-controlling countries, loan migration becomes more difficult and less frequent.

To interpret the coefficients of the logistic regression, we assume that there are two classes of lenders: high reputation (H) and low reputation (L). Reputation is defined by the arranger's syndicate market share in the previous year, which is arranger's total loan amount divided by the total loan amount in the syndicated loan market. Thus, the higher is the bank's syndicated market share, the higher is the bank's reputation.

We use the full sample to examine the extent to which the all-in-drawn spread[34] is influenced by the bank-firm ownership variable.

[34] The amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. The drawn all-in spread equals the coupon spread plus the annual fee. Most spreads are measured as a markup over LIBOR. In cases where they are based on another benchmark, Loan Pricing Corporation makes adjustments to the drawn all-in spreads.

$$AISD = \alpha + \beta_1 * \text{Country-specific Bank-firm Ownership Variables} + \beta_2 \text{ Country-specific Governance Variable} + \gamma * \text{Control Variables} + \varepsilon \quad (3.1)$$

Explanatory variables include bank reputation, characteristics of the loan, such as loan maturity, loan amount, loan purpose, loan facility type, and length between loans, financial and general covenants, firm-specific variables, and regional-specific location variables.

To investigate loan switching, we estimate the logistic regression given by,

$$\text{Switch Dummy} = \alpha + \beta_1 * \text{Country-specific Bank-firm Ownership Variables} + \beta_2 \text{ Country-specific Governance Variable} + \beta_3 AISD + \beta_4 \text{ Control Variables} + \varepsilon \quad (3.2)$$

Where the switch dummy is 1 for a switched loan and 0 for a non-switched loan, and AISD is the all-in- drawn spread.

For firms residing in a country where the bank-firm ownership structure is characterized as "group" firm controlling a local bank (FCLB), firms are more likely to be opaque to the lending market. Because of their opacity, it will be more difficult for them to switch to a new syndicate lender for their repeat loans. Moreover, because of their access to loans from the local banks, these firms possess higher negotiation power in the syndicate bank-borrower relationship and may more easily induce a repeat syndicate loan at more favorable terms, which also reduces the incentive for switching. Therefore, the predicted sign of $\beta_1$ in (3.1) is negative.

For firms residing in a country where the bank-firm ownership structure bank is characterized as the bank controlling a firm (LBCF), the net effect is indeterminable. These firms should be more transparent to the international market due to the local bank's effective monitoring which lowers the firm's information asymmetry to lenders in the financial market. However, the local bank's "control" of the firm will result in an underdetermined value for $\beta_1$.

We also estimate whether the repeat loan switching between the H and L lenders is affected by the country-specific bank-firm ownership structure and country-specific governance index. Here the logistic regression is given by,

$$HL\ (LH)\ Dummy = \alpha + \alpha + \beta_1 * Country\text{-}specific\ Bank\text{-}firm\ Ownership\ Variables + \beta_2\ Country\text{-}specific\ Governance\ Variable + \beta_3\ AISD + \beta_4\ Control\ Variables + \varepsilon \quad (3.3)$$

Where the switch HL (LH) dummy is set at 1 for a firm switching from the H (L) sector to the L (H) sector, and 0 otherwise.

For firms residing in a country where the bank-firm ownership structure is characterized as the bank being controlled by a "group" firm, firms are more likely to be opaque to the international lending market, and thus less likely to "graduate" from the L sector to the H sector for their repeat loans, so $\beta_1 < 0$ for the LH regression. However**,** a 'group' firm that had borrowed in the H sector would be identified as a quality firm, which should enhance its ability to switch to the L sector, so that $\beta_1 > 0$ in the HL regression.

For firms residing in a country where the bank-firm ownership structure bank is characterized as the bank controlling a firm, firms are more likely to be transparent to the lending market, which would make it easier for firms to switch between the L and H sectors for their repeat loans. Thus, $\beta_1$ is predicted to be positive in (3.3).

### 3.4. Data and Description Statistics

This paper examines approximately 6,000 loan observations to foreign entities using data Loan Pricing Corporation's (LPC) DealScan over the period 1998-2007. The study focuses only

on loans to commercial corporations and excludes loans to borrowers with a one-digit SIC code of 6 (financial institutions). LPC reports loan data at the "facility" level as well as at the "deal" level. [35] Since syndicate structure, contract terms (e.g., maturity, loan amount, spread), and facility type (e.g., term loan or revolver line) can differ across several facilities in each deal, the analysis in this paper is at the facility level. However, because we focus on repeat loans, we choose only one facility from each deal so that the results are not biased by deals that consist of multiple loan facilities. Our repeat loan facility selection criterion matches the purpose and tranche type as closely as possible with the previous loan facility to reduce any latent bias on the switching decision.

Loan pricing, as measured by the "all-in-drawn spread", is the total annual spread paid over LIBOR or other base rate (e.g. Prime) for each dollar drawn in the loan. Other loan characteristics variables are also based on data from LPC DealScan, and include loan maturity, loan deal amount, loan purpose, loan facility type, length between loans, and financial and general covenants.

Many mergers and acquisitions occurred in the banking industry during the last two decades. To control for the effect of mergers and acquisitions on the lender-borrower relationship, we follow Ljungqvist, Marton, and Wilhelm (2006), and assume that the acquiring banks inherit the prior relationships and market shares of the target banks. For borrower opacity, we use a dummy variable for public firms while for the regional effect, we include a region dummy for the residency of the borrowing firm.

[35] The basic unit of observation in DealScan is a facility ("loan"). If firms enter into multiple facilities at the same time, different facilities are syndicated into one deal.

To measure country corruption and country governance transparency, following Fan, Titman and Twite (2008), we use the Corruption Perceptions Index (CPI) [36] of Global Corruption Report. This index ranks countries according to "the degree to which corruption is perceived to exist among public officials and politicians". A higher score is associated with less (perceived) corruption. As pointed out by Fan, Titman and Twite (2008), one advantage of using this Corruption Perceptions Index is that it provides time-series variation from year to year.

To measure the country-specific bank ownership structure, we create two dummy variables. Following La Porte (2003), the FCLB dummy equals 1 for loans to firms residing in Bangladesh, Bolivia, Bulgaria, Brazil, Chile, Colombia, Ecuador, Estonia, Guatemala, Hong Kong, Indonesia, Kazakhstan, Kenya, Korea, Latvia, Paraguay, Peru, Philippines, Russia, South Africa, Taiwan, Thailand, Turkey, and Venezuela, and 0 otherwise. The LBCF dummy is set at 1 for loans to firms that reside in Germany and Japan, and 0 otherwise.

Data on the financial characteristics of public firms are collected from Global Compustat Industry Annually. Since LPC does not provide a reliable identifier that can be used to merge the loan data with other sources, we hand match the borrowers in LPC DealScan to Global Compustat by using borrowers' names. The data are structured similar to that in Bharath et. al. (2006). For loans made in calendar year *t*, we use fiscal year *t* data if the loan origination date is at least 6 months after the end of the fiscal year; otherwise, we use fiscal year *t-1* data. We use firm total assets to control for the size effect and potential information asymmetry between the firm and financial market; leverage and the current ratio to control for the effect of the firm's capital structure; and asset turnover to control for the effect of the firm's efficiency and asset management ability.

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[36] Since 1995, Transparency International has published an annual Corruption Perceptions Index (CPI). The results show seven out of every ten countries (and nine out of every ten developing countries) with an index of less than 5 points out of 10.

**Table 3.1 Definition of the Variables**

| Variable | Definitions |
|---|---|
| **Loan Contract Variable** | |
| All-in-Drawn Spread | The amount that the borrower pays the lender each year for each dollar borrowed in the case of a term loan, and for each dollar drawn off a credit line in the case of a loan commitment. The drawn all-in spread equals the coupon spread plus the annual fee. Most spreads are measured as a markup over LIBOR. In cases where they are based on another benchmark, Loan Pricing Corporation makes adjustments to the drawn all-in spreads. |
| Maturity | The number of days between the loan origination and the maturity date |
| Length | The number of days between the n and n+ 1 loan. |
| # of Lenders | The total number of lenders (lead manager and participants) in a syndicate |
| Deal Size | Total deal size in U.S. dollars. A deal may include several loan facilities at the same time. The most typical arrangement is a loan agreement that comprises a term loan and a revolver credit line. |
| Year | Dummy variables for the calendar years in which a loan agreement is signed. |
| Loan Purpose | Dummy variables for ‘‘Acquisition line,’’ ‘‘CP backup,’’ ‘‘Debt repay,’’ ‘‘DIP financing,’’ ‘‘Corp. purposes,’’ ‘‘LBO/MBO,’’ ‘‘Project finance,’’ ‘‘Real estate,’’ ‘‘Recapitalization,’’ ‘‘Securities purchase,’’ ‘‘Spin off,’’ ‘‘Stock buyback,’’ ‘‘Takeover,’’ and ‘‘Working capital.’’ The omitted case is ‘‘Others.’’ |
| Financial Covenants | Dummy variable that is equal to 1 if the loan has at least one financial covenant. |
| General Covenants | Dummy variable that is equal to 1 if the loan has at least one general covenant. |
| **Borrower Variable** | |
| Industry dummy | Dummy variables for the one-digit SIC industry code |
| Public dummy | Dummy variable equal to one if the borrower is a publicly traded company. |
| Log (Asset) | Natural logarithm of book value of assets from Compustat. For loans made in calendar year t, we use fiscal year t data if the loan origination date is at least 6 months after the fiscal year end; otherwise, we use fiscal year t-1 data. |
| Asset Turnover | Efficiency measure from Compustat. Defined as sales in dollars divided by assets in dollars. |
| Leverage | Total liabilities divided by total assets. |
| Current Ratio | Current assets divided by current liabilities. |
| Bank Controlled | Dummy variable that is 1 for loans to firms reside in Bangladesh, Bolivia, Bulgaria, Brazil, Chile, Colombia, Ecuador, Estonia, Guatemala, Hong Kong, Indonesia, Kazakhstan, Kenya, Korea, Latvia, Paraguay, Peru, Philippines, Russia, South Africa, Taiwan, Thailand, Turkey, and Venezuela, and 0 otherwise. |
| Bank Controlling | Dummy variable that is 1 for loans to firms reside in Germany and Japan, and 0 otherwise. |
| **Lender Variable** | |
| Bank Market Share | The size of the bank market share in the syndicated loan market from previous year. |
| Bank Rank | The rank of lead arranger in the syndicated loan market from previous year |

Table 3.1 provides definitions for the loan, firm, bank and country-specific variables used in the empirical work. This study focuses on loans to foreign commercial corporations and deletes loans to borrowers with a one-digit SIC code of 6 (financial institutions). To better control for the variables that might contribute to loan pricing and repeat loan switches, we exclude loans with incomplete information about the details of the loan, and/or lender, namely loan spread, loan amount, loan origination date, loan maturity date, lead arranger's market share etc..

**Table 3.2**
**Panel 3.2.1 Sample Selection**

| | |
|---|---|
| Total Firm Loan Observations | 6180 |
| Repeat Firm Loan Observations | 4076 |

As shown in Panel 3.2.1 in Table 3.2, there are 4076 usable observations of repeat loans.

**Panel 3.2.2 Sample Distribution of Repeat Loans by Year**

| Year | NOBS | Switch Deals | Switch to H |
|---|---|---|---|
| 1998 | 41 | 27 | 13 |
| 1999 | 148 | 80 | 45 |
| 2000 | 250 | 145 | 69 |
| 2001 | 301 | 167 | 72 |
| 2002 | 328 | 164 | 91 |
| 2003 | 402 | 189 | 100 |
| 2004 | 494 | 214 | 127 |
| 2005 | 722 | 321 | 188 |
| 2006 | 681 | 307 | 156 |
| 2007 | 709 | 338 | 198 |
| Total | 4076 | 1952 | 1059 |

Panel 3.2.2 provides detailed information about the time series properties of repeat loans. On the yearly basis, the number of repeat loans grew significantly from a relatively low number

of 41 deals in 1998 to a peak of 722 in 2005. This surge in repeat loans reflects the growth in the overall global syndicated loan market and the increasing data availability in DealScan. The switch loans column in panel 2.2 shows that the same lead arranger financed approximately 48% of the repeat loans during the sample period. This percentage, however, was substantially larger in 1998, at 64%, possibly due to the unstable banking system following the Southeast Asian Financial Crisis. The percentage decreases during the 1999-2001 period, and has remained in the 44%-50% range from 2002 to 2007. The Switch to H column shows the migratory pattern of repeat loans during the sample period. Over the entire sample, 43%-59% of switched repeat loans have migrated to a higher bank reputation class.

**Panel 3.2.3 Sample Distribution of Repeat Loans by Industry**

| One-digit SIC Code | Industry Description | NOBS | Switch |
|---|---|---|---|
| 1 | Mining | 536 | 262 |
| 2 | Construction | 688 | 324 |
| 3 | Manufacturing | 792 | 376 |
| 4 | Transportation and Communications | 1078 | 530 |
| 5 | Trade | 367 | 170 |
| 7 | Business Service | 296 | 127 |
| 8 | Legal, Educational and Social Service | 123 | 50 |
| 9 | Public Administration | 77 | 41 |
| | Other-unspecified | 119 | 72 |
| | Total | 4076 | 1952 |

Panels 3.3.1 to 3.3.4 in Table 3.3 provide detailed information about the loan, firm, lender and country-specific characteristics of the sample of repeat loans, switched loans and the H and L categories of switched loans.

**Table 3.3 Descriptive Statistics for Regression Variables**

**Panel 3.3.1 All Repeat Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| **Firm Variable** | | | | | | |
| Public Dummy | 4076 | 0.3025025 | 0 | 0 | 1 | 0.4593980 |
| Corruption index | 3905 | 6.8825352 | 7.5 | 1.6 | 10 | 2.1054251 |
| FCLB | 4076 | 0.1879293 | 0 | 0 | 1 | 0.3907037 |
| LBCF | 4076 | 0.0799804 | 0 | 0 | 1 | 0.2712961 |
| **Loan Variable** | | | | | | |
| Deal Amount (million $) | 4076 | 982.227 | 380 | 1.5 | 51,299.5 | 2260.463 |
| AISD (bps) | 4076 | 139.8840 | 100 | 0 | 2250 | 136.2302 |
| Maturity (days) | 3911 | 1768.36 | 1825 | 0 | 10957 | 1055.66 |
| Length (days) | 4076 | 598.1889 | 448 | 0 | 3455 | 506.6101 |
| Financial Covenants | 4076 | 0.2363 | 0 | 0 | 1 | 0.4248 |
| General Covenants | 4076 | 0.0672 | 0 | 0 | 1 | 0.2504 |
| **Lender Variable** | | | | | | |
| Number of Lenders | 4076 | 10.8781 | 9 | 1 | 80 | 9.0930 |
| Market Share | 4066 | 0.02183 | 0.0102081 | 2.1007E-6 | 0.20563 | 0.03176 |

Panel 3.3.1 shows that the average repeat loan has a deal amount of $982 million, a maturity of 1768 days, and an all-in-drawn spread of 140 bps. Compared to the 50%-60% of loans to U.S. domestic non-financial firms[37], only 24% and 7% of loans to foreign non-financial firms include financial and general covenant terms, respectively. Regarding the structure of the loan syndicates, the average repeat loan has number of lenders between ten and eleven, and the lead arranger has a 2.18% market share on average. [38] For the country-specific variables, on average, 19% of the repeat loans are lent to firms that reside in FCLB countries whereas 8% of the repeat loans are lent to firms in LBCF countries. Of course, these averages mask a considerable difference among the firms and banks in the repeat loan market.

[37] From Kopecky and Xiao (2009), about 61% and 56% of the 6280 U.S. domestic loans include financial and general covenant terms, respectively.

[38] Market share and rank information are from DealScan League table.

**Panel 3.3.2 All Switched Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| **Firm Variable** | | | | | | |
| Public Dummy | 1952 | 0.2971 | 0 | 0 | 1 | 0.4571119 |
| Corruption index | 1952 | 6.6430 | 7.3 | 1.7 | 10 | 2.1643970 |
| FCLB | 1952 | 0.2243852 | 0 | 0 | 1 | 0.4172837 |
| LBCF | 1952 | 0.0609631 | 0 | 0 | 1 | 0.2393240 |
| **Loan Variable** | | | | | | |
| Deal Amount (million $) | 1951 | 875.850 | 315.633 | 1.5 | 51,299.5 | 2,415.02 |
| AISD (bps) | 1952 | 139.7837 | 100 | 2.25 | 2250 | 138.7260 |
| Maturity (days) | 1952 | 1806.38 | 1825 | 0 | 6848 | 1106.37 |
| Length (days) | 1952 | 678.7843 | 504 | 0 | 3455 | 582.2659 |
| Financial Covenants | 1952 | 0.2541 | 0 | 0 | 1 | 0.4355 |
| General Covenants | 1952 | 0.0612 | 0 | 0 | 1 | 0.2412 |
| **Lender Variable** | | | | | | |
| Number of Lenders | 1952 | 10.4605533 | 8 | 1 | 80 | 8.7747 |
| Market Share | 1944 | 0.0198031 | 0.0071474 | 2.1007E-6 | 0.20563 | 0.0309 |

Panel 3.3.2 shows that the average switched loan is $876 million with a maturity of 1806 days and an all-in-drawn spread of 140 bps. Compared to the full sample of repeat loans, the average loan amount for the sample of switched loans is approximately 10% smaller. Regarding the structure of the loan syndicates, the average loan has between ten and eleven lenders and the lead arranger has a 1.98% market share, which is also slightly smaller than the market share of the lead arranger in the full sample repeat loans. Regarding the country-specific variables, on average, 22% of the repeat loans are to firms residing in FCLB counties whereas 6% of the repeat loans are to firms in LBFC countries.

**Panel 3.3.3 Switched H Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| **Firm Variable** | | | | | | |
| Public Dummy | 1059 | 0.3050047 | 0 | 0 | 1 | 0.4606270 |
| Corruption index | 1008 | 6.6974206 | 7.4 | 1.7 | 10 | 2.1738934 |
| FCLB | 1059 | 0.2115203 | 0 | 0 | 1 | 0.4085794 |
| LBCF | 1059 | 0.0604344 | 0 | 0 | 1 | 0.2384024 |
| **Loan Variable** | | | | | | |
| Deal Amount (million $) | 1059 | 996.430 | 385.067 | 6.378 | 51,299.5 | 2,865.579 |
| AISD (bps) | 1059 | 140.0975 | 100 | 2.5 | 1150 | 130.3704 |
| Maturity (days) | 1059 | 1831.08 | 1825 | 90 | 10957 | 1066.38 |
| Length (days) | 1059 | 710.964117 | 525 | 0 | 3455 | 611.0220 |
| Financial Covenants | 1059 | 0.2511804 | 0 | 0 | 1 | 0.4338970 |
| General Covenants | 1059 | 0.0670444 | 0 | 0 | 1 | 0.2502170 |
| **Lender Variable** | | | | | | |
| Number of Lenders | 1059 | 10.6902738 | 9 | 1 | 58 | 8.7528775 |
| Market Share | 1059 | 0.0300172 | 0.0173685 | 0.0000395 | 0.20563 | 0.0364620 |

Panel 3.3.3 displays sample statistics for switched H loans and Panel 3.4 display sample statistics for switched L loans respectively. The average size of a switched H loan is $996 million whereas the average size of a switched L loan is only $733 million. However the all-in-drawn spread is fairly stable, around 139-140 bps, for the full sample of switched loans, suggesting that loan pricing in the international syndicate market is sticky and is not influenced by repeat loan switching. Regarding the structure of the loan syndicates, although the average number of lenders is approximately the same for the two sub-samples, the average lead arranger's market share is substantially different, at 3% for switched H loans and 0.76% for switched L loans. Regarding the country-specific variables, on average, 21% and 24% of the repeat loans are to firms residing in FCLB counties whereas 6% and 6.2% of the repeat loans are to firms residing in LBCF countries, for switched H and switched L loans, respectively.

**Panel 3.3.4 Switched L Loans**

| | N | Mean | Median | Min | Max | Std Dev |
|---|---|---|---|---|---|---|
| **Firm Variable** | | | | | | |
| Public Dummy | 893 | 0.2877940 | 0 | 0 | 1 | 0.4529883 |
| Corruption index | 843 | 6.5779359 | 7.1 | 2 | 10 | 2.1524691 |
| FCLB | 893 | 0.2396417 | 0 | 0 | 1 | 0.4271040 |
| LBCF | 893 | 0.0615901 | 0 | 0 | 1 | 0.2405444 |
| **Loan Variable** | | | | | | |
| Deal Amount (million $) | 893 | 732.696 | 276.542 | 1.5 | 22,508 | 1725,085 |
| AISD (bps) | 893 | 139.4115 | 100 | 2.25 | 2250 | 148.0984 |
| Maturity (days) | 893 | 1776.70 | 1825 | 0 | 6210 | 1152.50 |
| Length (days) | 893 | 640.6226 | 479 | 3 | 3255 | 544.0828 |
| Financial Covenants | 893 | 0.2575588 | 0 | 0 | 1 | 0.4375347 |
| General Covenants | 893 | 0.0559910 | 0 | 0 | 1 | 0.2300333 |
| **Lender Variable** | | | | | | |
| Number of Lenders | 893 | 10.1881299 | 8 | 1 | 80 | 8.7977011 |
| Market Share | 885 | 0.0075830 | 0.0021713 | 2.1007E-6 | 0.1540442 | 0.0150527 |

## 3.5. Empirical Results

Table 4 presents results for various regressions of the loan spread on the country-specific governance and bank-firm ownership structure variables, controlling for bank characteristics, non-spread loan characteristics, and industry, year, and regional dummy variables.

**Table 3.4 Estimates of Country-Specific Ownership Structure Effect on Loan Spread**
This table provides estimates of the determinants of loan spread. The control variables include syndicate variables, and loan characteristics variables and country-specific ownership structure variables. *P*-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | **Repeat** | **Switch** | **Switch HL** | **Switch LH** |
|---|---|---|---|---|---|
| NOBS | 6080 | 4076 | 1952 | 893 | 1059 |
| Intercept | **420.2831 *** ** | **448.6334*** ** | **372.7276*** ** | **381.5895*** ** | **364.3910*** ** |
| | (<0.0001) | (<0.0001) | (<0.0001) | (0.0009) | (<0.0001) |
| Market Share | **220.2625*** ** | **300.7113*** ** | **336.9672*** ** | | |
| | (<.0001) | (<0.0001) | (0.0004) | | |
| Log Deal Amount | **-9.5378 *** ** | **-10.2498*** ** | **-10.2151*** ** | **-10.9655** ** | **-9.0310** ** |
| | (<0.0001) | (<.0001) | (0.0010) | (0.0361) | (0.0167) |
| Maturity | 0.0004 | 0.0027 | 0.0046 | -0.0018 | **0.0085* ** |
| | (0.8125) | (0.2704) | (0.1795) | (0.7520) | (0.0421) |
| Length | -0.0023 | -0.0062 | 0.0027 | -0.0023 | 0.0096 |
| | (0.4570) | (0.1106) | (0.6182) | (0.8153) | (0.1220) |
| Financial covenants | -4.0770 | 3.0606 | 0.8022 | -15.6563 | 12.9884 |
| | (0.3241) | (0.5808) | (0.9218) | (0.2668) | (0.1807) |
| General covenants | **41.5382 *** ** | **54.7464*** ** | **59.4659*** ** | **79.4356*** ** | **38.7644** ** |
| | (<.0001) | (<.0001) | (<0.0001) | (0.0010) | (0.0191) |
| # of Lenders | **-1.5087*** ** | **-1.6123*** ** | **-1.57148*** ** | **-1.4739* ** | **-1.4397*** ** |
| | (<.0001) | (<0.0001) | (0.0001) | (0.0334) | (0.0033) |
| Corruption index | **-7.4192 *** ** | **-8.2551*** ** | **-7.8901*** ** | -3.7581 | **-10.5532*** ** |
| | (<0.0001) | (<0.0001) | (0.0005) | (0.3253) | (0.0001) |
| FCLB | **23.2078 *** ** | **21.5449*** ** | **26.2890*** ** | **38.5121*** ** | **32.8685** ** |
| | (<.0001) | (0.0055) | (0.0004) | (0.0307) | (0.0169) |
| LBCF | **14.6774 *** ** | **20.6967*** ** | **25.6293** ** | 6.7335 | **48.1674*** ** |
| | (0.0066) | (0.0040) | (0.0304) | (0.7425) | (0.0009) |
| Public dummy | -3.33105 | -2.2699 | 6.9869 | **19.8385** ** | -0.3438 |
| | (0.3393) | (0.5879) | (0.2638) | (0.0605) | (0.9635) |
| Loan purpose dummy | Yes | Yes | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes |
| Region dummy | Yes | Yes | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.3315 | 0.3125 | 0.2988 | 0.2370 | 0.3726 |

Table 3.4 presents results for various regressions of the loan spread on the country-specific governance and bank-firm ownership structure variables, controlling for bank characteristics, non-spread loan characteristics, and industry, year, and regional dummy variables. These regressions do not exclude observations because of inadequate data on firm

characteristics. The coefficient of the corruption index is significantly negative, in all, except the switch HL regression, indicating that loans to firms residing in high corruption countries are priced significantly higher than loans to firms residing in low corruptive countries. The coefficient of the LBCF dummy is significantly positive for all regressions, indicating that the pricing of loans to firms residing in Germany and Japan is significantly higher.

Tables 5 provides estimates of the logistic regressions for all switched loans, switched H and switched L loans, respectively.

**Table 3.5 Logistic Regressions for the Likelihood of Switching to a New Lead Arranger**

This table presents estimates of repeat loan switching. In Model All Switch, the dependent variable is a binary variable equal to one for borrower switching its repeat loan to a new lead arranger and zero for a borrower keeping the loan relationship with the existing lead arranger. In Model HL, the dependent variable is a binary variable equal to one for a borrower switching its repeat loan to a less reputable lead arranger and zero otherwise. In Model LH, the dependent variable is a binary variable equal to one for a borrower switching its repeat loan to a more reputable arranger and zero otherwise. Independent variables include *AISD, Log of Deal Amount, Length between the nth loan and n+1 loan, Facility Maturity, Loan Purpose, Financial Covenant Dummy, General Covenant Dummy, Year Dummy, Region Dummy, one-digit industry dummy, corruptive index and country-specific ownership structure dummies.* All other explanatory variables are as defined in Table2. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 two-tailed levels, respectively.

| | **All Switch** | **HL** | **LH** |
|---|---|---|---|
| Intercept | 0.4877 | **2.1731**** | **-3.0681***** |
| | (0.5781) | (0.0284) | (0.0014) |
| Market Share | **-3.3375***** | | |
| | (0.0041) | | |
| Public Dummy | **0.1331**** | 0.0526 | 0.1131 |
| | (0.0874) | (0.5640) | (0.1896) |
| AISD | -0.00028 | -0.00046 | -0.00007 |
| | (0.6481) | (0.2193) | (0.8313) |
| Log(Deal) | 0.0173 | **-0.1311***** | **0.1036**** |
| | (0.4049) | (0.0032) | (0.0134) |
| Maturity | 4.253E-6 | -0.00003 | 0.000033 |
| | (0.9263) | (0.5986) | (0.5036) |
| Length btw. Loans | **0.000962***** | **0.000422***** | **0.000747***** |
| | (<.0001) | (<.0001) | (<.0001) |
| Financial Covenants | **0.2058**** | 0.0707 | 0.1639 |
| | (0.0445) | (0.5562) | (0.1449) |
| General Covenants | -0.2233 | -0.2357 | -0.0313 |
| | (0.1834) | (0.2537) | (0.8677) |
| # of Lenders | -0.00550 | 0.00169 | -0.00720 |
| | (0.2599) | (0.7737) | (0.1865) |

**Table 3.5. (continued)**

| | | | |
|---|---|---|---|
| Corruption index | **-0.0784*** ** | **-0.0616*** | -0.0355 |
| | (0.0068) | (0.0658) | (0.2662) |
| FCLB | 0.2162 | 0.2198 | 0.0612 |
| | (0.1332) | (0.1590) | (0.6901) |
| LBCF | -0.1799 | -0.0443 | **-0.2675*** |
| | (0.1878) | (0.7962) | (0.0968) |
| Loan purpose dummy | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes |
| Region dummy | Yes | Yes | Yes |
| NOBS | 4076 | 4076 | 4076 |

Tables 3.5 provides estimates of the logistic regressions for all switched loans, switched H and switched L loans, respectively. As in Table 3.4, these regressions do not use firm characteristics data. The regressions examine the loan and country characteristics associated with the switch decision. The significantly positive coefficient of the public dummy is consistent with the information asymmetry hypotheses, indicating that public firms are more likely to make a switch because they are more transparent to the financial market. The significantly negative coefficient of the loan amount in the HL switching sub-sample and significantly positive coefficient in the LH switching sub-sample are indirectly consistent with the information asymmetry hypothesis. The significantly positive coefficient in the length between loans in all three regressions reflects a diminishing effect of the bank-firm relation through time. The results show that the coefficient of the corruption index is significantly negative for the full loan sample, which is due primarily to the switch HL sector. Thus, when corruption is high (corruption perception index low), firms in the H sector tend to be more likely to switch to lenders in the L sector. One explanation for this finding is that when corruption is prevalent, H banks devote more resources to monitoring and are thus able to detect more easily any deterioration in the firm's financial situation, so non-renewed by the H bank sector. The corruption index has no

effect in the LH regression because L banks are less effective monitor than H banks as monitors**.** It is noteworthy that in LBCF countries, the probability of switching from L to H is reduced, suggesting that in countries where banks have control over "group" firms these banks provide enhanced monitoring activity and thus partly substitute for the typically low level of monitoring by L banks. The lack of significance for the FCLB variable is not consistent with our prediction: Firms that control banks should be less likely to switch because of their opacity to the financial market.

**Table 3.6 Estimates of Country-Specific Ownership Structure Effect on Loan Spread**
This table provides estimates of the determinants of loan spread for public firms. The control variables include syndicate variables, loan characteristics variables, firm characteristics and country-specific ownership structure variables. *P*-values of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 10%, 5%, and 1% two-tailed levels, respectively.

| | **Full Sample** | **Repeat** | **Switch** | **Switch HL** | **Switch LH** |
|---|---|---|---|---|---|
| NOBS | 1772 | 1223 | 571 | 261 | 309 |
| Intercept | **384.6468*****| **426.4806***** | **368.8443***** | **307.9911*** | **348.8663**** |
| | (<0.0001) | (<0.0001) | (0.0005) | (0.0507) | (0.0291) |
| Market Share | **116.4460**** | **167.2210**** | **306.9061***** | | |
| | (0.0299) | (0.0239) | (0.0098) | | |
| Log Deal Amount | **-9.8499***** | **-11.1849***** | **-10.2121***** | -4.5827 | **-16.2659**** |
| | (<0.0001) | (<.0001) | (0.0266) | (0.4975) | (0.0135) |
| Maturity | 0.0027 | -0.0011 | 0.0071 | 0.0134 | 0.0026 |
| | (0.3998) | (0.7928) | (0.2697) | (0.1328) | (0.7916) |
| Length | -0.0021 | -0.0053 | -0.0052 | **-0.0216*** | 0.0042 |
| | (0.6279) | (0.3238) | (0.5083) | (0.0881) | (0.6903) |
| Financial covenants | 3.7353 | 4.4093 | -0.1941 | -9.5565 | -1.1913 |
| | (0.4754) | (0.5120) | (0.9855) | (0.5562) | (0.9358) |
| General covenants | **41.8897***** | **53.5486***** | **79.7202***** | 35.4182 | **95.8737***** |
| | (<.0001) | (<.0001) | (<0.0001) | (0.2331) | (<.0001) |
| # of Lenders | **-0.5510***** | -0.4429 | -0.7597 | **-1.7085**** | 0.1092 |
| | (0.0252) | (0.1534) | (0.1286) | (0.0243) | (0.8778) |
| Corruption index | **-4.1841***** | -2.4191 | -2.9769 | -6.5794 | -1.0121 |
| | (0.0047) | (0.2047) | (0.3100) | (0.1143) | (0.8072) |
| FCLB | **20.1187***** | **21.8656***** | **32.2892***** | 18.8323 | 29.5966 |
| | (0.0071) | (0.0225) | (0.0234) | (0.3384) | (0.1559) |
| LBCF | **16.9626***** | **20.0083***** | **28.8280**** | 17.6580 | **39.9612*** |
| | (0.0119) | (0.0174) | (0.0709) | (0.4163) | (0.0936) |
| Log( Assets) | **-7.6454***** | **-6.9360***** | **-6.2354***** | **-7.0601**** | -4.4014 |
| | (<.0001) | (<.0001) | (0.0023) | (0.0113) | (0.1394) |

**Table 3.6. (continued)**

| | | | | | |
|---|---|---|---|---|---|
| Leverage | **65.4387*** ** | **78.5925*** ** | **70.6391*** ** | -11.5574 | **166.0937*** ** |
| | (<.0001) | (<.0001) | (0.0074) | (0.7928) | (<.0001) |
| Asset Turnover | **-15.9012*** ** | **-17.6041*** ** | **-21.7678*** ** | **-26.4306** ** | -12.1816 |
| | (<.0001) | (0.0004) | (0.0081) | (0.0266) | (0.3190) |
| Current Ratio | 0.0532 | 0.0810 | -0.1078 | 13.7627 | 0.0347 |
| | (0.5194) | (0.3491) | (0.6890) | (0.1643) | (0.8988) |
| Loan purpose dummy | Yes | Yes | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes | Yes | Yes |
| Industry dummy | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes |
| Region dummy | Yes | Yes | Yes | Yes | Yes |
| ***Adjusted R-square*** | 0.3530 | 0.3427 | 0.3209 | 0.3111 | 0.3941 |

Table 3.6 extends Table 3.4 by including firm characteristics from Global Compustat for public firms. Compared to Table 3.4, the Corruption index is significantly negative in Table 3.6, only for the sample of all loans. Thus, when taking account of firm characteristics such as leverage and asset turnover, the corruptive index does not explain repeat lending and loan switching. However, both FCLB and LBCF coefficients continue to remain significantly positive for most samples in Table 3.6. This suggests that monitoring costs are higher in these countries, not because of the firms are more opaque, but because of the three-party relationship among the firms, local bank, and syndicate bank. In general, the results of Table 3.6 for public firms are consistent with Table 4 for all firms.

**Table 3.7 Logistic Regressions for the Likelihood of Switching Repeat Loans to a New Lead Arranger -Public Firms**

This table presents estimates of repeat loan switching. In Model Switch, the dependent variable is a binary variable equal to one for borrower switching its repeat loan to a new lead arranger and zero for borrower keeping the loan relationship with the existing lead arranger. In Model HL, the dependent variable is a binary variable equal to one for borrower switching its repeat loan to a less reputable lead arranger and zero otherwise. In Model LH, the dependent variable is a binary variable equal to one for borrower switching its repeat loan to a more reputable arranger zero otherwise. Independent variables include *Firm Size, Leverage, Asset Turnover, Current Ratio, AISD, Log of Deal Amount, Length between the nth loan and n+1 loan, Facility Maturity, Loan Purpose, Financial Covenant Dummy, General Covenant Dummy, Year Dummy, Region Dummy, one-digit industry dummy, corruptive index and country-specific ownership structure dummies.* All other explanatory variables are as defined in Table2. *P-values* of coefficients are reported in parentheses below each coefficient estimate. *, ** and *** denote significance at the 0.1, 0.05, and 0.01 two-tailed levels, respectively.

| | **Switch** | **HL** | **LH** |
|---|---|---|---|
| Intercept | 1.5443 | **3.8141*** | **-3.9232*** |
| | (0.4165) | (0.0845) | (0.0677) |
| Market Share | **-4.5315**** | | |
| | (0.0269) | | |
| AISD | 0.00046 | -0.00120 | **0.00148*** |
| | (0.5718) | (0.2224) | (0.0866) |
| Log(Deal) | -0.1264 | **-0.2981***** | 0.0980 |
| | (0.1145) | (0.0019) | (0.2718) |
| Maturity | 0.000124 | 0.000216 | -0.00012 |
| | (0.2879) | (0.1042) | (0.3571) |
| Length | **0.000607***** | 0.000104 | **0.000654 ***** |
| | (<.0001) | (0.5665) | (<.0001) |
| Financial Covenants | 0.0677 | 0.1852 | -0.1008 |
| | (0.7122) | (0.3913) | (0.6221) |
| General Covenants | -0.1385 | -0.4810 | 0.2817 |
| | (0.6509) | (0.2240) | (0.3991) |
| # of Lenders | -0.0114 | -0.00655 | -0.0215 |
| | (0.1853) | (0.5342) | (0.4687) |
| Corruption index | -0.00786 | 0.0232 | -0.0215 |
| | (0.8790) | (0.7009) | (0.7021) |
| FCLB | -0.0706 | 0.2166 | -0.1797 |
| | (0.7874) | (0.4476) | (0.5284) |
| LBCF | **-0.5494**** | -0.0868 | **-0.7209**** |
| | (0.0238) | (0.7740) | (0.0159) |
| Log( Assets) | **0.1101***** | 0.0578 | 0.0550 |
| | (0.0044) | (0.1703) | (0.1782) |
| Leverage | 0.3222 | 0.5860 | -0.2025 |
| | (0.4434) | (0.2765) | (0.6656) |
| Asset Turnover | -0.0787 | 0.1843 | -0.2672 |
| | (0.5696) | (0.2586) | (0.1003) |
| Current Ratio | -0.00083 | -0.1080 | 0.000124 |
| | (0.7476) | (0.3861) | (0.9613) |
| Loan purpose dummy | Yes | Yes | Yes |
| Tranche type dummy | Yes | Yes | Yes |
| Industry & year dummy | Yes | Yes | Yes |
| Region dummy | Yes | Yes | Yes |
| NOBS | 1224 | 1224 | 1224 |

Table 3.7 extends Table 3.5 by including firm characteristics for public firms available in Global Compustat. It estimates of the logistic regressions for the sample of switch loans, sample of switch H loans and sample of switch L loans for public firms. Compared to Table 3.5, one significant loan characteristic is the loan amount, for which the larger is the loan amount, the less likely is the probability of switching from H to L. The other significant loan characteristic variable is the loan spread, for which the higher the loan spread, the more likely is the probability of switching from L to H. The Corruption Perception Index loses its significance, which may arise because the availability of the firm-specific information of public firms reduces the information asymmetry between the firm and the financial market. Thus in turn reduces the impact of country-specific corruptive index on firm's decision of bank relationship. The banks LBCF dummy is significantly negative for both the sample of all switched loans and sample of loans switched from L to H sector. This result is consistent with that in Table 3.5 and reflects the increasing difficulty of changing bank relationship for firms residing in bank-controlling countries, especially for those firms who borrow from lower quality banks.

## 3.6. Summary and Conclusion

This paper focuses on the relation between a country-specific governance indicator and country-specific bank-firm ownership structures on loan pricing and the management of a lending relationship between the syndicate bank and firm. We evaluate the relationship between country-specific bank ownership structure and the main characteristics of loan, which are mainly measured by loan pricing and loan switching decision. The paper examines three interrelated questions: 1.How is loan pricing affected by country-specific bank-firm ownership structure? 2. Does country-specific bank-firm ownership structure influence the decision to switch lenders in

the repeat loan market? 3. Is country-specific bank-firm ownership structure more important for a borrower to migrate to a higher reputation lender than to a lower reputation lender?

This paper investigates the determinants of loan pricing and repeat loan relationship for a sample of 6,180 non-U.S. firm-loan observations for the period 1998-2007. We use loan-characteristic, bank-characteristic, firm-characteristic variables as well as country-specific governance and country-specific bank-firm ownership structure variables to explore the effect on loan pricing and loan-switching decisions. The answer for question 1 is straightforward. The syndicate bank will incur additional monitoring cost because of the presence of the third party local bank. Higher monitoring cost should lead to an increased loan spread in FCLB and LBCF countries. The answers to the second and third questions are not as clear-cut, while we do find that the likelihood of switching syndicate banks in Germany and Japan is lower, compared to the other countries. We do not find that loan switching is less likely in countries where firms control local banks and the bank-controlling firm is as likely to switch as a firm that does not control a bank. Based on our hypothesis, the less-likely switching outcome should occur because the firm-local bank connection makes the firm more opaque to the international financial market. As a result, the firm should acquire fewer offers from the syndicate bank and make the switching less likely.

In general the loan-specific characteristic variables lose the explaining power to firms' repeat loan switching while the firm-specific financial variables confirm the information asymmetry hypothesis. Our results seem reflect that in the international syndicated loan market, the bank-firm relationship is shaped by country-specific characteristics and information asymmetry of firms to banks and financial market.

**REFERENCES**


Agbanzo, L., Mei J., and Saunders, A. (1999), Credit Spreads in the Market for Highly Leveraged Transaction Loans, *Journal of Banking and Finance* 22, 1249-1282

Allen, F. (1984), Reputation and Product Quality, Rand Journal of Economics 15, 311- 327

Aoki, M. (1994), Monitoring Characteristics of the Main Bank System: An Analytical and Developmental View, *Oxford University Press, Oxford*, 109-41

Baert, L., and Vennet, R. V., Bank Market Structure and Firm Capital Structure in Europe, *Working Paper*

Berger, A., and Udell, G. (1990), Collateral, Loan Quality, and Bank Risk, *Journal of Monetary Economics* 25, 21-42

Berger, A., and Udell, G. (1992), Some Evidence on the Empirical Significance of CreditRationing, *Journal of Political Economy* 100 (5), 1047-1077.

Berger, A., and Udell, G. (1995), Relationship Lending and Lines of Credit in Small Business Finance, *Journal of Business* 68, 351–381

Berger, A., Miller, N., Petersen, M., Rajan, R. and Stein, J. (2005), Does Function Follow Organizational Form? Evidence from the Lending Practices of Large and Small Banks, *Journal of Financial Economics* 76, 237–269

Berlin, M. and Mester L. J. (1998), On the Profitability and Cost of Relationship Lending, *Journal of Banking and Finance* 22, 873-97

Berlin, M., John, K., Saunders, A. (1996), Bank Equity Stakes in Borrowing Firms and Financial Distress, *Review of Financial Studies* 9, 889–919

Bharath, S., Dahiya, S. , Saunders, A., and Srinivasan, A. (2006), Lending Relationships and Loan Contract Terms; Does Size Matter? *Working Paper*

Boot, A., and Thakor, A. (2000), Can Relationship Banking survive Competition? *Journal of Finance* 55, 679-713

Boot, A., and Thakor, A.V. (1994), Moral Hazard and Secured Lending in an Infinitely Repeated Credit Market Game, *International Economic Review* 35, 899-920

Booth, L., A., Demirguc-Kunt, A. and Maksimovic, V. (2001), Capital Structures in Developing Countries, *Journal of Finance* 56(1), 87-130

Bosch, O., and Steffen, S. (2007), Informed Lending and the Structure of Loan Syndicates – Evidence from the European Syndicated Loan Market, *Working Paper*

Campbell, T.S. (1979), Optimal Investment Financing Decision and the Value of Confidentiality, *Journal of Financial and Quantitative Analysis* 14, 232-257

Chen, X., Harford, J., Li, K. (2007), Monitoring: Which Institutions Matter? Journal of Financial Economics 86, 279-305

Chemmanur, J. and Fulghieri, P. (1994), Investment Bank Reputation, Information Production, and Financial Intermediation, *Journal of Finance* 49, 57-79

Dennis, A.S., and Mullineaux, D.J. (2000), Syndicated Loans, *Journal of Financial Intermediation* 9, 404-426

Diamond, D. (1984), Financial Intermediation and Delegated Monitoring, *Review of Economic Studies* 51, 394–414

Diamond, D. (1991), Monitoring and Reputation: The choice between Bank Loans and Directly Placed Debt, *Journal of Political Economy* 99, 688–721.

Dinc, S. (2000), Bank Reputation, Bank Commitment, and the Effects of Competition in Credit Markets, *Review of Financial Studies* 13, 781-812

Esty,B., C., and Megginson, W., L. (2003), Creditor Rights, Enforcement, and Debt Ownership Structure: Evidence from the Global Syndicated Loan Market, *Journal of Financial and Quantitative Analysis* 38(1), 37-60

Fama, E. F. (1985), What's Different about Banks? *Journal of Monetary Economics* 15, 29–39

Fan, J., Titman, S., and Twite G. (2008), An International Comparison of Capital Structures

Fang, L.H. (2005), Investment Bank Reputation and the Price and Quality of Underwriting Services, *Journal of Finance* 60, 2729-2762

Fernando, C.S., Gatchev, V.A and Spindt, P.A. (2005), Wanna Dance? How Firms and Underwriters Choose Each Other, *Journal of Finance* 60, 2437-2469

Ferreira, M. and P. Matos (2008), The Colors of Investors' Money: the Role of Institutional Investors around the World, *Journal of Financial Economics* 88, 499-533

Flannery, M. J. (1986), Asymmetric Information and Risk Debt Maturity Choice, *Journal of Finance* 41, 19-37

Gopalan, R., Udell, G., Yerramilli, V. (2007), Why do Firms Switch Banks? *Working Paper*.

Gorton, G., and Schmid., F., A. (2000), Universal Banking and The Performance Of German Firms, *Journal of Financial Economics 58*, 29-80

Gorton, G., and Pennacchi, G. (1995), Banks and Loan Sales: Marketing Non-marketable Assets, *Journal of Monetary Economics* 35, 389-412

Hadlock, C. J. and James, C. (2002), Do Banks provide Financial Slack? *Journal of Finance* 57, 1383–1419

Hauswald, R., B., Marquez, R. (2000), Relationship Banking, Loan Specialization, and Competition," in *Proceedings of the 36th Bank Structure and Competition Conference, Federal Reserve Bank of Chicago*

Holmstrom, B. (1979), Moral Hazard and Observability, *Bell Journal of Economics, The RAND Corporation* 10(1), 74-91

Holmstrom, B. and Tirole, J. (1997), Financial Intermediation, Loanable Dunds, and the Real Sector, *Quarterly Journal of Economics* 112, 663–691

Hoshi, T., Kashyap, A., and Sharfstein, D. (1990), the Role of Banks in Reducing the Costs of Financial Distress in Japan, *Journal of Financial Economics* 27, 67-88

Ioannidou, V. and Ongena, S. (2006), "Time for a change": Loan Conditions and Bank Behavior when Firms Switch, *Working Paper*

Ivashina, V. (2009), Asymmetric Information Effects on Loan Spreads, *Journal of Financial Economics* 92, 300-319

James, C. (1987), Some Evidence on the Uniqueness of Bank Loans, *Journal of Financial Economics* 19, 217–235.

James, C. (1992), Relationship-Specific Assets and the Pricing of Underwriter Services, *Journal of Finance* 47, 1865-1885

Jong, A., Kabir, R., and Nguyen, T. (2008), Capital Structure around the World: The Roles of Firm- and Country-Specific Determinants, *Journal of Banking & Finance* 32(9), 1954-1969

Kang, J. K. and Shivdasani, A. (1995), Firm Performance, Corporate Governance, and Top Executive Turnover in Japan, *Journal of Financial Economics* 38, 29-58

Kano, M., Uchida H., Udell, G., and Watanabe, W. (2006), Information Verifiability, Bank Organization, Bank Competition and Bank-Borrower Relationships, *RIETI Discussion Paper* 06-E-003

Kopecky, K., J. and Xiao, Y. (2009), Changing Partners for Better or Worse: A Close Look at Loan Migration in the Syndicated Loan Market, *Working Paper*

Krigman, L., Shaw, W., and Womack, K. (2001), Why do firms switch underwriters? *Journal of Financial Economics* 60, 245–284.

La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny (1998), Law and Finance, *The Journal of Political Economy* 106(6), 1113-1155

La Porta, R., F. Lopez-de-Silanes, et al. (1999), Corporate Ownership around the World, *Journal of Finance* 54(2), 471-517

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R. (2000), Investor Protection and Corporate Governance, *Journal of Financial Economics* 58, 3-27

La Porta, R., Lopez-De-Silanes, F., and Zamarripa, G. (2003), Related lending. *Quarterly Journal of Economics* 118 (1), 231–268.

Lee, S.W., Mullineaux, D.J., (2004), Monitoring, Financial Distress, and the Structure of Commercial Lending Syndicates, *Financial Management* 33(3), 107-130

Leland, H. E. and Pyle, D. H. (1977), Informational Asymmetries, Financial Structure and Financial Intermediation, *Journal of Finance* 32 (2), 371-387

Li, D., F. Moshirian, P. Kien Pham and J. Zein (2006), When Financial Institutions are Large Shareholders: The Role of Marcro Corporate Governance Environments, *Journal of Finance* 61(6), 2975-3007

Livingston, M. and Miller, R.E., (2000), Investment Bank Reputation and the Underwriting of Nonconvertible Debt, *Financial Management* 3, 21-34

Ljungqvist, A., Marston, F., and Wilhelm, W.J. (2006), Competing for Securities Underwriting Mandates: Banking relationships and Analyst Recommendations, *Journal of Finance* 61, 301-340

Lummer, S. and McConnell, J. (1989), Further Evidence on the Bank Lending Process and the Capital Market Response to Bank Loan Agreements, *Journal of Financial Economics* 25, 99–122

Mahrt-Smith, J. (2006), Should Banks Own Equity Stakes in their Borrowers? *Journal of Banking and Finance*, 30(10), 2911-2929

Morck, R. and Nakamura, M. (1999), Banks and corporate control in Japan, *Journal of Finance* 54, 319-339

Morck, R., Nakamura, M., and Shivdasani, A. (2000), Banks, ownership structure and firm value in Japan, *Journal of Business* 73 (4), 539-567

Ongena, S. and Smith, D.C. (2001), the Duration of Bank Relationships, *Journal of Financial Economics* 61, 449-475

Panyagometh, K., and Roberts, G. (2002), Private Information, Agency Problems and Determinants of Loan Syndications: Evidence from 1987-1999, *York University Working Paper*

Petersen, M. A. and Rajan, R. G. (1994), the Benefits of Lending Relationships: Evidence from Small Business Data, *Journal of Finance* 49 (1), 3–37

Petersen, M., A., and Rajan, R. G. (1995), the Effect of Credit Market Competition on Lending Relationships, *The Quarterly Journal of Economics* 110 (2), 407-443

Rajan, R. G. (1992), Insiders and Outsiders: The Choice between Informed and Arm's-Length Debt, *Journal of Finance* 47 (4), 1367–1400

Rajan, R., and Zingales, L. (1995), What Do We Know About Capital Structure? Some Evidence from International Data, *Journal of Finance* 50(5), 1421-1460

Shapiro, C. (1983), Premiums for High Quality Products as Returns to Reputations, *Quarterly Journal of Economics* 98, 659-679

Sharpe, S. A. (1990), Asymmetric Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relationships, *Journal of Finance* 45 (4), 1069–1087.

Shleifer, A., and Robert W. Vishny (1986), Large Shareholders and Corporate Control, *Journal of Political Economy* 94(3), 461-488

Shockley, R. and Thakor A. (1992), Information Content of Commitments to Lend in the Future: Theory and Evidence on the Gains from Relationship Banking, *Working paper*.

Simons, K. (1993), Why do Banks Syndicate Loans? New England Economics Review, *Federal Reserve Bank Boston*, 45-52

Stephen, S., and Wahrenburg, M. (2008), Syndicated Loans, Lending Relationships and the Business Cycle, *Working Paper*

Sufi, A. (2007), Information Asymmetry and Financing Arrangements: Evidence from Syndicated Loans, *Journal of Finance* 62(2), 629-668

Thomsen, S., T. Pedersen and H. Kvist (2006), Blockholder Ownership: Effects of Firm Value in Market and Control Based Governance Systems, *Journal of Corporate Finance* 12, 246-269

Weinstein, D and Yafeh, Y. (1998), on the costs of a bank-centered financial system: Evidence from the changing main bank relations in Japan, *Journal of Finance* 53(2), 635-72