

Master's Thesis in Finance
Stockholm School of Economics

**Arranging a Syndicated Loan: Do Banks Benefit
From Relationship Investment?**
– A Study on the Nordic Market

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Abstract:

The Nordic syndicated loan market has substantially increased in volume and in 2006 the total volume amounted to US\$ 111 billion; it is an important marketplace where banks invest capital and other resources. This paper investigates whether banks benefit, in terms of pricing and ancillary business, if they have strong lending relationships with borrowers. The paper reproduces a study on the U.S. market. Data on Nordic syndicated loan and bond issues from 1983 to 2006 are examined. The results indicate that lending banks can extract a price margin of an additional 5.59 basis points from its relationship borrower. Further, a prior loan relationship with a borrower increases the probability of a bank re-arranging a syndicated loan with 20.43 percentage points. However, acting as an arranger on a prior syndicated loan does not significantly increase the probability of arranging a future bond issue. Arranging banks on the Nordic syndicated loan market can therefore benefit from nurturing existing and developing new relationships with borrowers.

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1 Introduction

In Western Europe the syndicated loan¹ market has exploded in volume during the last years, both in terms of the number of borrowing companies as well as the number of banks providing capital. In 2006 the volume reached its all time high, attracting a total of 1,529 borrowers who altogether achieved to raise US\$ 1,247 billion.² The Nordic³ region's syndicated loan market has followed the same trend as the rest of Western Europe and reached a total of US\$ 111 billion in 2006.⁴ The syndicated loan market has developed to be one of the most vital marketplaces for companies to secure their capital needs. Together with the bond market it makes up the debt capital market.

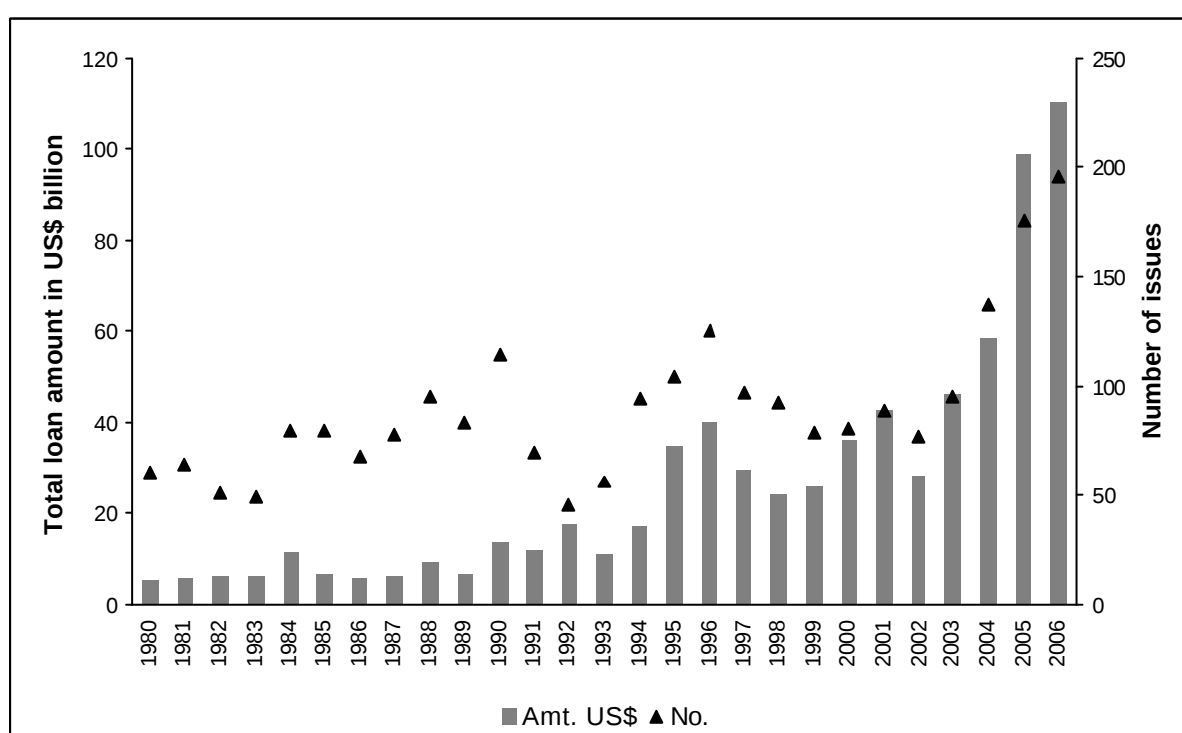


Figure 1. Development in the Nordic syndicated loan market. Source: Dealogic Loanware.

According to market participants, the European syndicated loan market differs from the U.S. market. The Nordic bank sector comprises many local banks and their market share is nearly 50 %.⁵ Many of the local banks have strong relationships to the large Nordic borrowers, e.g. SEB and Atlas Copco have worked together since 1995.⁶ A large number of international

¹ A loan is syndicated when several banks together raise the loan amount to a borrowing company.

² Dealogic Loanware.

³ In this paper, the Nordic region will be referred to as Denmark, Finland, Norway and Sweden. We exclude Iceland from our sample.

⁴ Dealogic Loanware.

⁵ Dealogic Loanware.

⁶ Dealogic Loanware.

banks are also active in the Nordic market. In comparison to the U.S. syndicated loan market, the Nordic market comprises more active arranging banks in relation to the number of borrowers tapping the market.⁷ The majority of the loans in the Nordic market are arranged by a group of local banks and the competition among these banks is fierce. Additional competition stems from the international players and the Nordic market is therefore considered to be very competitive. Furthermore, the price of loans differs between the European and U.S. markets. Syndicated corporate loan spreads are significantly smaller in Europe than in the U.S., holding everything else equal.⁸

Syndicated lending is often described as relationship business. Many prior studies have examined the benefits of relationship business from the borrower's point of view.⁹ The first study, to our knowledge, that investigated the benefits to the lending bank was recently carried out on the U.S. market.¹⁰ This study finds that lending banks increase the probability of attracting future lending business with nearly 40 percentage points if they have a prior loan relationship with the borrowing company. Further, the price margin is reduced by 5 percent if a loan relationship exists between the borrower and lender. No prior studies have focused on the Nordic market. Due to the increasing significance of the syndicated loan market in the Nordic region, it is interesting to further explore the advantages and disadvantages of relationship lending in this area. The aim of this paper is to investigate if banks benefit from investing in borrower relationships by arranging syndicated loans. The benefits will be tested in terms of pricing and the probability of winning future debt business.

Our results indicate that lending banks benefit in terms of pricing when arranging syndicated loans for their relationship borrowers. On average, a lending bank can extract an additional 5.59 basis points from its relationship borrower. Further, we find that a prior loan relationship with a borrower increases the probability of a bank arranging a syndicated loan with 20.43 percentage points. However, acting as an arranger on a prior syndicated loan does not significantly increase the probability of arranging a future bond issue. As a conclusion, active arranging banks on the Nordic syndicated loan market benefit from relationship investment but not to the same extent as in the U.S. market.

⁷ In the Nordic region, each arranging bank had on average 2.5 respectively 3 borrowers in 1990 and 2006. The same figure in the U.S. market was 6 borrowers in 1990 and 15 borrowers in 2006. Source: Dealogic Loanware.

⁸ Carey and Nini (2004).

⁹ E.g. Peterson and Rajan (1994) and Berger and Udell (1995).

¹⁰ Bharath et al. (2006).

The paper opens with Section 2 where previous research on syndicated loans and relationship lending is examined, the section ends with the hypotheses. Section 3 describes the data and the method of constructing the testing variables. Section 4 continues with model specifications and the empirical results. In Section 5 a discussion on the results is carried out and finally, in Section 6 conclusions are presented.

2 Theory and hypotheses

2.1 *Previous research*

The theory section is divided into three parts, commencing with a description of what a syndicated loan is. Thereafter, the effects that information asymmetries have on relationship lending are illustrated. The final part describes why syndicated lending can be characterized as relationship business.

2.1.1 What is a syndicated loan?

Syndicating a loan is primarily a way for the lending banks to manage risk.¹¹ A loan is more likely to be syndicated (i) if the borrower is more transparent, (ii) if the reputation of the arranger is higher, (iii) if the lending bank is capital constrained, and (iv) as the loan maturity increases.¹² In a syndicated loan, the loan documentation is the same for all participants. Since the same documentation is used, the lending banks will all hold identical seniority if financial distress occurs. From the bank's point of view, this eliminates the risk that another bank receives a better deal in terms of pricing and protection.¹³ From the borrower's point of view, the administrative work is reduced with a syndicated loan and it also facilitates renegotiation and restructuring of the loan.

The most basic structure of a syndicate involves two banks of which one is mandated to arrange the syndication. There can be many more participating banks and more than ten mandated arrangers, depending on e.g. the size of the loan. The mandated arrangers prepare information material, invite other banks to provide capital, and communicate with the borrower on behalf of all the participating capital providers. Additionally, the mandated arrangers usually provide a larger amount of capital than the other banks. One of the participating banks, most likely a mandated arranger, will act as the facility agent of the transaction with the responsibility to manage the loan during its lifetime.¹⁴ Mandated arrangers are often referred to as top-tier banks and their title in loan transactions is currently Mandated Lead Arranger (MLA).

The costs the borrower face on a syndicated loan is usually divided into two parts. First, a margin over e.g. Libor is paid throughout the loan's maturity and second, fees are paid

¹¹ Simons (1993).

¹² Dennis and Mullineaux (2000).

¹³ Rhodes (2006), p. 14.

¹⁴ Armstrong (2003).

upfront. Upfront fees exist for the bank to even out the bargaining power in case the borrower enters into strategic default. The basic set of fees the borrower pays are; (i) a participation fee to the participating banks which reflects their provided amount, (ii) an arrangement fee to the mandated arranger for its services, and (iii) an agency fee which is paid for the administrative work during the life time of the loan.¹⁵

The pricing of a syndicated loan is set at the same time as the structure and basic terms of the loan agreement are decided upon. Once a mandate is won by one or more banks, the final terms are negotiated with the borrower. Additional banks are thereafter invited on the basis of the pre-agreed terms and pricing.¹⁶ The syndication can fail due to negative response from the market, i.e. the borrower raises only a portion of the aimed amount. Under these circumstances, an inclusion of a marketflex clause enables the arranging bank to change terms, pricing and structure in order to succeed.¹⁷

2.1.2 Information asymmetry

If markets were perfect; loans would be correctly priced according to the risk, benefits from ancillary business would be correctly estimated, and funds would always be available for projects with a positive net present value. However, information asymmetries do exist between the borrower and lender and a perfect market is not the actual environment they act in. Large institutional lenders can reduce these asymmetries by gathering information about the borrower which later is used for credit approval and in the pricing process. Asymmetries can also be reduced if the lender has access to non-public information due to close ties between the borrower and lender or if the lender has the possibility to spread the cost of information production across several investment banking products, e.g. bond issues and equity offerings. Close repeated lending between the parties reduce the agency problem and the associated costs.¹⁸ This effect is stronger for the mandated arrangers as they have access to more information on the borrower than other participating banks. In addition, the mandated arrangers play an important role in screening and monitoring the borrowers and this role is more evident for smaller and less reputable borrowers. The mandated arrangers can act as guarantors for the borrower, signaling the correct risk of the company.¹⁹

¹⁵ Gorton and Khan (2000) and Rhodes (2006), p. 543.

¹⁶ Rhodes (2006), p. 199.

¹⁷ Rhodes (2006), p. 134.

¹⁸ Sharpe (1990), Diamond (1991), Rajan (1992) and Petersen and Rajan (1994).

¹⁹ Casolaro et al. (2003).

2.1.3 Syndicated lending – relationship business

There is no consistent definition on relationship business and in this paper the definition by Berger (1999) will be used as it is used by other researchers on the topic. The three following conditions must be fulfilled to label it relationship business:

- i) “The intermediary gathers information beyond readily available public information;
- ii) Information gathering takes place over time through multiple interactions with the borrower, often through the provision of multiple financial services;
- iii) The information remains confidential (proprietary).”²⁰

The mandated arrangers of a syndicate usually provide or underwrite²¹ a larger fraction of the loan facility and can be considered to build stronger relationships with the borrower than the low-tier members that merely are invited for risk sharing purposes. Additionally, only the mandated arrangers are engaged in information production on the borrower, which increases their knowledge of the firm.²² Syndicated loans therefore fulfill the first and the third criteria.²³ The second criterion is fulfilled when we attribute relationship status if subsequent transactions are carried out between the borrower and lender within a certain time period.

The intensified competition in the financial markets is claimed to discourage relationship investment, which in turn weakens the bank-borrower relationships.²⁴ The increased competition reduces the banks’ ability to obtain proper returns when they collect information in the early stage of a relationship.²⁵

2.2 Hypotheses

The hypotheses in this paper are mainly based on a previous study on the U.S. market.²⁶ Five hypotheses will be tested which examine the benefits of relationship investment for the lender in terms of pricing and ancillary business.

²⁰ Presented by Boot (2000), p. 10.

²¹ A promise by the lender to provide financing of a certain amount with the aim of providing the amount in the syndication phase.

²² Yasuda (2005).

²³ There exist exceptions for syndicated loans; e.g. investment funds participating in leveraged buyouts usually wish to keep an arms-length relationship with the borrowing company and not obtain insider information. These funds do not exist in our sample.

²⁴ Burch et al. (2005).

²⁵ Mayer (1988).

²⁶ Bharath et al. (2006).

2.2.1 Pricing

When a bank assesses the credit risk of a borrower, extensive information production is taken place. Both public and non-public information is gathered to correctly price the credit facility according to its risk. Researchers argue that “if there exist economies of scale in information-production, information is durable and not easily transferred, the theories presented by Leland and Pyle (1977) and others, would suggest that companies with close ties to financial institutions should have a lower cost of capital and greater availability of funds relative to a firm without such ties”.²⁷ Lenders can reuse the collected borrower specific information and lower the costs associated with the borrower’s financing. On average, the loan rate for comparable borrowers are 6-10 basis points lower for relationship lenders, suggesting that lenders are prepared to share some of the pricing benefits of relationship lending with their borrowers.²⁸

Staying with one bank during a long period of time can also have unwanted effects for the borrower. If the borrower chooses to transfer to another bank it has to begin the information exchange all over again to make it possible for the new lender to accurately price the risk. The current bank can “lock-in” the borrower and charge fees that are low in comparison to other banks but high compared to the true risk.²⁹ The effect loyalty has on pricing depends on whether or not the lender shares the cost savings associated with less information asymmetries with the borrower. Loyalty can therefore have contradicting outcomes.

The high competition in the Nordic loan market should render it difficult for lenders to exploit the cost advantages associated with relationship lending. Another lender might be prepared to share the cost benefits to win a loan mandate. It is therefore likely that a bank-borrower relationship will result in lower price margins. The first hypothesis to be tested is:

Hypothesis 1

The benefits of relationship lending are shared with the borrower and a strong bank-borrower relationship is therefore associated with a lower margin on loans.

Some borrowers have difficulties in signaling their business’ correct risk and it can become costly for them to raise capital. These borrowers have more to gain from using a relationship lender as arranger since the relationship lender correctly can estimate the risk and act as a guarantor for the borrower towards invited participants. Researchers argue that the arranging

²⁷ Petersen and Rajan (1994), p. 3.

²⁸ Bharath et al. (2006).

²⁹ Greenbaum et al. (1989), Sharpe (1990) and Degryse and Cayseele (2000).

bank can signal the correct risk by the stake it chooses to hold. Borrowers will then face lower price margins if the arranger holds a larger stake.³⁰ Lower margins are also suggested to be caused by adverse selection since the lender has an incentive to sell the lemons. Under these conditions a risk premium is paid to the participating banks if the arranger sells a larger stake of the loan. Thus if the arranger keeps a larger stake, the margin is reduced.³¹ Both arguments predict that borrowers who are informationally opaque³² benefit the most from relationship lending when the arranger holds a larger stake. However, the two arguments require that all participants ex ante know the amount the arranger holds. In practice, it is unlikely that the participants have this information when they make their investment decision. Therefore, we do not believe that the stake the arranger holds will have an impact on the margin.

Concluding, borrowers will pay lower margins if they use their relationship lender and the relationship's impact on the margin will be even higher for more informationally opaque borrowers. The second hypothesis to be tested is:

Hypothesis 2

The more informationally opaque a borrower is the more it benefits, in terms of margin, from using a relationship lender.

2.2.2 Ancillary business

Syndicated lending is described as relationship defining business. According to market practice, one of the main arguments why banks provide cheap financing is the ancillary business the bank can obtain from the borrower. An essential question is whether the bank actually receives additional business opportunities after arranging a syndicated loan.

As mentioned in Section 2.1.3, lending banks gather proprietary information about the borrower, which results in superior borrower information in comparison to other banks. This informational advantage leads to temporary monopoly power.³³ Asymmetric information between the borrower and lender make high-quality borrowers suffer as they have problems in signaling their correct risk to non-relationship banks and as a result; the borrowers will not be able to profit from the competition between the lending banks.³⁴ Several researchers have discussed the advantages to the borrower when using a relationship lender, e.g. lower

³⁰ Casolaro et al. (2003) and Ivashina (2005).

³¹ Ivashina (2005).

³² Information opacity here refers to non-transparent companies where the credit risk is difficult to assess.

³³ Kane and Malkiel (1965) and Fama (1985).

³⁴ Sharpe (1990).

administrative costs by using a smaller bank group³⁵ and the possibility of an easier renegotiation process if renegotiation is necessary.³⁶ Acting as an arranger on a syndicated loan should consequently increase the possibility of receiving additional investment banking product mandates. This should especially be true for winning future loan syndication mandates; not only does the bank already have non-public information about the general status of the borrower, but it also has specific knowledge regarding credit issues and other critical matters in the process of reaching an agreement. In contradiction to the prior argument, if borrowers benefit from relationship business and for risk managing purposes want to support a larger bank group, borrowers should choose a new bank for future mandates in order to increase its relationship bank group. However, we believe the effect to be larger for the first argument since the economies of scale from utilizing the same bank give a clear advantage. The borrower can reward other relationship banks with mandates for other investment banking products. The third hypothesis to be tested is:

Hypothesis 3

The stronger the bank-borrower relationship, the greater is the probability of a lender attracting future lending business from that borrower.

A prior lending relationship increases the possibility of winning future mandates in all investment banking products. This effect is positively correlated with the informationally opaqueness of the borrower.³⁷ As discussed in Section 2.1.2, a borrower that is informationally opaque has more to gain from using its relationship bank in a syndicated loan. The fourth hypothesis to be tested is:

Hypothesis 4

The more informationally opaque a borrower is, the greater the likelihood it will borrow from its relationship lender.

In addition to prior lending relationships' impact on receiving future lending business, prior relationships might influence the probability of a bank winning mandates in other product areas as well. Serving as an arranger of a past loan transaction has the strongest effect on a

³⁵ Klemperer and Padilla (1997).

³⁶ Rajan (1992).

³⁷ Bharath et al. (2006).

bank's likelihood of being chosen as underwriter on a future bond issue. The effect is even stronger for junk bond and first time issuers.³⁸ The fifth hypothesis to be tested is:

Hypothesis 5

The stronger the bank-borrower relationship, the greater is the probability of a lender attracting future mandates on bond issues from that borrower.

³⁸ Yasuda (2005).

3 Method

This section describes the method employed to obtain our results. In conformity with the hypotheses, the method in this paper is primarily based on the study on the U.S. market.³⁹ The section is divided into three parts, commencing with a description of the data and sample selection. Thereafter, the method for constructing the relationship measures is demonstrated. Finally, the factors affecting relationships which need to be controlled for are examined. A more detailed description of the construction of the variables and adjustments to the dataset are presented in Appendix A.

3.1 Data and sample selection

3.1.1 Source of data

To test the hypotheses three primary data sources are used; Dealogic Loanware and Dealogic Bondware as well as Thomson DataStream. Dealogic provides the transaction information for loan and bond issues. Thomson DataStream provides accounting data and exchange rates which are needed for the construction of borrower related measures. Transactions with financial institutional borrowers and public sector companies have been excluded from the sample as they have different characteristics in comparison to regular private sector companies.

For transaction information, the prior U.S. study uses Loan Price Corporation Dealscan (LPC) and Securities Data Company (SDC), accounting data is collected from a merged CRSP and COMPUSTAT database. The benefit of using Dealogic's databases is that the same terminology is used which reduces the probability of errors when defining the test variables. A reason the U.S. study's authors give for using the LPC database is its increasing use by researchers examining bank loans. However, when banks and EuroWeek⁴⁰ create their ranking league tables which are used for marketing, Dealogic's databases are more widely used. Therefore, banks most likely have greater incentives to provide Dealogic rather than LPC with transaction related information and Dealogic therefore offers more complete information.

³⁹ Bharath et al. (2006).

⁴⁰ EuroWeek is a financial magazine which lists the top ranked banks. The rankings are provided on a weekly up to a yearly basis. There are different types of league tables; product oriented for e.g. loan, bond or equity underwriting, geographical oriented, as well as industry oriented.

3.1.2 Sample period and data limitation

The sample period begins in January 1983 and ends in November 2006. The relationship variables' look-back period is the five years prior to the current facility issue (the reason for using five years is described in Section 3.2). If the regressions are run with data starting in 1983 the early relationships will be neglected and the results will be biased. In order to solve this problem, the regressions will begin with the transactions in year 1988. This implies that every observation from 1988 and onwards has prior transactions that identifies all existing relationships.

Observations lacking information regarding signing date, facility amount as well as MLA or Bookrunners⁴¹ are excluded. Excluding transactions without complete information reduces the sample size from 2,003 to 1,962 loan transactions. The bond sample is complete and contains of 1,090 transactions. There are numerous active banks in the Nordic market and including all of them in our sample would imply much work with limited added value. To obtain a more manageable dataset we create a bank universe which includes the 20 largest banks each year. Transactions without a top 20 bank as MLA or Bookrunner are excluded from the sample. As a result, the data sample contains 1,614 loan transactions and 1,062 bond transactions. When the regressions are run from 1988 and onwards, the sample size reduces to 1,214 loan transactions and 745 bond transactions. When testing the pricing effects in hypotheses 1 and 2, transactions lacking price margin and borrower accounting data are excluded and the sample size for these two hypotheses reduces to a total of 329 observations.

3.2 Relationship measures

A crucial part of the method is to construct the relationship measures. The relationship measures aim at confirming whether a relationship between the borrower and the lender exists as well as at estimating the strength of that relationship. In previous research several approaches to estimate strength have been applied. One widely used method is to focus on the length of the bank-borrower relationship as a proxy for strength.⁴² The lender's share in a firm's external financing and the length of a relationship are difficult to measure and in this paper relationship strength will be estimated as in the U.S. market study.

A relationship will be accounted for up to five years in the future. Five years is chosen because the average maturity for a loan in the sample is 5.7 years and many loans are

⁴¹ For the purpose of this paper, when a bank arranges a bond issue the term Bookrunner is the equivalent to the loan market's Mandated lead arranger since both roles involve close relationships with the borrower.

⁴² Bharath et al. (2006).

refinanced one year before maturity in order to avoid liquidity problems. The data is collected from Dealogic Loanware and Dealogic Bondware. As described in Appendix A.3, mergers and acquisitions will affect the relationship variables since relations are inherited by the post-merger or acquiring entity. When constructing the relationship variables, merger and acquisition activity in both the bank sector and the corporate sector is controlled for.

3.2.1 Same market relationship

Three different measures of relationship strength in the loan market are created, $\text{LOANREL}(M)^{\text{Loans}}$, where M stands for one of the three alternative measures. The first measure, $\text{LOANREL}(\text{Dummy})^{\text{Loans}}$, is a binary variable acknowledging whether a past relation between bank m and borrower i exists or not. A dummy is created, which takes the value of 1 if bank m was the MLA on a previous loan issue by borrower i in the preceding five years and 0 otherwise. The other two measures, $\text{LOANREL}(\text{Number})^{\text{Loans}}$ and $\text{LOANREL}(\text{Amount})^{\text{Loans}}$ respectively, control for the number of times a bank has been chosen as MLA and which amount the same bank has provided in the five years prior to the current transaction. Preferably, the actual amount each bank has contributed with should be used when constructing the relationship variables. However, one limitation with the data in Dealogic is the lack of information on the amount each MLA has provided in the facility. This has also been a limitation in the U.S. study even though it uses the LPC database. To overcome this problem it is assumed that all MLAs provide an equal share of the total facility amount. When a bank is the sole MLA it gets full credit and if there are several MLAs each bank gets $1/N$ share of the facility amount, where N is the number of MLAs. The same market relationships also exist in the bond market and the variables $\text{BONDREL}(M)^{\text{Bonds}}$ are created in the same way as in the loan market described above.

3.2.2 Cross market relationship

The relationship variables in the cross market perspective are slightly different to the same market relationship variables. The variable $\text{LOANREL}(M)^{\text{Bonds}}$ examines prior lending relationships for a current bond issuer. If bank m is the Bookrunner on issuer i 's bond issue and i has a prior lending relationship with bank m the preceding five years, the dummy variable $\text{LOANREL}(\text{Dummy})^{\text{Bonds}}$ takes the value of 1 and 0 otherwise. The two relationship strength measures, $\text{LOANREL}(\text{Amount})^{\text{Bonds}}$ and $\text{LOANREL}(\text{Number})^{\text{Bonds}}$, are also created. For complementary information on how the relationship variables are created, see each hypothesis in Appendix B.

3.3 Lender characteristics

Lender reputation plays an important role for the borrower to signal its correct risk. More reputable arrangers are able to sell off larger portions of syndicated loans.⁴³ Consequently, lenders with high reputation should be more likely to be mandated to arrange a syndicated loan. It can therefore be assumed that lender reputation is an important factor affecting the borrower's choice of lender. Reputation is difficult to measure and the lender's market share is often used as a proxy, which we will use in this paper as well.⁴⁴ The same characteristic is needed for Bookrunners on bond issues and it is assumed that the underwriter's market share can be used as proxy for reputation in the bond market as well. The data for constructing the market share variables is collected from Dealogic Loanware and Dealogic Bondware. For a more detailed description on the construction of lender reputation, see Appendix A.6.

3.4 Borrower characteristics

The borrower characteristics are needed to measure the information opacity of the borrower, which affects the probability of the borrower using its relationship bank as well as how lenders price risk. Since the lenders use the borrowers' accounting information when they make their investment decision, it must be ensured that the accounting data is publicly available at the time of the decision. Therefore, the prior calendar year's accounting information is used for each observation. The accounting data is collected from Thomson DataStream and thereafter matched with each transaction. A further description on the borrower's accounting data is presented in Appendix A.7.

3.4.1 Size

One proxy for information opacity is the size of the borrowing company. It is reasonable to assume that larger borrowers have more publicly available information which enables the lender to more accurately price the risk. Borrower size will be controlled for in hypotheses 2 and 4. The borrower size is calculated as the book value of assets and the data is provided by Thomson DataStream.

3.4.2 Credit rating

Borrower credit ratings are also used as a proxy for the information opacity of the borrower. The credit rating measures the borrower's underlying credit quality. When the borrowers in

⁴³ Dennis and Mullineaux (2000) and Lee and Mullineaux (2004).

⁴⁴ Megginson and Weiss (1991).

our sample have credit ratings, the long term unsecured rating has been used. Occasionally, the rating agencies Moody's and Standard & Poor give the same borrower different credit ratings. If a borrower is rated by only one of them, that rating is used. If a borrower is investment grade⁴⁵ rated by one of the rating agencies and below investment grade rated by the other, we assign the borrower investment grade status. Two different dummy variables are created. First, the dummy NOT RATED is created and it takes the value of 1 if the borrower is unrated at the time of the transaction and 0 otherwise. Secondly, we also test the effect of information opacity on a subsample and therefore create the dummy variable INV GRADE which takes the value of 1 if the borrower is investment grade rated and 0 otherwise. Data on the borrower's credit rating at the time of signing of the facility is provided by Dealogic Loanware.

3.4.3 Industry

Differences across the borrowers' industries will affect the risk of the business as well as the availability of credit. This in turn affects pricing and the probability of relationships between lenders and borrowers. These differences need to be controlled for to gain accurate results and an industry dummy is therefore included. The industry information provided by Dealogic Loanware and Dealogic Bondware at the time of the transaction is used. 43 different industries⁴⁶ are represented in our sample.

3.4.4 Other accounting measures

For the hypotheses on pricing effects, additional accounting data is needed to control for e.g. earnings and debt ratios which determine the borrower's risk and ability to pay the running interests. The data is collected from Thomson DataStream.

3.5 Facility characteristics

Depending on the features of the facility, differences in risk will affect the pricing of the loan and sometimes also the occurrence of relationships. In this part, we describe the facility

⁴⁵ In Standard & Poor's rating scale, a borrower has investment grade status if the rating is BBB- or higher.

⁴⁶ The 43 borrower industries are: aerospace/defence, agribusiness, cement/aggregates/building, airline, airport, automotive, broadcasting, brewing/distilling, chemicals/plastics/rubber, telecommunications, construction/heavy engineering, credit enhancement, computer/software, cable TV, education, electronics/electrical, electricity/energy utility, engineering, fertilizers/phosphates, foodstuffs/drink/tobacco, forest products/packaging, financial services - other, healthcare/pharmaceuticals, hotels/leisure, investment company, holding companies/conglomerate, insurance, leasing/consumer finance, manufacturing, mining/natural resources, oil/gas, printing/publishing/media, property, real estate investment trust, retailing/distribution, steel/aluminium, services, shipping, telecom equipment, textiles/clothing, transportation, trading, and vehicle manufacturer.

characteristics that need to be controlled for. The data regarding facility characteristics is provided by Dealogic Loanware and Dealogic Bondware.

3.5.1 Loan size

The loan amount has a negative relationship with the pricing of the facility.⁴⁷ This can be derived from the economies of scale in monitoring. Empirical evidence suggests that the lender's cost of monitoring a loan is the same, regardless of the loan amount.⁴⁸ Another point of view is that large loans typically are granted to larger borrowers which usually have lower risk of default, stronger bargaining power and more transparent financial position which therefore reduce the price margin.⁴⁹ This indicates that it is more likely that the underlying conditions result in the negative relationship and not the actual loan amount. If borrower size is controlled for, the loan amount should be positively correlated with the price for two reasons; a larger loan amount (i) increases the gearing of the company and therefore also the risk and (ii) as the amount increases so does the probability of the lenders taking larger tickets⁵⁰ which increases exposure and risk.

3.5.2 Pricing

The price margin will be used to test pricing effects on relationships due to the increasing hesitation of banks and borrowers to disclose information on fees. A limitation with excluding the fees is that banks and borrowers occasionally increase the upfront fee in order to reduce the margin. This is only a cosmetic procedure and valuable pricing information is therefore lost. However, we believe the effect on the results to be of negligible significance as the upfront fee is approximately proportional to the margin.

3.5.3 Maturity

Uncertainty increases with time and therefore also with the maturity of the loan. Uncertainty together with time value of money suggest that loans with longer maturity should be priced higher, holding everything else equal. High risk firms prefer longer maturity facilities in order to reduce refinancing risk.⁵¹ This finding would in turn lead to further rises in the pricing of long term loans.⁵²

⁴⁷ Bharath et al. (2006).

⁴⁸ Booth (1992).

⁴⁹ Casolaro et al. (2003).

⁵⁰ The amount each lender commits to lend.

⁵¹ Diamond (1991).

⁵² Casolaro et al. (2003).

3.5.4 Loan purpose

The purpose of the loan, i.e. what the borrower intends to use the loan amount for, will affect the level of risk lenders face. The main loan purpose, as reported by Dealogic Loanware, will be used as a control variable. A dummy is created for each of the various loan purposes and takes the value of 1 if the loan has *P* as the stated purpose and 0 otherwise. Fifteen different loan purposes⁵³ are present in our sample.

3.5.5 Instrument type

Different instrument types are associated with different risks and capital requirements for the lenders. In this paper, the loan instrument types have been divided into three categories; term loan, revolving credit facility and miscellaneous. Term loans and revolving credit facilities are the foundation of the market and the most common instruments.⁵⁴ Since syndicated loans can include many different instrument types and to control for all of them would make the number of variables immeasurable, instruments other than term loan and revolving credit are categorized miscellaneous. Given that Dealogic Loanware also uses this distinction, the categorization can be assumed to be in accordance with market practice. The control variable is a dummy that takes the value of 1 if the instrument type is *I* and 0 otherwise. Further explanation of the different instrument types is presented in Appendix A.1.

3.5.6 Tranching

Syndicated loans can be split into several parts, so called tranches. Tranches may differ in terms of currency, maturity, price margin and loan instrument type.⁵⁵ Tranching is found to add value due to market incompleteness which gives large borrowers the possibility to increase price discrimination in order to reach more lending markets. Loans that include several tranches are priced lower after accounting for risk.⁵⁶ To control for tranching effects, a dummy variable is created and takes the value of 1 if the loan includes tranches and 0 otherwise.

⁵³ The fifteen loan purposes are: acquisition, acquisition line, aircraft financing, debt repayment, general corporate, leverage buyout/management buyout, project finance, property financing, recapitalization, receivable backed finance, refinancing, shipping, spin-off, standby/commercial paper support, trade finance, and working capital.

⁵⁴ Rhodes (2006), p. 16.

⁵⁵ Rhodes (2005), p. 569.

⁵⁶ Maskara (2006).

3.5.7 Covenants and collaterals

Covenants and collaterals give the lender protection if the borrower's credit quality deteriorates or if the borrower defaults. Covenants are extra terms and conditions aside the original loan documentation that restrict the borrower's free actions in specific areas, e.g. how much additional financial or operational risk it can take on. Everything else equal, including covenants decrease the price margin of a loan.⁵⁷ Collaterals are more likely to exist if the borrower has a higher probability of financial distress.⁵⁸ Loans that have collaterals are also less likely to be syndicated. The motive might be that covenants signal a higher degree of opaqueness and a higher probability of financial distress or alternatively, a lack of relationship between the borrower and the arranging bank.⁵⁹ The existence of collaterals reduces the price margin, holding everything else is equal.⁶⁰ For the above reasons, the existence of covenants and collaterals is seldom disclosed in the borrower's press release of the loan transaction. Due to the lack of information whether covenants and collaterals exist we will not be able to control for their effects. The U.S. study does not mention covenants and collaterals' impact on the results.

3.6 Other control measures

There exist several other factors which affect pricing as well as relationships between lenders and borrowers. Location, market liquidity and year will be controlled for in our models.

3.6.1 Location

A location dummy controls for unobservable characteristics that cause the borrower and lender to cooperate initially and when the borrower seeks subsequent loans or other investment banking services.⁶¹ The dummy takes the value of 1 if the lender and the borrower are headquartered in the same country and 0 otherwise. Location data is collected from the transaction information in Dealogic Loanware and Dealogic Bondware. Adjustments to the location dummy are described in Appendix A.8.

⁵⁷ Bradley and Roberts (2004).

⁵⁸ Rajan and Winton (1995).

⁵⁹ Dennis and Mullineaux (2000).

⁶⁰ Benmelech and Bergman (2007).

⁶¹ Bharath et al. (2006).

3.6.2 Market liquidity

A limitation with the U.S. market study is the lack of control for market movements over time. A more liquid loan market prior to a transaction increases the competition for investment opportunities and the amount that can be raised. This, in turn, affects the pricing of the facility. We therefore include the market liquidity as a control variable. Since the market liquidity affects the coming transactions, the previous quarter's liquidity will be the control variable for each observation. Market liquidity is measured by the previous quarter's total volume of signed syndicated loans in the Nordic market. For the bond sample, the previous quarter's total volume of bond issues is used as the proxy for liquidity. The data is collected from Dealogic Loanware and Dealogic Bondware.

3.6.3 Year

In order to control for variables such as policies and laws that are year specific and can affect our results, a dummy variable for each year is created.

4 Empirical results

In this section our results are presented. A more detailed description of each hypothesis' regression variables is available in Appendix B and the regression results are presented in Appendix C.

4.1 Hypothesis 1

The benefits of relationship lending are shared with the borrower and a strong bank-borrower relationship is therefore associated with a lower margin on loans.

Assuming that information is durable and not easily transferred relationship banks should have a lower cost of capital. If the lender chooses to share these cost savings with the borrower, relationship borrowers should face a lower pricing. Due to the high competition in the Nordic region we assume that lenders can not win loan mandates if they refuse to share these cost advantages. Hence, the existence of relationships is assumed to result in lower margins for the borrower. From the total of 1,214 loan transactions, 329 transactions have the borrower's accounting data. The sample size for testing hypothesis 1 is 329.

The following multivariate regression model is estimated:

$$\begin{aligned} MARGIN = & b_0 + b_1(LOANREL(M)^{Loans}) + b_2(BORROWER_CHARACTERISTICS)_i \\ & + b_3(FACILITY_CHARACTERISTICS)_j + \sum b_K(CONTROL_K) \end{aligned}$$

In this regression we only include the unique transactions but a problem arises when several MLAs exists with different values of relationship strength. Only the strongest relationship measure is used, i.e. for each relationship variable we assign the transaction with the highest value of relationship strength.

The results from the regression are presented in Table 4. The relationship dummy coefficient is positive at 5.59 but not statistically significant. The not significant coefficient is not unexpected due to the small sample size. The coefficient measures the impact on the margin in basis points. This means that the existence of a relationship increases the price margin by 5.59 basis points. Since the sample's median price margin is 35.00 basis points, the effect on the price margin is economically significant. The coefficients for the two measures of relationship strength are 2.21 and 3.24 for relationship amount respectively number of

relationships, both positive but not statistically significant. Even though the results for the relationship variables are not statistically significant they are all positive.

4.2 Hypothesis 2

The more informationally opaque a borrower is the more it benefits, in terms of margin, from a relationship with a high reputation lender.

Borrowers that are informationally opaque should according to theory have more to gain from using a relationship bank as a larger degree of information production is necessary in order to correctly assess the risk of an informationally opaque borrower. This would increase the pricing effect described in hypothesis 1. By using both borrower size and credit rating as proxies for information opacity we should be able to draw more reliable conclusions from the results.

4.2.1 The effect of borrower size

All companies in the sample have been divided into size terciles based on their book value of assets. The small sized borrowers are the base case. The control variables MIDDLE and BIG are created for middle sized and large sized borrowers respectively. Interaction variables between the size terciles and the relationship measures have been created to capture the effect information opacity has on relationships. These variables are expected to have negative coefficients, with the largest discount for the least informationally opaque borrowers. As for hypothesis 1, the sample size for testing hypothesis 2 is 329.

The following regression model is estimated:

$$\begin{aligned} MARGIN = & b_0 + b_1(LOANREL(M)^{Loans}) + b_2(BORROWER_CHARACTERISTICS)_i \\ & + b_3(FACILITY_CHARACTERISTICS)_j + b_4(MIDDLE) + b_5(BIG) \\ & + b_6(MIDDLE \times LOANREL(M)^{Loans}_m) + b_7(BIG \times LOANREL(M)^{Loans}_m) \\ & + \sum b_K(CONTROL_K) \end{aligned}$$

The results from the regression are presented in Table 5, Panel A. For small sized borrowers, the relationship dummy coefficient is 1.75, positive but not statistically significant which is not surprising considering the small sample size. If the borrower falls into the middle size tercile the price margin increases with 4.99 basis points and for large sized borrowers the increase is 7.76 basis points, holding everything else constant. Comparing the results for the

dummy relationship variable with the regression with the number of relationships variable, $LOANREL(Quantity)^{Loan}$; the relationship and interaction variables have the same sign and are similar in size and significance level. However, the regression with the relationship amount variable, $LOANREL(Amount)^{Loan}$, provide coefficients of the relationship and interaction variables that are of less significance and considerably different magnitude; small sized borrowers have a relationship coefficient of 9.87 with an increase of 0.64 basis points for middle sized borrowers and a considerable decrease of 10.49 basis points for large sized borrowers.

4.2.2 The effect of credit rating

Credit ratings are supposed to be an all over assessment of the borrower's credit quality. If the borrower is unrated the lender needs to generate and process a larger amount of information. Relationship banks should have the advantage in this situation as they already have collected at least a large part of the necessary information. Borrowers should be more likely to turn to their relationship banks if they are unrated since it is more likely that the relationship bank shares the cost advantages associated with information production. The sample size for testing the credit rating's effect on pricing is 329.

The following regression model is estimated:

$$\begin{aligned} MARGIN = & b_0 + b_1(LOANREL(M)^{Loans}) + b_2(BORROWER_CHARACTERISTICS)_i \\ & + b_3(FACILITY_CHARACTERISTICS)_j + b_4(NOT_RATED) \\ & + b_5(NOT_RATED \times LOANREL(M)_m^{Loans}) + \sum b_k(CONTROL_k) \end{aligned}$$

The results from the regression are presented in Table 5, Panel B. The results suggest that lending to a relationship borrower with a credit rating, reduces the price margin on average by 6.4 basis points, holding everything else constant. However, if the borrower is unrated the relationship lender can extract a price margin of an additional 17 basis points. The difference between rated and unrated borrowers increases when the regressions are run with the two relationship strength measures, the signs of the coefficients are still the same.

4.3 Hypothesis 3

The stronger the bank-borrower relationship, the greater is the probability of a lender attracting future lending business from that borrower.

Since a bank with a prior lending relationship already has been engaged in information production of the borrower, the relationship bank is closer to the borrower and has a higher understanding of its specific risks. The relationship bank should therefore have an advantage over other lenders in winning new lending mandates. Hypothesis 3 aims at testing if the information advantage of a previous relationship results in new mandates.

As mentioned in Section 3.3, previous research indicates that there is a positive relationship between the bank's reputation and its ability to sell loans. Thus the lender's market share is expected to have a positive impact on the lender's probability of winning a future mandate. The location variable is included to control for factors that affect the existence of a relationship in the first place, such as the distance between the lender and the borrower as well as cultural similarity. Being headquartered in the same country should increase the probability of being retained as the mandated arranger. The data set for running hypothesis 3 contains the full sample of 29,200 loan-bank pairs.⁶²

The following logit model is specified:

$$(CHOSEN)_m = b_0 + b_1(LOANREL(M)_m^{Loans}) + b_2(LOAN_MKT_SHARE)_m + b_3(LOCATION)_m + \sum b_k(CONTROL)_k$$

The results from the regression are presented in Table 6. The coefficient of the $LOANREL(Dummy)^{Loans}$ is 2.03 and statistically significant at the one percent level. In the bottom of Table 6, the economic impact of lending relationships is examined. By using the coefficients presented in column (1), the probability of being chosen if no past lending relationship exists ($LOANREL(Dummy)^{Loans} = 0$) is 4.09 %, holding all other variables equal to their mean.⁶³ If a past lending relationship exists ($LOANREL(Dummy)^{Loans} = 1$) the probability of being retained as mandated arranger increases by 20.43 percentage points to 24.52 %, holding all other variables equal to their mean. All the relationship variables are significant at the one percent level. The variables are not only significant at a statistical level but also at an economical level.

⁶² For a detailed description of the construction of the choice set and the loan-bank pairs, see Appendix A.4.

⁶³ Formula for probability calculation:

$$\Pr(Y = 1 | X_1, X_2, \dots, X_k) = F(b_0 + b_1 X_1 + b_2 X_2 + \dots + b_k X_k) = \frac{1}{1 + e^{-(b_0 + b_1 X_1 + b_2 X_2 + \dots + b_k X_k)}},$$

where X is the sample mean.

If the lender and the borrower originate from the same country (LOCATION = 1) the probability of winning a future mandate increases with 13.90 percentage points (from 3.96 % to 17.86 %), holding all other variables equal to their mean. Surprisingly, if the lender's market share increases from 1 % to 21 %, ⁶⁴ the probability of winning a mandate increases with only 0.78 % (from 4.57 % to 5.35 %), holding all other variables equal to their mean. The market share coefficient of 6.40 is significant at the one percent level but can hardly be said to have an economic impact.

The coefficients for the relationship strength variables $\text{LOANREL}(\text{Amount})^{\text{Loans}}$ and $\text{LOANREL}(\text{Number})^{\text{Loans}}$ are 4.27 and 2.95 respectively. Both are positive and statistically significant at the one percent level.

4.4 Hypothesis 4

The more informationally opaque a borrower is, the greater the likelihood it will borrow from its relationship lender.

As mentioned, some borrowers have difficulties in signaling their business' correct risk and borrowers that are informationally opaque benefit more from relationship lending. To test hypothesis 4, two different proxies to measure information opaqueness are used; borrower size and borrower credit rating.

4.4.1 The effect of borrower size

Smaller sized borrowers are usually not followed by the capital market analysts and public information is difficult for the lender to obtain. It is therefore reasonable to assume that smaller borrowers will rely more on a relationship lender with existing borrower information. Furthermore, the probability of lenders securing future lending mandates with the same borrower decreases with borrower size.

To examine the lending relationship effects over the different borrower sizes we divide our sample into three size terciles based on the book value of assets and create dummy variables for each size tercile. If the borrower falls into the middle sized tercile the dummy variable MIDDLE takes the value of 1 and 0 otherwise. If the borrower falls into the big sized tercile the dummy variable BIG takes the value of 1 and 0 otherwise. Two interaction variables are included to capture the relation effects between borrower size and the relationship variables.

⁶⁴ The market shares of 1% and 21 % are used since these are on average the lowest respectively the highest market shares of the lenders in the top 20 ranking.

Not all borrowers in the sample have accounting information on borrower assets and the original sample of 29,200 loan-bank pairs is reduced to 13,049.

The following modified logit model is estimated:

$$\begin{aligned}
(CHOSEN)_m = & b_0 + b_1(LOANREL(M)_m^{Loans}) + b_2(LOAN_MKT_SHARE)_m \\
& + b_3(LOCATION)_m + b_4(MIDDLE) + b_5(BIG) \\
& + b_6(MIDDLE \times LOAN_REL(M)_m^{Loans}) + b_7(BIG \times LOAN_REL(M)_m^{Loans}) \\
& + \sum b_K(CONTROL_K)
\end{aligned}$$

The results from the regression of the borrower size effect on the probability of winning future lending mandates are presented in Table 7, Panel A. The coefficient of the $LOANREL(Dummy)^{Loans}$ variable for small sized borrowers is 2.75 and statistically significant at the one percent level. It reduces to 1.98 for the middle sized borrowers and to 1.76 for the big tercile, still statistically significant at the one percent level. These results are also captured by the interaction terms that both have negative coefficients and are significant at the one percent level. The impact of past lending relationships on the probability of being chosen as the MLA on a current loan issue is estimated by each size tercile. With some modification we use the same probability formula as described in hypothesis 3 and base the calculations on the coefficients reported in column (1). For the small sized borrowers, we keep the other size variables equal to zero and hold all other variables equal to their mean. The probability of being chosen by a small sized borrower if no past lending relationship exists ($LOANREL(Dummy)^{Loans} = 0$) is 3.48 %. If a past lending relationship exists ($LOANREL(Dummy)^{Loans} = 1$), the probability increases to 35.99 %, a 32.5 percentage points increase. Examining the impact on the probability for the middle sized borrowers we set the MIDDLE and middle interaction variables equal to one and the other size variables equal to 0. Holding all other variables equal to their mean, the probability of being chosen by a middle sized borrower if no past lending relationship exists is 2.31 %. When a past lending relationship exists the probability increases by 24.62 percentage points to 26.93 %. The corresponding probabilities for big sized borrowers is 2.17 % and 25.64 % respectively; a 23.47 percentage points increase.

4.4.2 The effect of credit rating

The second proxy for information opacity is the borrower's credit rating. As for smaller sized borrowers, borrowers without credit rating have difficulties to offer public information on their underlying credit quality and they are therefore more likely to turn to relationship lenders to secure new capital. The sample for this hypothesis includes all observations and to distinguish rated borrowers from unrated, we use the NOT RATED dummy as well as an interaction variable between NOT RATED and the three different relationship measures to capture relationship impacts.

The following logit model is estimated:

$$\begin{aligned} (CHOSEN)_m = & b_0 + b_1(LOANREL(M)_m^{Loans}) + b_2(LOAN_MKT_SHARE)_m \\ & + b_3(LOCATION)_m + b_4(NOT_RATED) \\ & + b_5(NOT_RATED \times LOAN_REL(M)_m^{Loans}) + \sum b_K(CONTROL_K) \end{aligned}$$

We also want to examine the impact on the probability of being retained as the MLA if the borrower is investment grade rated. A subsample is created with only those borrowers with a credit rating. This subsample contains of 4,409 loan-bank pairs of which 599 are investment grade rated. Again, an interaction term between the dummy INV GRADE and the relationship measures is created.

The following logit model is estimated:

$$\begin{aligned} (CHOSEN)_m = & b_0 + b_1(LOANREL(M)_m^{Loans}) + b_2(LOAN_MKT_SHARE)_m \\ & + b_3(LOCATION)_m + b_4(INV_GRADE) \\ & + b_5(INV_GRADE \times LOAN_REL(M)_m^{Loans}) + \sum b_K(CONTROL_K) \end{aligned}$$

The results from the two regressions are presented in Table 7, Panel B and Panel C respectively. For the original sample with rated and unrated borrowers, the coefficient for $LOANREL(Dummy)^{Loans}$ is 1.56 for rated borrowers and 2.19 for unrated borrowers. Both are statistically significant at the one percent level. In the bottom of each Panel, the economic impact of the existence of past lending relationships is examined. For unrated borrowers, the probability of being chosen as the MLA increases by 19.78 percentage points (from 7.18 % to 26.95 %) if a past lending relationship exists. For the rated borrowers who are less

informationally opaque, the probability of being chosen as the MLA if a past lending relationship exists, increases by only 14.28 percentage points (from 4.67 % to 18.95 %).

The subsample with only rated borrowers gives contradicting results. The $LOANREL(Dummy)^{Loans}$ coefficient is 1.57 and statistically significant at the one percent level for non-investment grade rated borrowers. However, the interaction term between the relationship variable and the investment grade dummy is not significant, which is expected due to the small sample size. For non-investment grade rated borrowers the economic impact of being retained as the MLA is a 12.22 percentage points increase (from 3.83 % to 16.04 %) in the probability if a past lending relationship exists. For investment grade rated borrowers the increase is no less than 18.22 percentage points increase (from 6.35 % to 24.56 %).

4.5 Hypothesis 5

The stronger the bank-borrower relationship, the greater is the probability of a lender attracting future mandates on bond issues from that borrower.

The information and trust advantage a relationship lender usually has should not only be beneficial when winning future syndicated loan mandates but also for mandates on other investment banking products. Hypothesis 5 tests if empirical support exists. As mentioned in Section 2.2.2, the effect of past lending mandates on winning future bond underwriting mandates is even stronger for junk bond and first time issuers. However, we are not able to control for these types of issuers as we lack data on this.

For the bond sample we include two dummy variables to measure the reputation of the Bookrunners. The dummy variable TOP TIER takes the value of 1 if the Bookrunner is ranked top three in the bond market the year prior to the bond issue and 0 otherwise.⁶⁵ The dummy variable MID TIER takes the value of 1 if the Bookrunner is ranked 4th to 8th in the bond market the year prior to the bond issue and 0 otherwise. These Bookrunner reputation variables are expected to have the same effect as the MLAs' reputation in the loan market, i.e. a positive relationship with the probability of winning future bond mandates. The sample size in this regression is 17,005 bond-bank pairs. The adjustments to the original bond and loan data set are described in Appendix A.4.

⁶⁵ The rankings are collected from our merger and acquisition adjusted league tables.

The following logit model is specified:

$$\begin{aligned} (RETAIN)_m = & b_0 + b_1(LOAN_REL(M)_m^{Bonds}) + b_2(BOND_REL(M)_m^{Bonds}) \\ & + b_3(TOP_TIER)_m + b_4(MID_TIER)_m + b_5(LOCATION)_m \\ & + \sum b_K(CONTROL_K) \end{aligned}$$

The regression results are presented in Table 8. The coefficients of $LOANREL(Dummy)^{Bonds}$ and $BONDREL(Dummy)^{Bonds}$ is 0.46 and 1.32 respectively and both are statistically significant at the one percent level. Examining the economic impact, relationships do not have the same impact on winning bond mandates as they had on loans. A prior loan relationship increases the probability of winning a future bond mandate with only 1.73 percentage points (from 3.10 % to 4.83 %), holding all other variables equal to their mean. A prior bond relationship increases the probability by 6.51 percentage points (from 2.63 % to 9.14 %), holding all other variables equal to their mean.

A top tier bookrunner has a mere 2.96 percentage point increase (from 2.85 % to 5.81 %) in the probability of winning a bond mandate compared to a low tier bookrunner (ranked 9th and lower). For a mid tier bookrunner the increase in probability is even lower at 0.53 percentage points (from 3.06 % to 3.59 %).

The model reports a pseudo R^2 of merely 0.10. There are apparently important variables missing in order for the model to explain why a bank is retained, assuming that it is not a purely random process.

5 Discussion

This section provides a deeper discussion of the results. The section is divided into two parts; first the results from relationships' effect on pricing are discussed and thereafter the effect on ancillary business is reviewed. Each part discusses trends and patterns in our results, possible causes, as well as the consistency with theory.

5.1 Pricing

Hypothesis 1 and 2 testing the pricing effects of relationship investment were both rejected. Our results imply that lenders can charge a higher price from their relationship borrowers. The exception is rated borrowers, who pay a lower margin if they use their relationship bank. Furthermore, lenders can exert higher margins the larger the borrower is.

The results imply that it is generally more expensive for the borrower to use a relationship lender; even though the relationship lender is likely to have superior borrower information and the capability to share the associated cost advantages. The tests with the two measures of information opacity provide contradicting results. This makes it difficult to interpret information opacity's effect on the relationship and the final outcome on pricing.

In contrast to the prior study on the U.S. market, where the lenders share cost advantages with their relationship borrowers, a lock-in effect is apparent in our study. Strong relationships in the Nordic market might create high barriers for a non-relationship lender to enter the borrower's bank group. Non-relationship lenders might be forced to offer the borrowers very competitive price margins in order to win loan mandates. This implies that it is not the relationship lenders who are unwilling to share the cost advantages but rather the non-relationship banks that dump prices in order to enter the market. The high margins could also depend on that borrowers on the Nordic market receive additional benefits from their relationship banks, such as access to capital, and that they are willing to pay for this. The contradicting results from testing for information opacity's effect on pricing might depend on that one of the measures is more suitable in measuring information opacity in our sample.

In accordance with theory, lenders are able to lock-in their relationship borrowers and also charge higher margins when the borrower is unrated. The high competition on the Nordic market has not had the intuitive effect of diminishing prices. In addition, contrary to what we expected, lenders exert higher margins the larger the borrower is.

The results imply that the pricing benefit to lenders is high and of economic significance. It is therefore of interest for banks to look after existing as well as to develop new relationships with borrowers. However, it needs to be further examined whether the high margin charged by relationship banks merely is a payment for additional services and benefits or due to price dumping by non-relationship banks.

5.2 *Ancillary business*

The probability of being chosen as an MLA substantially increases if the lender has a prior lending relationship with the borrower. The more informationally opaque the borrower is, the more likely it is that the borrower chooses its relationship lender as the MLA. The results are in conformity with our expectations and hypotheses 3 and 4 are therefore accepted. However, acting as an arranger on a syndicated loan does not have an economically significant effect on the likelihood of being mandated to arrange a future bond issue and hypothesis 5 is rejected.

The results are consistent with previous research even though the economic impact is not as high compared to the study on the U.S. market. Our findings suggest that lenders benefit from engaging in information production to reduce the information asymmetries as a lock-in effect is evident in our sample. In addition to the lender's core information production, trust and personal relations most likely affect the strength of the bank-borrower relationship. These two factors could be embedded in the location variable. Preferably, trust and personal relations should be included and separated from pure information production. This provides the banks with a better foundation for resource allocation decisions in order to attract lending business.

The impact that location has on the results can have several explanations. One explanation could be that the Nordic banks have a comparative advantage which is difficult and costly for the non-Nordic banks to overcome. A second explanation could be that non-Nordic banks focus on certain borrowers, i.e. larger and more international companies, and not seriously pitch to win mandates with smaller borrowers. Most likely the location impact is a combination of several factors, including trust and personal relations. An interesting outcome is that the lender's market share does not play an important role when a bank is chosen as the MLA. This is contradicting to market perception as well as the U.S. study, even though we use the same method for constructing the reputation variable. Market share might not be a helpful measure in our study since the reputation of international banks is based on their global investment activity and not only their share of the transactions in the Nordic market.

Worth noting is that a sample selection bias can exist for the subsample of only rated borrowers and the results should be interpreted with caution. The sample contains 4,409 loan-bank pairs and only 599 are investment grade rated. The small number of transactions by investment grade rated borrowers might give misleading results. The reason for the few observations with investment grade rated borrowers could be that they turn to the bond market instead of the loan market to secure their capital needs. A further explanation to the contradicting results could be the number of banks each borrower cooperates with. First, non-investment grade rated borrowers are more risky and need a larger bank group to secure their capital needs and they do not want to lose any of their relationship banks. These borrowers might rotate mandates among all their relationship banks, which imply that our five year time limit for relationships occasionally will be unfulfilled. If a borrower mandates one of its relationship banks on every third loan transaction, it will probably not be captured in our relationship measure. Secondly, investment grade rated borrowers have higher bargaining power as they are less risky and therefore do not need to rotate mandates in order to secure the support from a bank group. Thus, the probability of banks being chosen as MLAs will increase less for non-investment grade rated borrowers if a past lending relationship exists.

One possible explanation to the low correlation between a prior loan mandate and winning a new bond mandate could be the borrower's wish to spread its bond and other financing business between all its relationship banks. In addition, the hypothesis assumes that the divisions within the bank work close together and completely share all borrower information. If the loan syndication and bond originating teams do not work this close, the information advantage of being a prior loan arranger is foregone. Additionally, the borrower might not view the bank as one single unit. As a result, the trust the bank has gained from arranging a prior loan will not affect the borrower's evaluation of the same bank's bond origination team.

The strong effect that prior relationships have on the probability of receiving additional lending business indicates that banks benefit from investing in relationships with borrowing companies. However, it would be interesting to examine the relationship lender's access to other investment banking products as there is a low correlation between arranging loans and bonds.

6 Conclusion

The aim of this paper was to investigate if banks that are active in the Nordic market benefit from investing in borrower relationships when arranging syndicated loans. When testing the pricing effects of relationship investment we find no support for lenders sharing the benefits of relationship lending with the borrowers, neither do we find evidence that informationally opaque borrowers benefit more from using a relationship lender. In contrast, we find that lenders can charge higher prices from relationship borrowers; however, the results are not statistically significant. If the pricing benefit is due to price dumping by non-relationship lenders we would expect banks to withdraw their current presence in the Nordic market and, consequently, prices would increase. If banks use their informational advantage to charge monopoly prices we would expect high credit borrowers to invest more resources in communicating their correct risk. Until prices are normalized, more banks would be expected to enter the market.

Bank-borrower relationships were found to play an important role when borrowers mandate a loan arranger, both statistically and economically. Furthermore, informationally opaque borrowers have a greater tendency to use a relationship lender as an arranger. Finally, bank-borrower relationship was not found to play an economically significant role in attracting future mandates on bond issues from that borrower. A prior bank-borrower relationship is the single most important factor affecting who the borrower will mandate to arrange a future loan. Thus we would expect non-relationship banks to offer very competitive prices for their services in order to increase the possibility of receiving future business opportunities and this is also consistent with our results on pricing. A bank is also likely to support its relationship borrowers in hard times and risk its reputation in order to increase the probability of arranging transactions in more lucrative periods.

Concluding, banks will benefit from investing in new and nurturing existing relationships.

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Databases

Dealogic Bondware

Dealogic Loanware

Thomson DataStream

Internet

<http://www.oanda.com/convert/fxhistory>, 2007-06-06.

Appendix A Adjustments and further descriptions

A.1 Loan instrument types

A term loan can be described as a “standard” loan. A company borrows money and the amount should be repaid at the latest according to a date specified in the loan agreement. The borrower cannot redraw any amount that is repaid in advance. A revolving credit facility functions as a credit card with a maturity date. The loan agreement specifies the minimum and maximum amount the borrower can draw. During the life time of the loan the borrower can draw down, repay and redraw all or part of the loan at its discretion. Each drawdown is technically repaid at the end of each interest period even though it may be redrawn. The final maturity date, defined in the loan agreement, sets the final date when the loan has to be repaid in full and not be drawn again.⁶⁶ Other types of instruments include mezzanine debt, which has the characteristics of both debt and equity in terms of risk. Mezzanine debt is often used in financing leveraged buyout transactions.⁶⁷

A.2 Bank involvement

An issue to deal with is how to account for a bank’s involvement in a facility since banks can contribute in a transaction in various types of ways. Dealogic Loanware and Dealogic Bondware include several participation titles depending on the magnitude of a bank’s involvement. In this paper, focus lies on the banks with the potentially strongest relationship with the borrower. MLAs are more active in information production of the borrower and gain stronger relationships and therefore only banks labeled MLA will be considered as relationship lenders. During the sample period the labels for banks’ participation have changed due to title inflation. What is now called MLA used to be titled Arranger a few years ago. However, Dealogic has adjusted for this and we can therefore use banks only titled MLA without losing existing relationships with borrowers. Dealogic Bondware has the same categorization as Dealogic Loanware except for that the MLA is called Bookrunner in the bond market.

The U.S. market study distinguishes lead banks from participating banks by not having the title Participant. This simple rule is used in order not to mislabel any bank. However, this categorization is somewhat misleading as many of the higher title levels are only lenders

⁶⁶ Rhodes (2006), p. 16.

⁶⁷ Rhodes (2006), p. 561.

providing capital for risk sharing purposes and they do not have a closer relationship with the borrower.

A.3 Merger and acquisition activity

Another issue that needs to be addressed is the existence of mergers and acquisitions in the industry to find the true relationships between lenders and borrowers. The relationship between a lender and a borrower is assumed to be inherited when mergers and acquisitions occur.⁶⁸ If two lenders (borrowers) merge or one is acquired by the other, the relationship with a certain borrower (lender) is inherited by the post-merger entity or the acquiring company.

The U.S. market study uses two different databases (SDC's Lexis-Nexis and Hoover's) to gather information regarding mergers and acquisitions. These databases include mainly U.S. as well as public companies. The Nordic Stock Exchange has the corresponding information for Nordic publicly listed companies and Bloomberg has information from 1997 and onwards. However, our sample contains many unlisted firms and since the sample period begins in 1983, complete information is unavailable. To assure that accurate relationship variables are obtained, the websites of all lenders and borrowers in the sample have been visited. One difficulty arises when companies have discontinued operations in the beginning of the sample period which occasionally implies that they do not exist on the Internet. In addition, it might also be that a company is acquired in the early years of our sample period and not mentioned in the acquiring company's website. When this occurs, we have assumed that no merger or acquisition activity has been carried out.⁶⁹ This may sometimes result in missing relations; unfortunately there is no straightforward method to adjust for this. For the almost 200 banks in the sample, a database has been created by hand matching the banks that have either merged, been acquired or changed names. This database has thereafter been used when creating league tables and relationship variables.

The merger and acquisition activity during the sample period has not been limited to the bank sector. In the U.S study it is not clear if also the borrowers' merger and acquisition activity has been controlled for. However, it is important to control for this as well in order to obtain correct relationship variables. For the nearly 800 borrowing companies in the sample, a hand matched database has been created.⁷⁰ In case of mergers and acquisitions, the relationship

⁶⁸ Bharath et al. (2006).

⁶⁹ Of the nearly 200 banks, 17 were not found.

⁷⁰ Of the nearly 800 borrowers in the loan and bond markets, 239 were not found.

variables have been manually adjusted. The look back period for relationship strength is five years and therefore all transactions in the subsequent five years of the merger or acquisition has been manually adjusted. The total loan and bond sample size of 46,205 loan- and bond-bank pairs was manually checked and adjusted for mergers and acquisitions.

A.4 Bank universe

Ultimately, all active banks in the Nordic market should be included in the sample. However, including all of them in our testing universe would imply much work with limited added value. We will therefore pursue the same method as the U.S. market study to obtain a more manageable data set. League tables are created (see Appendix A.5 below) based on the transaction volume in order to select the top 20 banks providing the most capital each year. The top 20 banks make up the choice set of which the borrower can choose from the subsequent year. If the initial MLA does not exist in the choice set, that transaction is excluded from the sample. The same method is used to create the bank universe in the bond market.

For hypotheses 3, 4 and 5, which test for effects on ancillary business, the dataset is expanded by multiplying every loan transaction 20 times and matching the prior year's top 20 banks to each transaction. Hence, each transaction obtains 20 bank pairs. All other transaction related information is unchanged. The sample size for hypotheses 3 and 4 is 29,200 loan-bank pairs and for hypothesis 5 the sample size is 17,005 bond-bank pairs.

A.5 Method for constructing league tables

The bank league tables are created for two reasons. The first reason is to create the borrowers' choice set and the second reason is to obtain the lenders' market shares which are the basis of the reputation variable. The pre-produced league tables provided by Dealogic have not been usable. When a bank has changed its names due to e.g. an acquisition, the Dealogic databases have sometimes changed that bank's name in the prior years as well, combining it with the acquiring entity in all years prior to the acquisition. That gives the acquiring entity a larger market share in the database than the actual.

League tables have been created for each year between 1983 and 2006. Each transaction's US\$ amount is divided by the number of MLAs respectively Bookrunners in the transaction. By doing so, a proxy for each bank's share is obtained. Then, each bank's total provided amount is summed up and the banks are ranked thereafter. The objective is to keep the top 20

banks. In the early years of the sample period, the league tables contain less than 20 banks due to the few observations in these years. In addition, we need to adjust the league tables for merger and acquisition activity by using our database described in Appendix A.3. If a bank ranked in top 20 has merged with or been acquired by another bank in top 20 during the year, all transactions by the two banks are consolidated under the new entity name. This means that there are only 19 banks in the top 20 ranking. To receive the actual top 20 we include the bank ranked 21st. If a bank ranked below 20 merges with or is acquired by a top 20 ranked bank, its market share is added to the top 20 ranked bank and no further adjustments are done. Furthermore, if two banks ranked below top 20 merge or one is acquired by the other and their combined market share moves them into the top 20 ranking, the combined entity is included in top 20 and the initial 20th ranked bank is excluded from the list. By making these adjustments the bank universe contains of 20 banks each year.

A.6 Lender reputation

Banks can contribute in transactions in various types of ways and only the MLAs gain relationship status. In conformity with the construction of relationship variables, the data in Dealogic lack information on the amount each MLA has contributed with. Again, it is assumed that all MLAs provide an equal share of the facility amount. Since reputation is gained during a period of time, the prior year's transactions are the basis of the current year's reputation. For the loan market, each MLA's reputation or total market share for any year t is calculated by the following formula:

$$LOAN_MKT_SHARE_{mt} = \frac{(Loan_Amount)_{m(t-1)}}{\sum_{i=1}^N (Loan_Amount)_{i(t-1)}}$$

The numerator is bank m 's total loan underwriting amount during the previous year ($t-1$). The denominator is the total liquidity in the loan market in the previous year ($t-1$), which is the total amount of loans issued by all banks. The market liquidity is collected from Dealogic Loanware. However, each bank's provided amount is taken from the merger and acquisition adjusted league tables that have been created manually.

A.7 Accounting data

In the comparison of the borrowers' book value of assets, the data must be stated in the same currency. The currency that lies closest to hand is the US\$ due to its historic stability. The various currencies in the sample also have historic exchange rates to the US\$. The Euro did

not exist until 1999 and can therefore not be used. One drawback with translating currencies into US\$ is that fluctuations of single currencies might be large between specific years and it might seem like a borrower's size varies even though it is not the case in reality. E.g. the Swedish Krona decreased in value against the US\$ in 2001-2002 and then regained value in 2003 to match year 2000's exchange rate. If the Norwegian Krona was stable against the US\$ during the same time period, the comparison between two equally sized companies in Sweden and Norway these years will be distorted. However, we have chosen to disregard from this effect. The exchange rates are obtained from Thomson DataStream with one exception. Exchange rates for Bermudian dollars do not exist in Thomson DataStream and are collected from OANDA's FXHistory⁷¹. The exchange rates from the last day of the calendar year are used since the book value of assets is stated as per December, 31.

A.8 Location variable

The dilemma with the occurrence of numerous mergers and acquisitions in the Nordic market and the cross country border activity needs to be addressed. The issue is best explained with an example. The Nordic bank Nordea consists of the following banks; the Norwegian Christiania Bank og Kreditkasse, the Finnish Merita Bank, the Swedish Nordbanken and the Danish Unidanmark among others. Even though Nordea is headquartered in Sweden and therefore has Swedish nationality, the ties to the other Nordic countries are close. A Norwegian borrower with a long relationship with Christiania Bank will after the merger no longer have the same location. It seems misleading to say that a relationship between Nordea and the Norwegian borrower does not partly depend on the location. Christiania Bank og Kreditkasse's offices have merely changed their name to Nordea in Norway and Christiania Bank og Kreditkasse's headquarter has "moved" to Sweden. To account for Nordea's close relationship to the other Nordic countries, the location dummy will equal 1 for all Nordic countries. The same adjustment has been made for the Norwegian Fokus Bank and the Danish Danske Bank after their cross border merger.

⁷¹ <http://www.oanda.com/convert/fxhistory>, 2007-06-06.

Appendix B Hypothesis variables

In this section the testing variables for each hypothesis are described.

B.1 Hypothesis 1

Variable	Description
MARGIN	The price margin which equals the coupon spread over LIBOR or EURIBOR.
LOANREL(M) ^{Loans}	Lending relationship measures where M indicates one of the three measures.
LOANREL(Dummy) ^{Loans}	Dummy variables that takes the value of 1 if bank m and borrower i had a prior lending relationship during the five year window preceding the date of signing of the current loan and 0 otherwise.
LOANREL(Amount) ^{Loans}	The US\$ amount of loans to borrower i by bank m in relation to the total US\$ amount of loans by borrower i , during the five year window preceding the date of signing of the current loan.
LOANREL(Number) ^{Loans}	The number of loans to borrower i by bank m in relation to the total number of loans by borrower i , during the five year window preceding the date of signing of the current loan.
BORROWER CHARACTERISTICS	
LN(ASSETS)	Natural log of book value of assets in US\$ for the borrower.
BORROWER INDUSTRY(N)	Dummy variable that takes the value 1 if the borrower belongs to industry N (measured by Dealogic Loanware's business code) and 0 otherwise.
LEVERAGE	Ratio of book value of total debt to book value of assets.
COVERAGE	Natural log of $(1 + (\text{EBITDA} / \text{interest expense}))$.
PROFITABILITY	Ratio of EBITDA to sales.
TANGIBILITY	Ratio of net PPE to book value of assets.
CURRENT RATIO	Ratio of current assets to current liabilities.
MARKET TO BOOK	Ratio of (book value of assets - book value of equity + market value of equity) to book value of assets.
LOAN CHARACTERISTICS	
LN(LOAN AMOUNT)	Natural log of total facility amount in US\$.
MATURITY	Loan maturity in months.
PURPOSE(P)	Dummy variable that takes the value of 1 if the stated purpose of the loan facility is P and 0 otherwise.
INSTRUMENT(I)	Dummy variable that takes the value of 1 if the instrument of the facility is I and 0 otherwise
TRANCHE	Dummy variable that takes the value of 1 if the facility is tranching and 0 otherwise.
CONTROL	
(MARKET LIQUIDITY) _{t}	Total volume of syndicated lending during the quarter previous to signing of the loan facility.
YEAR(Y)	Dummy variable that takes the value of 1 if the loan facility is signed in year Y and 0 otherwise.

B.2 Hypothesis 2

B.2.1 The effect of borrower size

Variable	Description
MARGIN	The price margin which equals the coupon spread over LIBOR or EURIBOR.
LOANREL(M) ^{Loans}	Lending relationship measures where M indicates one of the three measures.
LOANREL(Dummy) ^{Loans}	Dummy variables that takes the value of 1 if bank m and borrower i had a prior lending relationship during the five year window preceding the date of signing of the current loan and 0 otherwise.
LOANREL(Amount) ^{Loans}	The US\$ amount of loans to borrower i by bank m in relation to the total US\$ amount of loans by borrower i , during the five year window preceding the date of signing of the current loan.
LOANREL(Number) ^{Loans}	The number of loans to borrower i by bank m in relation to the total number of loans by borrower i , during the five year window preceding the date of signing of the current loan.
BORROWER CHARACTERISTICS	
LN(ASSETS)	Natural log of book value of assets in US\$ for the borrower.
BORROWER INDUSTRY(N)	Dummy variable that takes the value 1 if the borrower belongs to industry N (measured by Dealogic Loanware's business code) and 0 otherwise.
LEVERAGE	Ratio of book value of total debt to book value of assets.
COVERAGE	Natural log of $(1 + (\text{EBITDA} / \text{interest expense}))$.
PROFITABILITY	Ratio of EBITDA to sales.
TANGIBILITY	Ratio of net PPE to book value of assets.
CURRENT RATIO	Ratio of current assets to current liabilities.
MARKET TO BOOK	Ratio of $(\text{book value of assets} - \text{book value of equity} + \text{market value of equity})$ to book value of assets.
FACILITY CHARACTERISTICS	
LN(LOAN AMOUNT)	Natural log of total facility amount in US\$.
MATURITY	Loan maturity in months.
PURPOSE(P)	Dummy variable that takes the value of 1 if the stated purpose of the loan facility is P and 0 otherwise.
INSTRUMENT(I)	Dummy variable that takes the value of 1 if the instrument of the facility is I and 0 otherwise.
TRANCHE	Dummy variable that takes the value of 1 if the facility is tranching and 0 otherwise.
OTHER	
MIDDLE	Dummy variable takes the value of 1 if the borrower falls in the middle size tercile and 0 otherwise.
BIG	Dummy variable takes the value of 1 if the borrower falls in the highest size tercile and 0 otherwise.
MIDDLE $\times$ LOANREL(M) ^{Loans}	Interaction term between the middle sized borrower and the loan relationship measures.
BIG $\times$ LOANREL(M) ^{Loans}	Interaction term between the big sized borrower and the loan relationship measures.
CONTROL	
(MARKET LIQUIDITY) _{t}	Total volume of syndicated lending during the quarter previous to signing of the loan facility.
YEAR(Y)	Dummy variable that takes the value of 1 if the loan facility is signed in year Y and 0 otherwise.

B.2.2 The effect of credit rating

Variable	Description
MARGIN	The price margin which equals the coupon spread over LIBOR or EURIBOR.
LOANREL(M) ^{Loans}	Lending relationship measures where M indicates one of the three measures.
LOANREL(Dummy) ^{Loans}	Dummy variables that takes the value of 1 if bank m and borrower i had a prior lending relationship during the five year window preceding the date of signing of the current loan and 0 otherwise.
LOANREL(Amount) ^{Loans}	The US\$ amount of loans to borrower i by bank m in relation to the total US\$ amount of loans by borrower i , during the five year window preceding the date of signing of the current loan.
LOANREL(Number) ^{Loans}	The number of loans to borrower i by bank m in relation to the total number of loans by borrower i , during the five year window preceding the date of signing of the current loan.
BORROWER CHARACTERISTICS	
LN(ASSETS)	Natural log of book value of assets in US\$ for the borrower.
BORROWER INDUSTRY(N)	Dummy variable that takes the value 1 if the borrower belongs to industry N (measured by Dealogic Loanware's business code) and 0 otherwise.
LEVERAGE	Ratio of book value of total debt to book value of assets.
COVERAGE	Natural log of $(1 + (\text{EBITDA} / \text{interest expense}))$.
PROFITABILITY	Ratio of EBITDA to sales.
TANGIBILITY	Ratio of net PPE to book value of assets.
CURRENT RATIO	Ratio of current assets to current liabilities.
MARKET TO BOOK	Ratio of (book value of assets - book value of equity + market value of equity) to book value of assets.
FACILITY CHARACTERISTICS	
LN(LOAN AMOUNT)	Natural log of total facility amount in US\$.
MATURITY	Loan maturity in months.
PURPOSE(P)	Dummy variable that takes the value of 1 if the stated purpose of the loan facility is P and 0 otherwise.
INSTRUMENT(I)	Dummy variable that takes the value of 1 if the instrument of the facility is I and 0 otherwise.
TRANCHE	Dummy variable that takes the value of 1 if the facility is tranced and 0 otherwise.
OTHER	
NOT RATED	Dummy variable takes the value of 1 if the borrower is not rated and 0 otherwise.
NOT RATED $\times$ LOANREL(M) ^{Loans}	Interaction term between the unrated borrower and the loan relationship measures.
CONTROL	
(MARKET LIQUIDITY) _{t}	Total volume of syndicated lending during the quarter previous to signing of the loan facility.
YEAR(Y)	Dummy variable that takes the value of 1 if the loan facility is signed in year Y and 0 otherwise.

B.3 Hypothesis 3

Variable	Description
(CHOSEN) _m	For each loan facility a variable takes the value of 1 if a bank was retained as the mandated lead arranger for that loan transaction and 0 otherwise.
LOANREL(<i>M</i>) ^{Loans}	Lending relationship measures where <i>M</i> indicates one of the three measures.
LOANREL(Dummy) ^{Loans}	Dummy variables that takes the value of 1 if bank <i>m</i> and borrower <i>i</i> had a prior lending relationship during the five year window preceding the date of signing of the current loan and 0 otherwise.
LOANREL(Amount) ^{Loans}	The US\$ amount of loans to borrower <i>i</i> by bank <i>m</i> in relation to the total US\$ amount of loans by borrower <i>i</i> , during the five year window preceding the date of signing of the current loan.
LOANREL(Number) ^{Loans}	The number of loans to borrower <i>i</i> by bank <i>m</i> in relation to the total number of loans by borrower <i>i</i> , during the five year window preceding the date of signing of the current loan.
(LOAN MKT SHARE) _{mt}	The total loan market share for bank <i>m</i> in year <i>t</i> .
LOCATION _m	Dummy variable that takes the value of 1 if bank <i>m</i> and borrower <i>i</i> in a borrower-bank pair have their head offices in the same country and 0 otherwise.
CONTROL	
(MARKET LIQUIDITY) _t	Total volume of syndicated lending during the quarter previous to signing of the loan facility.
YEAR(<i>Y</i>)	Dummy variable that takes the value of 1 if the loan facility is signed in year <i>Y</i> and 0 otherwise.
BORROWER INDUSTRY(<i>N</i>)	Dummy variable that takes the value 1 if the borrower belongs to industry <i>N</i> (measured by Dealogic Loanware's business code) and 0 otherwise.
PURPOSE(<i>P</i>)	Dummy variable that takes the value of 1 if the stated purpose of the loan facility is <i>P</i> and 0 otherwise.

B.4 Hypothesis 4

B.4.1 The effect of borrower size

Variable	Description
$(\text{CHOSEN})_m$	For each loan facility a variable takes the value of 1 if a bank was retained as the mandated lead arranger for that loan transaction and 0 otherwise.
$\text{LOANREL}(M)^{\text{Loans}}$	Lending relationship measures where M indicates one of the three measures.
$\text{LOANREL}(\text{Dummy})^{\text{Loans}}$	Dummy variables that takes the value of 1 if bank m and borrower i had a prior lending relationship during the five year window preceding the date of signing of the current loan and 0 otherwise.
$\text{LOANREL}(\text{Amount})^{\text{Loans}}$	The US\$ amount of loans to borrower i by bank m in relation to the total US\$ amount of loans by borrower i , during the five year window preceding the date of signing of the current loan.
$\text{LOANREL}(\text{Number})^{\text{Loans}}$	The number of loans to borrower i by bank m in relation to the total number of loans by borrower i , during the five year window preceding the date of signing of the current loan.
$(\text{LOAN MKT SHARE})_{mt}$	The total loan market share for bank m in year t .
LOCATION_m	Dummy variable that takes the value of 1 if bank m and borrower i in a borrower-bank pair have their head offices in the same country and 0 otherwise.
OTHER	
MIDDLE	Dummy variable takes the value of 1 if the borrower falls in the middle size tercile and 0 otherwise.
BIG	Dummy variable takes the value of 1 if the borrower falls in the highest size tercile and 0 otherwise.
$\text{MIDDLE} \times \text{LOANREL}(M)^{\text{Loans}}$	Interaction term between the middle sized borrower and the loan relationship measures.
$\text{BIG} \times \text{LOANREL}(M)^{\text{Loans}}$	Interaction term between the big sized borrower and the loan relationship measures.
CONTROL	
$(\text{MARKET LIQUIDITY})_t$	Total volume of syndicated lending during the quarter previous to signing of the loan facility.
$\text{YEAR}(Y)$	Dummy variable that takes the value of 1 if the loan facility is signed in year Y and 0 otherwise.
$\text{BORROWER INDUSTRY}(N)$	Dummy variable that takes the value 1 if the borrower belongs to industry N (measured by Dealogic Loanware's business code) and 0 otherwise.
$\text{PURPOSE}(P)$	Dummy variable that takes the value of 1 if the stated purpose of the loan facility is P and 0 otherwise.

B.4.2 The effect of credit rating

Variable	Description
$(\text{CHOSEN})_m$	For each loan facility a variable takes the value of 1 if a bank was retained as the mandated lead arranger for that loan transaction and 0 otherwise.
$\text{LOANREL}(M)^{\text{Loans}}$	Lending relationship measures where M indicates one of the three measures.
$\text{LOANREL}(\text{Dummy})^{\text{Loans}}$	Dummy variables that takes the value of 1 if bank m and borrower i had a prior lending relationship during the five year window preceding the date of signing of the current loan and 0 otherwise.
$\text{LOANREL}(\text{Amount})^{\text{Loans}}$	The US\$ amount of loans to borrower i by bank m in relation to the total US\$ amount of loans by borrower i , during the five year window preceding the date of signing of the current loan.
$\text{LOANREL}(\text{Number})^{\text{Loans}}$	The number of loans to borrower i by bank m in relation to the total number of loans by borrower i , during the five year window preceding the date of signing of the current loan.
$(\text{LOAN MKT SHARE})_{mt}$	The total loan market share for bank m in year t .
LOCATION_m	Dummy variable that takes the value of 1 if bank m and borrower i in a borrower-bank pair have their head offices in the same country and 0 otherwise.
OTHER	
NOT RATED	Dummy variable takes the value of 1 if the borrower is not rated and 0 otherwise.
INV GRADE	Dummy variable takes the value of 1 if the borrower is rated BBB(-) or above by S&P or Moody's equivalent and 0 otherwise.
$\text{NOT RATED} \times \text{LOANREL}(M)^{\text{Loans}}$	Interaction term between the unrated borrower and the loan relationship measures.
$\text{INV GRADE} \times \text{LOANREL}(M)^{\text{Loans}}$	Interaction term between the investment grade rated borrower and the loan relationship measures.
CONTROL	
$(\text{MARKET LIQUIDITY})_t$	Total volume of syndicated lending during the quarter previous to signing of the loan facility.
$\text{YEAR}(Y)$	Dummy variable that takes the value of 1 if the loan facility is signed in year Y and 0 otherwise.
$\text{BORROWER INDUSTRY}(N)$	Dummy variable that takes the value 1 if the borrower belongs to industry N (measured by Dealogic Loanware's business code) and 0 otherwise.
$\text{PURPOSE}(P)$	Dummy variable that takes the value of 1 if the stated purpose of the loan facility is P and 0 otherwise.

B.5 Hypothesis 5

Variable	Description
(RETAIN) _m	The variable takes the value of 1 if bank <i>m</i> was retained as bookrunner for that bond issue transaction and 0 otherwise.
LOANREL(<i>M</i>) ^{Bonds}	Cross market lending relationship measures where <i>M</i> indicates one of the three measures.
LOANREL(Dummy) ^{Bonds}	Dummy variables tha takes the value of 1 if bank <i>m</i> and borrower <i>i</i> had a prior lending relationship during the five year window preceding the date of signing of the current bond issue and 0 otherwise.
LOANREL(Amount) ^{Bonds}	The US\$ amount of loans to borrower <i>i</i> by bank <i>m</i> in relation to the total US\$ amount of loans by borrower <i>i</i> , during the five year window preceding the date of signing of the current bond issue.
LOANREL(Number) ^{Bonds}	The number of loans to borrower <i>i</i> by bank <i>m</i> in relation to the total number of loans by borrower <i>i</i> , during the five year window preceding the date of signing of the current bond issue.
BONDREL(<i>M</i>) ^{Bonds}	Bond underwriting relationship measures where <i>M</i> indicates one of the three measures.
BONDREL(Dummy) ^{Bonds}	Dummy variables tha takes the value of 1 if bank <i>m</i> and borrower <i>i</i> had a prior bond underwriting relationship during the five year window preceding the date of signing of the current bond issue and 0 otherwise.
BONDREL(Amount) ^{Bonds}	The US\$ amount of bond underwriting to borrower <i>i</i> by bank <i>m</i> in relation to the total US\$ amount of bond issues by borrower <i>i</i> , during the five year window preceding the date of signing of the current bond issue.
BONDREL(Number) ^{Bonds}	The number of bond underwriting to borrower <i>i</i> by bank <i>m</i> in relation to the total number of bond issues by borrower <i>i</i> , during the five year window preceding the date of signing of the current issue.
(TOP TIER) _m	Dummy variable that takes the value 1 if bank <i>m</i> is ranked among the top three bond underwriters in the previous year and 0 otherwise.
(MID TIER) _m	Dummy variable that takes the value of 1 if bank <i>m</i> is ranked from 4 th to 8 th in debt underwriting in the previous year and 0 otherwise.
CONTROL	
(BOND MARKET LIQUIDITY) _t	Total volume of bond underwriting during the quarter previous to signing of the bond facility.
YEAR(<i>Y</i>)	Dummy variable that takes the value of 1 if the loan facility is signed in year <i>Y</i> and 0 otherwise.
ISSUER INDUSTRY(<i>N</i>)	Dummy variable that takes the value 1 if the bond issuer belongs to industry <i>N</i> (measured by Dealogic Bondware's business code) and 0 otherwise.

Appendix C Statistics and results

C.1 Table 1

In Table 1 the annual number of relationships over the entire sample period is presented. Panel A presents the loan market's relationships, Panel B the bond market's relationships, and Panel C presents the cross market relationships.

Panel A: Calendar time distribution of loan relationships			
Year of loan facility	No relationship LOANREL(Dummy) ^{Loans} = 0	Relationship LOANREL(Dummy) ^{Loans} = 1	Total
1983	167	1	168
1984	463	2	465
1985	712	8	720
1986	620	20	640
1987	768	12	780
1988	1,312	28	1,340
1989	944	36	980
1990	1,861	59	1,920
1991	1,017	23	1,040
1992	695	25	720
1993	791	29	820
1994	1,429	51	1,480
1995	1,524	97	1,621
1996	2,009	131	2,140
1997	1,532	108	1,640
1998	1,428	72	1,500
1999	920	60	980
2000	1,029	72	1,101
2001	1,317	122	1,439
2002	1,075	105	1,180
2003	1,581	119	1,700
2004	2,084	196	2,280
2005	2,706	294	3,000
- Nov 2006	2,065	254	2,319
Total	30,049	1,924	31,973

Panel B: Calender time distribution of bond relationships			
Year of bond facility	No relationship BONDREL(Dummy) ^{Bonds= 0}	Relationship BONDREL(Dummy) ^{Bonds= 1}	Total
1983	36	4	40
1984	172	3	175
1985	684	20	704
1986	889	51	940
1987	1,043	57	1,100
1988	1,227	113	1,340
1989	812	68	880
1990	599	40	639
1991	443	51	494
1992	176	16	192
1993	178	11	189
1994	471	23	494
1995	282	24	306
1996	827	133	960
1997	525	75	600
1998	738	136	874
1999	1,248	231	1,479
2000	1,364	296	1,660
2001	1,203	277	1,480
2002	889	231	1,120
2003	781	239	1,020
2004	626	153	779
2005	1,174	206	1,380
- Nov 2006	877	243	1,120
Total	17,264	2,701	19,965

Panel C: Calender time distribution of cross market loan-bond relationships			
Year of bond facility	No relationship LOANREL(Dummy) ^{Bonds= 0}	Relationship LOANREL(Dummy) ^{Bonds= 1}	Total
1983	40	0	40
1984	174	1	175
1985	698	6	704
1986	931	9	940
1987	1,092	8	1,100
1988	1,340	0	1,340
1989	867	13	880
1990	638	1	639
1991	490	4	494
1992	191	1	192
1993	188	1	189
1994	488	6	494
1995	306	0	306
1996	959	1	960
1997	571	29	600
1998	863	11	874
1999	1,394	85	1,479
2000	1,581	79	1,660
2001	1,402	78	1,480
2002	1,032	88	1,120
2003	905	115	1,020
2004	692	87	779
2005	1,174	206	1,380
- Nov 2006	862	258	1,120
Total	18,878	1,087	19,965

C.2 Table 2

Table 2 presents the total loan and bond underwriting by the MLAs respectively Bookrunners from 1983 to 2006. League tables for lenders (Panel A) respectively bond underwriters (Panel B) with their total underwritten amount, the total number of deals, as well as their respective market shares. The market share is calculated from the total amount underwritten. The data is provided by Dealogic Loanware and Dealogic Bondware.

Panel A: League table for lenders over entire sample period				
Rank	Bank	Amount (US\$ mln)	Number of deals	Market share
1	Nordea	75,149	518	12.9%
2	SEB	65,872	311	11.3%
3	JP Morgan	64,387	221	11.1%
4	Citigroup	55,037	194	9.5%
5	DnB NOR	38,133	306	6.6%
6	Deutsche Bank	27,993	132	4.8%
7	Svenska Handelsbanken	22,857	147	3.9%
8	Danske Bank	22,690	162	3.9%
9	Barclays Capital	18,757	76	3.2%
10	HSBC	16,511	54	2.8%
11	Credit Suisse	14,867	30	2.6%
12	ABN AMRO	14,030	86	2.4%
13	UBS	11,214	88	1.9%
14	BNP Paribas	10,882	65	1.9%
15	Royal Bank of Scotland	9,659	55	1.7%
16	Commerzbank	7,229	50	1.2%
17	Mitsubishi UFJ Financial Group	6,820	33	1.2%
18	SG Corporate & Investment Banking	6,482	45	1.1%
19	Goldman Sachs	6,203	14	1.1%
20	Calyon	6,055	51	1.0%
21	Swedbank	5,809	47	1.0%
22	HSH Nordbank	5,361	42	0.9%
23	Dresdner Kleinwort	5,072	31	0.9%
24	Handelsbanken	4,892	29	0.8%
25	Mizuho Financial Group	4,564	28	0.8%
Total		526,522	2,815	90.5%

Panel B: League table for bond underwriters over entire sample period				
Rank	Bank	Amount (US\$ mln)	Number of deals	Market share
1	Citigroup	25,708	131	9.5%
2	UBS	22,216	162	8.2%
3	Goldman Sachs	20,839	72	7.7%
4	Morgan Stanley	20,241	143	7.5%
5	Deutsche Bank	19,451	132	7.2%
6	SEB	18,150	283	6.7%
7	Credit Suisse	15,725	146	5.8%
8	ABN AMRO	13,958	141	5.2%
9	Merrill Lynch	14,040	76	5.2%
10	Nordea	11,171	157	4.1%
11	JP Morgan	10,265	69	3.8%
12	Lehman Brothers	8,307	46	3.1%
13	Svenska Handelsbanken	5,437	72	2.0%
14	Barclays Capital	5,026	32	1.9%
15	BNP Paribas	4,942	48	1.8%
16	Carnegie Investment Bank	4,761	87	1.8%
17	Dresdner Kleinwort	4,552	49	1.7%
18	Danske Bank	3,832	51	1.4%
19	Pareto Securities	3,713	51	1.4%
20	Nomura Securities	2,800	36	1.0%
21	SG Corporate & Investment Banking	2,250	17	0.8%
22	HSBC	1,879	22	0.7%
23	Royal Bank of Scotland	1,363	13	0.5%
24	Mizuho Financial Group	1,484	67	0.5%
25	Swedbank	1,348	20	0.5%
Total		243,459	2,123	90.2%

C.3 Table 3

Table 3 presents summarizing statistics of the loan and bond transactions over the regression sample period, from 1988 to November 2006.

Panel A: Statistics for loan sample					
Variable	N	Mean	Std. Dev.	Min	Max
Price margin	783	66.33	75.42	5	825
Loan facility amount (in US\$ mln)	1,214	390.08	494.68	7.8	6,500
Maturity in months	1,117	66.57	31.68	2	336
Rating at signing (AAA = 1, CCC+ = 17)	184	7.79	2.94	2	16.5
No of MLA per transaction	1,214	2.33	2.00	1	18
Instrument type is term loan	637				
Instrument type is revolving credit	438				
Instrument type is miscellaneous	38				
Tranched transactions	14				
Borrower not rated	1,030				
Borrower non-investment grade rated	24				
Borrower investment grade rated	160				

Panel B: Statistics for bond sample					
Variable	N	Mean	Std. Dev.	Min	Max
Bond facility amount (in US\$ mln)	745	218.23	292.94	2.5	1,810
Maturity in months	738	79.28	55.80	12	360
No of BR per transaction	745	1.43	0.90	1	5

C.4 Table 4

Table 4 presents the results from testing hypothesis 1, the relationships' effect on loan pricing. Column (1) presents the results from the regression including the relationship dummy variable. Column (2) and (3) presents the results from the regressions with the variables relationship amount and number of relationships respectively. The coefficients represent the effect on the price margin in basis points. The figure in parenthesis below each coefficient is the standard error. ***, ** and * indicate that the coefficient is significant at the one, five and ten percent level respectively.

	(1)	(2)	(3)
Constant	179.63*** (43.42)	172.47*** (43.30)	175.19*** (43.43)
LOANREL(Dummy) ^{Loans}	5.59 (3.93)		
LOANREL(Amount) ^{Loans}		2.21 (6.56)	
LOANREL(Number) ^{Loans}			3.24 (4.65)
LN(ASSETS)	-12.68*** (2.16)	-12.56*** (2.20)	-12.52*** (2.18)
LEVERAGE	-11.55 (15.30)	-12.11 (15.38)	-12.26 (15.36)
COVERAGE	-15.59*** (4.02)	-16.34*** (4.00)	-16.31*** (4.00)
PROFITABILITY	1.50 (14.62)	2.95 (14.63)	2.39 (14.65)
TANGIBILITY	-3.93 (12.98)	-4.94 (13.02)	-4.84 (13.01)
CURRENT RATIO	-0.50 (2.46)	-0.24 (2.49)	-0.32 (2.47)
MARKET TO BOOK	-0.53 (1.85)	-0.34 (1.85)	-0.41 (1.85)
LN(AMOUNT)	-0.58 (2.91)	-0.20 (2.90)	-0.36 (2.91)
MATURITY IN MONTHS	0.14 (0.10)	0.14 (0.10)	0.15 (0.10)
TERM LOAN	-2.84 (5.76)	-3.97 (5.73)	-3.85 (5.73)
REVOLVER	20.40*** (7.31)	19.85*** (7.35)	20.07*** (7.33)
MISCELLANEOUS	-9.96 (12.17)	-8.89 (12.19)	-8.98 (12.18)
TRANCHE	(dropped)	(dropped)	(dropped)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	329	329	329
R ²	0.69	0.69	0.69

C.5 Table 5

Table 5 presents the results from testing hypothesis 2, information opacity's effect on the loan pricing. Panel A presents the regression results from the borrower's size effect and Panel B presents the results from the rating effect. Column (1) presents the results from the regression including the relationship dummy variable. Column (2) and (3) presents the results from the regressions with the variables relationship amount and number of relationships respectively. The coefficients represent the effect on the price margin in basis points. The figure in parenthesis below each coefficient is the standard error. ***, ** and * indicate that the coefficient is significant at the one, five and ten percent level respectively.

Panel A: The effect of borrower size			
	(1)	(2)	(3)
Constant	46.61 (47.31)	42.42 (47.37)	46.04 (47.48)
LOANREL(Dummy) ^{Loans}	1.75 (7.90)		
LOANREL(Amount) ^{Loans}		9.87 (10.74)	
LOANREL(Number) ^{Loans}			3.73 (8.44)
MIDDLE	-20.16*** (6.68)	-18.27*** (6.14)	-19.31*** (6.44)
BIG	-30.36*** (7.47)	-25.10*** (6.96)	-27.84*** (7.27)
MIDDLE × LOANREL(Dummy) ^{Loans}	4.99 (10.63)		
BIG × LOANREL(Dummy) ^{Loans}	7.76 (9.97)		
MIDDLE × LOANREL(Amount) ^{Loans}		0.64 (18.89)	
BIG × LOANREL(Amount) ^{Loans}		-10.49 (21.25)	
MIDDLE × LOANREL(Number) ^{Loans}			3.08 (12.44)
BIG × LOANREL(Number) ^{Loans}			3.11 (12.66)
LEVERAGE	-9.09 (15.8)	-11.33 (16.01)	-9.91 (15.89)
COVERAGE	-16.97*** (4.22)	-18.04*** (4.24)	-17.74*** (4.22)
PROFITABILITY	4.68 (15.16)	7.47 (15.2)	5.96 (15.2)
TANGIBILITY	-5.34 (13.38)	-5.86 (13.40)	-5.82 (13.42)
CURRENT RATIO	-0.21 (2.55)	-0.28 (2.58)	-0.18 (2.56)
MARKET TO BOOK	0.48 (1.89)	0.73 (1.89)	0.61 (1.89)
LN(AMOUNT)	-4.28 (2.78)	-3.83 (2.79)	-4.09 (2.78)
MATURITY IN MONTHS	0.14 (0.10)	0.15 (0.10)	0.16 (0.10)
TERM LOAN	-0.65 (5.94)	-2.27* (5.90)	-2.01 (5.90)
REVOLVER	20.06*** (7.54)	19.47** (7.57)	19.81*** (7.57)
MISCELLANEOUS	-15.36 (12.52)	-14.61 (12.56)	-14.78 (12.56)
TRANCHE	(dropped)	(dropped)	(dropped)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	329	329	329
R ²	0.68	0.68	0.67

Panel B: The effect of credit rating			
	(1)	(2)	(3)
Constant	123.80*** (47.56)	111.23** (46.60)	116.74** (46.86)
LOANREL(Dummy) ^{Loans}	-6.40 (8.92)		
LOANREL(Amount) ^{Loans}		-22.36 (18.40)	
LOANREL(Number) ^{Loans}			-14.35 (12.41)
NOT RATED	-2.04 (7.51)	-0.16 (6.26)	-1.16 (6.80)
NOT RATED × LOANREL(Dummy) ^{Loans}	17.75* (10.12)		
NOT RATED × LOANREL(Amount) ^{Loans}		43.23** (20.37)	
NOT RATED × LOANREL(Number) ^{Loans}			27.38** (13.56)
LEVERAGE	-9.02 (16.27)	-13.11 (16.33)	-10.83 (16.29)
COVERAGE	-14.62*** (4.25)	-16.26*** (4.20)	-15.33*** (4.21)
PROFITABILITY	7.70 (15.80)	7.01 (15.60)	7.71 (15.68)
TANGIBILITY	-4.73 (13.96)	-6.28 (13.90)	-5.91 (13.96)
CURRENT RATIO	0.39 (2.60)	0.40 (2.61)	0.54 (2.60)
MARKET TO BOOK	1.24 (1.92)	1.23 (1.91)	1.18 (1.92)
LN(AMOUNT)	-10.88*** (2.38)	-9.70*** (2.39)	-10.39*** (2.37)
MATURITY IN MONTHS	0.14 (0.10)	0.15 (0.10)	0.16 (0.10)
TERM LOAN	-1.14 (6.07)	-1.64 (6.02)	-1.44 (6.04)
REVOLVER	18.56** (7.71)	18.99** (7.72)	19.33** (7.73)
MISCELLANEOUS	-14.66 (12.83)	-11.95 (12.82)	-12.81 (12.83)
TRANCHE	(dropped)	(dropped)	(dropped)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	329	329	329
R ²	0.66	0.66	0.66

C.6 Table 6

Table 6 presents the results from testing hypothesis 3, the likelihood of being chosen as mandated arranger on a current loan transaction if a past lending relationship exists. Column (1) presents the results from the regression including the relationship dummy variable. Column (2) and (3) presents the results from the regressions with the variables relationship amount and number of relationships respectively. The figure in parenthesis below each coefficient is the standard error. ***, ** and * indicate that the coefficient is significant at the one, five and ten percent level respectively.

	(1)	(2)	(3)
Constant	-3.08*** (.65)	-3.28*** (.69)	-3.07*** (.65)
LOANREL(Dummy) ^{Loans}	2.03*** (.07)		
LOANREL(Amount) ^{Loans}		4.27*** (.23)	
LOANREL(Number) ^{Loans}			2.95*** (.10)
LOAN MKT SHARE	6.40*** (.42)	6.92*** (.41)	6.59*** (.42)
LOCATION	1.66*** (.06)	1.71*** (.06)	1.66*** (.06)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	29,200	29,200	29,200
Pseudo R ²	0.24	0.22	0.24

Impact of past lending relationships on the probability of being chosen as the mandated lead arranger

	<i>Probability of being chosen</i>
LOANREL(Dummy) ^{Loans} = 0	4.09%
LOANREL(Dummy) ^{Loans} = 1	24.52%
<i>Increase in probability</i>	20.43%
LOCATION = 0	3.96%
LOCATION = 1	17.86%
<i>Increase in probability</i>	13.90%
LOAN MKT SHARE = 1%	4.57%
LOAN MKT SHARE = 21%	5.35%
<i>Increase in probability</i>	0.78%
LOANREL(Amount) ^{Loans} = 0	13.41%
LOANREL(Amount) ^{Loans} = 1	19.19%
<i>Increase in probability</i>	5.77%
LOANREL(Number) ^{Loans} = 0	19.21%
LOANREL(Number) ^{Loans} = 1	24.21%
<i>Increase in probability</i>	5.00%

C.7 Table 7

Table 7 presents the results from testing hypothesis 4, information opacity's effect on the likelihood of being chosen as mandated arranger on a current loan transaction if a past lending relationship exists. Panel A presents the regression results from the borrower's size effect, Panel B presents the results from the rating effect, and Panel C presents the results from the subsample with only rated borrowers. Column (1) presents the results from the regression including the relationship dummy variable. Column (2) and (3) presents the results from the regressions with the variables relationship amount and number of relationships respectively. The figure in parenthesis below each coefficient is the standard error. ***, ** and * indicate that the coefficient is significant at the one, five and ten percent level respectively.

Panel A: The effect of borrower size			
	(1)	(2)	(3)
Constant	-2.77*** (.62)	-2.72** (1.17)	-2.80** (1.16)
LOANREL(Dummy) ^{Loans}	2.75*** (.20)		
LOANREL(Amount) ^{Loans}		4.34*** (.60)	
LOANREL(Number) ^{Loans}			3.44*** (.30)
MIDDLE	0.35*** (.11)	0.38*** (.10)	0.38*** (.11)
BIG	0.50*** (.11)	0.61*** (.10)	0.53*** (.11)
MIDDLE × LOANREL(Dummy) ^{Loans}	-0.77*** (.24)		
BIG × LOANREL(Dummy) ^{Loans}	-0.99*** (.23)		
MIDDLE × LOANREL(Amount) ^{Loans}		0.36 (.80)	
BIG × LOANREL(Amount) ^{Loans}		0.09 (.84)	
MIDDLE × LOANREL(Number) ^{Loans}			-0.48 (.38)
BIG × LOANREL(Number) ^{Loans}			-0.57 (.37)
LOAN MKT SHARE	6.73*** (.61)	7.47*** (.60)	6.97*** (.61)
LOCATION	1.50*** (.09)	1.63*** (.09)	1.56*** (.09)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	13,049	13,049	13,049
Pseudo R ²	0.26	0.24	0.26

Impact of past lending relationships on the probability of being chosen as the mandated lead arranger

	<i>Probability of being chosen</i>		
	<i>Small</i>	<i>Middle</i>	<i>Big</i>
LOANREL(Dummy) ^{Loans} = 0	3.48%	2.31%	2.17%
LOANREL(Dummy) ^{Loans} = 1	35.99%	26.93%	25.64%
<i>Increase in probability</i>	<i>32.50%</i>	<i>24.62%</i>	<i>23.47%</i>

Panel B: The effect of credit rating			
	(1)	(2)	(3)
Constant	-2.90*** (.66)	-3.07*** (.69)	-2.90*** (.66)
LOANREL(Dummy) ^{Loans}	1.56*** (.13)		
LOANREL(Amount) ^{Loans}		4.14*** (.50)	
LOANREL(Number) ^{Loans}			2.49*** (.22)
NOT RATED	-0.17** (.08)	-0.19** (.08)	-0.17** (.08)
NOT RATED × LOANREL(Dummy) ^{Loans}	0.62*** (.15)		
NOT RATED × LOANREL(Amount) ^{Loans}		0.15 (.57)	
NOT RATED × LOANREL(Number) ^{Loans}			0.57** (.25)
LOAN MKT SHARE	6.45*** (.42)	6.93*** (.41)	6.62*** (.42)
LOCATION	1.65*** (.06)	1.71*** (.06)	1.66*** (.06)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	29,200	29,200	29,200
Pseudo R ²	0.24	0.22	0.24

Impact of past lending relationships on the probability of being chosen as the mandated lead arranger

	<i>Probability of being chosen</i>	
	<i>Not rated</i>	<i>Rated</i>
LOANREL(Dummy) ^{Loans} = 0	7.18%	4.67%
LOANREL(Dummy) ^{Loans} = 1	26.95%	18.95%
<i>Increase in probability</i>	<i>19.78%</i>	<i>14.28%</i>

Panel C: The effect of credit rating - subsample			
	(1)	(2)	(3)
Constant	-2.69*	-3.08**	-3.23***
	(1.59)	(1.24)	(1.25)
LOANREL(Dummy) ^{Loans}	1.57***		
	(.35)		
LOANREL(Amount) ^{Loans}		5.90***	
		(1.91)	
LOANREL(Number) ^{Loans}			3.99***
			(.80)
INV GRADE	0.33	0.32	0.32
	(.31)	(.28)	(.28)
INV GRADE × LOANREL(Dummy) ^{Loans}	0.20		
	(.37)		
INV GRADE × LOANREL(Amount) ^{Loans}		-1.66	
		(1.98)	
INV GRADE × LOANREL(Number) ^{Loans}			-1.50*
			(.83)
LOAN MKT SHARE	9.07***	10.11***	9.60***
	(1.11)	(1.06)	(1.09)
LOCATION	0.74***	0.89***	0.77***
	(.16)	(.15)	(.16)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes
Observations	4,409	4,409	4,409
Pseudo R ²	0.24	0.22	0.23

Impact of past lending relationships on the probability of being chosen as the mandated lead arranger

	<i>Probability of being chosen</i>	
	<i>Non inv grade</i>	<i>Inv grade</i>
LOANREL(Dummy) ^{Loans} = 0	3.83%	6.35%
LOANREL(Dummy) ^{Loans} = 1	16.04%	24.56%
<i>Increase in probability</i>	<i>12.22%</i>	<i>18.22%</i>

C.8 Table 8

Table 8 presents the results from testing hypothesis 5, the likelihood of being chosen as bookrunner on a current bond transaction if a past lending or bond underwriting relationship exists. Column (1) presents the results from the regression including the relationship dummy variable. Column (2) and (3) presents the results from the regressions with the variables relationship amount and number of relationships respectively. The figure in parenthesis below each coefficient is the standard error. ***, ** and * indicate that the coefficient is significant at the one, five and ten percent level respectively.

	(1)	(2)	(3)
Constant	-3.76*** (.41)	-3.73*** (.42)	-3.97*** (.44)
LOANREL(Dummy) ^{Bonds}	0.46*** (.14)		
LOANREL(Amount) ^{Bonds}		1.46*** (.28)	
LOANREL(Number) ^{Bonds}			1.06*** (.20)
BONDREL(Dummy) ^{Bonds}	1.32*** (.10)		
BONDREL(Amount) ^{Bonds}		3.39*** (.26)	
BONDREL(Number) ^{Bonds}			3.55*** (.27)
TOP TIER	0.74*** (.10)	0.81*** (.10)	0.78*** (.10)
MID TIER	0.16* (.10)	0.20** (.10)	0.18* (.10)
LOCATION	0.85*** (.11)	0.98*** (.11)	0.91*** (.11)
Borrower industry dummies	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Observations	17,005	17,005	17,005
Pseudo R ²	0.10	0.10	0.11

Impact of past lending and bond underwriting relationships on the probability of being chosen as bookrunner

	<i>Probability of being chosen</i>
LOANREL(Dummy) ^{Bonds} = 0	3.10%
LOANREL(Dummy) ^{Bonds} = 1	4.83%
<i>Increase in probability</i>	<i>1.73%</i>
BONDREL(Dummy) ^{Bonds} = 0	2.63%
BONDREL(Dummy) ^{Bonds} = 1	9.14%
<i>Increase in probability</i>	<i>6.51%</i>
TOP TIER = 0	2.85%
TOP TIER = 1	5.81%
<i>Increase in probability</i>	<i>2.96%</i>
MID TIER = 0	3.06%
MID TIER = 1	3.59%
<i>Increase in probability</i>	<i>0.53%</i>