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Sung-guan Yun

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THREE ESSAYS ON CREDIT CONTRACTS

By

Sung-guan Yun

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ABSTRACT

THREE ESSAYS ON CREDIT CONTRACTS

By

Sung-guan Yun

This study contains three essays. In the first chapter, we tested the claim that in emerging economies institutional and regulatory constraints deter lenders from monitoring and disciplining firms by studying the experience of South Korean chaebols and their reform of the late nineties. Building on Holmstrom and Tirole (1997) and Sufi (2007), we argue that when a firm is granted a syndicated loan the lead bank retains a large share of the loan to commit to monitoring the borrower. We find evidence that the institutional arrangements of chaebols - especially the bailout protection offered by the South Korean government - diluted lenders' incentives to monitor chaebol firms, as reflected by the concentration of syndicated loans. However, after the reform dismantled the chaebol safety net in the late nineties, banks stepped up their monitoring effort (and toughened lending standards). Although internal governance mechanisms tend to compensate for the lack of creditors' monitoring, in our data such substitutability appears to be only partial.

In the second chapter, I investigated the effects of the protection of creditors' rights on the structure of syndicated loans, such as the shares of the loan held by the lead arrangers and the loan distribution between the lead arrangers and the participant lenders. I found that the average loan concentration (proxy for the intensity of mon-

itoring efforts by the lead arrangers) of the firm, which sets up more provisions for protecting creditor's rights, is lower and the likelihood of the creditors' holding collateral is smaller. However the extent of the impact of such protection on the loan concentration also depends on the degree of the product market competition the firm faces. For the firms that belong to the highly competitive product markets, I found that the impact of the G index is pronounced and the creditors are less likely to hold collateral, and embed fewer financial covenants when the firms are prone to protect creditors' rights.

In the last chapter, I examine the impact of firms' asset liquidation value which is proxied by asset liquidity on debt contracting using comprehensive US syndicated loan contracts. I employ various measures of the asset liquidity at the three-digit industry level. The borrower, belonging to a higher asset liquidity industry at the time of loan origination, experiences a lower loan spread. However as the maturity of a loan increases the impact of the asset liquidity declines. Furthermore I found that the loan spreads are affected by the number of lenders because of the concern about coordination failures, and by the possibility of the borrower's being involved in M&A activities. These results are consistent with incomplete contracting and transaction cost theories of liquidation value and financial structure.

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CHAPTER 1

Institutions, Bank Monitoring, and the Structure of Credit Contracts: Evidence from Korean Chaebols

Abstract

It is often claimed that in emerging economies institutional and regulatory constraints deter lenders from monitoring and disciplining firms. This paper tests this claim studying the experience of South Korean chaebols and their reform of the late nineties. Building on Holmstrom and Tirole (1997) and Sufi (2007), we argue that when a firm is granted a syndicated loan the lead bank retains a large share of the loan to commit to monitoring the borrower. We find evidence that the institutional arrangements of chaebols - especially the bailout protection offered by the South Korean government - diluted lenders' incentives to monitor chaebol firms, as reflected by the concentration of syndicated loans. However, after the reform dismantled the chaebol safety net in the late nineties, banks stepped up their monitoring effort (and toughened lending standards). Although internal governance mechanisms tend to compensate for the lack of creditors' monitoring, in our data such substitutability

appears to be only partial.

1.1 Introduction

The institutional environment of a country and the performance of its credit market are tied to each other. The quality of laws and policies shapes incentives and constraints of firms and lenders and, hence, their behavior in credit transactions. One prominent feature of the credit market that institutions allegedly affect is lenders' monitoring of borrowers. This monitoring activity is a fundamental role of financial intermediaries: by disciplining borrowers, financial intermediaries can channel funds towards efficient projects and mitigate firms' misbehavior (Diamond, 1984; Holmstrom and Tirole, 1997; Carletti, 2004).

The impact that poor institutions have on the discipline exerted by creditors is perceived as an acute problem in emerging economies. For example, to ease the growth of the corporate sector, the governments of emerging economies frequently adopt bailout policies that protect large corporations or business conglomerates from failure. This safety net is blamed for diluting lenders' incentives to monitor firms (see, e.g., Vives, 2006). In emerging economies, lenders' monitoring can also be inhibited by lack of good quality information, for example due to poor accounting rules. In turn, lenders' inadequate monitoring can nurture firms' inefficiency, such as excessive risk taking. Indeed, scholars and policy-makers maintain that a cost of bailout policies is that they weaken market discipline and distort credit allocation (OECD, 2000).[1]

The objective of this paper is to shed new light on the impact of institutions on the monitoring role of the credit market in emerging economies. We study the experience of South Korean business conglomerates (chaebols), an ideal testing ground for our

[1]A broad body of literature investigates the role of financial market development for resource allocation and economic growth (see, e.g., Rajan and Zingales, 1998; Beck, Levine, and Loayza, 2000; Wurgler, 2000; Allen and Gale, 2000). Demirgüç-Kunt and Maksimovic (1998) and Levine (1999) find that strong investor protection and legal enforcement favor economic growth.

purposes. Before 1997, the institutional environment in which chaebol firms operated sharply differed from that of non-chaebol ones. Distressed chaebol firms were protected by a safety net consisting of an implicit government bailout policy and a system of cross-debt payment guarantees among chaebol affiliates. Furthermore, chaebol firms had lower accounting transparency than non-chaebol ones. These institutional arrangements allegedly discouraged lenders from monitoring and disciplining chaebol firms (Lim, Haggard, and Kim, 2003; Nam, Kang, and Kim, 1999). Following the economic crisis that hit South Korea between the end 1997 and the beginning of 1998, this institutional environment was subject to a policy shock, the reform enacted by the South Korean government under the external pressure of the IMF and the World Bank. The government prohibited cross-debt guarantees among chaebol affiliates and abandoned its bailout policy by letting some chaebols go bankrupt. Moreover, it adopted drastic measures to step up the transparency of chaebols, thus making available to lenders more instruments to monitor chaebol firms.

We investigate the impact that the institutional arrangements of chaebols and their reform had on banks' monitoring. There is a consensus in the literature that creditors' monitoring incentives can be inferred from the design of credit contracts (see, e.g., Sufi, 2007). Building on this premise, we match detailed information on chaebols and their reform with rich contract-level data from the Korean syndicated loan market, as well as borrower specific information. The syndicated loan market is ideally suited to study lenders' monitoring activity. A syndicated loan is provided by a group of banks to a borrower. In a syndication, a borrower designates a lead arranger(s), who then turns to potential participant lenders for a co-financing of the loan; in return for arranging and managing the loan, the lead arranger(s) receives a fee from the borrowing firm. Through the relationship established with the borrowing firm, the lead arranger is in a privileged position to investigate and monitor it. However, its costly monitoring effort cannot be observed by the other members of the syndicate.

Therefore, to ascertain its commitment to monitor and induce other lenders to join the syndication, the lead arranger must retain a large stake in the loan as only by putting its own money at risk it will have an interest in the performance of the borrower (Holmstrom and Tirole, 1997; Sufi, 2007). Thus, the structure of a syndicated loan - meant as the loan share of the lead arranger(s) and the concentration of the loan - offers rich information on creditors' monitoring incentives.[2]

The empirical results reveal that, controlling for a variety of firm and contract characteristics and for aggregate effects, the concentration of syndicated loans granted to chaebol firms was lower than that of loans granted to non-chaebol ones and that after the chaebol reform the difference in loan concentration narrowed. This is consistent with our null hypothesis that the safety net generated by the government bailout policy and the chaebol cross-debt guarantees as well as the lack of accurate accounting information diluted lenders' incentive to monitor chaebol firms. When the reform dismantled the safety net and fostered chaebol transparency lenders perceived the need and the possibility to step up their monitoring effort and started to form more concentrated syndicates to provide lead arrangers with monitoring incentives. These results are confirmed when we employ an alternative measure of monitoring intensity, the participation of foreign lenders to the arrangement of syndicated deals. In emerging economies, foreign banks are allegedly tougher monitors than local banks because they can rely on more accurate assessment techniques and are less subject to political pressures (Kroszner, 1998; Giannetti and Ongena, 2008). We then delve deeper into the data to disentangle the channels through which the institutional environment affected creditors' monitoring. First of all, the results are primarily driven by the top five chaebols and only to a lesser degree by smaller, less influential chaebols. Since the "big five" were the chaebols most protected by the bailout policy, this points to a role of the government bailout policy in shaping creditors' monitoring. Second, we find

[2]Syndicated loans are a very important source of firm financing in emerging and developed economies. Later in the analysis, we shall provide evidence on this for the Asia-Pacific region.

that the larger the equity stake of domestic banks in chaebol firms, the lower lenders' monitoring and that this effect faded after the reform. This matches the idea that state controlled domestic banks acted as a channel for bailout execution: until the bailout policy was dismantled, their presence in the ranks of shareholders reassured creditors that the government would intervene in the event of borrower distress.

In the first part of the empirical analysis, we treat the agency problems that lenders' monitoring can mitigate as a black box. In the second part, we take a preliminary step towards investigating this issue and examine the interaction between creditors and shareholders. We obtain some evidence that in firms with worse incentives for controlling shareholders - as reflected in a larger gap between control and cash flow rights - creditors' monitoring was stronger. When the reform improved internal governance mechanisms and the accountability of controlling shareholders, this effect weakened, and especially so for chaebol firms.

The rest of the paper unfolds as follows. In Section 2, we relate the analysis to the prior literature. Section 3 describes the institutional environment. Section 4 outlines testable hypotheses on the impact of chaebol affiliation and reform on the structure of syndicated loans. In Section 5, we provide details on the data. Section 6 presents the core tests and results. In this section, we also argue that our results cannot be rationalized by competing theories on the determinants of syndicate structure (such as the diversification motive theory). In Section 7, we subject the results to a variety of robustness exercises. In this section, we also extend the empirical analysis to evaluate the impact of chaebol institutional arrangements on lending standards, such as the size, maturity and collateralization of syndicated deals. Section 8 concludes.

1.2 Prior Literature

This study relates to two strands of empirical literature. The first strand investigates the determinants of financial contracts. In this strand, the most closely related papers examine lenders' monitoring incentives in the context of syndicated loans. Employing respectively data on syndicated loans to U.S. and U.K. firms, Sufi (2007) and Bosch and Steffen (2008) find that firms' informational opaqueness shapes the structure of debt agreements. While insightful for examining such issues, these studies on Anglo-Saxon economies are of limited help for discerning how institutions prevalent in emerging economies, such as government bailout policies, affect monitoring and discipline in the credit market (Vives, 2006; Schneider and Tornell, 2004).[3] Another set of studies in this literature explore the impact of laws and institutions on financial contracts. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997) demonstrate that countries with better investor protection and legal enforcement have larger and more efficient capital markets. Focusing on equity holdings, La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) find that stronger investor protection encourages investors to hold smaller equity positions. Qian and Strahan (2007) document the role of country-level legal factors, especially creditor protection, in shaping credit contract terms, such as interest rates and loan maturity. Esty and Megginson (2003) use data on project finance loans and investigate how cross-country differences in creditor rights and legal enforcement affect the structure of syndicates. These studies focus on a set of institutions different from ours. In our country study, in fact, we primarily seek to understand whether, for a given court system and legal framework, the policies of protection of business groups set up by the government (such as bailouts and favorable regulatory treatment) distort financial contracting and creditors' monitoring.

[3]Rajan and Zingales (2003) stress the importance of transparency for investors and creditors. La Porta et al. (1998) argue that accounting standards play a critical role in corporate governance by informing investors and rendering contracts more verifiable. Baek, Kang, and Park (2004) find that during the east asian crisis higher disclosure quality was associated with better stock price performance.

Furthermore, a country analysis, in conjunction with the natural experiment offered by the chaebol reform of the late nineties, can help mitigate the measurement and endogeneity issues that affect cross-country empirical settings. For example, in such settings it is hard to control for country specific laws that can affect credit market decisions.

The second related line of research investigates the performance of business groups in financial markets. Bae, Kang, and Kim (2002) test whether chaebol firms benefit from acquisitions or whether such acquisitions just allow controlling shareholders to increase their wealth by increasing the value of other group members ("tunneling"). Hoshy, Kashyap and Scharfstein (1990) present evidence that the investment of firms affiliated to Japanese business groups (keiretsu) is less sensitive to cash flow than that of stand alone firms. They interpret this as evidence that the monitoring performed by main banks within keiretsu mitigates information problems. Business conglomerates of developing countries are an interesting object of research because governments' industrial policy guarantees them a special treatment in the event of distress. A target of our paper is to understand the implications that this has for the monitoring role of the credit market. Moreover, while until recently bailouts have been sporadic in developed economies, during the 2008-2009 crisis the governments of the United States and of other developed countries have rescued several business groups. Thus, our study can also yield insights into the consequences that these bailouts will have on the discipline role of the credit market of advanced economies.

1.3 Institutional Background

This section describes the institutional arrangements of chaebols that can shape creditors' monitoring incentives and the structure of credit contracts.

The Pre-reform Scenario

In South Korea, big business groups, chaebols, are owned and controlled by the founder or his family successor, essentially operated as a single firm, and typically aligned with the government (Choi and Cowing, 1999).[4] More precisely, the South Korean antitrust regulator, the Korean Fair Trade Commission (KFTC), annually defines chaebol affiliates as those for which "either one person, his relatives, or a company controlled by him own more than 30% of issued shares or substantially affect the management (such as appointing its officers) (Chang, 2003)". A chaebol comprises many subsidiary firms (typically around 30-50) which operate in different industries under the same name (e.g., Samsung, LG Electronics, Hyundai Motor Co.). Based on the definition of the Korean Fair Trade Commission, the literature agrees in defining "chaebols" the top 30 conglomerates (Youngmo, 1999; Jung, Kim and Kim, 2008; Hwang, Park and Park, 2008). In addition, "chaebols" have frequently been classified into two categories: the "big five" (Tier1 henceforth), that is the five chaebols with the largest book asset value, and the smaller chaebols (Tier2 henceforth) (Youngmo, 1999). In fact, as we elaborate below, the government treatment of these two classes of chaebols has been quite different, with the bailout policy primarily protecting the top five chaebols (in line with the "too big to fail doctrine").

Chaebols were created during the military dictatorship of the 1960s. In the 1970s, they became the key partners of the South Korean government in promoting economic development. The government, a major stockholder in national commercial banks, channelled banks' credit to chaebol firms to promote strategic sectors (e.g., heavy, chemical, and export-driven industries). Throughout the 1980s and 1990s, chaebols further strengthened their role in the Korean economy and expanded their activity into a broad range of industries, from commodities to high tech, from manufacturing

[4]In 1995, chaebols accounted for about 16% of South Korean GDP, 41% of manufacturing GDP, 5% of employment, 50% of exports, and 14% of total commercial bank loans. The top five chaebols alone accounted for roughly 10% of GDP, over 40% of exports and a third of manufacturing GDP.

to the third sector.

Two institutional arrangements of chaebols are especially relevant for understanding creditors' monitoring incentives. The first is the safety net that protected them. To shield chaebols from the risk of failure, the Korean government supported them with an implicit bailout policy (Lim, Haggard, and Kim, 2003). When a chaebol was in distress, the government intervened by asking domestic, state-controlled banks to write off bad loans.[5] Large chaebol firms in distress received subsidized loans and capital injections through domestic banks during the 1972 debt crisis (see the August 1972 Emergency Decree), the 1979-1981 restructuring of heavy and chemical industries triggered by the second oil shock, and the 1984-1988 wave of business insolvencies. Even in the absence of a bailout, chaebol firms could lobby the Bank Supervisory Board (formerly the Financial Supervisory Commission) for a favorable treatment by creditors (Chiu and Joh, 2004). The government bailout policy was compounded by the network of cross-debt payment guarantees among chaebol subsidiaries, whereby members of a chaebol used their equity to secure the loans granted to other members of the same chaebol. A second key characteristic of chaebols was the lack of reliable accounting information on them. Besides having access to internal capital markets, thanks to the support of the government, chaebol firms could easily obtain bank loans.[6] Hence, they did not need to release accurate information to outside investors to attract financing. The interlocked share ownerships and related party transactions among chaebol firms further inhibited lenders' acquisition of information.

[5]In 1984, the government let a nonviable chaebol (Kukjae) go bankrupt but this was an isolated episode.

[6]Shin and Park (1999) find that the investment of chaebol firms is significantly affected by the cash flow of other members of their chaebol.

The Post-reform Scenario

In the second part of 1997 and the first part of 1998, a severe, albeit relatively short, crisis hit South Korea. When the crisis broke out, the South Korean government asked the IMF for an emergency bailout loan. The IMF provided assistance conditional on a reform of the Korean economy and of the chaebols that restored market discipline. A first step of the reform consisted of dismantling the safety net that protected chaebols. In 1997, the government let six chaebols (Hanbo, Sammi, Jinro, KIA, Haitai, and New Core) go bankrupt, a sort followed in 1999 by the second biggest chaebol, Daewoo. Moreover, the biggest chaebol, Hyundai, was split into Hyundai Motor Vehicle Co. and Hyundai group while the sixth largest chaebol, Ssangyong, and several chaebol affiliates engaged in bank-led workout programs. The decision of the government to let some chaebols go bankrupt or undergo massive restructurings was compounded by the introduction of tougher rules for corporate reorganizations. The amendments to Korea's Commercial Code (*sang-bup*) introduced in February 1998 established strict time limits for in-court reorganizations and strengthened the power of creditors and the reliance on experts in such reorganizations (OECD, 2000). In conjunction with the lifting of the government bailout policy, the reform also marked the progressive resolution of cross-debt guarantees among chaebol subsidiaries from 1998 to 2000.[7]

A second pillar of the reform of chaebols was the improvement in their accounting transparency. To foster the ability of investors to monitor them, beginning in fiscal year 1999 the Korean Financial Supervisory Service requested chaebols to report combined financial statements of all affiliated firms (*kyulhapjaemujepyo* system) rather than consolidated financial statements and to follow international accounting principles, including quarterly reporting.[8] Moreover, external auditors and accounting

[7]The amount of loans with guarantee was 26.9 trillion won in April 1998, 9.8 in April 1999, 4.3 in December 1999, zero in March 2000 (Shin and Chang, 2003).

[8]A combined financial statement brings together assets, liabilities, net worth, and operating figures of two or more companies affiliated to a chaebol. Unlike consolidated financial statements (that include financial information on subsidiaries only), combined financial statements cover all

officers were henceforth to face harsher punishments if they misreported or falsified financial statements.[9]

1.4 Theoretical Hypotheses

In this section, we discuss the theoretical hypotheses. We start with the baseline hypotheses on the impact of chaebol affiliation and chaebol reform on the structure of syndicated loans.

1.4.1 Baseline Hypotheses

Scholars and policy-makers conjecture that the (implicit or explicit) safety net offered by the government bailout policy and the chaebol cross-debt guarantees diluted lenders' incentive to monitor and discipline chaebol firms (see, e.g., Vives, 2006; Schneider and Tornell, 2004; Lim, Haggard, and Kim, 2003; Nam, Kang, and Kim, 1999, and references therein). Creditors' monitoring of chaebols would have been further deterred by the opaqueness of the accounts and the lack of adequate disclosures (Min, 2007). In turn, according to many analyses, the poor discipline imposed by creditors was one of the causes of the low profitability of chaebol firms during the early 1990s. After 1997, the scenario radically changed. The government repeatedly restrained from bailing out chaebol firms and removed cross-debt guarantees so that henceforth creditors should have had stronger incentives to monitor. In addition, creditors now had better tools to monitor chaebol firms, thanks to the introduction of

firms within a chaebol that are *de facto* under the control of the same shareholders (Chang and Shin, 2007).

[9]The chaebol reform carried out in concert with IMF/IBRD was known as the "Five plus Three Principles" (Haggard, Lim, and Kim, 2003). Other objectives of the reform were (1) to reform chaebol financial structures, by reducing debt-equity ratios to 200% by the end of 1999; (2) to establish core competencies of chaebol, for example swapping firms/factories among them; (3) to increase accountability, through the appointment of outside directors to the management boards of the chaebol and through the strengthening of the rights of minority shareholders; and (4) to prohibit interlocking share holdings among group members.

chaebol combined financial statements and more demanding accounting requirements.

Building on the theoretical analysis in Holmstrom and Tirole (1997) and the empirical analysis in Sufi (2007), we use the concentration of syndicated loans as a proxy for creditors' monitoring incentives. Holmstrom and Tirole (1997) show that a lender has a stronger incentive to monitor a borrowing firm when it invests more of its own money in the firm and, hence, has more to lose in the event of its default. Applying this intuition, Sufi (2007) examines the impact of firms' informational transparency on creditors' monitoring by looking at the structure of syndicated loans (e.g., loan share held by lead arrangers or the concentration of the loan). Using loan concentration as a proxy for lenders' monitoring incentives, we can then state the following hypothesis.

Hypothesis 1: The safety net that protected chaebols and the lack of accounting information on them diluted creditors' incentive to monitor chaebol firms. The loans to chaebol affiliated firms were less concentrated than those to non-chaebol firms but after the reform the difference in loan concentration narrowed.

As predicted by the "too big to fail doctrine", the bailout policy of the South Korean government especially protected the top five chaebols, which were viewed as being of systemic importance for the Korean corporate sector (OECD, 2000). Therefore, if the safety net generated by the bailout policy had a role in creditors' monitoring, less intense monitoring was needed for the "big five" chaebols but the need for monitoring them rose disproportionately after the reform.

Hypothesis 2: If the safety net generated by the government bailout policy affected creditors' monitoring, Tier1 chaebol firms were granted less concentrated loans than other firms. After the reform the difference in loan concentration narrowed.

Although our preferred approach to studying creditors' monitoring incentives focuses on the syndicate structure, we can complement this approach with a second test

that looks at the composition - rather than the structure - of syndicates. Multinational banks operating in emerging economies can allegedly count on better technologies and personnel than local banks for processing "hard" information on borrowers, such as accounting information (Detragiache, Tressel, and Gupta, 2008). Moreover, unlike local banks, foreign ones are less connected with firms' management and less subject to political pressures, which can make them more independent monitors (Kroszner, 1998; Giannetti and Ongena, 2008).

Based on these arguments, we expect that the presence of foreign lead arrangers in a syndicated loan signals more rigorous monitoring. We can thus revisit the predictions on creditors' monitoring using the presence of foreign lead arrangers rather than the syndicate concentration as a proxy for its intensity.

Hypothesis 3: Foreign banks acted as lead arrangers less for chaebol firms than for non-chaebol ones. After the reform their role in arranging loans for the two groups of firms became more similar.

1.4.2 Other Hypotheses

We now turn to the channels through which we expect that chaebol institutional arrangements impacted syndicated deals. Faccio, Masulis, and McConnell (2006) argue that when state controlled institutions hold equity positions in distressed firms the government has a stronger incentives to bail them out. Indeed, the domestic banks most exposed to the default of the borrower could pressure the government for a bailout. In addition, the presence of such institutions in the ranks of the firm's shareholders would ease the execution of a bailout. In fact, when a chaebol firm was on the verge of bankruptcy, the government could bail it out through the domestic banks that were stakeholders of the firm in question (see, e.g., the rescue package in the 1972 Emergency Decree). We then expect that before the reform the presence of domestic banks among chaebol firms' shareholders reassured creditors that the

government would intervene in the event of borrower distress. Therefore, if the safety net generated by the government bailout policy affected creditors' monitoring, less intense monitoring was needed for these firms, but the need for monitoring such firms rose after the reform.

Hypothesis 4: If the safety net generated by the government bailout policy affected creditors' monitoring, chaebol firms in which domestic banks had a larger equity stake were granted less concentrated loans than other firms. After the reform, the gap in loan concentration narrowed.

Together with the government bailout policy, the second pillar of the safety net that protected chaebols was the system of cross-debt payment guarantees among chaebol affiliates. This leads to the next hypothesis.

Hypothesis 5: If the safety net generated by chaebol cross-debt guarantees affected creditors' monitoring, firms that could count on more support by their chaebols were granted less concentrated loans. After the reform, loan concentration increased relatively more for these firms.

We will discuss proxies for the financial protection offered by chaebol cross-debt guarantees later in the analysis. Finally, a last important point is that internal governance controls and creditors' monitoring can act as substitutes in ameliorating agency problems within firms. We thus expect that firms with weaker internal governance were monitored less intensively by creditors and that the interplay between creditors' monitoring and internal governance controls changed after the reform. We shall elaborate on these issues shortly.

1.5 Data and Measurement

This section provides details on the data sources, the measurement of the variables, and the properties of the sample. Before delving into the data, however, it is useful

to form an idea about the Korean syndicated loan market.

1.5.1 Preliminary Observations

Figure I plots the total volume of syndicated loans granted in South Korea in each year between 1992 to 2007 (the data are from various issues of the Securities Statistics and Syndicated Loans of the Bank for International Settlements). In the left panel, we compare it with the volume of syndicated loans in the whole Asian Pacific region, in the right panel with the volume of syndicated loans in the single countries of the region. The Korean syndicated loan market was very active from 1994 to 1997 (averaging about eight billion U.S. dollars per year). When the crisis occurred in 1997, the volume of syndicated loans dropped dramatically. After the crisis, the market began to expand again and in 2005 it reached the pre-crisis level. In 2007, the volume of loans experienced a considerable rise (about 70%) relative to the previous year level. As Figure I makes clear, the pattern of activity of the Korean syndicated loan market is similar to that of the other countries of the region, though on a larger scale.

1.5.2 Data Description

We draw the data for our empirical analysis from six sources: the Loan Pricing Corporation's DealScan database compiled by Reuters; the KIS-Line data providing system operated by Korea Investors Service Inc., a major Korean credit rating company; the database on chaebol affiliation of the Korean Fair Trade Commission (KFTC); the analysis of chaebols by Lee (2005); the DART system, an electronic disclosure system run by the Korean Financial Supervision Service; and the Compustat Global Financial Services file. We obtain our sample of syndicated loans from DealScan,[10] which

[10] DealScan registers loans at the origination. League tables ranking the major providers of loans are used for marketing purposes in the syndicated loans market. Therefore, as also noted by Ivashina (2008), it is in the interest of lenders to report these data.

contains detailed information on terms, lead arrangers, and participant lenders of the syndicated contracts. The original sample includes 4,692 syndicated loans granted from July 1990 through September 2007 to firms located in Korea. For the 1990-1992 period there are only a small number of loans (16) in the dataset and for some of these loans we lack information on their characteristics. Thus, we drop these observations. After excluding financial firms (SIC codes 60-64) and government agencies (SIC codes 91-99), there remain 2,686 loans. We also exclude deals that do not have lead arrangers, bilateral loans, and loans granted to firms not identified in the KIS-Line dataset. We then use the KIS-Line data bank to match loans with the characteristics of borrowing firms (except for data on firms' ownership structure which we obtain separately from the staff of KIS-Line). KIS-Line is the largest and most comprehensive data bank in Korea in terms of information on firms (including their corporate finance and governance) and business groups. We hand-match the syndicated loans in DealScan with the firm-level data in KIS-Line based on firm names and industry classification codes. A problem we face in this matching procedure is that in the aftermath of the crisis a number of firms went through various kinds of restructuring and, in the process, some changed name. DealScan sometimes refers to the old names of borrowing firms so that we have to trace the history of firms that changed name. For this purpose, we checked history profiles on firms' websites. Usually, the websites report the date in which a firm changed name and information about when it merged or was split (if it did). To double-check the identification and obtain some missing information, we integrate the websites with the KIS-Line's firm profile and the DART system, which allows companies to submit disclosures online. The firms for which neither the websites nor KIS-Line's firm profile or the DART system provide enough information for identification are dropped from the sample. After the whole data cleanup, we are left with 1,626 loans granted to 242 non-financial firms.

In order to identify chaebol affiliation, we use the KFTC database and the analysis

by Lee (2005). The KFTC database presents the firms affiliated to chaebols from 2001. For the years prior to 2001, we identify chaebol affiliated firms by referring to Lee (2005). Furthermore, for the purposes of this paper, we do not classify the privatized POSCO, KT&G and KT groups as chaebols because, although since 2001 they have been classified as such, their equity ownership is dispersed and no individual person or family controls the conglomerate. As anticipated, in our analysis we classify the top five chaebols for book value of assets as Tier1 chaebols and the lower ranked chaebols as Tier2 chaebols. The key reason for this distinction is that the government bailout policy especially protected the "big five" (see, e.g., OECD, 2000). Thus, we expect that the effect of the bailout policy on the structure of credit contracts was especially strong for firms affiliated to these chaebols.

In the robustness analysis, we also employ lender specific variables. For the data on domestic banks, we rely on KIS-Line (with the exception of the Korean Development Bank for which we resort to Compustat files because KIS-Line does not provide information for the early 1990s). For the data on foreign banks, we instead resort to the Compustat Global Financial Services file.

1.5.3 Measurement

A critical step in the empirical analysis is the identification of the lead arrangers of the syndicated loans. We use two approaches. The first is borrowed from Ivashina (2009) who, following in turn the Standard & Poor's definition, identifies lenders using the titles in a syndicated loan. The administrative agent is defined as the lead arranger. If the syndication does not have an administrative agent, the lender(s) acting as book runner, lead arranger, lead bank, lead manager, agent, or arranger is (are) defined as the lead arranger(s). The second approach relies on Sufi (2007). DealScan's custom report feature lists two lender categories under the headings of "Lenders-Lead Arranger" and "Lenders-All Lenders". Following Sufi (2007), we thus treat lenders

as lead arrangers if they are classified under the heading of "Lenders-Lead Arranger" and as participants if they are classified under the heading of "Lenders-All Lenders" but not under the heading of "Lenders-Lead Arranger". In this paper, we mainly rely on the approach of Ivashina (2009) while we use the categorization of Sufi (2007) as a robustness check. The results obtained with the two measures are virtually identical.

To measure the concentration of a loan, we construct two variables: the percentage share of the loan held by the lead arranger(s) (hereafter, also *lead share*); and the Herfindahl-Hirschmann index (*herfindahl*), calculated using the shares of the loan of the syndicate members. The Herfindahl index is computed as the sum of the squared individual shares of the loan and ranges from zero to 10,000, with 10,000 being its value when a lender retains 100% of the loan. In our sample, the correlation between the two measures of concentration is 0.9665. In some tests, we also experiment with the *number of lead arrangers* and the *number of participant lenders* as further (less precise) proxies for loan concentration. The dummy variables *chaebol*, *Tier1 chaebol* and *Tier2 chaebol* take on the value of one when a firm belongs to a chaebol, a Tier1 chaebol, and a Tier2 chaebol respectively, and zero otherwise. To capture the effect of the chaebol reform, we construct a binary variable, *reform*, which takes on the value of one if the loan was originated after 1997 and zero if it was originated prior to 1998. Scholars and policy-makers agree in identifying 1998 as the year in which the government laid out and implemented the key steps of the reform (see, e.g., OECD, 2000, or Krueger and Yoo, 2002). However, the reader could remain concerned that some aspects of the reform were carried out in stages between 1998 and 2000 and that the change in the institutional environment could have had lagged effects on lenders' behavior. For this reason, in the robustness section we also report results obtained allowing for a transition between the pre-reform and the post-reform period. The variable *foreign arranger* is a dummy taking on the value of one if at least one of the lead arrangers of the loan is foreign, and zero otherwise. In constructing this

variable we have to account for the fact that some foreign banks (e.g., SC First Bank and Korea Exchange Bank) had operated as domestic banks before being acquired by foreigners. We classify such banks as domestic because their management - and, allegedly, their practices - did not change significantly after the transfer of ownership. The variable *domestic bank equity* measures the percentage of equity held by domestic banks in the firm. *Chaebol leverage* is instead the ratio of the total sum of liabilities to the total sum of assets of a chaebol affiliates.

Turning to firm specific characteristics, the literature has identified three main determinants of creditors' monitoring. The first is the amount of public information available on the firm. The larger the amount of public information, the lower the need for lenders to monitor the business. Following prior studies (e.g., Petersen and Rajan, 1994), we use two proxies for the informational transparency of a firm, its age and its size. Old firms have a better established track record so that more information regarding them is publicly available; large firms receive more attention by analysts and the financial press. We compute the *age* of a firm as the number of days from its inception to the loan origination date. We use various measures of firm size. We experiment with the total assets and gross sales of the firm (both expressed in trillions of South Korean won) and with the number of employees in the year in which the loan starts. The results are uniform across the three measures and, henceforth, we concentrate on total *assets*. The literature also underscores the importance of the ex-ante quality and riskiness of a firm in determining lenders' monitoring: the lower the quality and the higher the riskiness, the more intense monitoring needs to be. We measure quality with the profitability of the firm, as given by the (net) *income/total assets* ratio. We instead measure riskiness with the *leverage* ratio (total liabilities to total assets): leverage is often employed to forecast the probability of default of a firm. Finally, the literature emphasizes that the higher the value of the liquid, pledgeable returns of a firm, the lower the need for creditors to monitor it (Holmstrom

and Tirole, 1997). We thus insert the ratio *working capital/total assets* to capture liquidity, where working capital is computed as the difference between current assets and current liabilities. Moreover, we enlist the ratio *tangible assets/total assets* to control for asset tangibility. Another important aspect we are interested in capturing in the empirical tests is the ownership structure of a firm. KIS-Line lists the names of firm shareholders, their percentage equity shares, and their relationships to the firm. Based on this information, we construct the two measures proposed by Joh (2003), *block ownership concentration* and *control ownership gap*. More details on these measures will be provided later in the analysis. We also include one-digit sector dummies to control for industry attributes and year dummies to control for macroeconomic effects.

Finally, in the empirical analysis we employ a number of contract specific characteristics. These include the size of the loan (expressed in millions of U.S. dollars), its maturity (expressed in days), as well as whether the loan is secured or not. We also insert dummies for the purpose of the loan.[11]

1.5.4 Sample Properties

Table 1.1 presents sample summary statistics broken down into loan, firm and chaebol characteristics. Our dataset records more loans originated after the reform than before it (1027 versus 591 if we treat 1998 as the first year of the post-reform period). This stems from the differences in the number of years and in the volume of activity of the Korean syndicated loan market between the two periods (as Figure I makes evident). Tier1 chaebol firms are the most active borrowers (637 deals) followed by non-chaebol ones (581 deals) and Tier2 chaebol firms (400 deals). These figures reflect the size of the five largest chaebols. The average loan counts about 6.5 lenders, 3.4 lead arrangers

[11] Possible purposes of a loan are: general corporate purposes/working capital, takeovers and acquisitions, leveraged buyout, debt repayment/capital expenditure, other.

and 3.1 participant lenders. Compared for instance with the U.S. syndicated loans examined by Sufi (2007) for the 1992-2003 period, the number of lead arrangers is twice as large whereas the number of participant lenders is almost half. For 1,023 loans, we know the shares held by the members of the syndicate. The average share held by the lead arranger(s) is 25.8% and the average value of the Herfindahl index for the loan shares is 3233. The statistics for a firm are computed as the average across the loans granted to the firm. The mean age of a firm is about 22 years and its average number of employees is 3,645. The average total assets amount to 2.5 trillion South Korean won (1.98 billion U.S. dollars at the end-of-2000 exchange rate). The mean leverage ratio is 0.63, a high figure compared with the mean leverage ratio of 0.34 of the U.S. firms examined by Sufi (2007). This reflects the large amount of debt accumulated by Korean firms before the crisis (OECD, 2000). Turning to loan characteristics, the most common loan purpose is general corporate purposes/working capital followed by debt repayment/capital expenditure. The average size of a loan is 302 million dollars and the average maturity is about six months (the corresponding figures for the U.S. loans investigated by Sufi, 2007, are 364 million dollars and about three months). Roughly 22% of the loans are secured.

Table 1.2 also investigates differences between chaebol and non-chaebol affiliated firms. Let us first consider the structure of syndicated loans. Tier1 chaebol firms have the lowest loan concentration, whether this is measured by the total share kept by the lead arranger(s) or the Herfindahl index. For Tier1 and Tier2 chaebol firms loan concentration significantly rises from the pre- to the post-reform period while for non-chaebol firms loan concentration is roughly the same in the two periods (the Wilcoxon test is not significant at meaningful levels). The average number of lenders in syndicated loans to Tier1 chaebol firms is 7.6 which is larger than that in loans to Tier2 chaebol or non-chaebol firms (5.6 and 6 respectively). Such a difference is more pronounced before the reform. The number of lead arrangers is the largest

for Tier1 chaebol firms both on average and in each of the two sub-periods. This is also true for the number of participant lenders, although for Tier1 chaebol firms the number of participants exhibits a decline after the reform. All in all, inspection of the unconditional means suggests that loan concentration tends to be lower for chaebol (especially Tier1 chaebol) firms than for non-chaebol ones but that the difference narrows after the chaebol reform. Turning to firm characteristics, Tier2 chaebol firms are the oldest and non-chaebol firms are the youngest. Looking at employees and total assets, Tier1 chaebol firms are the largest while Tier2 chaebol and non-chaebol firms have similar size. The leverage ratio does not vary much across the three groups but it significantly declines after the reform, especially for Tier1 and Tier2 chaebol firms.[12] Profitability, proxied by the income to total assets ratio, does not differ between Tier1 and Tier2 chaebol firms while on average non-chaebol firms have a negative income after the reform. The ratio of tangible assets to total assets is roughly 0.4 for all groups and remains stable over the sample period.[13]

1.6 Empirical Tests and Results

In this section, we discuss the empirical models and our core findings. We start with the baseline results and then try to disentangle the channels through which chaebols impact the structure of syndicates.

1.6.1 Chaebols and Syndicate Structure

The baseline model we estimate is

$$Synd_{ijt} = \alpha + \beta_t + \gamma_1 Chaebol_j + \gamma_2 Chaebol_j \cdot Reform + X_j\delta + X_i'\xi + \varepsilon_{ijt}. \quad (1.1)$$

[12] After the reform, leverage converged to about 0.60 for all the three groups.

[13] Looking at loan characterisics, on average the loans to non-chaebol and Tier2 chaebol firms were larger, of longer maturity, and more frequently secured than those to Tier1 chaebol firms.

The dependent variable is a measure of the structure of syndicated loan i granted to firm j in year t, such as the total share retained by the lead arranger(s) and the Herfindahl-Hirschmann index for the loan shares. The key right-hand-side variables of interest are *chaebol* and its interaction term with *reform:* the coefficients γ_1 and γ_2 measure how "chaebol affiliation" and "affiliation after the reform" affect the structure of the loan. In the analysis, we also differentiate between Tier1 and Tier2 chaebol firms (replacing *chaebol* with *Tier1 chaebol* and *Tier2 chaebol).* In the richest specification, the vector X_j of firm-level control variables include (the natural logarithm of) firm total assets, the leverage ratio, the ratio of income to total assets, (the natural log of) firm age, the ratios of tangible assets to total assets and working capital to total assets, and industry dummies. The vector X_i' of contract-level control variables comprise (the natural logs of) loan maturity and loan amount, and dummies for the loan purpose and for whether the loan is secured or not. We also insert the time (year) dummies β_t to control for macroeconomic conditions that affect all firms. Finally, throughout the analysis, we use robust standard errors clustered at the firm level.

As discussed earlier, our main hypothesis is that the safety net generated by the government bailout policy and the chaebol cross-debt guarantees, together with the poor quality information available on chaebols, diluted lenders' incentives to monitor chaebol firms. Under this hypothesis, the impact of chaebol affiliation on loan concentration - as captured by the coefficient γ_1 - should be negative. As for the coefficient γ_2 on the interaction term, this reflects the impact that the chaebol reform had on the structure of syndicated loans granted to chaebol firms and, hence, on lead arrangers' incentive to monitor such firms. We expect γ_2 to be positive, reflecting a step-up in creditors' monitoring effort after the safety net was dismantled and the quality of accounting information on chaebols improved.

Table 1.3 displays the results of the baseline model. In Panel A regression (1),

we use the Herfindahl index as the dependent variable. The estimated coefficient on *chaebol* is negative while the coefficient on the interaction term is positive, with the coefficients being statistically significant at the 10% and 5% level, respectively. The magnitude of the impact appears to be sizeable: the affiliation to a chaebol reduces the Herfindahl index by 516.9, that is approximately 16% at the sample mean. When we add a battery of firms' characteristics, as in regressions (2)-(4), and loan attributes (regression (4)) the signs and significance of the coefficients do not change (except in regression (3), in which the coefficient of *chaebol* becomes marginally insignificant).[14] In Panel B, we use the loan share of the lead arrangers as a measure of loan concentration. The results are confirmed: for example, in the most parsimonious specification of regression (5) chaebol affiliation results in a lower loan share of the lead arrangers by approximately 22% at the sample mean. Overall, the estimates support our main hypothesis that the safety net that protected chaebols and the lack of quality information deterred creditors' monitoring of chaebol firms and that after the reform creditors set up stronger monitoring incentives. The results for firm-level controls are also in line with expectations. In regressions (2) and (3), the negative coefficient on *(log)assets* indicates that as firm size expands loan concentration declines. This suggests that higher firm transparency, as reflected in a larger business size, requires less intense monitoring and, hence, lower borrowing concentration. The coefficient on leverage is positive and statistically different from zero. As for the coefficient on income to total assets, this is negative and also significant (at the 1% level). These findings are consistent with the conjecture that worse firm financial conditions, as reflected in a higher leverage and a lower profitability, call for more intense monitoring and higher borrowing concentration. In Panels C and D of Table 1.3, we reestimate the regressions differentiating between Tier1 and Tier2 chaebol firms. The estimates reveal that the effect of chaebol affiliation and of the policy reform on loan concen-

[14] Clearly, in regression (4) including loan characteristics may be the source of an endogeneity problem.

tration are pronounced for Tier1 chaebol firms. For Tier2 chaebol firms, the impact of chaebol affiliation is instead considerably weaker and seldom significant. However, after the reform the affiliation to a Tier2 chaebol appears to have a positive and statistically significant effect on loan concentration.

Panel A in Table 1.4 tabulates the point estimates obtained focusing on the number of lead arrangers. The coefficient γ_1 in regression (4) turns out positive and significantly distinct from zero at the 5% level of confidence. The sign of γ_1 reads the same way as in the regressions in Table 1.3. The regressions in Panel C offer some evidence that Tier1 chaebol affiliation positively affects the number of lead arrangers (while Tier2 chaebol affiliation appears to have no impact).[15]As columns (2)-(3) illustrate, the coefficient on firm assets is statistically different from zero at the 5% level and suggests that as firm size increases more lead arrangers join the deal. Size also appears to explain most of the variation in the number of participant lenders.

The stronger economic and statistical significance of Tier1 chaebol affiliation and reform points to a role of the government bailout policy in shaping creditors' monitoring incentives. In fact, the bailout policy targeted the "big five" chaebols because of their systemic importance in production and employment (OECD, 2000; Nahm, 2003; Jang, 2001). The finding that the effect for Tier2 chaebol firms is weaker can signal that for smaller chaebols there were lower expectations of bailouts and, hence, lenders' monitoring was somewhat stronger (and, in turn, the effect of the reform weaker).

1.6.2 Chaebols and Foreign Banks

It is often argued that in emerging economies foreign banks are less subject to political pressures and, hence, are tougher monitors than local banks (Kroszner, 1998;

[15]In an unreported table, we also reestimate the regressions by constraining the coefficients on Tier2 chaebol and non-chaebol firms to be the same (thus, in these estimations Tier2 chaebol and non-chaebol firms are the omitted group). The results carry through.

Giannetti and Ongena, 2008). Moreover, internationally active financial institutions (e.g., multinational banks) employ better trained loan officers, a more advanced information technology, and more accurate risk assessment techniques. Thus, if our main hypothesis is valid we would expect that the role of foreign banks as lead arrangers was weaker for chaebol than for non-chaebol firms and that it strengthened after the reform. To test these predictions, we estimate the following regression

$$\begin{aligned} P_{ijt}(foreign\ arranger_i = 1) = \Phi(\alpha + \beta_t + \delta_1 Chaebol_j + \\ \delta_2 Chaebol_j \cdot Reform + X_j\delta + X_i'\xi + \varepsilon_{ijt}), \end{aligned} \tag{1.2}$$

where *foreign arranger* is a binary variable that takes on the value of one if the lead arrangers of loan i are foreign banks, and zero otherwise,[16] while X_j and X_i' are the vectors of firm- and contract-level control variables already incorporated in equation (1.1).

In Table 1.1, we report summary statistics for the involvement of foreign banks in syndicate formation. The percentage of the loans that have foreign lead arrangers is 20%, with this figure being lower(15%) for Tier1 chaebol firms before the reform.

In Table 1.5, we present the results obtained using a probit model (the results of a linear probability model are essentially the same). In line with our hypothesis, the regressions provide some evidence that chaebol affiliation reduces the probability that foreign lenders act as lead arrangers. However after the reform, for Tier1 chaebol firms, the probability increased.

[16] An individual foreign bank can play a role of the lead arrangers in the three different settings; as a single lead arranger, or as one of them for the loans whose lead arrangers are all foreign banks, or as one of them for the loans whose lead arrangers are a mixture of foreign and domestic banks. The participation decision of foreign banks as a lead arranger in the third setting may be affected by that which domestic banks become their counterparts. About 40% of the loans belonging to the third case have Korea Development Bank, which is owned by the government, as one of the co-lead arrangers. Apart from the asymmetric information problem, a bailout expectation may have affected the foreign banks' participation decision when one of the co-lead arrangers is a domestic bank which is heavily controlled by the government. To be true to the theory, the loans whose lead arrangers are all foreign banks are considered as the treatment group in our analysis.

As for the control variables, firm size and (to a lower extent) profitability positively affect the probability that a foreign bank is a lead arranger. The result for size perhaps reflects the fact that foreign lenders are more skilled at monitoring large businesses. For example, Detragiache, Tressel, and Gupta (2008) show that foreign banks are relatively better at interpreting "hard" information than "soft" information, and big firms typically have richer hard information (e.g., credit reports and ratings) than small ones.

As a robustness check, we redefine the binary variable *foreign arranger* with the one which takes the value of one if the lead arranger is a single foreign bank, zero otherwise.[17]The estimates - reported in Panel B of Table 1.5 - confirm the previous findings.

1.6.3 The Role of the Safety Net

The tests that follow aim at further disentangling the role of the chaebol safety net in influencing creditors' monitoring.

Domestic Banks' Equity and Political Connections

While Korean banks were privatized in 1981-1983, the Government influenced credit allocation through the appointment of bank CEOs until 1993 and its approval of bank CEO appointments until political democratization began in 1997 (Yoo, 1999; Joh, 2001). Top bank managers often had short-term appointments (around three years), which meant that they only needed to prop up failing firms for a few years to avoid loan defaults during their tenure (Chiu and Joh, 2003). The pressure on the government to rescue troubled chaebol firms is likely to have been particularly

[17]A foreign bank will be more willing to arrange the loans with other foreign banks when its own information on the firms is limited, and other banks' information is complementary. If this is the case, then the probability of the loans being arranged by a single foreign bank will be higher for the firms on which information is more available.

strong when domestic banks controlled by the government held an equity stake in the firms (Faccio, Masulis, and McConnell, 2006). Additionally, the main channel through which the government could carry out bailouts was the intervention of domestic banks. These arguments suggest that creditors' expectation of a bailout should have been higher - and, correspondingly, their incentive to monitor chaebol firms lower - when domestic banks held a larger equity stake in the firms. To verify this hypothesis, in Table 1.6 we reestimate the regressions by inserting the percentage equity share of domestic banks, its interactions with the Tier1 and Tier2 chaebol dummies, as well as the triple interactions with the reform dummy.

The results shown in columns (1)-(3) strongly suggest that the equity stake of domestic banks negatively impacts the concentration of syndicated loans granted to chaebol firms before the reform. Especially for Tier2 chaebol, such impact was pronounced as shown in columns (7)-(12). In the triple interaction for Tier1 chaebol in columns (7)-(12), the loan concentration decreased after the reform.

This is in line with our hypothesis. A stronger presence of domestic banks in firm ownership would have raised the chances of a government bailout, reducing the need for monitoring.

However, after the reform the probability of a government bailout declined, shutting down the channel through which domestic banks could support distressed firms. To double check the presence of an "equity participation" channel, we consider other entities whose equity participation may affect lenders' monitoring incentives, such as the central and provincial governments (while excluding domestic banks' equity shares). The results (non-tabulated to conserve space) are similar to those obtained in the regressions where only domestic banks' equity is considered: especially for Tier 2 chaebols the effect is pronounced in the pre-reform period but it vanishes after the reform.

Following Faccio, Masulis and McConnell (2006), in additional tests in Table 1.11

we also consider the effect of chaebol informal political connections as a channel alternative to domestic banks' equity participation in offering protections to chaebol firms. We construct the measure of political connection as a binary variable that takes on the value of one if at least one of the equity holders of the chaebol (equity share $\geq 1\%$) was a member of the National Assembly of Korea in the year of origination of the loan. However, the estimated coefficient on this indicator is not significant.

Intra-Chaebol Effects

The previous tests suggest that the government bailout policy shaped creditors' monitoring. We now attempt to isolate the role (if any) of the chaebol cross-debt guarantees, the second pillar of chaebol safety net. With this objective, we allow the coefficients on *chaebol* and the interaction term with the *reform* dummy to vary according to key characteristics of the chaebol a firm belongs to (if any). Building on Shleifer and Vishny (1992) and the related literature, our preferred way to capture the role of cross-debt guarantees among chaebol affiliates is looking at the correlation between the financial conditions of the firm and those of the other chaebol members. When this correlation is high the firm will tend to encounter distress when other firms of the chaebol are also in trouble (i.e., the chaebol will have less diversified activities). This will erode the protection offered by the chaebol cross-debt guarantees, requiring more intense monitoring on the part of creditors. We compute the correlation between the net income to total assets ratio of the firm and that of the other chaebol affiliates. The results (reported in Table 1.7, Panel C) indeed reveal that firms whose income comoves more with that of their chaebol receive more concentrated loans but that this effect weakened after the reform. A second, more simplistic way to capture intra-chaebol effects is to look the impact of chaebol leverage. In Table 1.7, Panel Band we find a significantly negative effect of chaebol leverage on loan concentration and the coefficient on the interaction with the *reform* dummy indicates that

this effect weakened after the reform. One interpretation for the impact of chaebol leverage is that this is picking up the positive impact that the debt capacity of the chaebol has on the safety of the borrowing firm (thus, requiring lower monitoring on the part of creditors). In turn, the coefficient on the interaction term suggests that, by removing the system of cross-debt guarantees, the chaebol reform may have led lenders to pay less attention to the financial conditions of the chaebols and more to those of the individual borrowers. All in all, though non-conclusive, the findings thus point to a role of chaebol cross-guarantees in impacting creditors' monitoring: in the pre-reform period, the financial conditions of the chaebol would have been factored in determining lenders' monitoring effort; after the reform banned cross-debt payment practices, this effect would have disappeared.

1.6.4 Internal and External Governance

Thus far, we have left the interaction between creditors and firm shareholders in the background. We now turn to examine this interaction, possibly shedding light on the corporate governance issues that creditors' monitoring can ameliorate. In South Korea, large shareholders (typically the firm founders or they families) control firms even if they own little equity in them (Joh, 2003). This occurs because ownership is dispersed and institutional investors do not scrutinize firms effectively. In the case of chaebols, the divergence between control and ownership rights is exacerbated by pyramid structures and cross-share holdings among firms. The corporate governance literature stresses that when control rights are larger than ownership rights inefficiencies can arise because controlling shareholders benefit from expropriating firm resources (such as pursuing private benefits at the expense of other stakeholders) but suffer only in part from the costs of expropriation (Shleifer and Vishny, 1997).[18]

[18]The abuse of controlling shareholders may take various forms, such as cash flow appropriation or asset stripping (La Porta et al., 1998). Bae, Kang and Kim (2002) find that while minority shareholders of a chaebol affiliated firm making an acquisition lose, on average the controlling shareholder

By reducing the divergence between control and ownership rights, a concentrated ownership should help align the incentives of large shareholders with those of other stakeholders (Claessens, Djankov, Fan, and Lang, 2002).

On the ground of these arguments, one can conjecture that creditors' monitoring and the internal mechanisms of control of large shareholders, as proxied by an appropriate measure of ownership concentration, act as substitutes in disciplining firms. To test this hypothesis, we use the two measures of internal governance proposed by Joh (2003). The first is the *bloc ownership concentration*, defined as the sum of the largest equity shares of the firm, excluding institutional shareholders (financial institutions and non-financial corporations), foreign owners, government, and employment stock ownership stakes. The reason we only include large personal holdings is that before the 1999 revision of the South Korean Commercial Law institutional investors could not exercise full voting rights (for instance, the "shadow voting" rule forbade financial institutions from voting on firm decisions).[19]As a second (inverse) metric of internal governance controls we use the *control ownership gap*, defined as the difference between the total equity holdings of the top shareholders and *ownership concentration*. When constructing *ownership concentration* and *control ownership gap*, we experiment both using the top ten and the top eight shareholders. The results in Table 1.8 suggest that ownership concentration negatively affected loan concentration (*lead share* or *herfindhal*), with the coefficients significant at the 10% or 1% level (see Panel A). Moreover, these effects weakened after the chaebol reform. The evidence is however less compelling when we insert *control ownership gap* rather than *ownership concentration* in the regressions: the coefficients are positive and statistically significant only when we consider the top eight shareholders (see Panel B).

benefits because the acquisition enhances the value of other firms in the chaebol.

[19]Using a large sample of South Korean firms observed over the 1993-1997 period, Joh (2003) finds that the largest shareholder of a publicly traded firm (and her family) owned about 31.7% of shares on average while controlling shareholders of privately held firms owned 49.5% of shares on average. Claessens et al. (2000) report that frequently the largest and controlling shareholder or family members are among the top executives.

Turning to the role of chaebol affiliation before and after the reform, we obtain that, after controlling for *ownership concentration* or *control ownership gap*, the results for *chaebol* and its interaction with the *reform* dummy carry through (see Table 1.9). Whether the stronger misalignment between control and ownership rights inside chaebols had repercussions on creditors' monitoring decisions is then tested by interacting *chaebol* with the two governance indices.[20]The interactions between the *chaebol* dummy and *ownership concentration* or *control ownership gap* are significantly negative (Table 1.10). This could suggest that the interplay between internal and external governance controls is different for chaebol firms. Overall, though not conclusive, the results suggest that creditors could need to monitor less intensely firms in which ownership rights are better aligned with control rights. The finding that after the reform the impact of ownership concentration on the structure of credit contracts weakens could reflect the fact that the reform strengthened creditors' rights and mitigated corporate governance problems (Shin and Chang, 2003). In fact, the South Korean government implemented several steps to curb the power of controlling shareholders, such as lifting the limitation on the voting rights of institutional investors, introducing a system of class action, and improving the accountability of directors (e.g., through the appointment of individuals from outside the companies to the boards of directors). The reform thus rendered the rights of all stakeholders, including creditors, better secured.

1.6.5 Monitoring or Diversification?

We have interpreted the results in light of theories on creditors' monitoring, such as Holmstrom and Tirole (1997) and Diamond (1984). The main competing explanation for the structure of syndicates hinges on the diversification motive: lead arrangers

[20]The summary statistics in Table 1.2 reveal that on average Tier1 chaebol firms have the lowest *ownership concentration* and the largest *control ownership gap*.

could choose to syndicate out a loan to a larger number of participants to spread the risk of default. For example, Qian and Strahan (2007) find evidence of such a behavior in countries where creditors' protection is worse. We contend that our results cannot be rationalized by the diversification motive. In fact, the safety net generated by the government bailout policy and the cross-debt guarantees mitigated the risk suffered by lenders - indeed, we believe this is why creditors' monitoring incentives should have been diluted. If the diversification story held, we would then expect that before the reform lenders diversified loans less, and that the need for diversification rose after the safety net was dismantled. This is the opposite of what we find in the data.

1.7 Further Tests

We check the robustness of our results with various tests. We then extend the analysis to study the impact of chaebol institutional arrangements on lending standards, namely loan size, maturity and collateral requirements.

1.7.1 Robustness

We perform a variety of robustness tests (selected results are displayed in Table 1.11 while others are not tabulated to conserve space). First, we reestimate all the regressions by partitioning the sample between the pre- and the post-reform period rather than interacting the *chaebol* indicator variable with the $reform$ dummy. The results carry through (details available upon request). A second robustness check consists of allowing for a transition phase between the pre- and the post-reform period to account for the progressive implementation of some aspects of the chaebol reform. The estimates obtained treating 1998 and 1999 as a transition period read the same way as those discussed so far: the effect of the reform appears concentrated in the post-transition period (see Table 1.11, Panel A). A third robustness exercise con-

sists of controlling for lenders' characteristics. In fact, a growing body of theoretical literature (e.g., Carletti, Cerasi and Daltung, 2007) predicts that lenders' financial conditions could drive their monitoring decisions. We construct two variables, the ratios *cash/total assets* and *capital/total assets*, to gauge the lead arrangers' liquidity and capitalization (if there is more than one lead arranger, here we treat the one with the largest portion of the loan as the lead arranger). Because information on these items is only available for a subset of our sample, in this specification we suffer a substantial loss of observations. The (untabulated) results are robust to the inclusion of these variables; moreover, lenders' liquidity and capitalization have no significant impact on loan concentration. Next, we reestimate all the regressions using the definition of lead arranger(s) of Sufi (2007), obtaining virtually identical results.

A further robustness check consists of controlling for geographical location. In our setting, this does not constitute a major issue as most economic activity in South Korea is concentrated in the area of Seoul and economic conditions are not too dissimilar across regions. Nevertheless, to assuage possible concerns, we experiment by inserting a dummy that takes on the value of one if the firm is located in the capital city area, and zero otherwise. The (unreported) results remain largely unaltered and the geographical dummy turns out to be statistically insignificant. In a supplementary test, we experiment with an alternative measure of concentration proposed by Hannan (1997) which is computed by subtracting the inverse of the number of lenders from the Herfindahl-Hirschmann index. This measure partly mitigates the impact of the number of lenders on the Herfindahl index and, hence, better reflects loan share asymmetries for a given number of lenders. The results carry through when we replace the Herfindahl index with this dependent variable (see Panel B of Table 1.11). In an additional test (reported in Panel C of the table), we reestimate the baseline regressions using a fractional response model. This is considered an alternative to OLS when, as in our case, the dependent variable is a fractional response, that is, it falls

between zero and one. The results remain essentially unchanged with this approach. In a last robustness check, we control for the reputation of the lead arrangers of the loan. In fact, the incentive of a lead arranged to shirk on her monitoring activity could be stronger for banks that are less reputable. Following Sufi (2007), we proxy a bank's reputation with a dummy that takes on the value of one if the bank is one of the top ten lead arrangers according to the league table for Korea compiled by Dealogic and Thomson Financial. The inclusion of this variable does not alter the results.

1.7.2 Other Loan Characteristics

In this paper, we have primarily focused on the structure of syndicated loans. A related research question that can enrich our understanding of lenders' behavior is whether the institutional environment affects other loan features. The DealScan database provides information on three further attributes of syndicated loans: maturity, size, and whether the loan is secured or not. The collateralization of loans is a means alternative to monitoring by which creditors protect themselves from firms' misbehavior (Holmstrom and Tirole, 1997). Diamond (2004) also contends that short-term debt can usefully complement collateral and monitoring in ameliorating agency problems. In fact, by generating a risk of "firm runs", it can commit multiple lenders to enforce claims, thus providing proper incentives to borrowers.

Table 1.12 reports the results obtained using maturity, size, and an indicator for whether the loan is secured or not as dependent variables. The affiliation of firms to Tier1 and Tier2 chaebols tends to shorten loans but the reform weakens this effect for Tier2 chaebols (see columns 7 and 8). Moreover, leverage and the ratio of income to total assets shorten the maturity of loans, while the tangible to total assets and working capital to total assets ratios lengthen it. The latter two findings may signal that firms with more collateralizable assets and more liquid returns can afford long-

term credit. Turning to loan size, the point estimates imply no significant differences between chaebol firms and non-chaebol ones, and loan maturity for chaebols has not changed after the reform either. Similarly, the extent to which loans are secured is not affected by chaebol affiliation while its main determinants appear to be firm size, leverage and asset tangibility. In particular, firms with larger assets seemingly obtain loans with lower collateral requirements, possibly because of their higher informational transparency. This is also the case for less levered businesses, probably reflecting of the fact that firms less exposed to default risk need to post less collateral.

Overall, a possible interpretation of these additional tests is that the removal of the bailout policy and of the chaebol cross-debt guarantees not only fostered lenders' monitoring but also induced lenders to tighten lending standards, granting shorter-term loans. Although we cannot test this conjecture, to the extent that before the reform chaebol firms engaged in over-borrowing (see, e.g., Krueger, and Yoo, 2002), this interpretation could also point to higher selectivity on the part of creditors and more efficient investment policies after the reform.

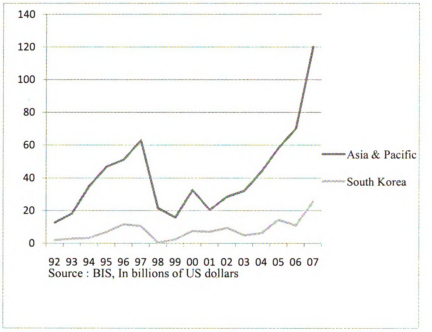
1.8 Conclusion

This paper documents the impact of the institutional environment on the structure of credit contracts using the South Korean syndicated loan market as an empirical laboratory. As demonstrated by prior literature, the structure of a loan can yield important insights into lenders' effort in monitoring and disciplining borrowers. A central result of the analysis is that, controlling for firm and contract specific characteristics and for macroeconomic effects, chaebol firms tend to be granted less concentrated loans than non-chaebol ones and that this difference narrowed after the chaebol reform enacted in the late nineties. These results suggest that prior to the reform the safety net generated by the government bailout policy and the chaebol cross-debt

guarantees diluted creditors' incentives to monitor chaebol firms. When the chaebol reform removed bailout and cross-debt guarantees, creditors stepped up their monitoring effort and toughened lending standards, granting smaller and shorter loans. In further tests, we have explored the governance problem that creditors' monitoring is supposed to mitigate. We have obtained some evidence that lenders monitored firms with better internal governance less intensively. Moreover, the reform of corporate governance - and the consequent improvement in the internal discipline of controlling shareholders - complemented the increase in creditors' monitoring. We have also found preliminary evidence that internal governance mechanisms interacted with creditors' monitoring differently between chaebol and non-chaebol firms.

The analysis leaves open interesting questions. In emerging economies, it is crucial to understand how the reforms of different aspects of corporate governance interact one with another. In this paper, we have made a first step in this direction. However, more work is needed to understand the interplay among creditors, institutional investors and minority shareholders in providing proper incentives for an efficient firm management. An investigation of this interplay between internal and external governance mechanisms is the next objective of our research.

Figure 1 Volume of Syndicated Loans in Korea and Asia-Pacific Countries



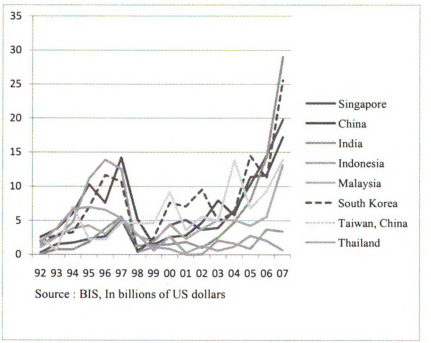


Table 1.1 Summary Statistics for Syndicated Loan Deals

This table presents summary statistics for the sample of 1,626 syndicated loan deals representing 242 firms from July 1992 to September 2007. Statistics for firm and chaebol characteristics are calculated at the firm level and chaebol level, respectively. Statistics for deal characteristics are calculated at the deal level.

	Num. Obs.	Mean	S.D.	25th	50th	75th	90th
Firm Characteristics							
Age (days)	242	7923	6341	1949	7307	12275	16394
Employment	242	3645	7410	284	1453	3229	8073
Total assets (trillions KRW)	242	2.5	5.0	0.2	0.9	2.8	7.0
Gross sales (trillions KRW)	242	2.1	3.8	0.2	0.8	2.0	5.1
Leverage ratio	242	0.63	0.25	0.52	0.66	0.77	0.86
Income to total assets	242	0.02	0.09	0.00	0.02	0.05	0.08
Working capital to total assets	242	0.02	0.25	-0.12	-0.01	0.11	0.29
Tangible assets/Total assets	242	0.46	0.26	0.24	0.46	0.65	0.82
Corporate Governance (ownership)							
Ownership concentration	213	15.5	24.8	0.0	3.6	21.3	47.2
Difference between control rights and ownership rights	213	43.6	35.5	13.7	34.0	77.8	100.0
Chaebol Characteristics							
Total assets (trillions KRW)	37	13.2	14.4	3.9	6.3	16.5	43.6
Leverage	37	0.69	0.14	0.59	0.69	0.78	0.85
Income (billions KRW)	37	926	1390	189	307	867	3440
Income correlation	37	0.09	0.29	-0.14	0.08	0.28	0.51
Income/Total assets	37	0.06	0.03	0.04	0.06	0.08	0.09
Tangible assets/Total assets	37	0.41	0.12	0.34	0.41	0.49	0.56
Banks' and Institutions' Equity Participation							
Bank equity (%)	231	1.66	6.10	0.00	0.00	0.00	5.66
Institution equity (%)	231	3.57	11.34	0.00	0.00	1.39	7.97

Table 1.1 Summary Statistics for Syndicated Loan Deals(cont.)

Syndicated Loan Characteristics							
Loan amount ($M)	1618	302	2,550	40	100	237	500
Maturity (days)	1406	2264	9885	1073	1106	2543	4383
Secured	1626	0.22	0.41	0	0	0	1
Syndicate Structure							
Total number of lenders	1608	6.5	5.3	3	5	9	14
Total number of lead arrangers*	1608	3.4	3.1	1	2	4	7
Total number of participant lenders*	1608	3.1	4.1	0	2	5	8
Total share held by lead arrangers*	1023	25.8	20.2	10.2	20.0	35.6	50.0
Concentration of syndicate (Herfindahl)	1023	3233.5	2372.5	1448.0	2504.5	5000.0	5000.0
Total number of foreign lead arrangers*	1608	1.4	2.3	0	1	2	4
Loans having only foreign lead arrangers*(dummy)	1608	0.20	0.40	0	0	0	1
Loans having a single foreign lead arranger*(dumm	1608	0.11	0.32	0	0	0	1
Presence of foreign lead arranger(s)(dummy)	1608	0.54	0.50	0.00	0.00	1.00	1.00
Number of foreign lead arrangers over	1608	0.38	0.40	0.00	0.33	0.75	1.00
Industry Composition (SIC 1 digit code)							
Mining, construction, agriculture (0, 1)	1608	0.09	0.28				
Manufacturing (2, 3)	1608	0.51	0.50				
Transp., comm., Gas and Electricity (4)	1608	0.32	0.47				
Trade (5)	1608	0.06	0.23				
Real estate (6)	1608	0.01	0.09				
Services (7, 8)	1608	0.01	0.11				
Purpose of Loan Indicator							
General corporate purposes/Working capital	1608	0.63	0.48				
Takeovers and acquisitions	1608	0.05	0.21				
LBO/MBO	1608	0.04	0.19				
Debt repayment/capital expenditure	1608	0.17	0.37				
Other	1608	0.12	0.32				
Regional Indicator							
Capital city	1608	0.71	0.45				
Other	1608	0.29	0.45				

* Lead arrangers identified according to Standard & Poor's

Table 1.2 Summary Statistics for Syndicated Loan Deals By Chaebols

This table presents summary statistics for the sample of 1,626 syndicated loan deals representing 242 firms from July 1992 to September 2007. Statistics for firm and for chaebol characteristics are calculated at the firm level and chaebol level, respectively. Statistics for deal characteristics are calculated at the deal level. "Pre-reform" and "Post-reform" are defined according to whether the "active year" of the loan precedes 1998. Chaebol affiliation is identified according to the KFTC and to Lee (2005).

		Total	**Tier1 Chaebol**				
	Num. Obs.		Sub-total	Pre-reform	Post-reform	t-test**	Test of Difference (p-value), Wilcoxon Z-test
Firm Characteristics (N=Num. of firms)			(N=60)	(N=37)	(N=49)		
Age (days)	242	7923[6341]			9589[5675]	0.8934	1.0000
Employment	242	3645[7410]	7773[11701	9748[12854	7582[11850	0.4310	0.2038
Total assets (trillions KRW)	242	2.5[5.0]	4.3[4.4]	4.0[3.8]	5.7[6.6]	0.1821	0.4299
Gross sales (trillions KRW)	242	2.1[3.8]	4.6[6.1]	4.0[4.9]	6.6[9.0]	0.1150	0.3049
Leverage ratio	242	0.63[0.25]	0.65[0.19]	0.73[0.14]	0.62[0.19]	0.0017	0.0001
Income to total assets	242	0.02[0.09]	0.03[0 .06]	0.02[0.02]	0.04[0.07]	0.1195	0.2407
Working capital to total assets	242	0.02[0.25]	-0.03[0.16]	-0.00[0.17]	-0.05[0.12]	0.0988	0.1615
Tangible assets/Total assets	242	0.46[0.26]	0.41[0.22]	0.40[0.19]	0.42[0.24]	0.5722	0.6221
Corporate Governance (ownership)							
Ownership concentration	213	15.5[24.8]	4.38[7.40]	7.18[12.15]	3.50[4.35]	0.0608	0.5527
Difference between control rights and ownership rights	213	43.6[35.5]	47.79[29.22]	31.27[23.01]	50.20[30.06]	0.0027	0.0038
Chaebol Characteristics (N=Num. of chaebols)			(N=8)	(N=7)	(N=6)		
Total assets (trillions KRW)	37	13.2[14.4]	38.2[12.1]	32.6[12.2]	53.3[18.7]	0.0346	0.0633
Leverage	37	0.69[0.14]	0.68[0.07]	0.76[0.04]	0.60[0.10]	0.0033	0.0066

Table 1.2 Summary Statistics for Syndicated Loan Deals By Chaebols(cont.)

Income (billions KRW)	37	926[1390]	2910[1920]	2240[1280]	3970[2820]	0.1703	0.1531
Income correlation	37	0.09[0.29]	0.07[0.28]	0.02[0.25]	0.07[0.30]	0.7515	0.7751
Income/Total assets	37	0.06[0.03]	0.07[0.03]	0.07[0.04]	0.07[0.04]	0.8408	1.0000
Tangible assets/Total assets	37	0.41[0.12]	0.41[0.08]	0.38[0.06]	0.42[0.07]	0.3272	0.3173
Banks' and Institutions' Equity Participation			(N=77)	(N=37)	(N=67)		
Bank equity (%)	231	1.66[6.10]	0.85[3.83]	1.51[5.15]	0.33[2.16]	0.0496	0.0002
Institution equity (%)	231	3.57[11.34]	2.00[4.37]	1.69[3.88]	2.48[5.26]	0.4450	0.2590
Syndicated Loan Characteristics (N=Num. of loans)			(N=637)	(N=311)	(N=326)		
Loan amount ($M)	1618	302[2550]	157[221]	89[97.9]	222[282]	0.0000	0.0000
Maturity (days)	1406	2264[9885]	1724[1557]	1966[1583]	1485[1494]	0.0002	0.0000
Secured	1626	0.22[0.41]	0.18[0.38]	0.23[0.42]	0.13[0.34]	0.0019	0.0020
Syndicate Structure							
Total number of lenders	1608	6.5[5.2]	7.6[6.1]	9.4[6.9]	5.8[4.6]	0.0000	0.0000
Total number of lead arrangers*	1608	3.4[3.1]	4.0[3.6]	4.8[4.3]	3.2[2.3]	0.0000	0.0012
Total number of participant lenders*	1608	3.1[3.9]	3.6[4.4]	4.6[4.9]	2.7[3.7]	0.0000	0.0000
Total share held by lead arrangers*	1023	25.8[20.2]	22.5[19.1]	17.7[15.0]	28.5[21.9]	0.0000	0.0000
Concentration of syndicate (Herfindahl)	1023	3233.5 [2372.5]	2856.7 [2309.5]	2435.0 [2177.8]	3396.3 [2366.0]	0.0000	0.0000
Total number of foreign lead arrangers*	1608	1.4[2.3]	2.0[2.7]	2.7[3.3]	1.4[2.0]	0.0001	0.0001
Loans having only foreign lead arrangers*(dummy)	1608	0.20[0.40]	0.20[0.40]	0.15[0.36]	0.24[0.43]	0.0035	0.0035
Loans having a single foreign lead arranger*(dumm	1608	0.11[0.32]	0.10[0.30]	0.10[0.31]	0.09[0.29]	0.6705	0.6705
Presence of foreign lead arranger(s)(dummy)	1608	0.54[0.50]	0.66[0.47]	0.68[0.47]	0.65[0.48]	0.3315	0.3311
Number of foreign lead arrangers over total number of lead arrangers	1608	0.38[0.40]	0.48[0.40]	0.48[0.37]	0.50[0.42]	0.3813	0.2432

* Lead arrangers identified according to Standard & Poor's

** H0 : No difference

Table 1.2 Summary Statistics for Syndicated Loan Deals By Chaebols (Cont.)

		Total	Tier2 Chaebol				
	Num. Obs.		Sub-total	Pre-reform	Post-reform	t-test	Test of Difference (p-value), Wilcoxon Z-test
Firm Characteristics (N=Num. of firms)			(N=74)	(N=32)	(N=57)		
Age (days)	242	7923[6341]	11084[6687]	11735[6430]	10718[6856]	0.4940	0.5158
Employment	242	3645[7410]	3541[4678]	4098[5336]	3215[4268]	0.4074	0.2058
Total assets (trillions KRW)	242	2.5[5.0]	2.6[2.5]	2.1[2.0]	2.8[2.7]	0.1787	0.1795
Gross sales (trillions KRW)	242	2.1[3.8]	2.1[2.5]	1.3[1.3]	2.4[2.9]	0.0378	0.0463
Leverage ratio	242	0.63[0.25]	0.67[0.18]	0.80[0.13]	0.60[0.17]	0.0000	0.0000
Income to total assets	242	0.02[0.09]	0.03[0.05]	0.01[0.03]	0.03[0.06]	0.0884	0.0175
Working capital to total assets	242	0.02[0.25]	-0.05[0.19]	-0.09[0.12]	-0.03[0.22]	0.2125	0.2113
Tangible assets/Total assets	242	0.46[0.26]	0.45[0.21]	0.51[0.22]	0.42[0.19]	0.0471	0.0310
Corporate Governance (ownership)							
Ownership concentration	213	15.5[24.8]	12.38[15.80]	11.82[10.52]	13.23[17.62]	0.6831	0.6162
Difference between control rights and ownership rights	213	43.6[35.5]	40.78[32.33]	29.77[31.31]	43.91[31.91]	0.0513	0.0325
Chaebol Characteristics (N=Num. of chaebols)			(N=32)	(N=16)	(N=27)		
Total assets (trillions KRW)	37	13.2[14.4]	7.2[5.0]	5.8[3.5]	7.8[5.7]	0.2112	0.3209
Leverage	37	0.69[0.14]	0.70[0.15]	0.82[0.07]	0.66[0.18]	0.0020	0.0001
Income (billions KRW)	37	926[1390]	394[388]	246[144]	432[433]	0.0792	0.2335
Income correlation	37	0.09[0.29]	0.09[0.31]	0.14[0.31]	0.04[0.30]	0.3142	0.3027
Income/Total assets	37	0.06[0.03]	0.05[0.02]	0.05[0.02]	0.05[0.03]	0.2869	0.1594
Tangible assets/Total assets	37	0.41[0.12]	0.42[0.13]	0.40[0.11]	0.42[0.13]	0.6036	0.5905

Table 1.2 Summary Statistics for Syndicated Loan Deals By Chaebols (Cont.)

Banks' and Institutions' Equity Participation			(N=80)	(N=34)	(N=62)		
Bank equity (%)	231	1.66[6.10]	1.09[4.06]	0.84[3.31]	1.28[4.51]	0.2443	0.7206
Institution equity (%)	231	3.57[11.34]	2.54[5.48]	0.54[1.22]	3.58[6.66]	0.0126	0.0272
Syndicated Loan Characteristics (N=Num. of loans)			(N=400)	(N=166)	(N=234)		
Loan amount ($M)	1618	302[2550]	370[406]	70[99]	583[5300]	0.2137	0.0000
Maturity (days)	1406	2264[9885]	2954[19572]	1357[28861]	1766[1372]	0.2196	0.2557
Secured	1626	0.22[0.41]	0.25[0.43]	0.36[0.48]	0.17[0.37]	0.0000	0.0000
Syndicate Structure							
Total number of lenders	1608	6.5[5.2]	5.6[4.1]	6.5[4.4]	4.9[3.8]	0.0001	0.0000
Total number of lead arrangers*	1608	3.4[3.1]	3.2[2.9]	4.0[3.4]	2.6[2.2]	0.0000	0.0000
Total number of participant lenders*	1608	3.1[3.9]	2.4[3.0]	2.5[3.0]	2.4[2.9]	0.5312	0.5781
Total share held by lead arrangers*	1023	25.8[20.2]	28.8[20.3]	23.1[18.2]	34.1[20.9]	0.0000	0.0000
Concentration of syndicate (Herfindahl)	1023	3233.5 [2372.5]	3595.8 [2414.6]	2955.1 [2267.6]	4183.8 [2403.0]	0.0000	0.0000
Total number of foreign lead arrangers*	1608	1.4[2.3]	1.0[1.7]	0.9[1.5]	1.0[1.9]	0.4076	0.9872
Loans having only foreign lead arrangers*(dummy)	1608	0.20[0.40]	0.12[0.33]	0.08[0.27]	0.16[0.37]	0.0212	0.0215
Loans having a single foreign lead arranger*(dumm	1608	0.11[0.32]	0.09[0.28]	0.07[0.25]	0.11[0.31]	0.1589	0.1589
Presence of foreign lead arranger(s)(dummy)	1608	0.54[0.50]	0.49[0.49]	0.42[0.50]	0.40[0.49]	0.6251	0.6245
Number of foreign lead arrangers over total number of lead arrangers	1608	0.38[0.40]	0.26[0.36]	0.21[0.31]	0.29[0.39]	0.0327	0.2975

* Lead arrangers identified according to Standard & Poor's

** H0 : No difference

Table 1.2 Summary Statistics for Syndicated Loan Deals By Chaebols (Cont.)

	Num. Obs.	Total	Non-chaebol				
			Sub-total	Pre-reform	Post-reform	t-test	Test of Difference (p-value), Wilcoxon Z-test
Firm Characteristics (N=Num. of firms)			(N=151)	(N=36)	(N=115)		
Age (days)	242	7923[6341]	7269[6406]	8284[4735]	6977[6799]	0.2690	0.0541
Employment	242	3645[7410]	3014[7440]	5595[11737]	2217[5311]	0.0201	0.0016
Total assets (trillions KRW)	242	2.5[5.0]	2.68[7.27]	3.16[8.0]	2.53[7.06]	0.6522	0.2832
Gross sales (trillions KRW)	242	2.1[3.8]	1.60[3.23]	1.25[2.37]	1.73[3.49]	0.4487	0.3850
Leverage ratio	242	0.63[0.25]	0.62[0.33]	0.69[0.19]	0.60[0.34]	0.1391	0.0258
Income to total assets	242	0.02[0.09]	-0.00[0.15]	0.02[0.040]	-0.01[0.17]	0.3467	0.7472
Working capital to total assets	242	0.02[0.25]	0.04[0.29]	0.07[0.18]	0.03[0.31]	0.5244	0.1996
Tangible assets/Total assets	242	0.46[0.26]	0.48[0.28]	0.45[0.23]	0.49[0.29]	0.4455	0.3529
Corporate Governance (ownership)							
Ownership concentration	213	15.5[24.8]	20.90[29.96]	17.30[15.33]	21.16[32.62]	0.5327	0.3509
Difference between control rights and ownership rights	213	43.6[35.5]	41.82[39.00]	30.07[33.29]	45.66[39.45]	0.0526	0.0895
Chaebol Characteristics (N=Num. of chaebols)							
Total assets (trillions KRW)	37	13.2[14.4]	..	..	..	..	..
Leverage	37	0.69[0.14]	..	..	..	..	..
Income (billions KRW)	37	926[1390]	..	..	..	..	..
Income correlation	37	0.09[0.29]	..	..	..	..	..
Income/Total assets	37	0.06[0.03]	..	..	..	..	..
Tangible assets/Total assets	37	0.41[0.12]	..	..	..	..	..

Table 1.2 Summary Statistics for Syndicated Loan Deals By Chaebols (Cont.)

Banks' and Institutions' Equity Participation			(N=145)	(N= 71)	(N=121)		
Bank equity (%)	231	1.66[6.10]	3.1[8.77]	5.18[10.1]	2.42[8.26]	0.0019	0.0001
Institution equity (%)	231	3.57[11.34]	4.51[14.26]	0.81[2.47]	5.41[15.75]	0.0879	0.1568
Syndicated Loan Characteristics (N=Num. of loans)			(N=581)	(N=114)	(N=467)		
Loan amount ($M)	1618	302[2550]	413[2590]	79.4[89.5]	494[2890]	0.1258	0.0000
Maturity (days)	1406	2264[9885]	2395[2486]	2861[3803]	2262[1940]	0.0258	0.0261
Secured	1626	0.22[0.41]	0.25[0.43]	0.24[0.43]	0.25[0.43]	0.8478	0.8476
Syndicate Structure							
Total number of lenders	1608	6.5[5.2]	6.0[4.3]	6.7[5.2]	5.8[4.0]	0.0849	0.1589
Total number of lead arrangers*	1608	3.4[3.1]	3.0[2.6]	3.3[3.3]	2.9[2.4]	0.1287	0.5695
Total number of participant lenders*	1608	3.1[3.9]	3.1[3.9]	3.3[4.5]	3.0[3.7]	0.3795	0.4336
Total share held by lead arrangers*	1023	25.8[20.2]	27.8[20.9]	27.5[20.5]	27.8[21.1]	0.9063	0.9805
Concentration of syndicate (Herfindahl)	1023	3233.5 [2372.5]	3439.7 [2350.5]	3305.8 [2437.7]	3490.7 [2320.5]	0.5553	0.3238
Total number of foreign lead arrangers*	1608	1.4[2.3]	1.1[1.8]	1.3[1.9]	1.0[1.8]	0.1508	0.0211
Loans having only foreign lead arrangers*(dummy)	1608	0.20[0.40]	0.25[0.43]	0.37[0.49]	0.21[0.41]	0.0001	0.0002
Loans having a single foreign lead arranger*(dumm	1608	0.11[0.32]	0.15[0.36]	0.32[0.47]	0.10[0.30]	0.0001	0.0001
Presence of foreign lead arranger(s)(dummy)	1608	0.54[0.50]	0.49[0.50]	0.57[0.50]	0.47[0.50]	0.0567	0.0567
Number of foreign lead arrangers over total number of lead arrangers	1608	0.38[0.40]	0.35[0.41]	0.41[0.43]	0.34[0.41]	0.0898	0.0644

* Lead arrangers identified according to Standard & Poor's

** H0 : No difference

Table 1.3 Chaebols and Syndicated Loan Structure

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation. The dependent variables are the Herfindahl-Hirschman index for loan shares in Panel A and Panel C, the total share of the loan held by the lead arranger(s) in Panel B and Panel D. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A: Herfindahl				Panel B: Lead Share			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chaebol	-516.91*	-505.77*	-468.18	-589.06*	-5.67**	-4.71	-4.85*	-4.94**
	(297.92)	(295.07)	(293.75)	(306.17)	(2.69)	(2.99)	(2.93)	(2.42)
Chaebol * Reform	840.85**	1,181.47***	1,119.31***	856.81***	9.05***	8.73**	7.63**	3.56
	(331.10)	(338.43)	(321.10)	(321.77)	(3.42)	(3.78)	(3.52)	(3.12)
Log(assets)		-197.54***	-219.62***	-70.17		-1.05*	-1.36**	0.57
		(59.30)	(61.99)	(63.27)		(0.63)	(0.65)	(0.64)
Leverage		1,108.10**	1,123.46**	368.52		-0.97	-4.30	-8.96*
		(494.03)	(560.05)	(520.57)		(4.63)	(5.04)	(4.72)
Income/Total assets		-3,026.16***	-3,134.84***	-3,685.86***		8.38	9.54	0.10
		(959.14)	(1037.66)	(977.72)		(13.57)	(13.95)	(12.80)
Log(age)			145.43*				1.40	
			(85.10)				(1.05)	

Table 1.3 Chaebols and Syndicated Loan Structure(cont.)

Tangible assets/Total assets			192.28				-7.18	
			(449.85)				(4.77)	
Working capital/Total assets			447.16				-4.10	
			(562.08)				(6.00)	
Log(loan maturity)				-68.58				-0.07
				(126.85)				(1.12)
Log(loan amount)				-693.71***				-6.83***
				(85.57)				(0.83)
Secured				-31.55				0.98
				(240.43)				(2.10)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	No	No	Yes	No	No	No	Yes
Observations	1023	987	987	917	1023	987	987	917
R-squared	0.11	0.15	0.15	0.25	0.11	0.12	0.13	0.25

Table 1.3 Chaebols and Syndicated Loan Structure (Cont.)

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation. The dependent variables are the Herfindahl-Hirschman index for loan shares in Panel A and Panel C, the total share of the loan held by the lead arranger(s) in Panel B and Panel D. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel C: Herfindahl				Panel D: Lead Share			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Tier1 chaebol	-613.87*	-547.62*	-513.03	-600.73*	-7.14***	-6.17**	-6.54**	-6.00**
	(320.78)	(317.43)	(315.18)	(319.04)	(2.69)	(2.98)	(2.89)	(2.38)
Tier1 chaebol * Reform	644.70*	1,001.41**	972.37***	655.41*	7.89**	7.44*	6.81*	2.16
	(380.16)	(388.03)	(371.29)	(355.23)	(3.68)	(4.07)	(3.82)	(3.26)
Tier2 chaebol	-324.28	-424.87	-395.60	-574.66*	-2.92	-2.08	-2.07	-3.08
	(338.59)	(327.18)	(331.91)	(333.86)	(3.16)	(3.27)	(3.23)	(2.67)
Tier2 chaebol * Reform	991.69**	1,311.45***	1,245.64***	1,047.17***	9.38**	8.63**	7.36**	4.07
	(393.70)	(398.94)	(398.45)	(397.27)	(3.78)	(3.96)	(3.71)	(3.57)
Log(assets)		-184.70***	-200.98***	-61.92		-0.84	-1.03	0.69
		(59.51)	(62.84)	(62.86)		(0.62)	(0.66)	(0.61)
Leverage		1,027.66**	1,095.79*	302.77		-2.49	-5.01	-10.21**
		(499.07)	(569.45)	(533.25)		(4.46)	(4.79)	(4.57)
Income/Total assets		-3,003.43***	-3,120.81***	-3,649.28***		8.74	9.74	0.61
		(916.89)	(1007.59)	(932.26)		(12.83)	(13.50)	(12.14)

Table 1.3 Chaebols and Syndicated Loan Structure (Cont.)

Log(age)			120.51				1.00	
			(89.68)				(1.08)	
Tangible assets/Total assets			177.67				-7.70*	
			(449.92)				(4.53)	
Working capital/Total assets			508.25				-2.72	
			(546.81)				(5.75)	
Log(loan maturity)				-81.87				-0.15
				(125.54)				(1.10)
Log(loan amount)				-689.17***				-6.72***
				(85.51)				(0.80)
Secured				-24.58				0.96
				(242.57)				(2.06)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	No	No	Yes	No	No	No	Yes
Observations	1023	987	987	917	1023	987	987	917
R-squared	0.12	0.15	0.15	0.25	0.12	0.13	0.13	0.25

Table 1.4 Chaebols and Syndicated Loan Structure

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation. The dependent variables are the number of lead arrangers in Panel A and Panel C, and the number of participant lenders in Panel B and Panel D. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A: Num. of Lead Arrangers				Panel B: Num. of Participant Lenders			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chaebol	0.98	0.79	0.92	1.13**	0.09	0.19	0.19	0.12
	(0.70)	(0.74)	(0.69)	(0.47)	(0.63)	(0.55)	(0.53)	(0.48)
Chaebol * Reform	-0.84	-0.84	-0.79	-0.58	-0.48	-0.90	-0.76	-0.41
	(0.65)	(0.71)	(0.69)	(0.48)	(0.64)	(0.63)	(0.61)	(0.59)
Log(assets)		0.15**	0.18**	-0.08		0.24***	0.31***	0.05
		(0.07)	(0.09)	(0.06)		(0.07)	(0.09)	(0.08)
Leverage		1.15**	1.70***	1.74***		-1.48	-1.09	-0.20
		(0.50)	(0.51)	(0.59)		(1.01)	(1.04)	(0.84)
Income/Total assets		1.10	0.85	3.11**		-1.87	-1.82	0.04
		(1.57)	(1.45)	(1.38)		(1.79)	(1.81)	(1.52)
Log(age)			-0.08				-0.29	
			(0.15)				(0.20)	

Table 1.4 Chaebols and Syndicated Loan Structure(cont.)

Tangible assets/Total assets			1.41*				0.53	
			(0.73)				(0.88)	
Working capital/Total assets			1.23*				0.18	
			(0.72)				(1.01)	
Log(loan maturity)				0.11				-0.14
				(0.11)				(0.14)
Log(loan amount)				1.09***				1.33***
				(0.19)				(0.18)
Secured				0.89**				-0.12
				(0.41)				(0.35)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	No	No	Yes	No	No	No	Yes
Observations	1608	1524	1524	1333	1608	1524	1524	1333
R-squared	0.08	0.10	0.10	0.27	0.11	0.14	0.15	0.26

Table 1.4 Chaebols and Syndicated Loan Structure (cont.)

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation. The dependent variables are the number of lead arrangers in Panel A and Panel C, and the number of participant lenders in Panel B and Panel D. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel C: Num. of Lead Arrangers				Panel D: Num. of Participant Lenders			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Tier1 chaebol	1.25	1.06	1.23	1.34**	0.69	0.71	0.74	0.48
	(0.79)	(0.82)	(0.76)	(0.53)	(0.66)	(0.59)	(0.56)	(0.51)
Tier1 chaebol * Reform	-0.76	-0.78	-0.79	-0.60	-0.88	-1.34*	-1.25*	-0.80
	(0.75)	(0.79)	(0.76)	(0.55)	(0.75)	(0.73)	(0.70)	(0.69)
Tier2 chaebol	0.50	0.29	0.36	0.76	-0.97	-0.78	-0.79	-0.55
	(0.84)	(0.85)	(0.81)	(0.56)	(0.60)	(0.53)	(0.54)	(0.51)
Tier2 chaebol * Reform	-0.78	-0.68	-0.59	-0.41	0.33	0.02	0.19	0.31
	(0.76)	(0.81)	(0.82)	(0.57)	(0.65)	(0.64)	(0.63)	(0.58)
Log(assets)		0.13*	0.14	-0.09		0.22***	0.27***	0.04
		(0.07)	(0.09)	(0.06)		(0.07)	(0.09)	(0.08)
Leverage		1.28***	1.72***	1.84***		-1.25	-0.97	-0.06
		(0.49)	(0.51)	(0.60)		(0.99)	(1.03)	(0.83)
Income/Total assets		0.82	0.60	2.94**		-2.00	-1.91	-0.01
		(1.52)	(1.42)	(1.32)		(1.76)	(1.75)	(1.50)

Table 1.4 Chaebols and Syndicated Loan Structure (cont.)

Log(age)			-0.02				-0.24	
			(0.16)				(0.20)	
Tangible assets/Total assets			1.50**				0.70	
			(0.73)				(0.87)	
Working capital/Total assets			0.99				-0.08	
			(0.70)				(1.00)	
Log(loan maturity)				0.11				-0.15
				(0.11)				(0.14)
Log(loan amount)				1.07***				1.31***
				(0.19)				(0.18)
Secured				0.89**				-0.07
				(0.41)				(0.34)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	No	No	Yes	No	No	No	Yes
Observations	1608	1524	1524	1333	1608	1524	1524	1333
R-squared	0.09	0.10	0.11	0.27	0.12	0.15	0.16	0.27

Table 1.5 Chaebols and Foreign Lenders

This table reports coefficient estimates from regressions relating foreign lenders' role in arranging syndicated loans to chaebol affiliation. Coefficients in regressions are estimated by probit. The dependent variable in regression (1) to (6) is a dummy that takes on the value of one if the lead arrangers are foreign banks, zero otherwise . The dependent variable in regressions (7) to (12) is a dummy that takes on the value of one if the lead arranger is a single and foreign bank, zero otherwise. Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A: Foreign Lead Arrangers						Panel B: Single Foreign Arranger					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Chaebol	-0.58**	-0.60***	-0.73***				-0.74***	-0.71***	-0.77***			
	(0.23)	(0.23)	(0.22)				(0.24)	(0.24)	(0.22)			
Chaebol * Reform	0.38	0.39	0.41*				0.65**	0.62**	0.51*			
	(0.27)	(0.27)	(0.25)				(0.31)	(0.32)	(0.28)			
Tier1 chaebol				-0.56**	-0.58**	-0.73***				-0.70***	-0.67**	-0.74***
				(0.25)	(0.26)	(0.24)				(0.27)	(0.27)	(0.24)
Tier1 chaebol * Reform				0.56*	0.56*	0.55*				0.68*	0.65*	0.50
				(0.31)	(0.32)	(0.30)				(0.36)	(0.37)	(0.34)
Tier2 chaebol				-0.63***	-0.65***	-0.73***				-0.84***	-0.80***	-0.86***
				(0.24)	(0.24)	(0.26)				(0.27)	(0.27)	(0.28)
Tier2 chaebol * Reform				0.17	0.16	0.19				0.65**	0.61**	0.56**
				(0.27)	(0.28)	(0.26)				(0.29)	(0.30)	(0.27)

Table 1.5 Chaebols and Foreign Lenders(cont.)

Log(assets)	0.38***	0.38***	0.36***	0.37***	0.37***	0.36***	0.19***	0.19***	0.20***	0.19***	0.18***	0.20***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)
Leverage	-1.25***	-1.30***	-0.89**	-1.23***	-1.33***	-0.85**	-0.41	-0.24	-0.26	-0.39	-0.25	-0.24
	(0.38)	(0.40)	(0.41)	(0.38)	(0.40)	(0.42)	(0.44)	(0.43)	(0.46)	(0.43)	(0.43)	(0.47)
Income/Total assets	2.39**	2.43**	2.94***	2.01**	2.10*	2.69**	-0.96	-1.18	-1.03	-1.07	-1.27	-1.10
	(1.02)	(1.09)	(1.08)	(1.02)	(1.08)	(1.09)	(0.88)	(0.78)	(0.85)	(0.87)	(0.78)	(0.85)
Log(age)		-0.02			0.01			0.08			0.09	
		(0.06)			(0.06)			(0.09)			(0.09)	
Tangible assets/Total assets		-0.24			-0.24			0.21			0.23	
		(0.28)			(0.29)			(0.31)			(0.32)	
Working capital/Total assets		-0.13			-0.24			0.71*			0.65	
		(0.45)			(0.46)			(0.43)			(0.44)	
Log(loan maturity)			0.05			0.06			0.05			0.05
			(0.07)			(0.07)			(0.08)			(0.08)
Log(loan amount)			0.08			0.07			0.02			0.02
			(0.06)			(0.06)			(0.07)			(0.07)
Secured			-0.04			-0.06			-0.30			-0.30
			(0.19)			(0.19)			(0.20)			(0.21)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dumn	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Observations	1518	1518	1293	1518	1518	1293	1518	1518	1293	1518	1518	1293

Table 1.6 Domestic Bank Equity Participation

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation and the role of domestic banks as shareholders of the borrowing firm. The dependent variables are the Herfindahl-Hirschman index for loan shares in Panel A and Panel C, and the total share of the loan held by the lead arranger(s) in Panel B and Panel D. The regressions are estimated by ordinary least squares (OLS). Domestic Bank Equity denotes the percentage equity share that domestic bank(s) hold in the borrowing firm. Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors cluster at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A: Herfindahl			Panel B: Lead Share		
	(1)	(2)	(3)	(4)	(5)	(6)
Domestic Bank Equity	20.60	19.51	14.48	0.05	0.05	0.00
	(14.20)	(13.96)	(11.48)	(0.11)	(0.10)	(0.10)
Domestic Bank Equity * Reform	-29.46	-31.00	-20.63	-0.10	-0.15	-0.01
	(21.39)	(20.76)	(24.90)	(0.21)	(0.21)	(0.15)
Chaebol	-359.63	-331.02	-488.39	-4.22	-4.37	-4.85*
	(318.53)	(322.43)	(306.31)	(3.39)	(3.35)	(2.81)
Chaebol * Reform	1,013.94***	945.43***	719.04**	8.04*	6.69	3.09
	(380.97)	(362.51)	(329.66)	(4.27)	(4.05)	(3.49)
Domestic Bank Equity * Chaebol	-44.89**	-43.66**	-30.98*	-0.20	-0.22	-0.10
	(19.70)	(19.09)	(17.50)	(0.20)	(0.19)	(0.20)
Domestic Bank Equity * Chaebol * Refo	57.48	62.52	62.68	0.35	0.47	0.43
	(44.77)	(44.66)	(43.59)	(0.41)	(0.41)	(0.37)

Table 1.6 Domestic Bank Equity Participation(cont.)

Log(assets)	-195.43***	-215.72***	-72.97	-1.03	-1.32**	0.56
	(60.25)	(63.48)	(63.44)	(0.64)	(0.66)	(0.65)
Leverage	1,052.98**	1,069.52*	355.02	-1.35	-4.71	-9.18*
	(505.97)	(566.67)	(530.14)	(4.74)	(5.13)	(4.75)
Income/Total assets	-3,034.49***	-3,130.01***	-3,639.93***	8.45	9.79	0.47
	(970.98)	(1052.67)	(986.96)	(13.66)	(14.05)	(12.86)
Log(age)		146.69*			1.44	
		(86.85)			(1.05)	
Tangible assets/Total assets		147.76			-7.53	
		(445.31)			(4.80)	
Working capital/Total assets		460.56			-3.91	
		(562.27)			(6.05)	
Log(loan maturity)			-73.45			-0.09
			(125.53)			(1.12)
Log(loan amount)			-686.09***			-6.81***
			(86.35)			(0.84)
Secured			-52.19			0.89
			(240.63)			(2.15)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	No	Yes	No	No	Yes
Observations	987	987	917	987	987	917
R-squared	0.15	0.15	0.25	0.12	0.13	0.25

Table 1.6 Domestic Bank Equity Participation (Cont.)

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation and the role of domestic banks as shareholders of the borrowing firm. The dependent variables are the Herfindahl-Hirschman index for loan shares in Panel A and Panel C, and the total share of the loan held by the lead arranger(s) in Panel B and Panel D. The regressions are estimated by ordinary least squares (OLS). Domestic Bank Equity denotes the percentage equity share that domestic bank(s) hold in the borrowing firm. Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors cluster at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel C: Herfindahl			Panel D: Lead Share		
	(7)	(8)	(9)	(10)	(11)	(12)
Domestic Bank Equity	20.00	18.93	14.45	0.04	0.03	-0.01
	(14.24)	(14.09)	(11.39)	(0.11)	(0.11)	(0.10)
Domestic Bank Equity * Reform	-30.16	-30.92	-21.65	-0.10	-0.15	-0.02
	(21.05)	(20.56)	(24.38)	(0.21)	(0.21)	(0.14)
Tier1 chaebol	-429.92	-405.13	-520.66	-6.00*	-6.36*	-6.11**
	(342.06)	(345.32)	(322.50)	(3.39)	(3.31)	(2.78)
Tier1 chaebol * Reform	815.62*	789.48*	519.45	6.61	5.79	1.70
	(426.69)	(409.07)	(366.96)	(4.47)	(4.27)	(3.57)
Domestic Bank Equity * Tier1 chaebol	-34.31	-34.17	-22.51	-0.10	-0.16	-0.04
	(22.52)	(21.99)	(21.90)	(0.25)	(0.23)	(0.24)
Domestic Bank Equity * Tier1 chaebol *	141.65**	139.82***	112.47*	1.21**	1.35**	1.03*
	(54.85)	(52.32)	(63.52)	(0.55)	(0.56)	(0.62)
Tier2 chaebol	-248.89	-228.41	-445.20	-1.40	-1.45	-2.83
	(347.52)	(355.77)	(330.76)	(3.63)	(3.59)	(2.99)

Table 1.6 Domestic Bank Equity Participation (Cont.)

Tier2 chaebol * Reform	1,176.87***	1,108.59***	921.23**	8.35*	7.00*	3.89
	(424.34)	(423.91)	(397.90)	(4.47)	(4.23)	(3.99)
Domestic Bank Equity * Tier2 Chaebol	-88.77***	-86.09***	-68.43***	-0.52**	-0.47**	-0.35
	(24.48)	(26.11)	(21.00)	(0.25)	(0.23)	(0.22)
Domestic Bank Equity * Tier2 Chaebol '	56.59	61.86	69.59*	0.21	0.25	0.33
	(45.64)	(48.49)	(39.29)	(0.44)	(0.44)	(0.36)
Log(assets)	-175.55***	-189.08***	-61.97	-0.74	-0.88	0.73
	(60.14)	(64.73)	(63.20)	(0.64)	(0.68)	(0.63)
Leverage	967.19*	1,032.53*	292.31	-2.98	-5.57	-10.50**
	(513.38)	(573.96)	(543.96)	(4.55)	(4.84)	(4.60)
Income/Total assets	-2,971.26***	-3,072.93***	-3,576.21***	9.28	10.52	1.38
	(917.50)	(1000.96)	(931.90)	(12.78)	(13.41)	(12.07)
Log(age)		109.06			0.88	
		(93.20)			(1.09)	
Tangible assets/Total assets		140.61			-8.09*	
		(442.03)			(4.53)	
Working capital/Total assets		476.37			-2.81	
		(553.32)			(5.81)	
Log(loan maturity)			-96.32			-0.24
			(124.93)			(1.10)
Log(loan amount)			-673.66***			-6.63***
			(86.36)			(0.81)
Secured			-42.10			0.91
			(241.99)			(2.09)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	No	Yes	No	No	Yes
Observations	987	987	917	987	987	917
R-squared	0.15	0.16	0.26	0.13	0.14	0.25

Table 1.7 Intra-Chaebol Effects

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebols' characteristics (chaebol leverage and income correlation). The dependent variables are the Herfindahl-Hirschman index in the odd-numbered columns and the total share of the loan held by the lead arranger(s) in the even-numbered columns. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Group variable represents "Chaebol leverage" and "Chaebol income correlation" in Panel A and B, respectively. Chaebol leverage is the ratio between the liabilities of the chaebol and its total assets. Chaebol income correlation denotes the correlation between the borrower's income ratio (Income/Total Assets) and its affiliated group's income ratio (excluding the borrower) since 1980. Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A. Chaebol Variable: Chaebol Leverage				Panel B. Chaebol Variable: Chaebol Income Correlatio			
	Herfindahl	Lead Share	Herfindahl	Lead Share	Herfindahl	Lead Share	Herfindahl	Lead Share
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Chaebol	1,617.91*	-4.39			-614.35**	-4.95**		
	(847.08)	(9.13)			(305.45)	(2.44)		
Chaebol * Reform	-2,961.18***	-2.12			917.05***	3.98		
	(1092.10)	(11.54)			(320.17)	(3.15)		
Chaebol * Chaebol variable	-2,786.20***	-0.62			411.27	0.75		
	(1051.07)	(11.42)			(333.38)	(2.18)		
Chaebol * Chaebol variable * Refor	5,531.57***	9.39			-898.49*	-5.31		
	(1556.34)	(15.92)			(487.04)	(4.45)		
Tier1 chaebol			4,065.74*	18.26			-631.24**	-6.07**
			(2142.05)	(20.79)			(319.01)	(2.42)
Tier1 chaebol * Reform			-3,734.97*	-17.96			653.25*	3.11
			(2188.52)	(26.47)			(381.18)	(3.39)

Table 1.7 Intra-Chaebol Effects(cont.)

Tier1 chaebol * Chaebol variable			-6,024.35**	-31.35			701.71	-0.95
			(2821.54)	(27.15)			(515.68)	(2.34)
Tier1 chaebol * Chaebol variable * Reform			5,626.88*	24.33			-692.16	-4.78
			(3048.98)	(37.87)			(762.39)	(6.83)
Tier2 chaebol			1,681.03*	-0.20			-565.68*	-3.18
			(901.29)	(13.70)			(330.33)	(2.65)
Tier2 chaebol * Reform			-3,387.34**	-4.30			1,060.53***	4.25
			(1322.06)	(16.10)			(370.15)	(3.56)
Tier2 chaebol * Chaebol variable			-2,734.19**	-3.57			248.36	2.22
			(1087.08)	(16.14)			(420.20)	(3.32)
Tier2 chaebol * Chaebol variable * Reform			6,207.46***	12.23			-1,128.19*	-3.99
			(1908.52)	(20.25)			(640.71)	(5.43)
Log(assets)	-73.62	0.57	-78.96	0.62	-64.18	0.55	-58.41	0.69
	(63.34)	(0.64)	(63.35)	(0.61)	(65.03)	(0.64)	(65.67)	(0.63)
Leverage	320.72	-9.47*	345.20	-9.81**	367.92	-8.96*	296.18	-10.11**
	(519.62)	(4.81)	(531.08)	(4.65)	(511.04)	(4.66)	(529.37)	(4.55)
Income/Total assets	-3,362.76***	1.13	-3,322.19***	1.19	-3,603.86***	1.15	-3,691.30***	1.97
	(916.10)	(12.65)	(926.51)	(12.17)	(930.30)	(12.35)	(927.70)	(11.58)
Log(loan maturity)	-80.57	-0.07	-90.78	-0.21	-78.47	-0.12	-80.66	-0.24
	(124.76)	(1.13)	(124.47)	(1.11)	(125.10)	(1.12)	(124.68)	(1.13)
Log(loan amount)	-701.43***	-6.87***	-697.89***	-6.75***	-687.76***	-6.79***	-691.38***	-6.64***
	(83.84)	(0.83)	(84.46)	(0.80)	(85.52)	(0.82)	(85.01)	(0.80)
Secured	-24.07	0.91	5.62	1.14	-8.85	1.02	-8.03	1.05
	(246.09)	(2.11)	(247.50)	(2.08)	(244.57)	(2.12)	(250.56)	(2.10)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	917	917	917	917	917	917	917	917
R-squared	0.26	0.25	0.27	0.25	0.25	0.25	0.26	0.25

Table 1.8 Internal and External Governance

This table reports coefficient estimates from regressions relating the syndicated loan structure to internal governance controls, proxied by block ownership concentration, and by (a measure of) the gap between control and ownership rights. The internal governance measures are constructed at the level of the top 10 shareholders in Panel A, and the top 8 shareholders in Panel B. The dependent variables are the Herfindahl-Hirschman index for loan shares, and the total share of the loan held by the lead arranger(s). The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A: Top Ten Shareholders							
	Herfindahl		Lead Share		Herfindahl		Lead Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ownership concentration	-24.11***	-17.12**	-0.14*	-0.10				
	(6.46)	(6.59)	(0.08)	(0.06)				
Ownership concentration	25.50***	16.96**	0.19**	0.13				
* Reform	(8.34)	(8.17)	(0.09)	(0.08)				
Control ownership gap					9.01*	7.95*	0.00	0.00
					(5.02)	(4.48)	(0.05)	(0.04)
Control ownership gap * Reform					-6.72	-4.83	0.04	0.06
					(5.91)	(5.93)	(0.07)	(0.05)
Log(assets)	-224.40***	-78.96	-1.39*	0.34	-192.63***	-40.09	-1.39**	0.52
	(63.91)	(73.68)	(0.71)	(0.71)	(62.80)	(77.59)	(0.70)	(0.72)

Table 1.8 Internal and External Governance(cont.)

Leverage	312.96	-121.55	-8.82	-13.22**	249.61	-181.05	-7.14	-11.70**
	(703.34)	(649.93)	(6.71)	(5.74)	(699.25)	(642.62)	(6.85)	(5.88)
Income/Total assets	-4,805.32***	-5,560.50***	-15.22	-25.94	-5,022.91***	-5,712.10***	-14.08	-24.75
	(1696.57)	(1653.44)	(20.19)	(15.71)	(1730.37)	(1686.32)	(20.38)	(15.97)
Log(age)	329.30***		1.53		357.74***		1.90	
	(106.58)		(1.43)		(115.13)		(1.43)	
Tangible assets/Total assets	181.40		-7.06		-79.04		-8.51*	
	(507.57)		(4.85)		(542.26)		(4.83)	
Working capital/Total assets	211.01		-3.33		325.04		-3.12	
	(714.74)		(6.62)		(709.56)		(6.44)	
Log(loan maturity)		-43.07		-0.30		-36.00		-0.25
		(133.70)		(1.12)		(131.91)		(1.11)
Log(loan amount)		-624.19***		-6.50***		-641.24***		-6.69***
		(98.16)		(0.87)		(100.69)		(0.90)
Secured		-136.81		1.00		-239.12		0.69
		(298.39)		(2.26)		(290.54)		(2.30)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	910	841	910	841	910	841	910	841
R-squared	0.16	0.25	0.13	0.25	0.15	0.25	0.13	0.25

Table 1.8 Internal and External Governance (Cont.)

This table reports coefficient estimates from regressions relating the syndicated loan structure to internal governance controls, proxied by block ownership concentration, and by (a measure of) the gap between control and ownership rights. The internal governance measures are constructed at the level of the top 10 shareholders in Panel A, and the top 8 shareholders in Panel B. The dependent variables are the Herfindahl-Hirschman index for loan shares, and the total share of the loan held by the lead arranger(s). The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel B: Top Eight Shareholders							
	Herfindahl		Lead Share		Herfindahl		Lead Share	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Ownership concentration	-14.59*	-12.64*	-0.08	-0.07				
	(7.50)	(6.79)	(0.09)	(0.07)				
Ownership concentration	20.55**	10.79	0.21**	0.16*				
* Reform	(8.73)	(7.73)	(0.09)	(0.09)				
Control ownership gap					13.17***	13.52***	0.05	0.05
					(4.64)	(4.31)	(0.04)	(0.04)
Control ownership gap * Reform					-12.26**	-5.72	-0.05	-0.02
					(5.64)	(5.46)	(0.05)	(0.04)
Log(assets)	-173.08***	-64.66	-0.41	1.11*	-155.77***	6.01	-0.62	1.14*
	(54.54)	(62.68)	(0.60)	(0.61)	(53.48)	(65.03)	(0.59)	(0.59)

Table 1.8 Internal and External Governance (Cont.)

Leverage	1,102.02*	196.66	-5.23	-14.45***	807.91	11.87	-5.89	-13.74***
	(594.69)	(553.29)	(5.22)	(4.92)	(605.72)	(550.95)	(5.37)	(5.14)
Income/Total assets	-3,500.84***	-4,166.93***	-10.76	-18.90	-3,850.97***	-5,047.36***	-8.66	-20.76
	(1317.38)	(1303.21)	(14.92)	(12.44)	(1324.51)	(1351.01)	(16.22)	(13.21)
Log(age)	151.63		1.17		190.68*		1.12	
	(97.07)		(0.97)		(100.46)		(1.18)	
Tangible assets/Total assets	364.88		-3.77		-105.54		-8.35*	
	(484.09)		(3.92)		(516.72)		(4.71)	
Working capital/Total assets	533.22		3.05		304.99		-0.25	
	(668.82)		(6.46)		(674.85)		(6.39)	
Log(loan maturity)		-66.32		-0.20		-83.50		-0.18
		(123.99)		(1.05)		(121.24)		(1.08)
Log(loan amount)		-696.91***		-6.53***		-723.82***		-6.78***
		(89.27)		(0.83)		(89.78)		(0.84)
Secured		119.17		2.33		40.91		1.84
		(260.07)		(1.91)		(251.39)		(2.05)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	940	873	940	873	940	873	940	873
R-squared	0.14	0.24	0.13	0.25	0.14	0.25	0.13	0.24

Table 1.9 Internal and External Governance in Chaebols

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation controlling for internal and external governance. The dependent variables are the Herfindahl-Hirschman index for loan shares, and the total share of the loan held by the lead arranger(s). The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Governance represents block ownership concentration in Panel A, and the gap between control and ownership rights in Panel B. Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel A. Governance: Block Ownership Concentration							
	Herfindahl		Lead Share		Herfindahl		Lead Share	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Governance	-23.91***	-17.64***	-0.14*	-0.10*	-23.02***	-16.89***	-0.11*	-0.08
	(6.18)	(6.17)	(0.08)	(0.06)	(6.48)	(6.42)	(0.07)	(0.05)
Governance * Reform	27.01***	18.05**	0.19**	0.12	24.80***	15.10**	0.15	0.09
	(8.46)	(8.09)	(0.09)	(0.08)	(8.56)	(7.64)	(0.09)	(0.08)
Chaebol	-331.39	-617.13*	-3.45	-4.85*				
	(308.94)	(333.78)	(3.35)	(2.68)				
Chaebol * Reform	952.56***	880.63**	5.28	2.25				
	(332.65)	(345.20)	(3.76)	(3.34)				
Tier1 chaebol					-351.95	-638.64*	-5.14	-5.89**
					(320.52)	(336.66)	(3.30)	(2.65)

Table 1.9 Internal and External Governance in Chaebols(cont.)

Tier1 chaebol * Reform					851.34**	710.79*	5.12	1.47
					(379.98)	(389.28)	(4.10)	(3.61)
Tier2 chaebol					-309.98	-595.52	-1.11	-3.27
					(348.22)	(366.40)	(3.55)	(2.90)
Tier2 chaebol * Reform					1,046.97***	1,032.55**	4.63	2.25
					(401.95)	(403.54)	(3.94)	(3.73)
Log(assets)	-234.70***	-76.65	-1.32*	0.70	-228.16***	-73.88	-1.06	0.79
	(70.43)	(80.25)	(0.80)	(0.76)	(72.71)	(81.42)	(0.81)	(0.76)
Leverage	454.23	52.27	-7.66	-10.82**	459.35	50.97	-8.21	-11.43**
	(716.10)	(711.00)	(6.67)	(5.44)	(722.36)	(726.17)	(6.54)	(5.47)
Income/Total assets	-5,416.60***	-5,618.13***	-16.75	-24.64	-5,321.90***	-5,385.95***	-16.02	-22.40
	(1823.30)	(1706.59)	(20.27)	(15.93)	(1819.00)	(1686.42)	(20.51)	(16.13)
Log(age)	280.21***		1.33		267.07**		0.98	
	(105.69)		(1.38)		(108.22)		(1.39)	
Tangible assets/Total assets	373.09		-6.69		337.55		-7.67	
	(541.89)		(5.39)		(538.41)		(5.23)	
Working capital/Total assets	592.16		-2.47		607.52		-1.35	
	(746.19)		(7.16)		(725.93)		(6.99)	
Log(loan maturity)		-65.71		-0.51		-75.87		-0.53
		(133.58)		(1.14)		(132.48)		(1.14)
Log(loan amount)		-614.23***		-6.57***		-612.90***		-6.50***
		(98.50)		(0.87)		(98.81)		(0.85)
Secured		-143.00		1.22		-137.58		1.12
		(277.82)		(2.16)		(280.79)		(2.15)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	910	841	910	841	910	841	910	841
R-squared	0.16	0.25	0.13	0.25	0.17	0.26	0.14	0.26

Table 1.9 Internal and External Governance in Chaebols (Cont.)

This table reports coefficient estimates from regressions relating the syndicated loan structure to chaebol affiliation controlling for internal and external governance. The dependent variables are the Herfindahl-Hirschman index for loan shares, and the total share of the loan held by the lead arranger(s). The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Governance represents block ownership concentration in Panel A, and the gap between control and ownership rights in Panel B. Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel B. Governance: Control Gap							
	Herfindahl		Lead Share		Herfindahl		Lead Share	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Governance	7.30	7.23*	0.00	0.00	7.39	7.54*	-0.01	0.00
	(5.15)	(4.37)	(0.05)	(0.04)	(4.82)	(4.20)	(0.04)	(0.03)
Governance * Reform	-5.18	-3.37	0.05	0.07	-4.73	-2.66	0.07	0.08
	(5.87)	(5.71)	(0.07)	(0.05)	(5.74)	(5.64)	(0.06)	(0.05)
Chaebol	-333.59	-619.53*	-4.00	-5.45**				
	(319.43)	(350.34)	(3.34)	(2.61)				
Chaebol * Reform	893.55***	843.35**	5.43	2.63				
	(331.09)	(351.69)	(3.73)	(3.24)				
Tier1 chaebol					-381.66	-658.22*	-6.00*	-6.74***
					(345.15)	(359.35)	(3.30)	(2.58)
Tier1 chaebol * Reform					760.42**	656.17*	5.07	1.63
					(380.41)	(396.41)	(4.11)	(3.44)

Table 1.9 Internal and External Governance in Chaebols (Cont.)

Tier2 chaebol					-282.38	-591.50	-1.39	-3.73
					(349.78)	(369.79)	(3.53)	(2.83)
Tier2 chaebol * Reform					1,027.34**	1,039.99**	5.20	3.14
					(414.39)	(407.85)	(3.85)	(3.62)
Log(assets)	-207.96***	-35.06	-1.30	0.96	-191.24***	-21.63	-0.96	1.14
	(71.28)	(85.17)	(0.79)	(0.76)	(72.89)	(84.22)	(0.80)	(0.75)
Leverage	431.12	32.50	-5.61	-9.05	418.28	-10.53	-6.22	-9.98*
	(711.32)	(702.91)	(6.84)	(5.63)	(719.52)	(717.74)	(6.60)	(5.59)
Income/Total assets	-5,462.35***	-5,721.82***	-14.81	-23.58	-5,421.49***	-5,539.44***	-14.60	-21.47
	(1845.04)	(1738.73)	(20.43)	(16.21)	(1842.31)	(1725.73)	(20.43)	(16.42)
Log(age)	306.66***		1.72		288.16**		1.32	
	(112.10)		(1.38)		(110.77)		(1.35)	
Tangible assets/Total assets	105.68		-8.27		64.05		-9.10*	
	(567.26)		(5.21)		(561.23)		(4.90)	
Working capital/Total assets	650.89		-2.64		698.42		-1.26	
	(748.09)		(6.96)		(722.37)		(6.71)	
Log(loan maturity)		-58.39		-0.50		-73.78		-0.58
		(132.10)		(1.13)		(130.97)		(1.12)
Log(loan amount)		-634.21***		-6.78***		-632.87***		-6.71***
		(101.42)		(0.90)		(100.56)		(0.87)
Secured		-241.11		0.95		-230.05		0.96
		(269.23)		(2.16)		(271.48)		(2.13)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummies	No	Yes	No	Yes	No	Yes	No	Yes
Observations	910	841	910	841	910	841	910	841
R-squared	0.16	0.25	0.13	0.26	0.16	0.26	0.14	0.26

Table 1.10 Internal and External Governance in Chaebols

This table reports coefficient estimates from regressions relating the syndicated loan structure to internal governance controls, proxied by block ownership concentration, and by (a measure of) the gap between control and ownership rights. The dependent variables are the Herfindahl-Hirschman index for loan shares in Panel A, and Panel C, the total share of the loan held by the lead arranger(s) in Panel B, and Panel D. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Herfindahl				Lead Share			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ownership concentration	11.38	5.22	0.84	-17.05	0.24	0.22	0.15	0.08
	(15.33)	(15.13)	(15.50)	(16.31)	(0.17)	(0.18)	(0.19)	(0.16)
Ownership concentration * Reform	-8.67	-4.53	-1.36	14.84	-0.24	-0.21	-0.17	-0.12
	(17.11)	(17.05)	(17.55)	(16.98)	(0.19)	(0.20)	(0.20)	(0.17)
Chaebol	-188.39	-67.13	-11.07	-610.29	-0.40	1.20	0.32	-2.40
	(391.72)	(393.87)	(379.58)	(450.22)	(2.87)	(3.45)	(3.56)	(2.82)
Chaebol * Reform	396.83	602.41	541.75	805.71*	-0.34	-0.17	-0.14	-1.75
	(432.77)	(407.98)	(394.89)	(438.11)	(4.18)	(4.44)	(4.13)	(3.71)
Ownership concentration * Chaebol	-33.95*	-31.14*	-29.12*	-0.70	-0.43**	-0.42**	-0.34	-0.22
	(17.38)	(16.98)	(17.50)	(18.72)	(0.19)	(0.20)	(0.21)	(0.18)
Ownership concentration * Chaebol * Reform	44.71*	40.11*	38.69*	7.40	0.61***	0.58***	0.51**	0.37*
	(22.70)	(21.59)	(22.21)	(22.99)	(0.21)	(0.22)	(0.23)	(0.20)

Table 1.10 Internal and External Governance in Chaebols(cont.)

Log(assets)		-182.61**	-229.27***	-79.12		-0.98	-1.28	0.72
		(72.64)	(70.63)	(80.78)		(0.78)	(0.80)	(0.78)
Leverage		502.43	508.00	87.27		-4.88	-6.68	-10.45*
		(741.02)	(732.16)	(719.73)		(6.78)	(6.68)	(5.52)
Income/Total assets		-5,027.23***	-5,325.65***	-5,473.33***		-15.00	-14.63	-21.93
		(1662.40)	(1824.98)	(1700.73)		(20.23)	(20.36)	(15.91)
Log(age)			268.45**				1.20	
			(106.31)				(1.35)	
Tangible assets/Total assets			465.31				-5.61	
			(558.69)				(5.33)	
Working capital/Total assets			606.58				-2.19	
			(745.69)				(7.03)	
Log(loan maturity)				-70.60				-0.68
				(133.66)				(1.13)
Log(loan amount)				-612.97***				-6.54***
				(98.63)				(0.87)
Secured				-132.50				1.96
				(288.83)				(2.26)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummy	No	No	No	Yes	No	No	No	Yes
Observations	912	910	910	841	912	910	910	841
R-squared	0.13	0.16	0.17	0.26	0.13	0.14	0.14	0.26

Table 1.10 Internal and External Governance in Chaebols (cont.)

This table reports coefficient estimates from regressions relating the syndicated loan structure to internal governance controls, proxied by block ownership concentration, and by (a measure of) the gap between control and ownership rights. The dependent variables are the Herfindahl-Hirschman index for loan shares in Panel A, and Panel C, the total share of the loan held by the lead arranger(s) in Panel B, and Panel D. The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Panel C: Herfindahl				Lead Share			
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Chaebol	-1,058.84**	-871.82*	-802.69*	-1,040.87**	-7.18	-5.34	-5.67	-7.18
	(425.84)	(474.23)	(471.68)	(428.58)	(4.65)	(5.32)	(5.37)	(4.47)
Chaebol * Reform	1,672.37***	1,766.73***	1,831.07***	1,333.37**	16.08**	15.78**	15.14**	9.84
	(588.22)	(586.42)	(564.18)	(524.77)	(6.51)	(6.87)	(6.72)	(6.05)
Control ownership gap	-5.38	-6.89	-3.34	-2.30	-0.07	-0.07	-0.04	-0.04
	(6.25)	(7.56)	(7.42)	(6.27)	(0.09)	(0.10)	(0.10)	(0.09)
Control ownership gap * Reform	8.64	9.71	11.59	7.29	0.20*	0.20*	0.20*	0.18*
	(9.12)	(9.12)	(8.91)	(8.02)	(0.11)	(0.11)	(0.11)	(0.10)
Control ownership gap * Chaebol	16.76**	14.66	14.42	13.09	0.06	0.04	0.05	0.05
	(8.05)	(9.73)	(9.49)	(8.19)	(0.10)	(0.11)	(0.11)	(0.09)
Control ownership gap * Chaebol * Reform	-24.07**	-21.57*	-25.02**	-14.71	-0.24*	-0.22	-0.23*	-0.17
	(11.48)	(11.92)	(11.61)	(11.21)	(0.13)	(0.14)	(0.14)	(0.12)

Table 1.10 Internal and External Governance in Chaebols (cont.)

Log(assets)		-170.19**	-205.34***	-24.99		-1.15	-1.39*	0.98
		(79.25)	(73.32)	(87.78)		(0.79)	(0.78)	(0.76)
Leverage		467.98	530.86	-55.59		-0.56	-2.86	-8.30
		(706.01)	(705.25)	(704.44)		(7.26)	(6.94)	(5.75)
Income/Total assets		-4,811.18***	-5,379.98***	-5,832.86***		-7.94	-10.70	-19.81
		(1616.86)	(1841.06)	(1748.36)		(19.95)	(20.03)	(16.20)
Log(age)			335.25***				2.22*	
			(111.20)				(1.32)	
Tangible assets/Total assets			197.87				-6.28	
			(537.73)				(4.60)	
Working capital/Total assets			752.70				-1.18	
			(737.24)				(6.40)	
Log(loan maturity)				-62.84				-0.55
				(131.66)				(1.13)
Log(loan amount)				-636.10***				-6.76***
				(102.16)				(0.88)
Secured				-230.71				1.05
				(271.36)				(2.12)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummy	No	No	No	Yes	No	No	No	Yes
Observations	912	910	910	841	912	910	910	841
R-squared	0.13	0.15	0.16	0.25	0.13	0.14	0.14	0.26

Table 1.11 Robustness Tests

This table reports estimates of four robust regressions. Panel A presents estimates of regressions in which unlike the regressions on Panel A, and B of Table III, the interaction term of "Chaebol" and "Reform" is divided into two interaction terms: interaction of "Chaebol" and "Transition", and interaction of "Chaebol" and "Post-transition". "Transition" is a dummy which takes on the value of one when loan origination occurs during the years of 1998, and1999, and zero otherwise. "Post-transition" is a dummy which takes on the value of one when loan origination occurs after 1999, and zero otherwise. The dependent variables are the Herfindahl-Hirschman index for loan shares, and the total share of the loan held by the lead arranger(s). The interaction variable on the table, "Chaebol*Time dummy" represents "Chaebol * Transition" only on Panel A, and on the other Panels, it does the interaction of "Chaebol" and "Reform". "Reform" is a dummy that takes on the value of one when the loan originates after 1997, and zero otherwise. The regressions are estimated by ordinary least squares (OLS). Panel B shows estimates of regressions using a new dependent variable, instead of the Herfindahl-Hirschman index. The new dependent is constructed according to the formula, (Herfindahl–Hirschman Index/10000-1/N) where N is the number of lenders. The regressions are estimated by ordinary least squares (OLS). Panel C reports estimation results of regressions which are estimated by fractional logit model where the dependent variables, the Herfindahl-Hirschman index for loan shares, and the total share of the loan held by the lead arranger(s), are represented by the value of between zero and one. Panel D presents estimates of regressions relating the structure of loan to political influence of the firm. "Political connection" is a dummy that takes on the value of one when one of the share holders of the borrower's affiliated firms (for the cases only when his/her equity ownership is larger than 1%) is a member of the National Assembly of Korea at the year of loan origination. There are 122 obervations for 13 firms which are identified as being politically connected, and they are chaebols (SsangYong, Hyundai, and Hyundai Heavy Industries). The regressions are estimated by ordinary least squares (OLS). Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. "Secured" is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors controlling for firm cluster effects. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

Table 1.11 Robustness Tests(cont.)

	Panel A				Panel B	
	Herfindahl		Lead Share		New concentration index	
	(1)	(2)	(3)	(4)	(5)	(6)
Chaebol	-445.84	-569.29*	-4.76	-4.88**	-0.04*	-0.05*
	(290.67)	(296.88)	(2.94)	(2.42)	(0.02)	(0.03)
Chaebol * Time dummy	-1,747.06*	-2059.32	-3.71	-4.95	0.06**	0.06**
	(1016.55)	(1455.35)	(6.00)	(6.94)	(0.02)	(0.02)
Chaebol * Post-transition	1,199.78***	955.03***	7.94**	3.84		
	(318.58)	(325.76)	(3.57)	(3.21)		
Log(assets)	-239.26***	-92.32	-1.44**	0.50	0.00	0.00
	(57.98)	(57.14)	(0.66)	(0.65)	0.00	0.00
Leverage	1,194.99**	433.18	-4.02	-8.77*	0.10**	0.09**
	(549.46)	(518.04)	(5.05)	(4.72)	(0.04)	(0.04)
Income/Total assets	-3,103.29***	-3,659.10***	9.66	0.17	-0.26***	-0.20***
	(1044.14)	(976.64)	(14.00)	(12.82)	(0.07)	(0.06)
Log(age)	141.70*		1.39		0.00	
	(84.64)		(1.05)		(0.01)	
Tangible assets/Total assets	158.47		-7.31		0.09***	
	(453.13)		(4.78)		(0.03)	
Working capital/Total assets	437.76		-4.14		0.07*	
	(561.78)		(6.00)		(0.04)	
Log(maturity)		-85.01		-0.11		0.00
		(125.93)		(1.12)		(0.01)
Log(loan amount)		-691.74***		-6.83***		0.01**
		(85.51)		(0.83)		(0.01)
Secured		16.39		1.12		-0.01
		(231.30)		(2.09)		(0.02)
Intercept	4,431.71***	16,296.36***	40.54***	134.80***	-0.08	-0.14
	(1314.73)	(1789.26)	(14.76)	(17.87)	(0.10)	(0.13)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummy	No	Yes	No	Yes	No	Yes
Observations	987	917	987	917	987	917
R-squared	0.15	0.26	0.13	0.25	0.11	0.11

Table 1.11 Robustness Tests (Cont.)

	Panel C				Panel D			
	Herfindahl		Lead Share		Herfindahl		Lead Share	
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Chaebol	-0.24*	-0.31**	-0.27*	-0.30**	-503.48*	-631.28**	-4.65	-5.04**
	(0.14)	(0.15)	(0.15)	(0.13)	(297.20)	(308.80)	(2.92)	(2.43)
Chaebol * Time dummy	0.53***	0.45***	0.41**	0.24	1,157.14***	895.64***	7.30**	3.48
	(0.15)	(0.15)	(0.18)	(0.16)	(331.36)	(331.24)	(3.53)	(3.15)
Chaeobol * Political connection					204.77	256.60	-0.93	1.16
					(270.31)	(247.66)	(2.02)	(1.96)
Chaebol * Political connection * Reform					-190.08	-71.15	6.53	7.28
					(480.33)	(448.34)	(7.27)	(6.76)
Log(assets)	-0.10***	-0.03	-0.07**	0.03	-220.94***	-74.44	-1.38**	0.51
	(0.03)	(0.03)	(0.03)	(0.03)	(62.20)	(63.90)	(0.65)	(0.64)
Leverage	0.54**	0.20	-0.21	-0.49**	1,151.95**	386.02	-4.48	-9.10*
	(0.25)	(0.25)	(0.25)	(0.25)	(560.49)	(524.37)	(5.02)	(4.71)
Income/Total assets	-1.38***	-1.73***	0.47	-0.07	-3,137.53***	-3,676.97***	10.08	0.76
	(0.51)	(0.51)	(0.67)	(0.67)	(1048.13)	(981.41)	(13.90)	(12.76)
Log(age)	0.07*		0.07		145.49*		1.41	
	(0.04)		(0.05)		(85.29)		(1.05)	
Tangible assets/Total assets	0.10		-0.36		202.85		-7.21	
	(0.20)		(0.23)		(448.59)		(4.77)	
Working capital/Total assets	0.18		-0.21		478.13		-4.12	
	(0.25)		(0.29)		(561.86)		(6.05)	
Log(maturity)		-0.04		-0.01		-64.87		0.00
		(0.06)		(0.06)		(127.09)		(1.12)
Log(loan amount)		-0.34***		-0.37***		-693.72***		-6.85***
		(0.04)		(0.05)		(85.97)		(0.83)
Secured		0.00		0.05		-52.14		0.82
		(0.11)		(0.12)		(244.76)		(2.11)
Intercept	-0.72	5.04***	-0.71	4.52***	3,990.72***	15,799.47***	39.34***	134.46***
	(0.64)	(0.95)	(0.76)	(0.98)	(1407.99)	(1933.46)	(14.74)	(17.95)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan purpose dummy	No	Yes	No	Yes	No	Yes	No	Yes
Observations	987	917	987	917	987	917	987	917
R-squared	-	-	-	-	0.15	0.25	0.13	0.25

Table 1.12 Loan Characteristics and Chaebols

This table presents coefficient estimates from regressions which link chaebol affiliation with loan characteristics. The dependent variables are Maturity (the maturity of the loan in days), Loan Amount (the loan size in US dollars), and Secured (a dummy that takes on the value of one if the loan is secured, zero otherwise). Coefficients in columns (1)-(4) and (7)-(10) are estimated by ordinary least squares (OLS), those in columns (5)-(6) and (11)-(12) by probit. Chaebol is a dummy that takes on the value of one if the firm is affiliated to a chaebol, and zero otherwise. Tier1 chaebol is a dummy that takes on the value of one if the firm is affiliated to a top five chaebol, and zero otherwise. Tier2 chaebol is a dummy that takes on the value of one if the firm is affiliated to a non-top five chaebol, and zero otherwise. Chaebol affiliation is identified according to the Korea Fair Trade Commission (KFTC) and Lee (2005). Reform is a dummy that takes on the value of one if the start date of the loan is after 1997, and zero otherwise. Log(assets) is the logarithm of the firm total assets measured in thousands of South Korean Won. Leverage is the ratio of total liabilities to total assets. Income/Total assets is the ratio of net income to total assets. Log(age) is the logarithm of the number of days since the inception of the firm. Tangible assets/Total assets is the ratio of tangible assets to total assets. Working capital is the difference between current assets and current liabilities. Log(loan maturity) is the logarithm of the maturity of the loan in days. Log(loan amount) is the logarithm of the loan size in US dollars. Secured is a dummy that takes on the value of one if the loan is secured, and zero otherwise. Numbers in parentheses denote robust standard errors clustered at the firm level. ***, **, and * indicate statistically significant at the 1%, 5%, and 10% level.

	Maturity		Loan Amount		Secured		Maturity		Loan Amount		Secured	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Chaebol	-0.39***	-0.35***	-0.10	-0.05	-0.04	0.09						
	(0.13)	(0.12)	(0.17)	(0.16)	(0.46)	(0.40)						
Chaebol * Reform	0.31**	0.33**	-0.28	-0.22	0.06	0.08						
	(0.14)	(0.13)	(0.24)	(0.22)	(0.50)	(0.49)						
Tier1 chaebol							-0.34**	-0.29**	0.01	0.08	-0.07	0.12
							(0.14)	(0.12)	(0.19)	(0.17)	(0.50)	(0.44)
Tier1 chaebol * Reform							0.20	0.22	-0.33	-0.31	0.15	0.09
							(0.16)	(0.15)	(0.26)	(0.24)	(0.56)	(0.53)
Tier2 chaebol							-0.48***	-0.45***	-0.30	-0.29	0.00	0.05
							(0.16)	(0.15)	(0.21)	(0.20)	(0.51)	(0.46)
Tier2 chaebol * Reform							0.47***	0.50***	-0.14	-0.03	-0.04	0.08
							(0.16)	(0.16)	(0.28)	(0.26)	(0.57)	(0.57)

Table 1.12 Loan Characteristics and Chaebols(cont.)

Log(assets)	-0.01	0.00	0.22***	0.24***	-0.20***	-0.24***	-0.01	0.00	0.21***	0.23***	-0.20***	-0.24***
	(0.02)	(0.02)	(0.03)	(0.04)	(0.05)	(0.06)	(0.02)	(0.02)	(0.03)	(0.03)	(0.05)	(0.05)
Leverage	-0.49**	-0.28	-0.64**	-0.35	0.94**	1.05**	-0.48**	-0.27	-0.59**	-0.33	0.93**	1.05**
	(0.19)	(0.20)	(0.29)	(0.29)	(0.43)	(0.44)	(0.19)	(0.20)	(0.29)	(0.29)	(0.43)	(0.45)
Income/Total assets	-0.68**	-0.75**	-2.59***	-2.63***	-0.55	-0.86	-0.64**	-0.71**	-2.63***	-2.66***	-0.57	-0.88
	(0.31)	(0.29)	(0.82)	(0.77)	(0.85)	(0.80)	(0.31)	(0.28)	(0.82)	(0.76)	(0.86)	(0.81)
Log(age)		-0.03		-0.13**		0.06		-0.03		-0.12*		0.06
		(0.03)		(0.06)		(0.10)		(0.03)		(0.06)		(0.10)
Tangible assets/Total assets		0.48***		0.84***		1.49***		0.50***		0.88***		1.49***
		(0.17)		(0.32)		(0.30)		(0.17)		(0.31)		(0.32)
Working capital/Total assets		0.41**		0.36		0.35		0.39*		0.28		0.32
		(0.21)		(0.36)		(0.51)		(0.20)		(0.35)		(0.51)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1338	1338	1531	1531	1532	1532	1338	1338	1531	1531	1532	1532
R-squared	0.17	0.18	0.34	0.37	-	-	0.17	0.19	0.35	0.37	-	-

Table 1.13 Appendix: Variables and Sources

Variable	Description	Source
1. Firm Characteristics		
Age	Days from the firm's establishment to the date of origination of the loan	Dealscan and KIS-Line
Total assets	Borrower's total assets at the end of the year prior to the syndication arrangement	KIS-Line
Gross sales	Borrower's gross sales at the end of the year prior to the syndication arrangemen	KIS-Line
EBITDA	Borrower's earnings before interest, tax, depreciation and amortization at the end of the year prior to the syndication arrangement	KIS-Line
Number of employees	Total number of employees of the borrower at the end of the year prior to the syndication arrangement	KIS-Line
Tangibles to total assets	Ratio of tangible assets to total assets at the end of the year prior to the syndication arrangement	KIS-Line
Working capital to total assets	(Current assets - current liabilities) / Total assets at the end of the year prior to the syndication arrangement	KIS-Line
Leverage ratio	Total debt / Total assets at the end of the year prior to the syndication arrangement	KIS-Line
Income to assets	Net Income (excluding extraordinary items) / Total assets at the end of the year prior to the syndication arrangement	KIS-Line
2. Corporate Governance		
Ownership concentration	Total equity stake of the top ten "personal" shareholders	KIS-Line
Control gap	Total equity stake of the top ten shareholders minus "ownership concentration"	KIS-Line
3. Chaebol Characteristics		

Table 1.13 Appendix: Variables and Sources (cont.)

Total assets	Sum of total assets of the firms affiliated with the same chaebol at the end of the year prior to the syndication arrangement	KIS-Line
Leverage ratio	Sum of total liabilities to sum of total assets of the firms that belong to the same chaebol at the end of the year prior to the syndication arrangement	KIS-Line
Income correlation	Correlation between a firm's income(t) / total assets(t-1) ratio and its chaebol's income(t) / total assets(t-1) ratio (excluding the firm in question). Consistent series for the ratios are available from 1987 in KIS-Line and thus the correlation is calculated over the 1987-2006 period	KIS-Line
Cash flow correlation	Correlation between a firm's sum of income(t) and depreciation(t) / total assets(t-1) ratio, and its chaebol's sum of income(t) and depreciation(t) / total assets(t-1) ratio (excluding the firm in question). Consistent series for the ratios are available from 1987 in KIS-Line and thus the correlation is calculated over	
Income/Total assets	Sum of income(t) to sum of total assets(t-1) of the firms that belong to the same chaebol at the end of the year prior to the syndication arrangement	KIS-Line
Tangible assets/Total assets	Sum of tangible assets to sum of total assets of the firms that belong to the same chaebol at the end of the year prior to the syndication arrangement	KIS-Line
4. Banks' and Institutions' Equity Participation		
Bank equity (%)	Total share of equity held by domestic banks	KIS*
Institution equity (%)	Total share of equity held by institutional investors (excluding domestic banks' shares)	KIS*
Political connection	Dummy variable that takes on the value of one if one of the firm's shareholders (equity ownership >1%) was a member of the National Assembly of Korea in the year in which the loan was syndicated. There were 6 firms (71 Obs.) that were politically connected in the sample and that were chaebol (SsangYong, Hyundai and Hyundai Heavy Industries) affiliated	KIS* and www.assemblykorea.gov

Table 1.13 Appendix: Variables and Sources (cont.)

5. Syndicated Loan Characteristics		
Loan amount	Loan amount (in US dollars)	Dealscan
Maturity	Loan maturity (in days)	Dealscan
Secured	Dummy that takes on the value of one if the loan is secured, zero otherwise	Dealscan
6. Chaebol Identification		
Chaebol	Dummy that takes on the value of one if the firm is affiliated to a chaebol, zero otherwise	KFTC and Kim(2005)
Tier1 chaebol	Dummy that takes on the value of one if the firm is affiliated to a top 5 chaebol, zero otherwise	KFTC and Kim(2005)
Tier2 chaebol	Dummy that takes on the value of one if the firm is affiliated to a chaebol ranked 6-30, zero otherwise	KFTC and Kim(2005)

* Data were provided by KIS (Korea Information Service) staff

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CHAPTER 2

Creditors' Rights and Loan Structure

Abstract

In loan syndicates, the participant lenders, who are aware of the conflict of interest between shareholders and creditors, are hesitant to participate unless they are sure that the lead arranger(s) increases *ex post* monitoring efforts to deter the firms from acting for the interest of shareholders at the expense of the creditors' benefits. However when the firms strengthen the protection of the creditors' rights, the intensity of monitoring required by the participant lenders will be lightened, which is reflected in the structure of syndicated loans by smaller loan concentration or lower loan share held by the lead arrangers. Using proxies (the G index, state antitakeover law, and state payout restriction) for the degree of the protection of creditors' rights of the firm, I observe that the average loan concentration of the firms, which set up more provisions for protecting creditor's rights, is lower and the likelihood of the creditors' holding collateral is smaller. However the extent of the impact of such protection on the loan concentration also depends on the degree of the product market competition the firms face. For the firms that belong to the highly competitive product markets,

I found that the impact of the G index is pronounced and the creditors are less likely to hold collateral, and embed fewer financial covenants when the firms are prone to protect creditors' rights.

2.1 Introduction

Conflicts between shareholders and creditors can arise because of different payoff structures of equity and debt (Jensen and Meckling, 1976). Shareholders claim the upside payoffs of the firm whereas creditors have to bear the downside risks. To guard themselves from shareholders' risk-shifting(asset substitution) incentives, creditors may articulate loan contracts by adding covenants, or holding the firm's assets as collateral. Apart from those restrictions, borrowers are required to pay larger interest when creditors believe they will be exposed to, with higher probability, the chance of being involved in conflicts in the future (see e.g., Chava, Livdan, and Purnanandam (2009)).

The conflicts affect not only the terms of loan contracts, but also the structure of loans, such as the shares of the loan held by the lead arranger(s) in the syndicated loans which are one of the major vehicles of corporate financing for US firms. As emphasized in Focarelli, Pozzolo, and Casolaro (2007), and Sufi (2007), the shares of the loan held by the lead arrangers is of importance, because the shares translates into the intensity of monitoring by the lead arrangers on the borrowers. When the firm's payoffs depend on the degree of creditors' monitoring efforts, as the loan share held by the lead arrangers gets larger, payoffs are also expected to be greater[1].

This paper investigates the link between shareholder-creditor conflict and its im-

[1]Focarelli, Pozzolo, and Casolaro (2007) observe that announcement effect of the new loan on the stock price is an increasing function of the portions of the loan retained by the arranger because the shareholders expect that the lead arrangers as delegated monitoring agents will increase their monitoring efforts when their shares of loan increase. Chen, Harford, and Li (2007) found that concentrated share holdings by independent long-term institutions are related to post-merger performance.

pact on the structure of syndicated loans with the question of whether the creditors are worried about the risk-shifting problem and then how the firm's and the state's measures of creditor rights protection affect the structure of syndicated loans using US syndicated loans, and the firm's antitakeover provisions, and the state's takeover law and payout restriction. Furthermore, under which environment, the impact of those protection measures on the structure of syndicated loans becomes greater.

The sample data I use in the paper are drawn from the Dealscan database distributed by the Loan Pricing Corporation for US firm loans from January of 1990 to June of 2007. and the borrowers are publicly traded firms. The benefit from using publicly traded firms is to exclude, in some limited extent, the effects of asymmetric information problem between the lead arrangers and the participant lenders on the structure of syndicated loans [2]

In the previous studies on the syndicate loan structure (see, Dennis and Mullineaux (2000), Ivashina (2009), Jones, Lang, and Nigro (2005), Lee and Mullineaux (2004), Sufi (2007)) [3], agency problems stemming from adverse selection and moral hazard are found to affect the loan share distribution between the lead arrangers and the participant lenders, as well as the loan spread over Libor. Adverse selection problem occurs when the information on the borrower is not fairly revealed to all lenders, such information inequality can arouse suspicion that the lead arrangers may be selling a lemon project to other lenders and as a consequence interested lenders may hesitate to join the syndication. On the other hand, after contracting, the participant lenders face moral hazard problem caused by the lead arrangers. Especially, the participant lenders want to make it sure that the loan which they lend does not go bankrupt,

[2]Although the firm is publicly traded, some 'soft' information is not believed to be shared by all lenders. However publicly traded companies can be considered to cause less information asymmetry problem than private firms (Sufi, 2007). With public firms, the effects of the degree of creditor rights protection is more fairly singled out by excluding the unobserved effects in part stemming from asymmetric information problem.

[3]These papers focused on the effects of information opaqueness on the structure of syndicated loan.

or its repayment schedule is not renegotiated in the future. Without the certainty of the borrower being monitored by the lead arrangers, interested lenders also are not likely to participate in the loan syndication. To ameliorate the concern of the *ex post* monitoring problem, the lead arrangers take more shares of the loan. However, when the lead arrangers are reputed in the previous years for their commitment in paying due diligence on the borrowers, the concern of the *ex post* monitoring problem will be mitigated.

In addition to the reputation effects, the degree of creditor rights protection that the firm has installed can affect the structure of syndicated loans. When the management of a firm is more aligned with shareholders' rights than with creditors', interested lenders will hesitate to participate in a syndication of the loan because of a lower possibility of their rights being honored against shareholders' rights when the firm falls into a situation where the two rights are in conflict. In other words, for firms that employ good measures of protection, the participant lenders, due to lessened concern about conflict, will demand less monitoring on whether their rights are compromised. This will result in smaller shares of a loan held by the lead arrangers. This aspect is not dealt with so far except for the analysis on such effects on loan pricing(Chava, Livdan, and Purnanandam, 2009)

To measure the degree of firm's creditor rights protection, I use the G index and E index (see details in the next section) as in Gompers, Ishii, and Metrick (2003) and Bebchuk, Cohen, and Ferrell (2009). In addition to the firm-level protection measures, there are state-level protections: the states employ the payout restriction (Wald and Long, 2007) and antitakeover laws, both of which vary across the states in terms of their severity.

The first finding is that firms which are more protective of creditors' rights have their loan less concentrated in terms of the share of the loan held by the lead arrangers, and constructed loan concentration index, Herfindahl-Hirschman (henceforth

Herfindahl), while controlling firm and loan characteristics. As the firms weaken their shareholder's rights (it amounts to the increase in the G and E indices) by increasing one unit of the G index (max =24), the loan concentration decreases on average by 2%. The decline is more pronounced when the firms are Dictatorship type ones (very repressive on shareholder's rights); the loan concentration is smaller on the average by 11.4% compared with that of the other control group. Furthermore, I estimated the size of the effects of state level protection(proxied by antitakeover provisions), constructed by grouping states according to how restrictive the state is toward takeover, based on the number of five antitakeover provisions used in Bebchuk and Cohen (2003). To my surprise, the state law contributes to the decline of loan concentration, in terms of shares held by the lead arranger, by about 18.5% regardless of the degree of the severity of the protection,("moderate", or "most restrictive"). This figure is about 10(18.5%/2%) times larger than the case when I use the G index index instead. This finding demonstrates that the participant lenders in the loan syndication look at whether the borrowing firms provide more protection for creditors and furthermore to what extent they do.

Creditors' rights are also exposed to the risk of being infringed when the firm's manager compensation scheme is aligned with the interest of its shareholders (see, Vasvari (2009)). This paper observes that although the manager's compensation is more dependent on the change in stock price and its volatility, which translates into that where the manager has more incentive to increase shareholders' wealth, the effects of the protection of creditors' rights is preserved in tact.

To advance the investigation on the role of institutions related to the structure of syndicated loans, I examine the relationship between the state's level payout restriction and loan structure (whether the loans are "secured"). Payout restriction is a state law which prevents the firms from paying out dividends unless they satisfy the threshold level of capital sufficiency. I find that the payout restriction strongly

affects the decision of whether the creditors hold the firms' assets as collateral in their syndicated loan contracts. The holding of collateral is also found to be affected by the degree of the protection of creditor's rights, identified by the G index, and the E index.

I also examine the effectiveness of the protection of creditor's rights in the environment, in which creditor's rights can be undermined, such as when the firms belong to competitive industries (Giroud and Mueller, 2010). The effectiveness of the protection of creditor's rights is shown more greatly when the industries to which the borrowing firms belong are very competitive in their product markets. Competitive pressure will enforce discipline on managers (Giroud and Mueller, 2010) in such a way that the managers pay more cash to their shareholders (Grullon and Michaely, 2005). For such reason, the creditors become more attentive to firms' protective measures for creditor's rights when the firms belong to highly competitive industries.

This paper also contributes to the literature on the effects of institutional differences on the structure of syndicated loans (e.g., Bae and Goyal (2009), Qian and Strahan (2007)) [4]. Different from cross-country studies where differences in countries' creditor rights are one of major explanatory variables in finding the determinants of the loan structure, the paper demonstrates that even under the same national jurisdiction, legal and institutional differences across states, (mainly in the state's antitakeover provisions, and in payout restriction) affect the shaping of loan structure.

The remainder of this paper is organized as follows, section 2 will discuss the role of creditor rights protection on loan contracts, and the environments where the impact of creditor rights protection can be affected. Section 3 explains data and major statistics. Section 4 discusses empirical specification and key variables that are included in the regressions. Section 5 presents main empirical results and section 6

[4]Bae and Goyal (2009) found that lenders reduce loan amounts, shorten loan maturities and increase loan spreads when the enforceability of contracts is believed poor. Qian and Strahan (2007) observe that under strong creditor rights protection, loans have more concentrated ownership, longer maturities, and lower interest rates

discusses endogeneity, and the final section ends with the conclusion.

2.2 Background

In this section, I will explore how protection of creditors' rights can affect the structure of syndicated loan. Furthermore, The exploration is extended to the question that in which environment the protection of creditors' rights are perceived effective to the creditors and the consequent implications on the structure of loans.

2.2.1 Protection of Creditors' Rights and Structure of Loans

A syndicated loan is a type of loan which is funded jointly by more than two lenders. The lead arranger(s), which can be a sole lender, or multiple lenders, establishes a relationship with the borrower and determines the terms of the loan contract. The lead arranger then seeks other lenders who can fund part of the loan. The lead arranger can have more information on the borrower through the relationship than the participant lenders. Such information asymmetry in turn, can affect the participation decision of the non-lead lenders. The non-lead lenders are reluctant to participate unless they are certain that the lead arrangers will do what they have to do, as the lead arrangers, for them, not selling a lemon, and monitoring the borrower after the deal is struck. If the participant lenders do not join the loan syndication, which results in the lead arrangers taking a larger portion of the loan instead.

Previous studies found that the asymmetric information problem which can cause mistrust affects the structure of syndicated loans. When the borrower is an opaque private firm, which entails an information asymmetry problem, the lead arrangers have to increase their funding shares of the loan more than when the borrower is a public firm which is relatively more transparent (Sufi, 2007). The lead arrangers who take more loan shares will be exposed to the possibility of a bigger loss when the

borrower defaults. To avoid such a risk, the lead arrangers make efforts to provide more information on the borrower to the participating lenders, or build a reputation as credible lead arrangers by paying due diligence on the loans which they have arranged in the past [5].

Not only the lead arrangers' efforts, but also the legal and institutional environment in which the firms do business, can affect the structure of syndicated loans. Depending on how securely creditor rights are protected, the number of the lenders, and the shares of the loan held by the lead arrangers are determined. Qian and Strahan (2007) found by using country cross-sectional syndicated loan data that in the country where creditor rights are more strongly protected, loans have longer maturities, and lower interest rates. Their findings are also attested in the recent study by Bae and Goyal (2009) in which they also observe that the lenders reduce loan amounts, shorten loan maturities, and increase loan spreads when the loans were initiated in the environment which provides poor enforceability of loan contracts.

In line with the previous studies, I conjecture that the structure of syndicated loans is also affected by creditors' concern about the financial risks that the creditors will face when the borrowing firm acts for the benefits of its shareholders at the expense of the creditors' interest. favoring shareholders can make the conflict between shareholders and creditors complicated, such as by shifting risks from the one to the other, or by paying excess payout. In the loan initiation stage, the concern about being involved in conflict in the future can hamper the participation of participant lenders[6].

[5]Gopalan, Nanda, Yerramilli, and Drive (2009) found when the firm for which a bank arranged a syndicated loan went bankrupt, the lead arranger suffered from the drop of aggregate level of activity in the loan syndication market in the following years.

[6]In relation with takeover concern for creditors, some studies explored the impact of takeover concern on the spread; Chava, Livdan, and Purnanandam (2009) found that when the borrowing firm is more likely to participate in takeover, loan interests are charged higher to compensate risk that can be increased by takeover. The relation between takeover and structure of securities also has been studied. Klock, Mansi, and Maxwell (2005) observed that anti-takeover provisions lower the cost of debt financing. Cremers, Nair, and Wei (2004) also found that shareholder control is

For the measure of the degree of creditor rights protection, I use the G index in this paper which was constructed by Gompers, Ishii, and Metrick (2003). This index quantifies how much a firm is protected from hostile takeover threats. The firm takes various antitakeover measures to protect itself from hostile takeover offers by adding takeover defenses and some restrictions on shareholder rights, such as staggered terms of directors and severance packages for managers. Along with the individual firm's efforts, many states also join in the antitakeover movement by stipulating legal restrictions against hostile bids. Such efforts still continue to exist and vary across states. These antitakeover measures can work against the interest of shareholders. Gompers, Ishii, and Metrick (2003) found that firms, whose G index is higher, experience lower rates of stock return. From the creditors' point of view, such measures secure their rights by decreasing the probability of the creditors being involved in the situation where their seniority is compromised when the firm is acquired, or merges with other firms, resulting in the rise of its financial leverage.

Gompers, Ishii, and Metrick (2003) construct the G index using the IRRC, which consists of five categories; Delay(tactics for delaying hostile bidders), Voting(voting rights), Protection(director/officer protection), Other(other takeover defenses), and State(state laws). The 24 provisions comprise the index. In addition, Bebchuk and Cohen (2003) also constructed an index for the degree of state-level antitakeover measures (the index is obtained from Lucian Bebchuk's website), having a maximum value of five when a state has stipulated the complete set of the following laws: 'Control Share Acquisition Statute', 'Fair Price Statute', 'Business Combination Statute', 'Poison Pill Endorsement Statute', and 'Constituencies Statute'. The index is very persistent and does cover from 1986. Since it covers only up to the year 2001. I apply the last year's index to the uncovered years after 2001.

On the other hand, along with antitakeover laws, many states stipulated the law

associated with lower bond yields if the firm is protected from takeovers.

which restricts firm's payout which is carried either by paying dividends, or by purchasing its shares[7]. Such restriction on shifting firm's cash or assets at the expense of creditors' rights to shareholders will assure the participant lenders in joining the syndication of loans.

2.2.2 Product Market Competition and Managerial Incentive

The protection of creditors' rights can be attenuated in the environment where product market competitions are severe. The CEO of a firm, which belongs to a competitive industry, will be pressured to maximize the value of the firm. In other words, the interest of shareholders. In non-competitive industries where lack of competitive pressure fails to enforce discipline on managers, the managers are not very motivated to act in the interest of shareholders [8]. Creditors who perceive the degree of competition will hesitate to join a syndication when it is too severe.

On the other hand, since 1990, many US firms started to compensate their managers with stock and stock options. Core, Guay, and Verrecchia (2003) observe that CEO's compensation by stock and stock options comprises 80% of their total compensation. Such a skew toward stock compensation can concern creditors. The infringement of creditors' rights can take place when the managerial incentive structure is designed in the form of stock and stock options. Since the managerial compensation is aligned

[7]In California, The restrictions on "Distribution to its shareholders (the transfer of cash or property by a corporation to its shareholders) include the following language: Neither a corporation nor any of its subsidiaries shall make any distribution to the corporation's shareholders (Section 166) except as follows: (a) The distribution may be made if the amount of the retained earnings of the corporation immediately prior thereto equals or exceeds the amount of the proposed distribution. (b) The distribution may be made if immediately after giving effect thereto: (1) The sum of the assets of the corporation (exclusive of goodwill, capitalized research and development expenses and deferred charges) would be at least equal to 1 1/4 times its liabilities (not including deferred taxes, deferred income and other deferred credits);...(quoted from Wald and Long (2007))

[8]Gompers, Ishii, and Metrick (2003) show that firms with good governance earn significantly higher stock returns.

with its stock price change, the CEO is more likely to act in the interest of shareholders at the expense of creditors' rights, such as by substituting assets, and taking risky projects[9]. In response to such infringements, rational creditors will ask the borrower in question for a higher loan spread (see, Levine and Hughes (2005), Vasvari (2009)). In syndicated loans, as the managerial compensation is more aligned with stock price and volatility, the degree of creditor rights protection will be lessened and there will be a decline of its impact on loan concentration.

To see whether the impact of the protection of creditors' rights is affected by the managerial compensation structure, the degree of how much the CEO is incentivised to act in the interest of shareholders, delta and vega [10]are computed using the methodology as in Core and Guay (2002) and Edmans, Gabaix, and Landier (2008). Delta is defined as the dollar change in a CEO's stock and option portfolio for a 1% change in stock price, and Vega, as the dollar change in a CEO's option holdings for a 1% change in stock return volatility.

2.3 Data and Statistics

The data used in the paper consists of three main categories: data on syndicated loans, data for constructing firm characteristics, and data on the measures of creditor rights protection(corporate governance, state-level antitakeover laws, and state-level payout restriction). The initial loan data set withdrawn from Dealscan has 16,019 deal loans which are matched with the COMPUSTAT data while excluding financial service firms. In the process of identifying the borrowers with the COMPUSTAT

[9]Empirically, Coles, Daniel, and Naveen (2006) found that higher sensitivity of CEO wealth to stock volatility (vega) implements riskier policy choices, including relatively more investment in R&D, less investment in PPE, more focus, and higher leverage.

[10]Hanlon, Rajgopal, and Shevlin (2003) found that stock option grants to executives are consistent with an incentive alignment between managers and shareholders. The inclusion of the value of the option portfolio is also consistent with Core and Guay (1999) who argues that stock options provide better incentives than stock holdings

data, I use the ticker, the firm name, and the firm's primary SIC provided in the loan data. I merge then the loans with the G index, and E index, however, because of the small firm coverage of the two indices, a sizable number of observations are lost, leaving 3,316 loans. Some loan deals consist of a couple of facilities differing in loan amount (tranche) and maturity. Since the loan structure is determined in the origination of the deal, when there are more than two facilities, I select the one whose tranche is the largest among them.

The G index is obtained from Andrew Metrick's website [11] The index is available for the years, 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006. For the loans whose origination years do not match with their corresponding year's G index, I used the index whose year is most close to the years of loan origination as Cremers and Nair (2005) did. During the course of the years, the G index has been very stable. Furthermore, because of some caveats raised by Bebchuk, Cohen, and Ferrell (2009) on the use of the G index as a proxy for firm's antitakeover measures, I also use the E index constructed by them. However, because the E index quantifies antitakeover measures over a small number of antitakeover provisions, the E index does not vary much across the firms, so that the inferences of coefficients in the regressions are somewhat limited. For this reason, the analysis mainly will be carried on with the G index. Panel A of Table 2.1 reports the composition of the 3316 loans according to the G index. The observations are more populated around the index, from 7 to 11, skewed to the right in its distribution with a mean of 9.0 (The E index averaged around 2.4).

Panel B of Table 2.1 presents loan statistics. The median loan size is 250 million U.S dollars with the mean of 518 million dollars. The average and median loan maturity are both about 3 years. Less than half of the loans were required to have collateral to secure the lender's claim on some designated set of the borrower's assets. The firms

[11] Thank for generous provision of data

enter into loan contracts for various purposes. The most common reason is working capital/corporate purposes, at 54% and the second refinancing at 24%, and the third, acquisitions at 12%. Although Dealscan provides a large number of loans for U.S. firms, the detailed information on the loan shares held by each lender is rare. When I eliminated the loans that do not contain the loan share information, only 20% of the loans survived. In measuring loan concentrations, I use the method used by Sufi (2007). Dealscan provides two headings that reference the role of lenders. I consider the lenders under the heading, "Lead Arranger" as the lead arrangers. Each lead arranger holds, on average about 23% portion of a loan, and its median is 17.5%. As an alternative measure for the loan concentration, I construct a Herfindahl-Hirschman index (henceforth Herfindahl) using detailed lenders' loan shares, theoretically which range up to 10,000. The average Herfindahl in the sample is 1948 and its median is 1357.

In addition to the state-level antitakeover laws, the states impose a payout restriction on the firms which are incorporated under the jurisdiction of the states. The state-level payout restriction varies across states by the minimum requirement on the ratio of book capital to debt before a dividend payment or share repurchase can be made. Since this is the state law, whether or not creditors code it into loans as a covenant, all firms are subject to it. The purpose of the restriction is to curb a moral hazard of the firms so that the creditors' rights of the firms are not infringed (Wald and Long, 2007). The data for the payout restriction were obtained from the website of John Wald (http://faculty.business.utsa.edu/jwald/).

The Standard and Poor's COMPUSTAT database provides financial data for constructing firm's financial characteristics. The median firm size in terms of total assets is 1.3 billion dollars and its mean is 4.6 billion dollars, which indicates the sample firms are large ones. The large difference between mean and median also presents the distribution of the firms in the sample is skewed to the right. The mean leverage

ratio stands at 0.3, as its median does. The ratio of EBITDA to total sales is 0.17 as the mean and 0.14 as the median.

The Dealscan data set provides detailed loan covenant information. The covenants are grouped into four categories: financial covenants, voting covenants, prepayment covenants, and dividend restriction. Fifteen financial covenants have upper or lower bounds of restriction on the financial variables, such as leverage, net worth, and current ratio. An average loan has 2.5 financial covenants and the most popular covenants are *Debt to EBITDA*, and *Interest coverage*. Prepayment category consists of five covenants that require the borrower to repay the loan on the occasions when the borrower issues equity, or debt, or sells its assets, or has an excess cash flow. Except for the covenant, 'insurance proceeds', the other four covenants are called 'sweep'. The four covenants articulate the percentage of prepayment of the loan when the borrower violates those covenants. For example, the covenant, 50% debt sweep, means that when the firm does not honor the covenant, it is required to repay 50% of the loan. Asset and debt issuance sweeps are the most popular among the sweep covenants in the sample.

The voting category has three restrictions regarding voting on the change in the terms of a loan. 'Term changes' restricts the minimum voting shares in modifying the life of the loan, requiring 98% approval on average in the sample. The other remaining covenants, 'Required lenders' and 'Collateral release' are used for non-material amendments and release of a lien on collateral. Lastly, the dividend covenant puts a restriction on the activity of cash distribution to its shareholders. This restriction is coded by a binary variable, 'Yes' or 'No', indicating whether the covenant is included.

To construct the *delta* and the *vega*, I merge the Compustat data and the Execu-Comp data at the end of every fiscal year. Incentives comes from the CEO's holdings of shares and options [12] CEO's delta and vega are 1057 and 141 thousand dollars on

[12] The *delta* and the *vega* are calculated based on the Black-Scholes formula,

average, and 193 and 38 thousand dollars on median respectively. Market competition is the Herfindahl-Hirschman index (henceforth HHI) that is defined as the sum of squared market shares in terms of the firm's sale volume[13]

2.4 Empirical Specification and Key Variables

I test the cross-sectional relationship between the degree of creditor rights protection and the loan concentrations. The primary model is specified as follows:

$$Loan\_Con_{ijt} = \alpha + \gamma_t + \beta \text{Protection of Creditor's Rights}_{jt} + X_{jt}\delta + X_{it}\xi + \varepsilon_{ijt} \quad (2.1)$$

where $Loan\_Con_{ijt}$ indicates either *Share Held by Lead*, or *Herfindahl*. X_{jt} represents firm characteristics, X_{it} loan characteristics, and γ_t year dummy variables. The linearity model specification between the dependents and the variable, *Protection of Creditor's Rights* is based on the observations on the relationship between them. Figure 1 presents the linearity between the two loan concentrations and the G index using a non-parametric regression, Lowess.

I use a couple of firm-specific characteristics to control for their impact on the dependent variable. For a measure of firm size in the literature, I used the logarithm of the firm's total assets (item AT in COMPUSTAT) to control the firm size effects such as higher reputation effects of the borrower, and the lower default risk perceived in the market as the size gets larger. To control more directly the default risk, leverage((DLTT+DLC)/AT) is included defined as the ratio of long-term debt plus short-term debt to the total assets. Furthermore, profitability is added as a control variable to take into consideration the firm's ability to pay back the loan.

$e^{-dT}N(\frac{\ln(\frac{P}{X})+(r-d+\frac{\sigma^2}{2})T}{\sigma\sqrt{T}})$ where d is the continuously compounded expected dividend yield, and σ is the expected volatility of the stock return. r is the continuously compounded risk-free rate. P is the stock price at the end of the fiscal year. X is the strike price of the option, and T is the maturity of the option.(see Edmans, Gabaix, and Landier (2008)) for more details)

[13] $HHI_{jt} = \sum_{i=1}^{N_i} S_{ijt}$ where S_{ijt} is the market share of firm i in industry j in year t. Firm's market share is computed using item #12

Profitability is proxied with the ratio of EBITDA over Sales (OIBDP/Sales). All the firm characteristic variables are one year prior to the year of loan origination.

Along with firm characteristics, I include loan-specific variables such as loan size, maturity, and binary indicator variable, *Secured*, as in the previous empirical studies. Loan size in its logarithm is included to control the size effect of the syndication. Longer maturity also increases the default probability of a loan to the lenders, and results in discouraging their participation. I include the logarithm of the loan maturity (in terms of days). The presence of the *Secured* term in a contract can encourage more lenders because when the loan becomes default, the creditors can, in some extent, limit the loss of the loan. I also control for industry effects by including industry dummies based on the two-digit SIC classification that appears in the Dealscan data set, and year fixed effects by using dummies for the years of loan origination. The paper also controls the loan purposes by using dummy variables for five categories. In all the regressions, I report robust t-statistics that adjust for the clustering at the firm level. To control the reputation effects of the lead arrangers, I construct the top 10 league tables based on the original data sample for every year, and assign a binary value to the loans when their lead arrangers appear in the league tables in the year of the loan origination.

2.5 Results

In this section, I will show the results that are predicted in the previous sections and discuss them based on the results.

2.5.1 Primary results

I study the impact of the protection of creditor's rights on the loan structure by estimating the regressions with the Herfindahl and the shares of the loan held by the lead

arrangers as the dependent variables respectively. I control for firm's characteristics, loan features, year fixed effects, and industry fixed effects to draw more robust inferences between the dependent and the degree of creditor rights protection. Column (1) and (2) in Table 2.2 show that the *Herfindahl* and the *% held by lead* are negatively related to the G index, and the coefficients are statistically significant at 1%, and 5% level respectively.

It presents that on average, when the firm employs stricter protection for its creditors' rights, the participant lenders are more willing to join in the loan syndicate, resulting in the smaller shares held by the lead arrangers. To measure the economical significance of the results, I estimate the amount of decline in the Herfindahl when the degree of protection measure is lowered by its one standard deviation. Declining by one standard deviation of the G index results in 5% lower in the Herfindahl [(36.9*2.7)/1966.67][14]

In columns (3) and (4), using two extreme portfolios: the 'Dictatorship Portfolio' of the firms with the strongest creditors' rights(the G index $\geq$ 14), and the 'Democracy Portfolio' of the firms with the weakest controls' rights (the G index $\leq$ 5) (see, Gompers, Ishii, and Metrick (2003)) as the independent variables, I estimate the coefficient, β. Column (3) shows that the Dictatorship type firms experience decline in the loan concentration by 224 when the dependent variable is the Herfindahl and which amounts to a decrease by 11% on its average.

In columns (5) to (8), I break the G index down into smaller components. Columns (5) and (6) report the results using the E index, and Column (7) and (8) the remaining antitakeover provisions(computed as the difference between the G index and E index). I find that the E index is statistically insignificant but the difference between the G index and E index is significant at the 1% significance level.

The loan concentrations are smaller when the firm size is larger. This is understood

[14]If the average firm takes stricter measure and become a Dictatorship type, the Herfindahl decrease by the two fold,[(36.9*2.7*2)/1966.67].

in the two different prolongs: information effect and default risk. Usually large firms are more likely to finance externally when they expand their business and through frequent outside financing, the information on the firms are more publicly known to the market. Such more and more transparent information may contribute to narrowing information gap between the lead arrangers and the participant lenders. Secondly, the large firms are less likely to default on their debts. Because of their large scope of business, the firms may afford to defend themselves from the unexpected external shock. Firm leverage is shown negatively related with the loan concentrations. That the firms whose leverage is high implies that the firms are more at a risk of bankruptcy. The lead arrangers try to co-insure the risk of bankruptcy by encouraging more participation of lenders to avoid the case in which it is exposed to excess risk if they take most of the loan. EBITDA/Sales has a negative relationship with the loan concentrations. That the firms are more profitable, indicated by higher in the EBITDA/Sales, signals higher probability of loan repayment, resulting in lower loan concentrations.

Loan characteristics are also shown to be significant in explaining the loan concentration. As loan size increases, the loan concentration decreases. A large size loan requires relatively more lenders to share the loan. Loan maturity has a negative relationship with the loan concentration. As the loan maturity gets longer, the default risk of the loan also increases. For this reason, the lead arrangers attract more lenders into the loan syndication to decrease their shares of the loan. The loan, which is 'Secured', is shown to be more concentrated. The loan being secured implies two opposite interpretations: on one hand, that loan is secured implies less risk of losing the loan for the lenders, thus it may result in more lenders' participation. On the other hand, that loan is secured may imply that the lead arrangers are required to engage themselves in monitoring the collateral. This can signal more agency problems between the lead arrangers and participant lenders. When the latter effect is more

apparent, then the fact that a loan is secured will rather discourage lenders from participating, resulting in more loan concentration. The regression results attest that the latter effect overrides the former effect.

I discuss that the firm's protection of creditors' rights affect the structure of syndicated loans. However this impact might arise from the ease of takeover concern[15]when the firms reinforce their antitakeover provisions (*antitakeover channel*). The following empirical results thus are interpreted in the view of *this channel.* On the contrary, this effect stems from the protection of creditor's rights as I claim (*protection channel*). The task to distinguish which channel is more influential in terms of framing the structure of loan syndicates is difficult. However in the following subsections, I want to provide some supporting evidence for the *protection channel.*

2.5.2 Risk-shifting and Loan structure

The risk-shifting problem may be more glaring in the situation when firms are financially distressed[16]. The shareholders are more tempted to make risk-increasing investment when the firms are financially distressed if they can have the benefits when the investment is successful, whereas the creditors bear the costs when it turns out poorly. In the time of lending decision, the creditors will be conscious of the possibility of such case and take some measures to guard themselves, especially when the firms in question are financially distressed. In the loan syndicates, it will be shown by the lead arrangers' holding more shares of a loan to be incentivised to step up their monitoring efforts, or by including more covenants in the loan contracts.

The creditors can install various kinds of covenants in a loan. The number of covenants thus indicate the severity of monitoring efforts by the creditors, especially by the lead arrangers. This reasoning also implies that for the firms that provide

[15]Takeovers may entail increased financial leverage, and debt seniority can be compromised

[16]Recent empirical study, Eisdorfer (2008) found risk-shifting behavior in the financially distressed firms

stronger protection of creditors' rights, there will be less demand on the inclusion of covenants.

Some syndicated loans also embed covenants which allow the lenders to intervene in the management of the borrowing firm when the feasibility of borrower's repayment is doubted. if the covenants are not honored, the lenders can liquidate the project(the firm) and claim the remaining of its assets, or enter into a renegotiation to renew existing debts. Covenants may be used for *ex post* mechanism of transferring control rights from a borrowing firm to its creditors (Aghion and Bolton (1992), Hart and Moore (1994)). When the lead arrangers include covenants in the loans, which will send a strong signal that there will be less severity of the adverse selection problem and the lead arrangers are also committed to paying due diligence on the borrowers (Boot, Greenbaum, and Thakor, 1993, Rajan and Winton, 1995)

To test whether the protection channel is more supported, I divide the sample into two separate groups based on the Altman's zscore(Altman, 1968). When the firm's zscore is below 1.81, then the firm is categorized into the *distressed* group, and otherwise into the *healthy* group. The testing model is the same as in equation (1.1) when the dependent variables are the *Herfindahl* and *% Held by Lead.* In addition, I test the effect of the protection of creditors' rights on the probability of having collateral using probit model with a dummy dependent variable, *Secured* while controlling variables are the same as before. Finally, *Total number of financial covenants*[17] is taken as the dependent variable because of the importance of financial covenants in the loan contracts.

Table 2.3 reports the results of estimates of the G index coefficient. In columns (1) and (3), the G index is shown to affect the structure of syndicated loans twice as

[17] Unlike other covenants such as sweeps, financial covenants provide simpler and more transparent monitoring mechanism in that the monitoring on the firms by the lead arrangers, and the monitoring on whether the lead arrangers pay due monitoring efforts by the participant lenders are relatively easier because the firms' financial data are public and firms' performance is verifiable with limited costs.

much as the size of effect of the G index when the regression is estimated over the whole sample and they are significant at the 1% significance level at both regressions. However as seen in columns (2) and (4), the G index is not significant for the sample made of only healthy firms. These results are somewhat reinforced in the following regressions. In columns (5) and (6), the G index is shown to affect the probability of the creditors' holding collateral at the 1% and 5% significance level respectively. The coefficient of the G index in column (5) is about twice larger than that in column (6). Furthermore, the results in columns (7) and (8) are also supportive in that the G index affects how many financial covenants the creditors embed in the loan contracts. The stronger the firms' protection measure of creditors' rights, the fewer number of financial covenants the creditors include.

2.5.3 Asset Substitutions and Loan structure

In this section, I present more evidence in supporting the *protection channel.* The creditors are aware of the possibility that the firms may substitute old assets of which information the creditors(especially the lead arrangers in the loan syndicates) have accumulated for new ones by investment when the firms have access to external financing opportunities[18] This concern that the given creditors have may let them limit the firms' investment and growth by imposing stricter covenants. I also conjecture that this asset substitution concern may affect the structure of syndicated loans, especially for the firms that are just able to have access to external financing. Firms that are not likely to have access to external financing in the foreseeable future will have less probability of the assets being replaced. However firms whose credit ratings are just below *investment grade* may have a chance to receive external financing. Thus the concern about the asset substitution problem will be more felt for such firms. The

[18] Faulkender and Petersen (2006) show that when the firms have access to public financial markets, they take more debt

concern will be reflected also in the structure of syndicated loans. The participant lenders, keenly aware of the possibility of the asset substitution, will be more likely to prefer the firms whose measure of creditor rights protection is stronger, to the ones that are not as much when the firms in question are the ones whose external financing window may just open.

To test this conjecture, I identify the relative likelihood of assets being substituted for new ones by using firms' credit ratings. Credit ratings provide information on whether the firms have better access to external financing opportunities. Among other ratings, especially *BB* grade (in terms of S&P's scale) is wedged between *speculative* and *investment* demarcation. The firms whose rating is *BB* have more chances to finance externally and by doing so substitute new assets for old ones compared to the lower rated firms such as *B, CCC.* Since the firms' ratings are available before loan origination, the participant lenders who concern about the asset substitution may prefer the firms whose measure of creditor rights protection is stronger given the same credit grades.

A testing regression model is extended from the equation (2.1),

$$Loan\_Con_{ijt} = \alpha + \gamma_t + \sum_{k=1}^{5} \beta_k \text{PCR}_{jt} \times \text{Ratings}_{jt} + X_{jt}\delta + X_{it}\xi + \varepsilon_{ijt} \qquad (2.2)$$

where *PCR* is a shortened notation for *Protection of Creditors' Right*, which interacts with the dummies (*Ratings*) representing each grade in *AA, BBB, BB, B, and CCC*[19] respectively. The dummies take the value of one when the firms' grade belongs to either one of them respectively. In column (1) of Table 2.4, the coefficient of *G index * BB* is not only significant at the 5% level, its size is the biggest across the interaction terms. This result is also found in column (2) where the dependent variable is the loan share held by the lead arrangers. These two results show that

[19] I drop the firms whose grades are either of the followings, *AAA, CC, C, and D* because of their very small sample size. Out of 1954 rating matched loans, *AA, A, BBB, BB, B, CCC* grade ones are 70, 470, 811, 458, 133, and 12 respectively

the participant lenders are more likely to lend to the firms whose measure of creditor rights protection are stronger when there is a strong possibility of asset substitution.

2.5.4 CEO's Compensation Structure

The alignment of manager's compensation with its shareholders' rights opens a possibility of conflict between shareholders and creditors. Although the firms have a strong protection measure for creditors' rights, if the manager's compensation structure is aligned with the interest of the shareholders, the effectiveness of the protection will be attenuated by the extent of the strength of the relationship. In addition, the G index is a composite index for measuring firm's provisions with regard to antitakeover. Thus the larger G index does not necessarily square with stronger protection of creditors' rights. Larger G index may imply stronger protection for the manager from the replacement pressure of the shareholders. This behooves us to control the manager's incentive in the equation (1.1).

For the measures of the degree of the alignment, I use *delta* and *vega* [20] As seen in columns (1) to (4) of Table 2.5, the G index still holds its significance in affecting the loan structure when the alignment is controlled either by the *delta*, or *vega*. The coefficients of the *delta* and *vega* are shown to be positive, which implies that as the alignment between the manager and the shareholders becomes stronger, the lead arrangers are asked to step up their monitoring efforts. The interpretation is carried over when the dependent variable is *Secured*. However the decision on how many financial covenants the creditors embed in the loan contracts is affected neither by the G index, nor the *delta* and *vega*.

[20] Instead, delta and vega, I use CEO's stock ownership(%). However, it did not show any significant effect on the loan concentration

2.5.5 Impact of State's Laws on Loan Contracts

I also study the impact of the state's antitakeover measures on the loan concentration. To see how much the legal and institutional arrangements may contribute in ameliorating the creditor rights infringement concern, first I estimate the regressions that have the severity of state's protection for creditors' rights, as the independent variables, using Bebchuk and Cohen (2003)'s (henceforth BC) data. The states are grouped into three categories by the degree of restrictiveness on hostile takeovers: None-restrictive(BC measure = 0), Moderate($1 \leq$ BC measure ≤ 3), and Restrictive (BC measure ≥ 4).

The results in column (2) of Table 2.6 present a significant negative relationship between the loan share held by the lead arranger and state antitakeover measure at the 5% significance level. Compared with the loan whose borrower incorporates in the state which does not take any measures of legal protection from hostile takeovers, the firms incoporated in the states whose antitakeover measures are either moderate, or restrictive, have less concentrated loans.

In addition to the study on the effects of state's antitakeover provisions on the loan concentration, the state's payout restriction also is found to have an effect on the requirement of collateral. The provision of collateral gives the lenders the opportunity to seize the collateral, and by doing so, they may limit downside risks for the loans. From the borrower's point of view, collateral provision is committing itself to the success of the project and can work for mitigating lender's moral hazard concern on the firm, such as liquidating some portion of the project for the benefits of either shareholders or managers: creditor rights may be compromised when the firm cashes out liquid assets or repurchases its shares that may benefit the shareholders. This possible infringement on creditors' rights may affect lenders' contracting behavior to deter the possibility. This may be expressed as requiring the borrower to provide collateral against the loan. However if legal and institutional arrangements curbs

firm's infringement of creditors' rights for the benefit of creditors, then there may be less requirement for the inclusion of collateral in the contract.

One of the legal provisions in the state level in ensuring creditors' rights is payout restriction. The firm is required to satisfy the prerequisite requirement before it executes liquidation of assets and repurchase of its shares. In the state whose payout restriction to which the firm is subject to, the firm is less pressured to provide collateral to assuage the moral hazard concern raised by the lenders compared to the firm whose incorporated state does not provide the law. The results in columns (3) and (4) of Table 2.6 present that state's strictest restriction(ratio of book capital/debt =1.25) on payout contributes to decline in the incidence of collateral in a significant level, by 45% in probability. Moderate level of restriction(the ratio =1) also make significant difference with the case of no restriction. In columns (5) and (6), to compare whether the presence of restriction affect the provision of collateral, dummy variable, *Payout restriction*(if the ratio is equal or greater than 1) is constructed and its coefficient is estimated and found significant at the 1% level. In columns (4) and (6), I also controlled the case where the creditors included payout restriction covenant in the loan contracts. Dealscan provides the binary information on the dividend covenant.

Overall, the results are very supportive that the lead arrangers are very much benefited from the state's legal arrangements for protecting creditors' rights. By arranging the loans to the borrower whose incorporated state provides such legal protection, the lead arrangers do not have to hold collateral and pay less monitoring costs.

2.5.6 Product Market Competition

An intense product market competition provides corporate managers with incentives to run firms with high efficiency because the disciplinary forces of competition remove incompetent managers from the market. when the competition is high, the creditors

are more likely to face the possibility of conflicts with shareholders [21] To find the impact of the protection of creditors' rights under the different degree of the product market competition, I group the market competition into three tercile categories. I estimate the regressions and have the results in columns (1) and (2) in Table 2.7, the coefficients of β are negative and significant at the 1% and 5% level when the competition level is high and meidum. when the dependent variable is the Herfindahl index. These results are the same except when the competition level is high when the dependent variable is *% Held by Lead.* The degree of the impact of the protection of creditors' rights declines as the competition becomes less severe. For the Dictatorship type firms, when the competition is highest, the protection of creditors' rights is most pronounced. As the product market becomes less competitive, the protection of creditors' rights does not affect the loan share distribution among the lenders. Democracy type firms do not show much difference across the competition environment.

The results show that the protection of creditors' rights is effective when the product market is competitive. The creditors are very aware of the risks of their rights being compromised when the competition is high so that their decision of joining a syndication is much affected whether the firm employs protective measures against the risks. Collateral and financial covenants[22]are another indicator how much the lead arranger will pay monitoring efforts on the borrowers. Like the shares of the loan held by the lead arrangers, when creditors' rights are somewhat secured, they are less likely to hold collateral or financial covenants. This reason is attested by the results in the regressions in columns (1), and (5) of Table 2.8. In column (1), when the G index increases by one unit, the marginal effect rises by 2% and this is 5% increase on the average.

[21] Grullon and Michaely (2005) observe that firms in less competitive industries have significantly lower payout ratios than firms in more competitive markets

[22] Financial covenants include the requirements that the borrower should maintain some financial condition measures at either minimum level, or maximum level: a minimum net worth, minimum current ratio, minimum interest coverage, or not exceed a maximum leverage ratio.

When the G index is interacted with the market competition, the significance of the impact of creditor rights protection does not change across the competition levels when the dependent variable is *Secured*. However, for the dependent variable, *Number of Financial Covenants*, the impact is significant when the market competition is high and medium. Especially, for the Dictatorship type firms, the drop in the likelihood of having collateral is pronounced when the firms belong to the high competition industries. However, When the firms are the Democracy type, on the contrary, the lead arrangers rather are more likely to hold collateral for securing against the risks.

2.6 Endogeneity

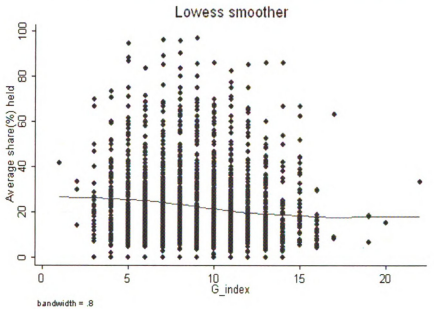
A concern that can arise when I use the G and E indices and the state legal provisions is the endogeneity of those variables. The variables are also one of the factors that the firms may consider when they think of loan financing. The firms may tune the level of monitoring they can incur while they also decide the level of creditor rights protection (e.g., in which state it will incorporate). However, because the G index shows consistency over the years, and its initial level is usually adopted at the time of firms' IPO (Chava, Livdan, and Purnanandam, 2009), the incidence of endogeneity problem will be very limited.

2.7 Conclusion

The moral hazard problem of firms in syndicated loans declines when the participant lenders are sure of the protection of their rights in the instances of interest conflicts with the shareholders. I show that when the firms employ more measures for protecting creditors' rights, the lead arrangers take a smaller portion of the loans, and in consequence have less exposure to various risks. In addition, I found that when the protection of creditors' rights is institutionalized, the moral hazard problem between

the lead arrangers and the participant lenders decreases. Furthermore the legal and institutional environments are shown to affect the probability of creditor's holding collateral and number of financial covenants. The effectiveness of the protection of creditor's rights also depends on the product market competition. The firms which belong to competitive industries have the less concentrated loans when their protection of creditors' rights are very strong and also less likely provide collateral and financial covenants.

Figure 2 Relationship with the G index and the loan concentration measures



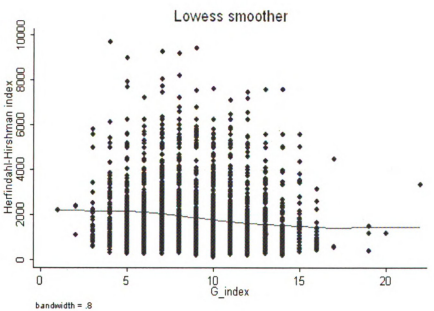


Table 2.1 Descriptive Statistics

Panel A

G index	<=5	6	7	8	9	10	11	12	13	>=14	All
Number of Loans	347	284	356	406	473	475	386	247	180	162	3316

Panel B

Variable	Mean	STD.	25th	50th	75th	95th
Loan characteristics						
Loan size ($ Million	518	1074	100	250	500	1000
Maturity(days)	1325	728	738	1213	1826	1840
Secured [0,1]	0.44	0.50	0	0	1	1
Total number of financial covenants	2.50	1.10	2	2	3	4
Net worth covenant	0.43	0.49	0	0	1	1
Loan structure						
% Held by Lead	22.60	17.00	10.19	17.32	30.00	50.00
Herfindahl -Hirschman	1948.6	1671.3	795.0	1357.5	2512.0	4961.8
Firm characteristics						
G index	9.03	2.72	7	9	11	13
E index	2.35	1.32	1	2	3	4
Total_assets ($ Billions)	4.60	10.71	0.46	1.29	3.73	12.23
Leverage	0.30	0.21	0.16	0.28	0.40	0.52
EBITDA/Sales	0.17	0.16	0.09	0.14	0.22	0.33
Zscore	1.82	1.22	1.01	1.77	2.57	3.85
Governance						
CEO equity share(%	2.12	5.50	0.00	0.00	1.20	6.53
Delta ($ in '000)	1057.1	5699.0	67.1	192.7	552.1	1762.7
Vega ($ in '000)	141.7	330.5	6.9	38.2	125.6	345.0

Table 2.2 Creditor's Rights and Loan Structure

This table reports results from the loan structure regressions that use corporate charter provisions and state-level antitakeover restrictions as proxies for creditor's rights. The dependent variables are the average share held by the lead arranger(s)(max < 100), and a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). G index from Gompers et al. (2003) is used as a primary proxy for creditor's rights. Firms are grouped based on the G index into Dictatorship when its G index is larger than 13 and Democracy when it is below 6. "G index minus E index" is the remaining provisions in the G index after excluding the E index in Bebchuk et al.(2009). The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by the total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Secured" is the binary variable, which is a unit of one when the loan is secured and lead arranger's reputation is controlled by the binary variable, 'Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. Standard errors are estimated with clustered errors at the firm level and are reported in parentheses. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Herfindahl	% Held by Lead	Herfindahl	% Held by Lead
	(1)	(2)	(3)	(4)
G index	-36.92**	-0.29*		
	(11.85)	(0.13)		
Dictatorship			-224.30*	-1.91
			(96.07)	(1.30)
Democracy			65.28	1.05
			(119.32)	(1.28)
Ln(total assets)	13.24	-1.44**	3.36	-1.50**
	(47.26)	(0.49)	(47.13)	(0.48)
Leverage	-317.98*	-4.93*	-314.32	-4.95*
	(159.75)	(1.91)	(162.67)	(1.94)
Ebitda/Sales	-670.13**	-3.53	-663.85**	-3.45
	(209.42)	(2.36)	(213.79)	(2.39)
Ln(deal size)	-728.42**	-6.36**	-724.92**	-6.34**
	(58.82)	(0.60)	(58.98)	(0.60)
Ln(maturity)	-238.32**	-3.39**	-237.42**	-3.38**
	(61.48)	(0.61)	(61.81)	(0.61)
Secured	230.73**	2.00*	251.41**	2.14**
	(73.97)	(0.79)	(75.23)	(0.80)
Top 10 lender	-164.25*	-1.56*	-160.56*	-1.53*
	(67.00)	(0.66)	(67.22)	(0.66)
Intercept	17,816.72**	179.99**	17,457.41**	177.25**
	(909.33)	(9.46)	(925.87)	(9.52)
N	2155	2155	2155	2155
R-squared	0.40	0.41	0.40	0.40

Table 2.2 Creditor's Rights and Loan Structure (Cont.)

This table reports results from the loan structure regressions that use corporate charter provisions and state-level antitakeover restrictions as proxies for creditor's rights. The dependent variables are the average share held by the lead arranger(s)(max < 100), and a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). G index from Gompers et al. (2003) is used as a primary proxy for creditor's rights. Firms are grouped based on the G index into Dictatorship when its G index is larger than 13 and Democracy when it is below 6. "G index minus E index" is the remaining provisions in the G index after excluding the E index in Bebchuk et al.(2009). The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by the total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Secured" is the binary variable, which is a unit of one when the loan is secured and lead arranger's reputation is controlled by the binary variable, 'Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. Standard errors are estimated with clustered errors at the firm level and are reported in parentheses. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Herfindahl	% Held by Lead	Herfindahl	% Held by Lead
	(5)	(6)	(7)	(8)
E index	-38.53	-0.41		
	(24.73)	(0.25)		
G index-E index			-46.88**	-0.33
			(15.37)	(0.18)
Ln(total assets)	3.41	-1.76**	14.33	-1.44**
	(45.79)	(0.48)	(47.37)	(0.49)
Leverage	-344.83*	-5.17**	-309.41	-4.87*
	(155.71)	(1.85)	(160.80)	(1.93)
Ebitda/Sales	-640.43**	-3.35	-678.17**	-3.58
	(216.24)	(2.37)	(210.42)	(2.37)
Ln(deal size)	-735.06**	-6.24**	-725.24**	-6.33**
	(57.10)	(0.59)	(58.90)	(0.60)
Ln(maturity)	-243.41**	-3.52**	-239.16**	-3.40**
	(60.86)	(0.59)	(61.41)	(0.61)
Secured	236.62**	1.84*	236.67**	2.06**
	(73.55)	(0.78)	(74.20)	(0.79)
Top 10 lender	-158.34*	-1.37*	-166.13*	-1.57*
	(65.60)	(0.65)	(67.09)	(0.66)
Intercept	17,786.93**	179.43**	17,729.76**	179.07**
	(892.27)	(9.30)	(916.65)	(9.50)
N	2227	2227	2155	2155
R-squared	0.40	0.41	0.40	0.40

Table 2.3 Risk-Shifting and Loan Structure

This table reports results from the loan structure regressions that use corporate charter provisions(G index from Gompers et al. (2003)) as a proxy for creditor's rights. The dependent variable in column (1) and (2) is the average share held by the lead arranger(s)(max < 100), in column (3) and (4), a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). In column (5) and (6), the dependent variable is a binary one, "Secured", which takes the value of one when the loan is secured with collateral, zero otherwise. In column (7) and (8), "Number of financial covenants" is the dependent variable which is total number of financial covenants that the loan includes. Firms are grouped into Distressed firms when Altman's zscore is below 1.81, and into Healthy firms when the score is greater than, or equal to 1.81. The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of the total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by the total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. Standard errors are estimated with clustered errors at the firm level and are reported in parentheses. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Herfindahl		% Held by Lead	
	Distressed firms	Healthy firms	Distressed firms	Healthy firms
	(1)	(2)	(3)	(4)
G index	-72.80**	-0.47	-0.59**	-0.07
	(18.49)	(15.28)	(0.20)	(0.18)
Ln(total assets)	20.71	41.09	-1.14	-1.26
	(66.10)	(65.66)	(0.69)	(0.72)
Leverage	-98.69	-538.50*	-1.29	-9.03**
	(245.56)	(236.25)	(2.62)	(2.91)
Ebitda/Sales	-701.98**	-518.57	-5.30*	0.16
	(240.07)	(473.60)	(2.64)	(5.12)
Ln(deal size)	-636.97**	-874.08**	-6.29**	-7.08**
	(70.23)	(90.51)	(0.74)	(0.98)
Ln(maturity)	-142.28	-285.24**	-2.90**	-3.72**
	(92.61)	(81.77)	(0.88)	(0.87)
Secured	326.05**	94.59	1.50	2.65*
	(106.41)	(95.02)	(1.22)	(1.03)
Top 10 lender	-238.17*	-100.65	-2.23*	-0.70
	(110.15)	(74.79)	(1.03)	(0.84)
Intercept	16,403.13**	20,153.36**	179.62**	188.28**
	(1380.64)	(1342.16)	(12.92)	(14.84)
N	1026	1129	1026	1129
R-squared	0.38	0.51	0.41	0.45

Table 2.3 Risk-Shifting and Loan Structure (cont.)

This table reports results from the loan structure regressions that use corporate charter provisions(G index from Gompers et al. (2003)) as a proxy for creditor's rights. The dependent variable in column (1) and (2) is the average share held by the lead arranger(s)(max < 100), in column (3) and (4), a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). In column (5) and (6), the dependent variable is a binary one, "Secured", which takes the value of one when the loan is secured with collateral, zero otherwise. In column (7) and (8), "Number of financial covenants" is the dependent variable which is total number of financial covenants that the loan includes. Firms are grouped into Distressed firms when Altman's zscore is below 1.81, and into Healthy firms when the score is greater than, or equal to 1.81. The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of the total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by the total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. Standard errors are estimated with clustered errors at the firm level and are reported in parentheses. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Secured		Number of Financial Covenants	
	Distressed firms	Healthy firms	Distressed firms	Healthy firms
	(5)	(6)	(7)	(8)
G index	-0.11**	-0.05*	-0.07**	0.01
	(0.02)	(0.02)	(0.01)	(0.01)
Ln(total assets)	-0.20**	-0.43**	-0.11**	-0.23**
	(0.06)	(0.08)	(0.04)	(0.05)
Leverage	0.81**	1.63**	-0.08	0.20
	(0.31)	(0.33)	(0.18)	(0.20)
Ebitda/Sales	-0.95*	-1.74*	-0.25	-0.31
	(0.44)	(0.72)	(0.15)	(0.45)
Ln(deal size)	-0.25**	0.00	-0.12*	-0.10
	(0.07)	(0.09)	(0.05)	(0.06)
Ln(maturity)	0.07	0.02	0.20**	0.05
	(0.09)	(0.09)	(0.06)	(0.06)
Secured	-	-	0.47**	0.32**
	-	-	(0.09)	(0.08)
Top 10 lender	-0.12	0.07	-0.19**	0.00
	(0.11)	(0.11)	(0.07)	(0.06)
Intercept	10.81**	2.61	3.32**	6.02**
	(1.39)	(1.48)	(0.91)	(0.99)
N	993	1102	823	936
R-squared	-	-	0.52	0.42

Table 2.4 Asset Substitutions and Loan Structure

This table reports results from the loan structure regressions that use corporate charter provisions(G index from Gompers et al. (2003)) as a proxy for creditor's rights. The dependent variable is the average share held by the lead arranger(s)(max < 100), a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000), "Secured", which takes the value of one when the loan is secured with collateral, zero otherwise, and "Number of financial covenants" which is total number of financial covenants that the loan includes. The explanatory variables include firm-specific and loan-specific variables. Firms' credit ratings are denoted by AA, A, BBB, BB, B, and CCC. ln(total assets) refers to the logarithm of the total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by the total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. Standard errors are estimated with clustered errors at the firm level and are reported in parentheses. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Herfindahl	% Held by Lead	Secured	Number of Financial Covenants
G index * AA	-35.12	-0.15	-0.06	-0.07**
	(18.82)	(0.20)	(0.04)	(0.02)
G index * A	-29.65	-0.14	-0.16**	-0.06**
	(15.15)	(0.15)	(0.03)	(0.01)
G index * BBB	-40.67**	-0.23	-0.14**	-0.01
	(15.49)	(0.16)	(0.02)	(0.01)
G index * BB	-45.33*	-0.36*	0.03	0.01
	(18.06)	(0.17)	(0.02)	(0.02)
G index * B	82.79*	0.80*	0.07	0.00
	(34.41)	(0.34)	(0.04)	(0.02)
G index * CCC	79.53	-0.25	-	0.00
	(65.99)	(0.70)	-	(0.07)
Ln(total assets)	123.91	0.05	-0.13	-0.11*
	(63.97)	(0.60)	(0.07)	(0.04)
Leverage	55.81	0.52	0.65*	0.03
	(261.41)	(2.98)	(0.33)	(0.19)
Ebitda/Sales	-213.01	-2.54	-0.13	-0.06
	(320.16)	(3.37)	(0.59)	(0.36)
Ln(deal size)	-559.53**	-4.90**	-0.18*	-0.07
	(74.77)	(0.69)	(0.07)	(0.05)
Ln(maturity)	-73.89	-2.22**	0.16	0.09*
	(85.39)	(0.76)	(0.09)	(0.04)
Secured	221.12	2.56*	-	0.44**
	(123.27)	(1.25)	-	(0.09)
Top 10 lender	-96.76	-1.00	0.15	-0.03
	(83.04)	(0.76)	(0.11)	(0.06)
Intercept	11,654.63**	125.62**	4.36**	2.61**
	-1306.22	-12.33	-1.63	-0.89
N	1277	1277	1241	1068
R-squared	0.314	0.318	-	0.492

Table 2.5 CEO compensation and Loan Structure

This table reports results from the loan structure regressions that use corporate charter provisions (G index from Gompers et al. (2003)) as a proxy for creditor's rights. The dependent variable in column (1) and (2) is the average share held by the lead arranger(s)(max < 100), in column (3) and (4), a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). In column (5) and (6), the dependent variable is a binary one, "Secured", which takes the value of one when the loan is secured with collateral, zero otherwise. In column (7) and (8), "Number of financial covenants" is the dependent variable which is total number of financial covenants that the loan includes. Delta is defined as the dollar change in a CEO's stock and option portfolio for a 1% change in stock price and Vega, as the dollar change in a CEO's option holdings for a 1% change in stock return volatility. The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. The coefficients are estimated using probit model and standard errors are reported in parentheses and clustered by firm. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Herfindahl		% Held by Lead		Secured		Number of Financial Covenants	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
G index	-40.74**	-42.31**	-0.35*	-0.36*	-0.07**	-0.07**	-0.02	-0.02
	(13.45)	(13.39)	(0.14)	(0.14)	(0.02)	(0.02)	(0.01)	(0.01)
Delta	7.41*		0.06		-0.01		0.00	
	(3.15)		(0.04)		(0.02)		(0.00)	
Vega		274.59**		2.73**		-0.56*		-0.11
		(83.16)		(0.85)		(0.28)		(0.08)
Ln(total asset:	-5.02	-23.46	-1.21*	-1.40**	-0.23**	-0.20**	-0.16**	-0.15**
	(48.30)	(49.18)	(0.51)	(0.52)	(0.05)	(0.06)	(0.04)	(0.04)
Leverage	-74.54	-57.55	-2.15	-1.94	2.01**	1.94**	0.18	0.17
	(205.12)	(202.72)	(2.65)	(2.61)	(0.31)	(0.31)	(0.16)	(0.16)
Ebitda/Sales	-556.90	-635.57*	-5.07	-5.89	-1.62**	-1.53**	-0.22	-0.20
	(284.77)	(283.73)	(3.08)	(3.09)	(0.46)	(0.47)	(0.27)	(0.27)
Ln(deal size)	-678.08**	-682.47**	-6.50**	-6.56**	-0.18**	-0.18**	-0.11**	-0.11**
	(57.43)	(57.12)	(0.62)	(0.62)	(0.06)	(0.06)	(0.04)	(0.04)
Ln(maturity)	-199.97**	-194.67**	-2.16**	-2.10**	0.11	0.11	0.12**	0.12**
	(67.92)	(67.48)	(0.66)	(0.66)	(0.07)	(0.07)	(0.04)	(0.04)
Secured	290.52**	298.38**	2.30**	2.38**			0.45**	0.44**
	(77.10)	(77.02)	(0.87)	(0.87)			(0.06)	(0.06)
Top 10 lender	-139.45	-131.75	-1.45*	-1.38	-0.02	-0.02	-0.06	-0.07
	(74.81)	(74.74)	(0.74)	(0.74)	(0.08)	(0.08)	(0.05)	(0.05)
Intercept	20,358.82**	20,622.78**	211.46**	214.35**	5.56**	5.31**	4.49**	4.41**
	(984.35)	(997.00)	(10.76)	(10.86)	(1.13)	(1.14)	(0.96)	(0.96)
N	1704	1704	1704	1704	1688	1688	1447	1447
R-squared	0.39	0.39	0.39	0.40			0.44	0.44

Table 2.6 State Law and Loan Structure

This table reports results from the loan structure regressions that use state-level antitakeover provisions and payout restriction as proxies for creditor's rights. The dependent variables in column (1) and (2) are the average share held by the lead arranger(s)(max < 100), and a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). In column (3) to (6), the dependent variable is a binary one, "Secured", which takes the value of one when the loan is secured with collateral, zero otherwise. State-leve antitakeover index based on state's five antitakeover provisions (Bebchuck and Cohen, 2003) is categorized into three groups ("Not restrictive" when the index is zero, "Moderate" when the index falls between 1 and 3, and "Restrictive" larger than 3). "Not restrictive" is omitted in the regression as a base group. Some states also impose restriction on firm's payout activity based on the ratio of equity to debt. "Payout moderate" states ask the firms to have the ratio at minimun one. "Payout restrictive" at minimum 1.25. "Payout restriction" is a binary variable having the value of one when there is a state-level restriction on firm's payout. The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of the total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by the total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. The coefficients are estimated using probit model and standard errors are reported in parentheses and clustered by firm. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and

	Herfindahl	% Held by Lead	Secured			
	(1)	(2)	(3)	(4)	(5)	(6)
Moderate State	-164.37	-4.24*				
	(209.58)	(1.93)				
Restrictive State	-172.34	-4.15*				
	(216.26)	(1.99)				
Payout moderate			-0.32**	-0.27**		
			(0.09)	(0.09)		
Payout restrictive			-1.13**	-1.26**		
			(0.32)	(0.34)		
Payout restriction					-0.34**	-0.30**
					(0.09)	(0.09)
Ln(total assets)	13.68	-1.62**	-0.32**	-0.33**	-0.32**	-0.32**
	(45.87)	(0.49)	(0.05)	(0.05)	(0.05)	(0.05)
Leverage	-349.23*	-5.01**	1.46**	1.68**	1.46**	1.67**
	(157.80)	(1.87)	(0.24)	(0.32)	(0.24)	(0.31)
Ebitda/Sales	-645.91**	-3.86	-1.17**	-0.99*	-1.18**	-1.01*
	(218.47)	(2.30)	(0.36)	(0.40)	(0.36)	(0.40)
Ln(deal size)	-749.41**	-6.47**	-0.14**	-0.13*	-0.15**	-0.13*
	(57.75)	(0.59)	(0.05)	(0.06)	(0.05)	(0.06)
Ln(maturity)	-229.43**	-3.37**	0.04	0.08	0.04	0.07
	(61.06)	(0.59)	(0.06)	(0.07)	(0.06)	(0.07)
Secured	251.45**	2.03**	-	-	-	-
	(73.17)	(0.78)	-	-	-	-
Dividend Coven:	-	-	-	0.76**	-	0.75**
	-	-	-	(0.10)	-	(0.10)
Top 10 lender	-161.75*	-1.44*	-0.04	-0.10	-0.04	-0.11
	(66.59)	(0.66)	(0.07)	(0.08)	(0.07)	(0.08)
Intercept	17,942.33**	184.48**	4.63**	4.37**	4.67**	4.45**
	(929.91)	(9.52)	(1.00)	(1.23)	(1.00)	(1.23)
N	2192	2192	2179	1889	2179	1889
R-squared	0.40	0.42	-	-	-	-

Table 2.7 Market Competition and Loan Structure

This table reports results from the loan structure regressions that use corporate charter provisions (G index from Gompers et al. (2003)) as a proxy for creditor's rights. The dependent variables are the average share held by the lead arranger(s)(max < 100), and a constructed loan concentration using lenders' loan share, Herfindahl-Hirschman index(max <10,000). Firms are grouped based on the G index into Dictatorship when its G index is larger than 13 and Democracy when it is below 6. HHI is also a Herfindahl-Hirschman index for product market competition. It is cateorized into three groups, lowest, medium and high tercile of its empirical distribution. The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of the total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Secured" is the binary variable, which is a unit of one when the loan is secured and lead arranger's reputation is controlled by the binary variable, 'Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. The coefficients are estimated using probit model and standard errors are reported in parentheses and clustered by firm. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Herfindahl	% Held by Lead	Herfindahl	% Held by Lead	Herfindahl	% Held by Lead
	(1)	(2)	(3)	(4)	(5)	(6)
G index*HHI(low)	-40.66**	-0.38*				
	(13.42)	(0.15)				
G index*HHI(medium)	-49.02**	-0.36*				
	(13.31)	(0.15)				
G index*HHI(high)	-24.05	-0.17				
	(13.65)	(0.15)				
Dictatorship*HHI(low)			-289.82*	-3.82*		
			(137.39)	(1.53)		
Dictatorship*HHI(medium)			-189.06	-0.20		
			(184.98)	(2.85)		
Dictatorship*HHI(high)			-210.49	-1.90		
			(136.97)	(1.81)		
Democracy*HHI(low)					-45.41	-1.46
					(259.67)	(2.52)
Democracy*HHI(medium)					14.62	0.97
					(206.21)	(2.16)
Democracy*HHI(high)					210.74	2.89
					(167.87)	(1.72)
Ln(total assets)	8.57	-1.45**	0.47	-1.54**	2.20	-1.49**
	(47.42)	(0.49)	(47.32)	(0.49)	(46.93)	(0.48)
Leverage	-303.75	-4.99**	-305.04	-4.91*	-303.19	-4.87*
	(159.24)	(1.92)	(161.92)	(1.94)	(163.00)	(1.96)
Ebitda/Sales	-661.33**	-3.39	-674.52**	-3.48	-663.44**	-3.46
	(211.06)	(2.39)	(214.94)	(2.43)	(220.91)	(2.52)

Table 2.7 Market Competition and Loan Structure (cont.)

Ln(deal size)	-722.39**	-6.32**	-722.62**	-6.32**	-723.92**	-6.35**
	(59.05)	(0.60)	(59.11)	(0.60)	(58.94)	(0.59)
Ln(maturity)	-241.65**	-3.39**	-239.01**	-3.37**	-241.39**	-3.38**
	(61.49)	(0.61)	(62.01)	(0.61)	(61.90)	(0.61)
Secured [0,1]	226.25**	1.99*	254.00**	2.17**	257.97**	2.22**
	(73.94)	(0.80)	(75.39)	(0.80)	(76.00)	(0.80)
Top 10 lender [0,1]	-167.59*	-1.58*	-159.44*	-1.50*	-161.92*	-1.55*
	(67.41)	(0.66)	(67.22)	(0.66)	(66.94)	(0.66)
Intercept	17625.24**	177.88**	17437.16**	176.86**	17480.17**	177.30**
	(914.45)	(9.58)	(929.25)	(9.57)	(926.15)	(9.51)
N	2150	2150	2150	2150	2150	2150
R-squared	0.40	0.41	0.40	0.40	0.40	0.40

Table 2.8 Market Competition and Loan Structure (Cont.)

This table reports results from the loan structure regressions that use corporate charter provisions (G index from Gompers et al. (2003)) as a proxy for creditor's rights. In column (1) to (4), the dependent variable is a binary one, "Secured", which takes the value of one when the loan is secured with collateral, zero otherwise. In column (5) to (8), "Number of financial covenants" is the dependent variable which is total number of financial covenants that the loan includes. Firms are grouped based on the G index into Dictatorship when its G index is larger than 13 and Democracy when it is below 6. HHI is also Herfindahl-Hirschman index for product market competition. It is cateorized into three groups, lowest, medium and high tercile of its empirical distribution. The explanatory variables include firm-specific and loan-specific variables. ln(total assets) refers to the logarithm of total assets of the firm in millions of USD before the loan initialization. ebitda/total assets is the ratio of EBITDA of the firm to the total assets of the firm. leverage is the total debt (long term plus short term) divided by total assets of the firm. log(deal amount) refers to the logarithm of the size of the loan. ln(maturity) is the logarithm of the days of loan maturity. "Top 10 leader" having a unit of one when the lead arranger is top 10 ranked in the prior year to the year of loan origination. The coefficients are estimated using probit model and standard errors are reported in parentheses and clustered by firm. Regressions also include industry fixed effects(2 digit SIC), year fixed effects, and loan purpose indicators. *, ** indicate the level of significance at 5% and 1%, respectively.

	Secured				Number of Financial Covenants			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
G index	-0.07**				-0.02*			
	(0.02)				(0.10)			
G index * HHI(low)		-0.05**				-0.04**		
		(0.02)				(0.01)		
G index * HHI(medium)		-0.08**				-0.02*		
		(0.02)				(0.01)		
G index * HHI(high)		-0.07**				0.00		
		(0.02)				(0.01)		
Dictatorship * HHI(low)			-0.66*				-0.23*	
			(0.27)				(0.11)	
Dictatorship * HHI(medium)			-0.24				-0.18	
			(0.27)				(0.19)	
Dictatorship * HHI(high)			0.12				0.35	
			(0.24)				(0.25)	
Democracy * HHI(low)				0.73**				0.31*
				(0.25)				(0.14)
Democracy * HHI(medium)				0.28				0.24
				(0.21)				(0.14)
Democracy * HHI(high)				0.11				-0.15
				(0.20)				(0.13)
Ln(total assets)	-0.26**	-0.27**	-0.30**	-0.29**	-0.17**	-0.17**	-0.18**	-0.18**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.03)	(0.03)	(0.03)	(0.03)
Leverage	1.40**	1.44**	1.41**	1.40**	0.15	0.13	0.15	0.15
	(0.23)	(0.23)	(0.23)	(0.23)	(0.13)	(0.13)	(0.12)	(0.12)

Table 2.8 Market Competition and Loan Structure (Cont.)

Ebitda/Sales	-1.28**	-1.28**	-1.30**	-1.26**	-0.35*	-0.33*	-0.35*	-0.33*
	(0.36)	(0.36)	(0.36)	(0.36)	(0.15)	(0.15)	(0.15)	(0.15)
Ln(deal size)	-0.15**	-0.14**	-0.13*	-0.14*	-0.09*	-0.09*	-0.09*	-0.09*
	(0.05)	(0.05)	(0.06)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)
Ln(maturity)	0.04	0.03	0.03	0.03	0.11**	0.12**	0.11**	0.11**
	(0.06)	(0.06)	(0.06)	(0.06)	(0.04)	(0.04)	(0.04)	(0.04)
Top 10 lender [0,1]	-0.02	-0.02	-0.01	-0.01	-0.08	-0.09	-0.08	-0.08
	(0.07)	(0.07)	(0.07)	(0.07)	(0.05)	(0.05)	(0.05)	(0.05)
Secured [0,1]	-	-	-	-	0.42**	0.43**	0.43**	0.43**
	-	-	-	-	(0.06)	(0.06)	(0.06)	(0.06)
Intercept	4.89**	4.95**	4.22**	4.27**	3.82**	4.20**	4.15**	4.28**
	(1.01)	(1.01)	(1.03)	(1.02)	(0.88)	(0.82)	(0.81)	(0.81)
N	2144	2138	2138	2138	1759	1755	1755	1755
R-squared	-	-	-	-	0.43	0.43	0.43	0.43

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CHAPTER 3

The Effects of Asset Liquidity on the Loan Pricing

Abstract

I examine the impact of firms' asset liquidation value which is proxied by asset liquidity on debt contracting using comprehensive US syndicated loan contracts. I employ various measures of the asset liquidity at the three-digit industry level. The borrower, belonging to a higher asset liquidity industry at the time of loan origination, experiences a lower loan spread. However as the maturity of a loan increases the impact of the asset liquidity declines. Furthermore I found that the loan spreads are affected by the number of lenders because of the concern about coordination failures, and by the possibility of the borrower's being involved in M&A activities. These results are consistent with incomplete contracting and transaction cost theories of liquidation value and financial structure.

3.1 Introduction

Although there are extensive theoretical predictions on how much important the liquidation values of borrower's assets are on debt contracts [1], there are a few empirical studies including recent ones such as Benmelech, Garmaise, and Moskowitz (2005), Gavazza (2010).

In a financing contracting, the borrower and the lender try to make an optimal contract given the information available at the time of contracting. Among many considerations which are important for determining the terms of the loan, the information on the liquidation values of debtor' assets, which will be seized up when the debtor is not able to repay (Aghion and Bolton, 1992, Bolton and Scharfstein, 1996, Hart and Moore, 1994) is not readily available because the liquidation values depend on the market condition at the time of liquidation of the assets.

If we believe that despite the lack of complete information, the two parties will make the most of the then available information on the future liquidation values as rational economic agents behave. The information that they are interested in can be found simply from the previous one if they employ adaptive updating method for the information. As a proxy for the measure of the liquidation values during the span of loan maturity, I will use three-digit industry asset liquidity variables of the prior year to loan origination (more detailed explanation will be found in the next chapter).

One of the questions on the effects of the liquidation values on loan structures, such as interest rates, maturity, and loan size is to know whether higher liquidation values contribute to lowering interest rates as predicted by theories. For this question, Benmelech, Garmaise, and Moskowitz (2005), Gavazza (2010) demonstrate that higher liquidation value(or higher asset liquidity) lowers interest rates(for leasing contracting, markups of operating lease rates). These studies focus on US airplane sector. In my paper, I want to cover whole US industries other than the financial sector. This

[1] see, Aghion and Bolton (1992), Diamond (2004), Hart and Moore (1994)

broader coverage of industries and more detailed loan contracts using comprehensive firm loan data have some advantages. First, the results that will be drawn will be a general answer to whether the liquidation values of firms' assets affect the loan contracts. Second, I can control firm and loan characteristics that if missed, may affect the answer. Third, because of the rich details in loan terms, I can explore other aspects of the question.

The rest of the paper is organized as follows. Section II discusses how to construct proxies for the liquidation values and data sources. Section III describes data summary and model specification. Section IV presents the empirical results and discuss some relevant points. Section V discusses model specification and presents the results of a robust check regression, and Section VI concludes.

3.2 Measures of Asset Liquidity

I use asset liquidity as a proxy for the liquidation values for firms' assets. The liquidity of assets can be defined as the extent to which asset sellers sell them at the prices that are the closest to their intrinsic values of use. The market liquidity of an asset becomes high when there is a high volume of transactions in an industry where the asset is traded. To measure the volume of transactions, I construct various indices using two different data sources, Compustat and SDC. As in Eisfeldt and Rampini (2006), I also define the liquidity of firm's assets as the ratio of the sum of firms' acquisitions and sales of property, plant and equipment over firms' total assets(or Property, Plant and Equipment, or Capital Expenditures) in an industry. Firms are grouped on the basis of their three-digit SIC. This measure represents the intensity of used capital transactions on the industry-year basis and asset liquidity. Although the items for acquisitions(AQC in Compustat) include various instances that are important in terms of accounting practices, they may not capture the 'pure' transactions which are more

relevant for the purpose of this paper. As a complementary measure, I construct a ratio which is the sum of the values of transactions of M&A, and asset sell/purchase to corresponding industry's total assets using the SDC data as in Ortiz-Molina and Phillips (2009). The SDC comprehensively registers all the transactions that entail M&A and asset acquisitions. To standardize the industry level liquidity, the total value of transactions in the three-digit SIC industry is divided by the industry's total assets. In doing so while making sure the two data sets are compatible, I exclude the transactions when the sellers or purchasers are not identified based on the Compustat data.

3.3 Sample Construction, Empirical Specification

3.3.1 Sample Construction

My data come from the Compustat Database, the Securities Data Corporation (SDC), and the Dealscan of Dealogic. Loan data from Dealscan were withdrawn by the month of June in 2007. Firms, the borrowers in the loans, are identified as Chava and Roberts (2008) did [2]. I exclude financial firms (SIC codes 6000 to 6999) and loans contracted before 1990[3].

3.3.2 Empirical Specification and Key Variables

To test the hypothesis, the following basic testing model is specified

$$Spread_{ijt} = \alpha + \gamma_t + \beta \text{Liquidity}_{jt} + X'_{ijt}\delta + \varepsilon_{ijt} \tag{3.1}$$

$Spread_{ijt}$ is the All-in-drawn spread on the bank loan measured over the LIBOR. γ_t is added to control macroeconomic common shocks to the firms. $Liquidity_{jt}$ rep-

[2]I thank for their generosity in providing firm identification information

[3]Previous researchers found the Dealscan data is not comprehensive before 1990. Many papers also use the loans originated after 1990

resents industry-level liquidity measures. These various measures based on (Eisfeldt and Rampini, 2006, Ortiz-Molina and Phillips, 2009) are included one by one for each regression. X_{ijt} consists of firm's and loan's characteristics. Since the errors are believed to be correlated in the industry level, the equation (1.1) is estimated while taking account of clustering effects in the industry level (Petersen, 2009).

In the analysis, I include control variables that have a high explanatory power for the interest spread. *logAT* is the logarithm of firm's book-value total assets as a measure of firm's size. Larger firms tend to be established earlier so that they have better access to external financing. *Bl* is book leverage((DLC + DLTT)/AT) constructed by dividing added values of long-term and short-term debts over total assets. Higher leveraged firms are more likely to default. A firm's profits also is a very important indicator for assessing the probability of loan repayments. *Profit* is constructed by firm's EBITDA over total assets(OIBDP/AT). *Tang* is firm's tangible asset ratio against total assets (PPENT/AT). One of the concerns that the lenders hold in lending decision is how to recover defaulted loans. The recovery depends on the value of debtor's tangible assets; Zscore [4] is constructed as in Altman (1968) to capture the firm's probability of default and its lower score translates into a higher cost of external financing.

Along with firm characteristic variables, I include some loan-specific variables such as loan maturity, facility size, number of lenders, and dummy for whether the loan is secured. Longer maturity loans are more likely to be exposed to the uncertainty of default in the lender's standpoint of view. The facility size is related with the spread because the amount of risk exposure is dependent on the size of loss. The number of lenders is also controlled because in the lender's point of view, when the loan goes wrong, the more lenders means lesser burden that the individual lender should take. I also control for macroeconomic effects by including year dummies for the years of

[4] 3.3 * PI + SALE + 1.4 * RE + 1.2 * (ACT-LCT))/AT, where PI is Pretax Income; SALE is Net Sale; RE is Retained Earnings; ACT is Current Assets, and LCT is Current Liabilities

loan origination.

3.3.3 Summary Statistics

Table 3.1 provides year-wise summary of loan and asset liquidity data. The data set includes 22,433 loans, and covers 235 unique three-digit SIC industries. Average size of tranche is 260.7 million dollars with maturity being 3 years. On average, 7.5 lenders join a loan syndicate. The spread over LIBOR that the borrowers pay is 185.7 basis points. Among the entire sample loans of which 75% are 'Secured' in that when the borrowers go default, the lenders can claim on firms' assets to recover their loans. A number of data observations in the Dealscan does not report whether the loans are 'Secured', for such reason, I lose about 7000 observations in the regression analysis. However in lender's point of view, whether the loans are 'Secured' or not is very important when it comes to loan pricing because secured assets at least stem losses for the lenders when the borrowers cannot make repayments. For this reason, the variable, 'Secured' should be included in the empirical models although I lose many observations.

The average size of firms in the sample is 6.4 billion dollars in terms of their book-value total assets. These average firms are comparatively large because of the sample selection. Although the Dealscan covers comprehensively US syndicated loans, for the study, the ones that can be identified by the robust matching rules are only included in the final sample and in general the firms in the Compustat are large and established earlier. The sample mean of Property, Plant, and Equipment(PPENT) is 2.7 billion dollars and of which 7.4% change ownership by selling and purchasing. On average, the firms' leverage is 0.33 and profit ratio stands at 0.14. The firms hold 35% of total assets as tangible assets, Property, Plant, and Equipment. The financial condition of the average firm in terms of its bankruptcy probability is *Grey*: Altman (1968)

grouped three categories according to firm's zscore[5], *Distress*, *Grey*, and *Safe* when its zscore falls below 1.8, or between 1.8 and 2.99, and above 2.99 respectively.

As measures of asset liquidity, I have used six different definitions. *Reall* is the sum of SPPE(Sales of Property, Plant, and Equipment) and AQC(Acquisition of assets). *Reall/Capital investment* is defined as the ratio of *Reall* over capital investment(property, plant, and equipment - capital expenditures) that in the sample is 66%. Instead *Reall*, AQC and SPPE are divided by capital investment respectively, *AQC/Capital investment* is seven times larger than the ratio of *SPPE/Capital investment.*

I also construct measures in that *AQC*, and *SPPE* are divided by the corresponding industry's one-year lagged AT, and PPENT. Furthermore, to see the effects of the change in the composition of the asset liquidity, the ratio of *SPPE/Reall* is added as another measure. In line with Ortiz-Molina and Phillips (2009), Shleifer and Vishny (1992), asset liquidity is determined by the number of competing firms in the same industry which are able to purchase used capital. In the sample, *NoPotBuy* is defined as the number of rival firms in the three-digit SIC industry that have debt ratings. On average there are 20 competing firms in an industry, however the standard deviation is very large. Another index for asset liquidity for robust checks is constructed using the SDC data set in the same manner for the previous measures. Compared with *Reall/lag(AT)* sourced from the Compustat, *Total transactions/Assets*[6]from the SDC is slightly smaller.

[5]The zscore is an indicator for the probability of bankruptcy of a firm in two years

[6]*Total transactions* are the values of trades, and when this information is missing, the value of zero is assigned

3.4 Empirical Results

In this section I present main empirical findings on the effect of asset liquidity on loan pricing. I divide the discussion into sub-sections. The first one is to examine the question of whether asset liquidity affects the loan pricing, and if it does, then to what extent. In the second subsection, I examine when loan maturity becomes longer, which is understood as increased uncertainty on asset liquidity, whether the impact of asset liquidity is still effective. In the following subsection, I will investigate how coordination failure among the lenders affects the loan pricing.

3.4.1 Main results

I begin by examining how the three-digit industry level asset liquidity affects the loan pricing while comprehensively controlling firm and loan characteristics in the regressions. Table 3.2 presents the results of the regressions with the various asset liquidity measures. The dependent variable, *All in spread drawn*(henceforth aisd) is taken in logarithm to control for skewness in the data[7].

As can be seen from Column (1), the coefficient of *Reall/CAPXV* is negative and significant. Since this is a linear model, the coefficient is also equal to the marginal effect. To estimate the economic significance of this result, we examine a predicted decline in loan spreads that would happen if the asset liquidity of industry increases by one standard deviation. Based on the estimates from the model (1) of Table 3.2, one standard deviation increase causes the spread to decline by 4.3bp[8], and this amounts to 2.5% decline around the average spread that the borrowers pay additionally over LIBOR.

Such effects of the asset liquidity are also observed following the various asset liquid-

[7]Results are qualitatively unchanged if we directly use *All in spread drawn* as the dependent variable

[8]0.76*0.03*187.82)

ity measures: *AQC/CAPXV, Reall/lag(AT), AQC/lag(AT)*, and *Reall/lag(PPENT)*, although their statistical significances vary. Unlike those measures, the coefficient of the *SPPE/Reall* is shown positive, which also squares with my prediction. In the used capital market, if the number of sellers is larger than that of buyers (in my sample, which is represented as the difference in the composition structure of reallocation). When the *SPPE/Reall* increases, in other words, the firms that belong to an industry whose *SPPE/Reall* gets larger relatively compared with that of other industries, because of lower probability for the firms to sell their used capital in the capital market at their intrinsic values, the lenders ask higher interest rates to avoid the loss from selling borrower's assets at lower prices in the future. The coefficients on the loan's and firm's characteristics are not only highly significant, save *Number of Lenders*, but also show right signs. As the firm's size, profitability, and tangibility increase, the spread declines, however when the leverage, a measure of financial condition of the firm, worsens, the spread increases.

Table 3.3 reports the estimates of the regressions in which the measures of asset liquidity are interacted with dummies constructed based on the Zscore. *diss* indicates that the firm's zscore is below 1.8, and when the score falls between 1.8 and 2.99, the firm is categorized as *grey*. *safe* is assigned when the score is above 2.99. As shown, only the coefficient of the interaction of the asset liquidity with *grey* is statistically significant at the 1% significance level. Not only that, in the economic sense, when the increase in the *Reall/Capxv* is made by one standard deviation the spread declines by 11bp , which is more than double the decrease in the spread in Column (1) of Table 3.2. At the time of lending decision, the most obscure firm to lenders in terms of its bankruptcy probability in the future will be the one whose zscore is in the *grey* area. Although basing their lending decision on the information that is currently available at the time of lending, the lenders cannot be sure of the future event regarding the *grey* firms. If we believe lenders act rationally, the lenders will be much less concerned

with the liquidation value of a firm's assets when the industry to which the borrowing firm belongs is more liquid. This lightens lenders' concern and will be expressed as more deep cuts in the spread, especially for the *grey* firms.

3.4.2 Maturity and Uncertainty

As maturity gets longer, lenders will be exposed to uncertainty because of the current information becomes less informative in the future. As we have observed, the current information on asset liquidity affects the loan pricing at the reciprocal manner. However as maturity increases, the impact of asset liquidity declines. This prediction is shown more obviously in Table 3.4 when as asset liquidity measures I use *Reall/Capxv* and *AQC/Capxv*. However for the measures such as *Reall/lag(At)* and *Reall/lag(PPENT)*, the same effect is not observed. Such difference can be found in the inherent characteristic of capital expenditure. Capital expenditure is one of the most volatile aggregate expenditures in the macroeconomic sense. Because of such high volatility, the information on it is more likely to become obsolete as the time at which the information is used moves farther away from the current time.

In contrast, the effect of the change in the composition of asset liquidity, *SPPE/Reall*, turns into being positive as maturity increases. If lenders have to liquidate the borrower's assets in the narrow span of time, they have to make a deep cut in selling prices; however when loan maturity is longer, the incident of deep cutting will be expected to be less severe compared with the case in the current situation. This aspect appeared as a relatively slower speed of spread increase for the loan whose maturity is longer.

3.4.3 Coordination failure and Pricing

At the time when lenders have to liquidate, the liquidation value of assets can be expressed as a function of not only market liquidity, but also the number of lenders.

As the number of lenders increase, coordination among lenders will be more difficult in deciding how to dispose of the borrower' assets. Delayed liquidation decision may miss the optimal selling time and it translates into lower recovery values. To compensate for the loss gap stemming from coordination failure, lenders will ask higher spread. To check whether this claim is plausible in the contracting, I interact liquidity measures with a dummy variable whose value is one when there is a sole lender. Table 3.5 presents the results of the regressions. In model (1), and (2), as asset liquidity increases, the spread declines as observed in the previous regressions. The coefficients of the interactions of *Reall/Capxv * Sole lender*, and *AQC/Capxv * Sole lender* are negative and significant at the 5% level. For alternative liquidity measures, the prediction still holds.

3.5 Discussion and Robust test

In this section, I want to discuss issues of model specification and robust test. The effects of asset liquidity on the loan pricing may not be one dimension. The asset liquidity can be understood as the degree of threat of being a target company for risk-increasing M&A. If it is the case, then the specification of the model should take account of this aspect.

The results that we have seen so far support the theoretical prediction. In the environment of higher asset liquidity, lenders ask lower spread for the firms whose industry liquidity is higher. However, high asset liquidity does not necessarily work for the direction of lowering the spread. When an industry experiences a high M&A activity, which can increase asset liquidity to a larger extent, borrowing firms also can be exposed to a risk for being a M&A target, or may actively involve themselves in acquiring other firms. In either case whether the borrower is a target, or purchaser, those transactions will heighten financial risks to the given lenders because of bor-

rower's increased leverage, or uncertainty of whether debt seniority is respected after being acquired[9].

This different aspect of the effect of asset liquidity on loan pricing renders me to think of the model specification to capture this aspect. The model, which is not only simple, but which also presents the two different regimes of the effects of asset liquidity, is a polynomial function of second-degree in that the measures of asset liquidity are squared. Although increased asset liquidity contributes to the alleviation of lender's concern for liquidation values, when the liquidity rises beyond a certain level, the increased liquidity may adversely affect the loan pricing.

Table 3.6 reports the estimates of the regressions. In column (1), until *Reall/Capxv* reaches 2.25(0.09/(2*0.02)) which stands at the 95 percentile of the variable, the negative relationship between the loan spread and asset liquidity holds as before. For the other variables of the measure of asset liquidity, the points from which the curves turn direction are also located at around the 95 percentile of each variable's distribution.

The concern for borrower's being exposed to M&A target is legitimate. As ? has observed, when the borrower steps up its takeover defense by increasing the number of anti-takeover provisions, the borrower benefits lower spread from external bank financing. In my paper, I examine the relationship between loan pricing and M&A threat. To measure the intensity of M&A threat, I use *NoPotBuyers*, the number of rival firms in the three-digit industry that have rating, and in the other model, I interact the *NoPotBuyers* with the *Zscore* to compare the effect of M&A threat by differing levels of borrower's financial condition.

Table 3.7 shows the results of the two regressions when the variable in interest is *NoPotBuyers* alone, or its interaction with *Zscore*. In the column (1), the coefficient of *NoPotBuyers* is not significant at any level of significance. However in column

[9]? examined how year-level M&A activity affects the loan pricing

(2), for the borrower whose financial condition in the *Safe* zone, as the number of rival firms, *NoPotBuyers*, gets larger, the loan spread increases. This results shed a light on how lenders respond to the uncertainty of loan repayment: by increasing loan spread when the probability of the borrowers' being involved in M&A is high.

For the measures of asset liquidity, I have used accounting data from the Compustat. In using this data, there may be an argument that because this is accounting data, it may not represent the real asset sales and purchases. To support my findings, I have constructed a very similar measure using the SDC data set. Since this data set captures only real asset transactions, it may rightly represent the asset liquidity. Instead of the previous liquidity measure, I estimate the coefficient of the variable in question while controlling the same firm and loan characteristics. The result shows the same conclusion although its standard variance is larger compared with *Reall/Capxv* so that the coefficient is statistically significant at the 10% level[10]

3.6 Conclusion

In the debt contracting theory, the liquidation values of borrower's assets are of importance because to force the borrower to repay loans, the lenders should be able to trigger a credible liquidation threat. However when the triggering is constrained by the market condition in which the lenders can not find the second best user of the assets, the lenders hesitant to enter into a debt contracting. This paper examined whether increased asset liquidity results in lowering spread of the loans. Along with the strong results in answering the question, the paper found the lenders are concerned about the borrower whose default probability prediction is difficult. Furthermore, in relation with loan maturity, as the maturity gets longer, the effect of current-period asset liquidity is shown to decline because of the increased uncertainty of asset

[10]Upon request, I will provide data and the result

liquidity in the future.

In addition, when more than one lender are participating in a loan syndicate, coordination failures may occur and this affects the loan pricing. This effect is also empirically observed in the paper. Finally, I explored the effects of excess asset liquidity on the loan pricing, and found that the spread increases when firm's asset is too liquid.

Table 3.1 Summary Statistics

Variable	Mean	STD.	N
Number of Lenders	7.5	8.9	22428
Tranche Amount(\$M)	260.7	619.7	22433
Maturity	1333.5	769.4	22433
All in spread Drawn(bp)	185.7	131.0	22433
Secured[0 or 1]	0.75	0.43	15362
Assets(\$M)	6435.2	47811.0	22431
Property, Plant, and Equipment (\$M, PPENT	2687.6	24524.8	22367
Sales of Assets(\$M, SPPE)	41.7	464.0	19810
Aquisitions of Assets(\$M, AQC)	153.1	1342.5	22087
Leverage	0.33	0.23	22366
Profitability	0.14	0.10	22380
Tangibility	0.35	0.24	22363
Zscore	1.86	1.18	20900
Reall/Capital investment	0.66	0.76	22433
AQC/Capital investment	0.58	0.75	22433
SPPE/Capital investment	0.08	0.12	22433
Reall/lag(Assets)	0.04	0.04	22433
AQC/lag(Assets)	0.03	0.04	22433
Reall/lag(PPENT)	0.15	0.18	22433
SPPE/Reall	0.23	0.24	22433
NoPotBuy	20.4	26.9	22428
Total transactions/Assets(from SDC)	0.02	0.06	22431

Table 3.2 Effects of Asset Liquidity on the Loan Pricing

This table reports estimate results from the regressions which relate the effects of asset liquidity to the loan pricing. The measures of asset liquidity are constructed at the three-digit industry level. The explanatory variables include firm-specific, and loan-specific characteristics, ln(total assets) refers to the book-value total assets of the firm in millions of USD before the loan initialization. leverage is the total debt (long term plus short term) divided by total assets of the firm. profitability is the ratio of EBITDA of the firm to total assets of the firm. tangibility is the ratio of Property, Plant, and Equipment over total assets of the firm. zscore is constructed according to Altman (1968), ln(maturity) indicates the logarithm of the maturity of loan in days. ln(facility size) is the logarithm of the size of facility in dollars. The number of lenders in the syndicate is denoted by Number of Lenders. Secured is a dummy indicating whether the loan is secured. Robust standard errors are estimated with clustered errors at the three-digit industry level and are reported in parentheses. Regressions also include year fixed effects, and loan purpose indicators. *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Reall/CAPXV	-0.03***					
	(0.01)					
AQC/CAPXV		-0.03***				
		(0.01)				
Reall/lag(AT)			-0.33*			
			(0.18)			
AQC/lag(AT)				-0.32*		
				(0.18)		
Reall/lag(PPENT)					-0.14***	
					(0.04)	
SPPE/Reall						0.09**
						(0.04)
Ln(Facility size)	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Ln(Maturity)	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of Lenders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Secured [0 or 1]	0.72***	0.72***	0.72***	0.72***	0.72***	0.72***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Ln(Total assets)	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Leverage	0.51***	0.51***	0.51***	0.51***	0.50***	0.51***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Profitability	-0.85***	-0.84***	-0.84***	-0.84***	-0.84***	-0.83***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Tangibility	-0.13***	-0.13***	-0.10**	-0.11**	-0.14***	-0.12***
	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
Zscore	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Intercept	6.76***	6.76***	6.75***	6.76***	6.78***	6.74***
	(0.10)	(0.10)	(0.09)	(0.09)	(0.10)	(0.10)
N	14325	14325	14325	14325	14325	14325
R squared	0.60	0.60	0.60	0.60	0.60	0.60

Table 3.3 Default Probability and Asset Liquidity

This table reports estimate results from the regressions which relate the effects of asset liquidity to the loan pricing. The measures of asset liquidity are constructed at the three-digit industry level. distress is a dummy whose value is one when zscore is below 1.8, grey is a dummy whose value is one when zscore falls between 1.8 and 2.99, and when the zscore is above 2.99, a dummy, safe is assigned one. The explanatory variables include firm-specific, and loan-specific characteristics, ln(total assets) refers to the book-value total assets of the firm in millions of USD before the loan initialization. leverage is the total debt (long term plus short term) divided by total assets of the firm. profitability is the ratio of EBITDA of the firm to total assets of the firm. tangibility is the ratio of Property, Plant, and Equipment over total assets of the firm. zscore is constructed according to Altman (1968), ln(maturity) indicates the logarithm of the maturity of loan in days. ln(facility size) is the logarithm of the size of facility in dollars. The number of lenders in the syndicate is denoted by Number of Lenders. Secured is a dummy indicating whether the loan is secured. Robust standard errors are estimated with clustered errors at the three-digit industry level and are reported in parentheses. Regressions also include year fixed effects, and loan purpose indicators. *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Reall/CAPXV * distress	-0.01					
	(0.01)					
Reall/CAPXV * grey	-0.08***					
	(0.01)					
Reall/CAPXV * safe	-0.03					
	(0.02)					
AQC/CAPXV * distress		-0.01				
		(0.01)				
AQC/CAPXV * grey		-0.08***				
		(0.02)				
AQC/CAPXV * safe		-0.03				
		(0.02)				
Reall/lag(AT) * distress			-0.01			
			(0.17)			
Reall/lag(AT) * grey			-1.31***			
			(0.28)			
Reall/lag(AT) * safe			-0.42			
			(0.41)			
AQC/lag(AT) * distress				0.04		
				(0.16)		
AQC/lag(AT) * grey				-1.38***		
				(0.29)		
AQC/lag(AT) * safe				-0.45		
				(0.42)		
Reall/lag(PPENT) * distress					-0.07	
					(0.05)	
Reall/lag(PPENT) * grey					-0.29***	
					(0.06)	
Reall/lag(PPENT) * safe					-0.12	
					(0.07)	
SPPE/Reall * distress						0.10*
						(0.05)

Table 3.3 Default Probability and Asset Liquidity(cont.)

SPPE/Reall * grey						0.03
						(0.04)
SPPE/Reall * safe						0.18***
						(0.05)
Ln(Facility size)	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Ln(Maturity)	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of Lenders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Secured [0 or 1]	0.72***	0.72***	0.72***	0.72***	0.72***	0.72***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Ln(Total assets)	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Leverage	0.50***	0.50***	0.50***	0.50***	0.50***	0.50***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Profitability	-0.84***	-0.83***	-0.82***	-0.82***	-0.83***	-0.83***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Tangibility	-0.13***	-0.13***	-0.11**	-0.11**	-0.14***	-0.13***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Zscore	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Intercept	6.75***	6.75***	6.75***	6.75***	6.77***	6.74***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.10)
N	14325	14325	14325	14325	14325	14325
R squared	0.61	0.61	0.60	0.60	0.60	0.60

Table 3.4 Maturity and the Loan Pricing

This table reports estimate results from the regressions which relate the effects of asset liquidity to the loan pricing. The measures of asset liquidity are constructed at the three-digit industry level. The explanatory variables include firm-specific, and loan-specific characteristics, ln(total assets) refers to the book-value total assets of the firm in millions of USD before the loan initialization. leverage is the total debt (long term plus short term) divided by total assets of the firm. profitability is the ratio of EBITDA of the firm to total assets of the firm. tangibility is the ratio of Property, Plant, and Equipment over total assets of the firm. zscore is constructed according to Altman (1968), ln(maturity) indicates the logarithm of the maturity of loan in days. ln(facility size) is the logarithm of the size of facility in dollars. The number of lenders in the syndicate is denoted by Number of Lenders. Secured is a dummy indicating whether the loan is secured. Robust standard errors are estimated with clustered errors at the three-digit industry level and are reported in parentheses. Regressions also include year fixed effects, and loan purpose indicators. *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Reall/CAPXV	-0.18***					
	(0.07)					
Reall/CAPXV * Ln(Maturity	0.02**					
	(0.01)					
AQC/CAPXV		-0.19***				
		(0.07)				
AQC/CAPXV * Ln(Maturity)		0.02**				
		(0.01)				
Reall/lag(AT)			-1.30			
			(1.45)			
Reall/lag(AT) * Ln(Maturity)			0.14			
			(0.20)			
AQC/lag(AT)				-1.98		
				(1.46)		
AQC/lag(AT) * Ln(Maturity)				0.23		
				(0.20)		
Reall/lag(PPENT)					-0.46	
					(0.29)	
Reall/lag(PPENT) * Ln(Maturity)					0.04	
					(0.04)	
SPPE/Reall						0.94***
						(0.27)
SPPE/Reall * Ln(Maturity)						-0.12***
						(0.04)
Ln(Facility size)	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Ln(Maturity)	-0.03***	-0.03***	-0.03**	-0.03***	-0.03**	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of Lenders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Secured [0 or 1]	0.72***	0.72***	0.72***	0.72***	0.72***	0.72***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Ln(Total assets)	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

Table 3.4 Maturity and the Loan Pricing(cont.)

Leverage	0.51***	0.51***	0.51***	0.51***	0.50***	0.50***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Profitability	-0.84***	-0.84***	-0.84***	-0.84***	-0.84***	-0.83***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Tangibility	-0.13***	-0.13***	-0.10**	-0.11**	-0.14***	-0.12***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)
Zscore	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Intercept	6.86***	6.86***	6.79***	6.81***	6.83***	6.55***
	(0.11)	(0.11)	(0.10)	(0.11)	(0.12)	(0.10)
N	14325	14325	14325	14325	14325	14325
R squared	0.60	0.60	0.60	0.60	0.60	0.60

Table 3.5 Coordination Failure and the Loan Pricing

This table reports estimate results from the regressions which relate the effects of asset liquidity to the loan pricing. The measures of asset liquidity are constructed at the three-digit industry level. The explanatory variables include firm-specific, and loan-specific characteristics, ln(total assets) refers to the book-value total assets of the firm in millions of USD before the loan initialization. leverage is the total debt (long term plus short term) divided by total assets of the firm. profitability is the ratio of EBITDA of the firm to total assets of the firm. tangibility is the ratio of Property, Plant, and Equipment over total assets of the firm. zscore is constructed according to Altman (1968), ln(maturity) indicates the logarithm of the maturity of loan in days. ln(facility size) is the logarithm of the size of facility in dollars. The number of lenders in the syndicate is denoted by Number of Lenders. Secured is a dummy indicating whether the loan is secured. Robust standard errors are estimated with clustered errors at the three-digit industry level and are reported in parentheses. Regressions also include year fixed effects, and loan purpose indicators. *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Reall/CAPXV	-0.02*					
	(0.01)					
Reall/CAPXV * Sole lender	-0.04**					
	(0.02)					
AQC/CAPXV		-0.02**				
		(0.01)				
AQC/CAPXV * Sole lender		-0.04**				
		(0.02)				
Reall/lag(AT)			-0.16			
			(0.18)			
Reall/lag(AT) * Sole lender			-0.63***			
			(0.23)			
AQC/lag(AT)				-0.15		
				(0.18)		
AQC/lag(AT) * Sole lender				-0.66***		
				(0.25)		
Reall/lag(PPENT)					-0.11**	
					(0.04)	
Reall/lag(PPENT) * Sole lender					-0.09	
					(0.07)	
SPPE/Reall						0.09*
						(0.05)
SPPE/Reall * Sole lender						0.00
						(0.06)
Ln(Facility size)	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Ln(Maturity)	-0.02**	-0.02**	-0.02***	-0.02***	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of Lenders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
Secured [0 or 1]	0.72***	0.72***	0.72***	0.72***	0.72***	0.72***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Ln(Total assets)	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)

Table 3.5 Coordination Failure and the Loan Pricing(cont.)

Leverage	0.51***	0.51***	0.50***	0.50***	0.50***	0.51***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Profitability	-0.85***	-0.85***	-0.85***	-0.85***	-0.85***	-0.83***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Tangibility	-0.12***	-0.12***	-0.10**	-0.10**	-0.14***	-0.12***
	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
Zscore	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Intercept	6.84***	6.83***	6.83***	6.83***	6.82***	6.73***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
N	14325	14325	14325	14325	14325	14325
R squared	0.60	0.60	0.60	0.60	0.60	0.60

Table 3.6 Leverage Increasing Activity and the Loan Pricing

This table reports estimate results from the regressions which relate the effects of asset liquidity to the loan pricing. The measures of asset liquidity are constructed at the three-digit industry level. The explanatory variables include firm-specific, and loan-specific characteristics, ln(total assets) refers to the book-value total assets of the firm in millions of USD before the loan initialization. leverage is the total debt (long term plus short term) divided by total assets of the firm. profitability is the ratio of EBITDA of the firm to total assets of the firm. tangibility is the ratio of Property, Plant, and Equipment over total assets of the firm. zscore is constructed according to Altman (1968), ln(maturity) indicates the logarithm of the maturity of loan in days. ln(facility size) is the logarithm of the size of facility in dollars. The number of lenders in the syndicate is denoted by Number of Lenders. Secured is a dummy indicating whether the loan is secured. Robust standard errors are estimated with clustered errors at the three-digit industry level and are reported in parentheses. Regressions also include year fixed effects, and loan purpose indicators. *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Reall/CAPXV	-0.09***					
	(0.02)					
Reall/CAPXV^2	0.02***					
	(0.00)					
AQC/CAPXV		-0.09***				
		(0.02)				
AQC/CAPXV^2		0.02***				
		(0.00)				
Reall/lag(AT)			-0.96***			
			(0.34)			
Reall/lag(AT)^2			3.03**			
			(1.23)			
AQC/lag(AT)				-1.08***		
				(0.34)		
AQC/lag(AT)^2				3.77***		
				(1.31)		
Reall/lag(PPENT)					-0.28**	
					(0.11)	
Reall/lag(PPENT)^2					0.19	
					(0.15)	
SPPE/Reall						0.07
						(0.10)
SPPE/Reall^2						0.02
						(0.12)
Ln(Facility size)	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Ln(Maturity)	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Number of Lenders	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00

Table 3.6 Leverage Increasing Activity and the Loan Pricing(cont.)

Secured [0 or 1]	0.72***	0.72***	0.72***	0.72***	0.72***	0.72***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Ln(Total assets)	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Leverage	0.51***	0.51***	0.51***	0.51***	0.50***	0.51***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Profitability	-0.84***	-0.84***	-0.84***	-0.83***	-0.84***	-0.83***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
Tangibility	-0.14***	-0.15***	-0.11**	-0.11**	-0.15***	-0.12***
	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Zscore	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Intercept	6.79***	6.78***	6.77***	6.77***	6.79***	6.74***
	(0.10)	(0.10)	(0.09)	(0.09)	(0.10)	(0.10)
N	14325	14325	14325	14325	14325	14325
R squared	0.60	0.60	0.60	0.60	0.60	0.60

Table 3.7 Takevover and the Loan Pricing

This table reports estimate results from the regressions which relate the effects of asset liquidity to the loan pricing. lNoPotBuy is the number of rival firms in the three-digit industry and in the logarithm. distress is a dummy whose value is one when zscore is below 1.8, grey is a dummy whose value is one when zscore falls between 1.8 and 2.99, and when the zscore is above 2.99, a dummy, safe is assigned one. The explanatory variables include firm-specific, and loan-specific characteristics, ln(total assets) refers to the book-value total assets of the firm in millions of USD before the loan initialization. leverage is the total debt (long term plus short term) divided by total assets of the firm. profitability is the ratio of EBITDA of the firm to total assets of the firm. tangibility is the ratio of Property, Plant, and Equipment over total assets of the firm. zscore is constructed according to Altman (1968), ln(maturity) indicates the logarithm of the maturity of loan in days. ln(facility size) is the logarithm of the size of facility in dollars. The number of lenders in the syndicate is denoted by Number of Lenders. Secured is a dummy indicating whether the loan is secured. Robust standard errors are estimated with clustered errors at the three-digit industry level and are reported in parentheses. Regressions also include year fixed effects, and loan purpose indicators. *, **, *** indicate the level of significance at 10%, 5% and 1%, respectively.

	(1)	(2)
lNoPotBuy	0.01	
	(0.01)	
lNoPotBuy * distress		0.01
		(0.01)
lNoPotBuy * grey		-0.01
		(0.01)
lNoPotBuy * safe		0.03***
		(0.01)
Ln(Facility size)	-0.09***	-0.09***
	(0.01)	(0.01)
Ln(Maturity)	-0.02**	-0.02**
	(0.01)	(0.01)
Number of Lenders	0.00	0.00
	0.00	0.00
Secured [0 or 1]	0.72***	0.72***
	(0.02)	(0.02)
Ln(Total assets)	-0.08***	-0.08***
	(0.01)	(0.01)
Leverage	0.51***	0.50***
	(0.03)	(0.03)
Profitability	-0.85***	-0.83***
	(0.12)	(0.12)
Tangibility	-0.11**	-0.12**
	(0.05)	(0.05)
Zscore	-0.02***	-0.03***
	(0.01)	(0.01)
Intercept	6.72***	6.74***
	(0.10)	(0.10)
N	14321	14321
R squared	0.60	0.60

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