當　代　會　計
第十九卷第一期
民國一〇七年五月
頁 41-75

Journal of Contemporary Accounting
Vol. 19 No. 1, May 2018
PP.41-75

具銀行相關經驗之董事對借款條件之影響：以聯貸市場為例

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摘要：本研究探討具銀行相關經驗的董事對聯合貸款特性之影響。董事具銀行相關經驗應能降低借款企業與銀行間的資訊不對稱，而使得借款企業取得較低的聯貸利差，並影響主辦銀行之放貸比率。此外，對於資訊不對稱較高之企業，本研究預期具銀行相關背景董事較能有效降低其聯貸利差，並對主辦銀行之放貸比率有影響。本研究以 2001 至 2014 年（不含 2008 及 2009 年）之樣本進行實證研究。研究結果顯示，具銀行相關經驗之董事與聯貸利差呈負相關，而與主辦銀行之放貸比率無關聯性。而進一步將樣本區分為高資訊不對稱及低資訊不對稱兩個子樣本後的研究結果顯示，對於高資訊不對稱之企業，具銀行相關經驗之董事與聯貸利差呈負相關，並與主辦銀行之放貸比率呈正相關；而於低資訊不對稱之企業，則未發現具銀行相關經驗之董事與聯貸利差及主辦銀行之放貸比率具關聯性。

關鍵詞：聯合貸款、董事經驗、銀行產業、資訊不對稱

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107 年 03 月收稿
107 年 05 月接受
複審接受
DOI: 10.6675/JCA.201805_19(1).02

Journal of Contemporary Accounting
Vol. 19 No. 1, May 2018
PP.41-75

The effect of the board of directors' banking experience on syndicated loan features

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Abstract: This study investigates the effect of a board of directors with experience in the banking sector on the features of syndicated loans. We argue that the inclusion of directors with banking experience on the board may alleviate information asymmetry between borrowers and lenders, thereby reducing loan spreads and affecting the portion of the loan retained by the lead arrangers. Moreover, directors with banking experience can assist firms with high information asymmetry, to obtain loans on better price term and influence the share of lead arrangers. We test these predictions empirically using a sample of syndicated loans made to US firms over the period of 2001 to 2014 (excluding the years 2008 and 2009). Our empirical results suggest that firms that have directors with more banking experience enjoy lower syndicated loan spreads. We also find that directors with banking experience do not influence the share of loans retained by lead arrangers. We then divide the sample into high and low information asymmetry groups. The evidence suggests that among firms with high information asymmetry, directors with banking experience are negatively associated with loan spreads and positively associated with the proportion of loan facility held by lead arrangers. These relationships are not observed in firms with low information asymmetry.

Keywords: syndicated loans, director experience, banking industry, information asymmetry

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Submitted March 2018
Accepted May 2018
After 2 rounds of review
DOI: 10.6675/JCA.201805_19(1).02

I. Introduction

The syndicated loan market has become the most important source of corporate financing. In the U.S., syndicated loan issuance grew from approximately $1.2 trillion in 2000 to $2.3 trillion in 2015, surpassing corporate bond issuance, which in 2015 reached $1.3 trillion. Prior literature on syndicated loans provides evidence that information asymmetries between lenders and borrowers could influence syndicated loan terms and syndicate structure (Simon, 1993; Dennis and Mullineaux, 2000; Esty, 2001; Roberts and Panayagometh, 2002; Esty and Megginson, 2003; Lee and Mullineaux, 2004; Jones, Lang, and Nigro, 2005; Sufi, 2007; Ball, Bushman, and Vasvari, 2008; Ivashina, 2009; Panayagometh and Roberts, 2010; Champagne and Coggins, 2012). Following this stream of literature, this study examines whether a board of directors with prior or current experience in the banking sector may help to reduce the information gap between borrowers and lenders and thereby have an impact on syndicated loan features.

The board of directors, composed of directors from different field backgrounds, is the highest authority in a corporation. According to prior studies (Hillman and Dalziel, 2003; Kor and Sundaramurthy, 2009), directors' knowledge and experience can bring benefits to a corporation. Such board of directors who, based on knowledge and experience accumulated from practice, are experts in the monitoring of management, providing valuable advice, and making future-oriented suggestions to companies. While directors with different backgrounds and experience may assist firms in different matters, it is important for firms to realize how directors' specific experience brings benefits to firms. Prior studies indicate that directors with prior experience in other companies are generally beneficial to the company (Westphal and Milton, 2000; Hillman and Dalziel, 2003; Xie, Davidson, and DaDalt, 2003; Kor and Sundaramurthy, 2009; Gray and Nowland, 2013). Moreover, others suggest that as a firm encounters problems related to a director's professional experience, that director can better assist the firm in dealing with matters related to their professional field (Agrawal and Knoeber, 2001; Kroll, Walters, and Wright, 2008; McDonald, Westphal, and Graebner, 2008). Additionally, among directors with financial expertise, prior literature provides evidence showing that bankers on the board could have an impact on management decisions and external financing (Booth and Deli, 1999; Byrd and Mizruchi, 2005; Güner, Malmendier, and Tate, 2008; Kroszner and Strahan, 2001).

Existing board members with financial services experience may assist lead arrangers to gather all relevant information that lenders require. If board members with previous

banking experience can effectively transfer credit and financial information regarding the borrowers to participating banks and reduce the information asymmetry between lenders and borrowers, then we expect that lead lenders are likely to offer proportionally more loans to such corporate borrowers. We also predict that lenders are likely to charge lower loan spreads on those loans granted to firms with board members who have industry experience in the financial sector. Moreover, as it may be difficult for creditors to perform detailed financial analyses on borrowers with a greater degree of ex-ante information asymmetry, the effect of board of directors' banking experience on loan features is unlikely to be homogeneous across corporate borrowers. We expect credit risk assessment for borrowers with a higher ex ante information asymmetry level to benefit more from having board members with previous banking experience. Therefore, if lead lenders retain a higher proportion of loans and charge lower loan spreads for firms with directors with banking experience, we predict that these effects will mainly exist among corporate borrowers with a higher level of ex ante information asymmetry.

In this study, we combine loan-level data from the syndicated loan market and information related to board of directors to study the effect of board of directors' banking experience on debt contracting. As loans to finance investment projects require the ultimate approval of the board, boards of directors with relevant experience may play an important role in such corporate decisions. We test our predictions empirically through a sample of individual syndicated loan facilities drawn from the Loan Pricing Corporation's (LPC) DealScan. In order to minimize the sensitivity of the results to other macro-economic shocks in the economy, especially the most recent financial crisis, we exclude the financial crisis period of the years 2008 and 2009.[1] The final sample covers 7,738 facilities over the period from 2001 to 2014.

Directors with banking experience could facilitate the information flow between borrowers and lenders and thereby effectively alleviate asymmetric information. In addition, having directors with banking experience on the board may play a certification role and signal to the market that the firm is less likely to experience financial distress. We find that firms with more directors with experience in the banking sector obtain favorable price terms of syndicated loans. That is, firms with more directors with banking

[1] Ivashina and Scharfstein (2010) show that syndicated lending experienced an accelerating fall and an increase in loan spreads during the 2008 financial crisis. Santos (2011) explores the effect of the 2008 crisis on the U.S. syndicated loan market with a focus on banks' loan pricing policies. He finds that firms paid higher loan spreads and took smaller loan amounts during the subprime crisis. In order to avoid the possible effect of this crisis phenomenon on our analyses, we explicitly exclude the global financial crisis of 2008 - 2009 in our sample.

experience are more likely to receive lower loan spreads. Regarding the impact of directors with banking experience on the syndicated structure, we find that directors with banking experience do not have an impact on lead arrangers' share of syndicated loans. Moreover, we further show that for firms with high information asymmetry, having more directors with banking experience could assist them to enjoy lower loan spreads, and lead arrangers tend to hold a greater proportion of loan facility for these firms. However, for firms with low information asymmetry, there is no such effect on syndicated loan spreads and loan structure.

This study contributes to the literature on the board of directors' industry experience on corporate financing. First, prior studies investigate directors' financial, legal, political, and acquisition experience on corporate decisions, firm performance, or financial reporting quality (McDonald et al., 2008; Krishnan, Wen, and Zhao, 2011). We further document that boards of directors with prior or current experience in the banking sector have an impact on debt financing. Second, in contrast to prior studies investigating the role of bankers on boards (Booth and Deli, 1999; Kroszner and Strahan, 2001), we examine the economic consequences of having directors with prior and current banking experience on boards.[2] Third, we use syndicated loans as our research setting. As financial intermediaries use both hard and soft information to make lending decisions, the information flow between directors with banking experience and lenders may reduce the cost of acquiring soft information, thereby facilitating efficient debt contracting.[3] Overall, this study adds to the literature on syndicated loans by providing evidence that having more directors with experience in the banking sector results in lower costs of debts; moreover, such evidence is more pronounced among firms with high information asymmetry. High information asymmetry firms with more directors with experience in the banking sector are associated with increasing lead arrangers' share.

The remainder of this study is organized as follows. Section 2 reviews related literature. Section 3 develops the hypotheses. Section 4 describes the sample selection and research design. Section 5 describes the descriptive statistics and presents the empirical results, and Section 6 concludes.

II. Literature Review

[2] Bankers are defined as top executives of commercial or investment banks (Booth and Deli, 1999; Kroszner and Strahan, 2001; Güner et al., 2008). In our study, we focus on not only directors who are also top executives of commercial or investment banks, but also directors with prior and current industry experience in insurance companies, funds, and trusts.

[3] Stein (2002) defines hard information as that which is easily verifiable and soft information as that which cannot be verified directly.

Board of Directors' Experience

A board, composed of the elected directors, is the highest management authority of a corporation. Boards of directors typically choose one of the directors as a chairman to hold board meetings. At board meetings, directors discuss important company issues, such as the company's main future-oriented objectives and annual budget. Directors also select and appoint the chief executives to maintain the daily operations of the company and evaluate chief executives' performance. In order to fulfill these duties, boards of directors are required to have the ability to comprehend the firm's current business and industry dynamics.

Carpenter and Westphal (2001) show that directors currently or previously appointed by other companies can develop industry knowledge and access industry information. These experiences provide benefits to companies in addressing corporate strategy implementation when the industry environment is volatile. Westphal and Fredrickson (2001) further indicate that directors generally select a CEO who has prior experience relevant to a firms' new corporate strategy in order to successfully implement this new strategy. Moreover, prior experience could assist the board of directors to better comprehend the firm's business situation (Westphal and Milton, 2000). Boards containing directors with relevant and appropriate expertise, experience and skills could effectively monitor company performance and provide better advice (Hillman and Dalziel, 2003).

Prior studies identify several characteristics of directors and investigate whether and to what extent directors' relevant background and experience have an impact on company performance. Kroll et al. (2008) and McDonald et al. (2008) find evidence that directors with relevant industry knowledge and acquisitions experience make better and more profitable acquisitions. The finding of Dass, Kini, Nanda, Onal, and Wang (2014) suggests that directors in upstream or downstream industries provide support for the company to effectively respond to industry dynamics. Moreover, the market responds positively to the appointment of directors with experience. Using a sample of Australian firms, Gray and Nowland (2013) show that markets react positively to the appointment of a new director with four or more years of experience.

A number of studies have investigated independent outside directors' prior experience and argue that outside directors who are close to the industry and possess industry-specific skills and knowledge could enhance their monitoring role and improve firm performance. For instance, Xie et al. (2003) indicate that independent outside directors with experience in other corporations provide effective monitoring and that both independent outside directors and directors with prior experience on boards make

earnings management less likely to occur. Agrawal and Knoeber (2001) find evidence that outside directors with political and legal experiences could assist firms with their familiarity and knowledge of the government and relevant official procedures. Kor and Sundaramurthy (2009) also provide evidence that outside directors with prior industry experience and established industry connections could assist firms in acquiring resources and starting new business relationships, which would positively affect firm performance. Therefore, boards of directors' previous industry experience may influence a firm's future growth opportunities.

Independent directors' financial background also influences the monitoring process of financial reporting and the oversight of management on the board.[4] For example, Bédard, Chtourou, and Courteau (2004) indicate that having more independent directors with expertise could restrain companies from earning management. Dhaliwal, Naiker, and Navissi (2010) suggest that independent directors who are finance experts can complement the domain-specific knowledge of accounting experts to improve accruals quality. Cohen, Hoitash, Krishnamoorthy, and Wright (2014) show that independent directors with both financial expertise and industry expertise are more effective in monitoring the financial reporting process compared to those with financial expertise only. Krishnan et al. (2011) find that firms containing independent directors with legal background have better financial reporting.

Furthermore, investors may respond differently to the appointment of independent financial directors by taking into account differing financial expertise. Davidson, Xie, and Xu (2004) indicate that the market prefers independent directors with auditing and audit firm experience to independent directors with corporate financial management and financial statement analysis experience. DeFond, Hann, and Hu (2005) categorize independent financial directors into accounting financial expertise and non-accounting financial expertise. They find that the market responds positively to the appointment of directors with accounting financial expertise but has no reaction to the appointment of directors with non-accounting financial expertise.

Directors with banking backgrounds can provide professional advice and assist firms to borrow from banks. In addition, having directors with banking backgrounds may signal that there is a close relationship between banks and borrowers and that the borrower may have a lower probability of financial distress. Hence, this would in turn lower the cost of

[4] Following the enactment of the Sarbanes-Oxley Act (SOX) in 2002, members of the audit committee are required to be independent of the board and have at least one member with financial expertise. As a result, companies are forced to elect independent directors and independent financial background directors to the board and restrict the inclusion of inside directors.

external financing. Directors with banking experience benefit corporations while they may benefit the lending bank as well. Directors with banking experience on boards can access the firm's internal or private information, which increases information flow between borrowers and banks, thereby providing lending banks with superior monitoring loan covenants and the ability to better assess firms' creditworthiness.

Prior studies investigating directors with banking experience mainly focus on whether bankers serve a monitoring role in protection of self-interests or a service role following fiduciary interests. The duties of boards of directors are to promote the interests of shareholders, while there may have a conflict to board position of bankers who also try to protect creditors. This happens as firms encounter risky investment decisions or face financial distress. Kroszner and Strahan (2001) indicate that bankers tend to be the directors of companies that are larger and hold more tangible assets, as these firms are more stable and have less conflict between shareholders and creditors. Byrd and Mizruchi (2005) separate bankers on the board into lending bankers and non-lending bankers. They find that the more lending bankers are on the board, the lower the debt ratio will be, while the relationship between non-lending bankers on board and debt ratio is independent of the probability of financial distress. Booth and Deli (1999) provide evidence that commercial bankers on the board serve as experts to the firm rather than monitor the lending relationship. Güner et al. (2008) also provide evidence that having commercial bankers on boards could assist firms in obtaining larger loans, but these firms tend to have worse investment opportunities and lower profitability. They further indicate that companies with investment bankers on the board are more likely to be involved in issuing larger amount of debts and that these firms perform worse in external investment compared to those without investment bankers on the board. Thus, having bankers on the board has a significant influence on corporate decisions, although they may not always consider shareholder' interests. In addition, directors with banking experience may exploit the information advantage gained from serving as board members to manipulate accounting numbers or withhold information on the firm's losses, in order to help a firm obtain financing from other banks. This may further increase the information asymmetry between borrowers and lenders.

In contrast to prior studies that focus on having top executives of commercial or investment banks on the board, we examine the economic consequence of having directors with banking experience on boards. We use syndicated loans as our research setting, as both hard and soft information affect banks' lending decisions, and we examine whether having directors with banking experience on the board is associated with lower costs of debt and higher loan share. We attempt to shed further light on the role that directors with banking experience play on the boards on which they serve.

Syndicated Loan Market

Syndicated loans have become an important corporate financing tool in the past two decades. Unlike conventional bank loans, which only contain one creditor in a loan contract, a syndicated loan is organized by two or more financial institutions, such as commercial and investment banks, mutual funds, and finance companies. Each bank involved in the contract is a direct lender to the borrower. However, before a formal syndicated loan contract is signed, there is usually an agent bank (lead arranger), which represents the borrower's management and conducts most of the work to organize the syndicated loan. An agent bank's jobs include gathering relevant information about the borrower, finding other participants who are interested, and providing memoranda with the relevant information to these potential participants. An agent bank also holds a meeting to explain the borrower's features to the potential participants and answers questions related to the syndicated loan and the borrower, such as the terms of credit of the syndicated loan and the businesses and prospects of the borrower. In addition, an agent bank is responsible for negotiating the loan agreement with participants and coordinating the documentation process. Once the formal syndicated loan is executed, the agent bank facilitates the administration of repayments (e.g., calculating interest payment, holding all pledged collateral if the syndicated loan is secured, and monitoring the borrower's compliance with contract terms). Other participants can provide their comments and suggestions to the agent bank before closing a loan.

In the syndicated loan market, because lead arrangers have the responsibility to collect borrower-relevant information, whether it is public or private, and to deliver information to participant banks (Simon, 1993), there is potential asymmetric information not only between borrowers and banks but also between syndicated banks, which could cause agent problems such as adverse selection and moral hazard. Adverse selection occurs when lead arrangers do not transfer private information to other participant banks, while moral hazard occurs as lead arrangers reduce their monitoring on borrowers once some participant banks are involved in a loan. This information asymmetry determines loan spreads required by banks (Ivashina, 2009). Banks can also reduce information risks through non-price terms (e.g., contractual maturities, collateral secured, covenant restrictions). Rajan and Winton (1995) provide evidence that information asymmetry influences whether or not the loans require secured collateral and are subject to covenant restrictions. Other factors may also affect loan terms. Bharath, Dahiya, Saunders, and Srinivasan (2011) indicate that if there is close relationship between borrowers and lenders, borrowers tend to receive favorable loan spreads from banks. Fields, Fraser, and

Subrahmanyam (2012) indicate that firms with more diverse and more experienced boards enjoy lower borrowing costs and less required collateral. In addition, banks set fewer covenants and less financial ratio restrictions on borrowers that have more independent and more diverse boards.

Besides price and non-price terms, the degree of information asymmetry may also have an impact on the structure of a syndicated loan (Kim, Tsui, and Yi, 2011b). For asymmetric information occurring between syndicate banks (meaning that private information acquired by lead arrangers may not be delivered to other participants), lead arrangers tend to retain a larger share of good quality loans and a smaller share of bad quality loans (Esty, 2001; Panayagometh and Roberts, 2010). Panayagometh and Roberts (2010) further investigate the reputation effect of lead arrangers and show that the lead arrangers' reputation is an effective mechanism to eliminate the incentive conflict between syndicates. However, Jones et al. (2005) provide evidence that lead arrangers may not exploit asymmetric information between syndicate banks and that lead arrangers retain a larger proportion of low-quality loans to maintain the incentive to monitor borrowers. Furthermore, Ball et al. (2008) provide evidence showing that the borrowers with high debt-contracting value of accounting information, which represents lower information asymmetry between syndicate banks, are associated with a smaller share of loans retained by lead arrangers.

Prior research also provides evidence showing the relation between information asymmetry between borrowers and lenders and the proportion of loans retained by lead arrangers. Both Dennis and Mullineaux (2000) and Roberts and Panayagometh (2002) indicate that loans are more likely to be syndicated when there is more transparent information about the borrowers, or when the loans are managed by reputable lead arrangers. However, if banks know less about the borrowers, lead arrangers tend to hold a higher portion of the syndicated loan (Sufi, 2007) and invite fewer participants to the loan (Lee and Mullineaux, 2004). Ivashina (2009) further investigates the influence of syndicated structure on loan spreads. On the one hand, increasing the share of the syndicated loan increases the risks that the lead banks are exposed to, which leads to an increase in the premium demand by the lead banks. On the other hand, increasing the share of the syndicated loan may reduce information asymmetry between borrowers and lenders, which decreases the premium required by lenders. Ivashina (2009) finds that as the proportion of loans held by lead arrangers increases by 9%, the spread required by participants is reduced by around 29 basis points. Thus, the finding of Ivashina (2009) suggests that a larger proportion of loans retained by lead arrangers can effectively reduce the cost of borrowing.

III Hypotheses Development

A board is composed of directors, who are elected by shareholders. The board of directors makes efforts to achieve optimum work performance of every committee in order to maintain the company's business sustainability in the future. The experience that directors have accumulated from prior positions make them perform better, make superior judgments, and bring benefits to the company. Prior research suggests that directors with industry experience understand the business situation better, monitor the company more effectively, and provide constructive advice (Westphal and Milton, 2000; Carpenter and Westphal, 2001; Hillman and Dalziel, 2003; Xie et al., 2003; Kor and Sundaramurthy, 2009). Prior studies also show that directors who are experts in one field, such as directors with financial expertise, acquisition experience, political experience, or legal experience, provide benefits to the firm (Agrawal and Knoeber, 2001; Bédard et al., 2004; Davidson et al., 2004; DeFond et al., 2005; Kroll et al., 2008; McDonald et al., 2008; Dhaliwal et al., 2010; Krishnan et al., 2011; Cohen et al., 2014). We expect that directors with experience in the banking sector, who are better at understanding the banking industry and possess knowledge about loan-making decisions and industry-specific practices, could also facilitate firms in debt contracting.

Directors with experience in the banking sector have accumulated volumes of professional knowledge in the financial field and banking industry practices from their career. Through their employment in the banking industry, directors with banking experience may assist firms to strive for and better understand the process of debt financing. Prior studies such as Kroszner and Strahan (2001), Byrd and Mizruchi (2005), and Güner et al. (2008) indicate that having bankers on the board can make the relation between borrowers and lenders closer and increase information flow between firms and banks. Similarly, having established close relationships in the banking industry, directors with banking experience may be a communication channel between the firm and the lead arrangers of the syndicated loan. Through directors with banking experience, lead arrangers can require and gather relevant information from the borrower, which is important information for banks to evaluate and verify the riskiness of the loan, and can thereby transfer this borrower-related information to participant banks. In addition, directors with banking experience can also communicate borrowers' requirements to the lead arrangers. Therefore, directors with banking experience could improve information flow between borrowers and banks, leading to a reduction in information asymmetry.

Information asymmetry between borrowers and lenders means that banks are exposed to potential risks. Banks charge higher loan spreads to reduce their risk

exposures (Strahan, 1999; Ivashina, 2009). Prior literature provides evidence that firms with higher quality information and lower ex-ante information risk are associated with lower costs of external financing (Baiman and Verrecchia, 1996; Lambert, Leuz, and Verrecchia, 2007). If directors with banking experience effectively promote information flow between borrowers and lenders, we expect that firms with more directors with banking experience on the board may enjoy reduced information asymmetry between borrowers and lenders. Therefore, borrowers may receive favorable loan spreads. This leads to the first hypothesis.

H1: Firms with more directors with banking experience obtain favorable loan spreads.

Prior studies show that information asymmetry between borrowers and lenders may also affect the syndicated loan structure (Sufi, 2007; Ivashina, 2009). Directors with banking experience may increase the information flow between borrowers and lead arrangers, and lead arrangers can in turn provide more information to participant banks. Lenders can evaluate borrowers' risks based on a rich set of information, thereby reducing the risk uncertainty of borrowers. This may motivate both lead arrangers and participant banks to lend more to the borrower. Thus, the extent to which directors with banking experience influence the syndicated loan share is an empirical question. Our second hypothesis is as follows.

H2: Directors with banking experience have an impact on the proportion of syndicated loans retained by lead arrangers.

High quality accounting information reduces information asymmetry between management and investors. Baiman and Verrecchia (1996) develop a theoretical model to study the link between a firm's disclosure and cost of capital based on market liquidity and adverse selection in secondary markets. They establish the cost of capital through the determination of a firm's expected cash flow conditioned on the optimal level of disclosure. They argue that greater disclosure reduces the information asymmetry between informed managers and market makers. Others show that high quality financial reporting reduces information risk and liquidity. For instance, Lambert et al. (2007) indicate that improvements in information quality affect non-diversifiable risks and that a firm's beta factor is a function of its information quality and disclosures. Therefore, we expect firms facing more intense information asymmetry problems to experience the greatest benefits from having directors with banking-related experience on board. If the degree of information asymmetry is severe, we expect that boards of directors with experience in the banking sector may increase the information flow between firms and

lenders and thus reduce information asymmetry. Hence, we further expect that the impact of directors with banking experience on loan spreads and the proportion of loans retained by lead arrangers is more pronounced among firms with high information asymmetry. This leads to the third hypothesis.

H3a: Evidence of H1 is more pronounced among high information asymmetry firms.

H3b: Evidence of H2 is more pronounced among high information asymmetry firms.

IV. Data and Research Design

Sample Selection

We use a sample of syndicated loan deals from 2001 to 2014 in the U.S. We construct the sample from three different databases, DealScan, BoardEx, and Compustat. DealScan provides detailed information about syndicated loan deals, such as information regarding corporate borrowers, loan contract price and non-price terms, and loan contract structure. BoardEx provides comprehensive information related to boards of directors and senior executives all over the world. Compustat provides accounting and financial data of listed companies in the U.S.

Because there is either one facility or a package of several facilities on a loan contract in DealScan, we follow Kim et al. (2011b) and regard each facility as an individual observation. We start with a sample of 83,826 facilities, and then we eliminate observations where BoardEx data or Compustat financial information on borrowers needed to calculate our variables of interest is missing. We also exclude all financial firms (SICs between 6000 and 6999) from our sample. To remove the effect of the global financial crisis from our analysis, we further exclude loan facilities obtained in the years 2008 and 2009. The final sample consists of 7,738 facilities. Table 1 summarizes the sample selection.

Table 1 Sample Selection

	Observations
Initial sample from DealScan (Sample period: 2001-2014)	83,826
Remove observations without sufficient information from BoardEx and Compustat	(75,049)
Remove observations in the financial sector (SIC 6000-6999)	(251)
Remove financial crisis years (years 2008 and 2009)	(788)
Final sample	7,738

Empirical Model

Following prior research (Kim et al., 2011b; Cohen et al., 2014; Chan, Hsieh, Lee, and Yueh, 2015), we use equation (1) to test our prediction on the association between directors with banking experience and syndicated loans features.

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t \quad (1)$$

The dependent variable, *LOANFTE*, contains two indicators which are loan spread (*SPREAD*) and loan share of the lead arrangers (*PROPORTION*). *SPREAD*, the natural logarithm of all-in spread dawn, calculated as the annual spread paid over LIBOR or its equivalent, for each dollar drawn down from the loan, net of upfront fees. *PROPORTION* represents the loan share retained by the lead arrangers, which is calculated as the amount of a syndicated loan retained by the lead arrangers divided by the total amount of the syndicated loan.[5] The independent variable *BANKING* represents the total number of directors with banking experience.[6] A director with banking experience has previously worked or is currently working in the banking industry and now serves as the director of the firm.[7] We use the keywords BANK, BANCORP, BANKSHARES, FINANCIAL, FUND, TRUST, and INSURANCE to identify directors with banking experience.[8]

Loan-specific control variables include loan amount (*AMOUNT*), loan maturity (*MATURITY*), secured loan (*SECURED*), number of lead arrangers (*ARRANGERS*), and number of lenders (*LENDERS*). *AMOUNT* is the natural logarithm of the loan facility amount. *MATURITY* is the natural logarithm of the loan maturity measured in months. *SECURED* is the dummy variable, equal to 1 if a loan is secured and 0 otherwise. *ARRANGERS* is the total number of lead arrangers. *LENDERS* is the total number of

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5 To be more specific, we calculate *LOANSHARE* as the ratio of the amount of syndicated loans extended by a lead bank i to borrower j in year t to the total amount of syndicated loans issued by lead bank i during year t. *LOANSHARE* is computed at the facility level. For facilities with multiple lead banks, we average this measure across all the lead banks involved to get one ratio for each facility.

6 Results using whether or not a board has directors with banking experience lead to qualitatively similar conclusions.

7 The purpose of this paper is to examine whether boards of directors with prior or current experience in the banking sector have an impact on syndicated loan features. Since we focus neither on the effect of having independent directors with banking experience nor on board independence, we do not distinguish between independent and non-independent directors in our tests. Future research could consider whether independent directors with banking experience play a better monitoring or consulting role in firms' financing decisions.

8 One of the limitations of our study is that we do not consider the strength of directors' banking experience and banking directors' initial appointment. It is possible that directors with stronger banking experience and bankers who are appointed as directors for the first time have a greater influence on debt contract terms due to their industry connections or reputation concerns. Future research can further investigate the industry background of directors with banking experience and their tenure on board.

lenders. *CORPORATE* equals 1 if the loan is for corporate purposes and 0 otherwise. *REVOLVER* equals 1 if the specific tranche type is a revolver loan and 0 otherwise. *TERMLOAN* equals 1 if the specific tranche type is a term loan and 0 otherwise. The contract features *SPREAD* and *PROPORTION* are also controlled when they are not used as the dependent variable in equation (1). We also control for the industry and year fixed effects. To reduce the impact of extreme values, we winsorize the top and bottom 1% of variables, except for dummy indicators. Standard errors are clustered at the firm level to avoid residual serial correlation. Table 2 presents definitions of all variables. To test H1, we use *SPREAD* as the dependent variable in equation (1). We expect α_1 to be negative. To test H2, we use *PROPORTION* as the dependent variable and do not make any prediction about the sign of coefficient α_1, as both lead arrangers and participant banks are likely to increase their willingness to lend more to borrowers.

Table 2 Variables Definitions

Variable	Description	Source
BANKING	Number of directors with banking experience. Banking experience director is defined as a person who has previously worked or is currently working in the banking sector (e.g., banks, funds, trusts, and insurance companies) and he/she now serves as the director of a firm.	BoardEx
Loan-specific variables		
SPREAD	Natural logarithm of all-in spread drawn, which is total (fees and interest) annual spread paid over LIBOR or its equivalent for each dollar drawn down from the loan, net of upfront fees in basis points	DealScan
AMOUNT	Natural logarithm of the face value of facility in millions	DealScan
MATURITY	Natural logarithm of maturity measured in months	DealScan
SECURED	One if the loan is secured, zero otherwise	DealScan
ARRANGERS	Total number of lead arrangers in a loan facility	DealScan
LENDERS	Total number of lenders in a loan facility	DealScan
PROPORTION	Loan share retained by the lead arrangers	DealScan
CORPORATE	One if the loan is for corporate purpose, zero otherwise	DealScan
REVOLVER	One if the specific tranche type is a revolver loan, zero otherwise	DealScan
TERMLOAN	One if the specific tranche type is a term loan, zero otherwise	DealScan

Table 2 Variables Definitions (Continued)

Variable	Description	Source
Borrower characteristics variables		
SIZE	Natural logarithm of total assets in millions	Compustat
ROA	Return on total assets	Compustat
LEVERAGE	Ratio of total debts to total assets	Compustat
SOLVENCY	Ratio of current assets to current debts	Compustat
MB	Ratio of market value to book value of shareholder equity	Compustat
BIG4	One if the firm is audited by one of the Big 4 auditors, zero otherwise	Compustat
RDINTEN	One if the ratio of R&D expenditures divided by sales is larger than the yearly median value, zero otherwise	Compustat

Borrower characteristics include *SIZE*, *ROA*, *LEVERAGE*, *SOLVENCY*, *MB*, and *BIG4*. *SIZE* is the natural logarithm of total assets. *ROA* is the return of assets. *LEVERAGE* is the ratio of total debt divided by total assets. *SOLVENCY* is the ratio of current assets divided by current liability. *MB* is the ratio of market value to book value of the shareholder equity. *BIG4* is a dummy variable, equal to 1 if a firm is audited by one of the Big 4 auditing firm and 0 otherwise.

To test H3a and H3b, we further separate firms into two groups according to their information asymmetry level. Prior studies rely on different measures to capture information asymmetry between managers and investors (Sufi, 2007; Huddart and Ke, 2007; Armstrong, Core, Taylor, and Verrecchia, 2011). Some rely on market-based measures such as bid-ask spread and abnormal return. Others use analyst coverage and accounting-based measures such as R&D intensity and book-to-market ratio. Following prior studies, we use R&D intensity as a measure of information asymmetry for the following reasons. First, as banks rely on hard information that is easily verifiable to make lending decisions, accounting-based measures of information asymmetry are more relevant to our context. Second, R&D investments generate more uncertain future benefits compared to investments in fixed assets. The evaluation of such future earnings is difficult and requires additional effort by the lead arranger. Sufi (2007) shows that intense monitoring is associated with a higher proportion of loan shares retained by the lead arranger and a more concentrated syndicate. Thus, information asymmetry associated with R&D is likely to be priced in loan terms and to affect the syndicated structure. In our study, R&D intensity (*RDINTEN*) is measured as research and development expense divided by sales. The high (low) information asymmetry group

includes borrowers with *RDINTEN* greater (lower) than the yearly median of *RD*. We expect the negative coefficient of α_1 in the regression of loan spreads to exist mainly among the high information asymmetry group.

V. Empirical Results

Summary Statistics and Correlation Analyses

Panel A of Table 3 presents summary statistics of all variables. On average, each company has two directors with working experience in the banking industry. The mean value of the variable *SPREAD* is 4.994, indicating that borrowers pay 148 basis points over LIBOR. The mean values of *AMOUNT* and *MATURITY* are 5.887 and 3.759, meaning that borrowers obtain a facility amount of approximately 360 million U.S. dollars, and the average loan maturity is 43 months. The mean value of the variable *SECURED* is 0.478, suggesting that almost half of the loan facilities are secured.

For the variables of syndicated loan structure, *ARRANGERS*, *LENDERS*, and *PROPORTION*, the mean values are 1.979, 9.046, and 0.377 respectively, indicating that, on average, there are around two lead arrangers in each syndicated loan and a total of nine banks involved in a syndicated loan, as well as that lead arrangers retain 37.7% of the facility amount. The mean values of *CORPORATE*, *REVOLVER*, and *TERMLOAN* are 0.488, 0.610, and 0.258, respectively, suggesting that approximately half of the loan facilities are for corporate purposes, 61% are revolver loans and 25.8% are term loans. The control variable *BIG4*'s average value of 0.896 indicates that most of the firms are audited by one of Big 4 auditing firms.

In Panel B, we divide the sample into two sub-samples, high information asymmetry and low information asymmetry, based on R&D intensity (*RDINTEN*). There are 3,137 facilities in the high information asymmetry group and 4,601 facilities in the low information asymmetry group. We find that, on average, borrowers of low information asymmetry firms tend to have more directors with banking experience. This is consistent with Kroszner and Strahan (2001) who show that bankers sit on the boards of large companies with low information asymmetry. Comparing to borrowers in the low information asymmetry group, we find that, on average, borrowers in the high information asymmetry group are charged with lower interest rates (around 23 basis points over LIBOR lower) but obtain lower amounts of loans and shorter loan maturity. The lead arrangers retain around 2% more of facility amount in the high information asymmetry group, while there is no difference in *ARRANGERS* and *LENDERS* between high and low information asymmetry groups. The reason for these findings may be that higher R&D intensity implies not only higher information asymmetry but also higher growth firms.

Table 3 Summary Statistics

Panel A: Full Sample (Obs. = 7,738)

Variables	Mean	Min	25th pctl	Median	75th pctl	Max	Std Dev
BANKING	2.042	0.000	1.000	2.000	3.000	9.000	1.716
SPREAD	4.994	2.708	4.605	5.165	5.521	6.745	0.778
AMOUNT	5.887	1.609	5.011	5.966	6.856	9.582	1.333
MATURITY	3.759	0.693	3.584	4.094	4.094	4.564	0.610
SECURED	0.478	0.000	0.000	0.000	1.000	1.000	0.500
ARRANGERS	1.979	1.000	1.000	2.000	2.000	12.000	1.505
LENDERS	9.046	1.000	4.000	7.000	12.000	48.000	7.246
PROPORTION	0.377	0.029	0.144	0.257	0.500	1.000	0.296
CORPORATE	0.488	0.000	0.000	0.000	1.000	1.000	0.500
REVOLVER	0.610	0.000	0.000	1.000	1.000	1.000	0.488
TERMLOAN	0.258	0.000	0.000	0.000	1.000	1.000	0.438
SIZE	7.421	3.009	6.316	7.413	8.537	11.706	1.598
ROA	0.035	-0.508	0.012	0.041	0.076	0.368	0.089
LEVERAGE	0.291	0.000	0.146	0.273	0.403	1.975	0.208
SOLVENCY	1.900	0.163	1.122	1.592	2.308	9.415	1.189
MB	2.902	-36.324	1.324	2.114	3.405	84.916	4.760
BIG4	0.896	0.000	1.000	1.000	1.000	1.000	0.306
RDINTEN	0.405	0.000	0.000	0.000	1.000	1.000	0.491

Table 3 Summary Statistics (continued)

Panel B: Sample by Variable *RDINTEN*

	High information asymmetry (Obs. = 3,137)					Low information asymmetry (Obs. = 4,601)					Diff. in mean
Variables	Mean	25th pctl	median	75th pctl	Std Dev	Mean	25th pctl	median	75th pctl	Std Dev	values
BANKING	1.890	1.000	2.000	3.000	1.620	2.146	1.000	2.000	3.000	1.771	***
SPREAD	4.901	4.477	5.011	5.521	0.840	5.058	4.605	5.165	5.521	0.726	***
AMOUNT	5.828	4.887	5.927	6.908	1.397	5.926	5.011	5.990	6.802	1.286	***
MATURITY	3.717	3.584	4.094	4.094	0.646	3.788	3.584	4.094	4.094	0.583	***
SECURED	0.449	0.000	0.000	1.000	0.498	0.497	0.000	0.000	1.000	0.500	***
ARRANGERS	1.991	1.000	2.000	2.000	1.533	1.971	1.000	2.000	2.000	1.486	
LENDERS	8.931	4.000	7.000	12.000	7.382	9.125	4.000	7.000	12.000	7.151	
PROPORTION	0.389	0.155	0.280	0.500	0.300	0.369	0.143	0.250	0.500	0.293	***
CORPORATE	0.476	0.000	0.000	1.000	0.499	0.497	0.000	0.000	1.000	0.500	*
REVOLVER	0.592	0.000	1.000	1.000	0.492	0.623	0.000	1.000	1.000	0.485	***
TERMLOAN	0.256	0.000	0.000	1.000	0.437	0.260	0.000	0.000	1.000	0.439	
SIZE	7.379	6.308	7.414	8.512	1.586	7.449	6.319	7.412	8.557	1.606	*
ROA	0.035	0.008	0.047	0.083	0.098	0.036	0.014	0.038	0.070	0.082	
LEVERAGE	0.246	0.119	0.237	0.343	0.180	0.321	0.165	0.308	0.442	0.221	***
SOLVENCY	2.183	1.347	1.819	2.603	1.275	1.707	0.990	1.435	2.124	1.085	***
MB	3.404	1.561	2.485	3.868	5.774	2.559	1.241	1.914	3.032	3.883	***
BIG4	0.905	1.000	1.000	1.000	0.293	0.889	1.000	1.000	1.000	0.314	**

1. Panel A presents summary statistics of the full sample.
2. Panel B presents summary statistics of the sample partitioned by R&D intensity (*RDINTEN*).
3. *RDINTEN* greater than the yearly median is classified as the high information asymmetry group. Variable definitions are in Table 2.
4. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Table 4 Correlation Matrix

	BANKING	*SPREAD*	*AMOUNT*	*MATURITY*	*SECURED*	*ARRANGERS*	*LENDERS*	*PROPORTION*	*CORPORATE*	*REVOLVER*	*TERMLOAN*	*SIZE*	*ROA*	*LEVERAGE*	*SOLVENCY*	*MB*	*BIG4*	*RDINTEN*
BANKING	1.00																	
SPREAD	-0.25***	1.00																
AMOUNT	0.29***	-0.20***	1.00															
MATURITY	-0.12***	0.24***	0.11***	1.00														
SECURED	-0.22***	0.50***	-0.18***	0.23***	1.00													
ARRANGERS	0.13***	0.11***	0.47***	0.17***	-0.06***	1.00												
LENDERS	0.23***	-0.28***	0.58***	0.02*	-0.18***	0.29***	1.00											
PROPORTION	-0.13***	0.34***	-0.32***	-0.02*	0.18***	0.21***	-0.57***	1.00										
CORPORATE	0.05***	0.01	0.06***	0.10***	-0.15***	0.16***	-0.01	0.06***	1.00									
REVOLVER	-0.03***	-0.12***	-0.12***	0.24***	-0.03**	-0.05***	-0.01	-0.09***	0.11***	1.00								
TERMLOAN	-0.08***	0.35***	0.06***	0.23***	0.22***	0.10***	-0.07***	0.16***	-0.03***	-0.74***	1.00							
SIZE	0.44***	-0.39***	0.75***	-0.12***	-0.38***	0.37***	0.52***	-0.30***	0.13***	-0.09***	-0.09***	1.00						
ROA	0.03**	-0.33***	0.12***	0.02	-0.23***	0.01	0.10***	-0.14***	-0.03***	0.06***	-0.10***	0.06***	1.00					
LEVERAGE	0.06***	0.20***	0.24***	0.05***	0.12***	0.16***	0.07***	0.00	0.08***	-0.17***	0.17***	0.18***	-0.21***	1.00				
SOLVENCY	-0.19***	0.07***	-0.22***	0.09***	0.07***	-0.08***	-0.20***	0.16***	-0.04***	0.06***	0.01	-0.27***	0.10***	-0.31***	1.00			
MB	0.04***	-0.13***	0.06***	-0.03**	-0.06***	0.02	0.07***	-0.02**	-0.03***	-0.03**	-0.02*	0.01	0.18***	-0.02**	-0.02	1.00		
BIG4	0.10***	-0.12***	0.21***	0.05***	-0.11***	0.14***	0.15***	-0.12***	0.03**	0.01	-0.01	0.26***	0.05***	0.03***	-0.03**	0.00	1.00	
RDINTEN	-0.07***	-0.10***	-0.04***	-0.06***	-0.05***	0.01	-0.01	0.03***	-0.02*	-0.03***	0.00	-0.02*	-0.01	-0.18***	0.20***	0.09***	0.03**	1.00

1. This table presents Pearson correlation matrix for all variables.
2. Variable definitions are in Table 2.
3. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Table 4 presents the correlation matrix. The variable *BANKING* is negatively related to *SPREAD* and *PROPORTION*, which suggests that having more directors with banking experience reduces loan spreads and that lead arrangers retain a lower share of facility amount. We find that *SPREAD* is negatively associated with *AMOUNT* but positively associated with *MATURITY*. Regarding loan structure, *SPREAD* is negatively correlated with *LENDERS* but positively correlated with *ARRANGERS* and *PROPORTION*. These findings suggest that less concentrated loans are associated with lower loan spreads, while higher loan spreads are charged for longer maturity.

We also find that *SIZE* is negatively correlated with *SPREAD*, *MATURITY*, and *SECURED* and positively correlated with *AMOUNT* and *CORPORATE*. These findings suggest that larger firms obtain lower loan spreads, larger facility amount, shorter maturity, and more corporate purpose loans and that their loans are less likely to be secured. *RDINTEN* is negatively related to *SPREAD*, *AMOUNT*, *MATURITY*, and *SECURED*, while it is positively correlated with *PROPORTION*. These findings suggest that, among high information asymmetry borrowers, banks reduce their risks by providing lower loan amounts and shorter loan maturity. Moreover, the finding suggests that for the higher information asymmetry firms, lead arrangers tend to retain higher loan shares among borrowers with greater information asymmetry.

Test of Hypothesis 1

Table 5 presents the result of testing H1 using loan spreads as the dependent variable in equation (1). *SPREAD* is the natural logarithm of all-in spread drawn. After controlling for loan-specific features, borrower characteristics, and year and industry fixed effects, the coefficient of *BANKING* for *SPREAD* is negative and significant at the 5% level (-0.016, *t*-value = -2.13), which suggests that the number of directors with banking experience has a negative effect on loan spreads. The result implies that directors with banking experience may assist firms to receive a favorable loan price term in the syndicated loan market. This result is consistent with our prediction and the findings of Baiman and Verrecchia (1996) and Lambert et al. (2007), which indicate that lower ex-ante information risk reduces the cost of external financing.

Among the control variables, we find that the coefficients of *AMOUNT*, *MATURITY*, *SECURED*, *ARRANGERS*, *PROPORTION*, *REVOLVER*, *TERMLOAN*, and *LEVERAGE* are significantly positive, while the coefficients of *LENDERS*, *CORPORATE*, *SIZE*, *ROA*, and *MB* are significantly negative. The findings of the association between *SPREAD* and firm-specific characteristics are generally consistent with prior literature (Graham, Li, and Qiu, 2008; Kim, Song, and Zhang, 2011a; Kim et al., 2011b; Fields et al., 2012).

Table 5 The Effect of the Number of Directors with Banking Experience on Syndicated Loan Spreads

	Coefficient	t-statistics
Intercept	5.912***	25.92
BANKING	-0.016**	-2.13
AMOUNT	0.023*	1.80
MATURITY	0.043**	1.96
SECURED	0.395***	17.55
ARRANGERS	0.028***	3.36
LENDERS	-0.007***	-3.19
PROPORTION	0.121***	2.67
CORPORATE	-0.046***	-2.75
REVOLVER	0.089**	2.53
TERMLOAN	0.384***	9.83
SIZE	-0.154***	-10.96
ROA	-1.588***	-12.26
LEVERAGE	0.476***	6.96
SOLVENCY	0.005	0.58
MB	-0.008***	-3.64
BIG4	0.010	0.32
Fixed effects		
Industry	Yes	
Year	Yes	
Observations	7,738	
Adjusted R^2	0.5951	

1. The table represents the result of the following regression:

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t$$

2. The dependent variable is loan spreads (*SPREAD*).
3. Variable definitions are in Table 2. Standard errors are clustered at the firm level.
4. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Test of Hypothesis 2

Table 6 provides the result of testing H2. The coefficient of *BANKING* is insignificant (0.002, *t*-value = 1.11), which suggests that the number of directors with banking experience may not influence the proportion of loans retained by the lead arranger. Our explanations for this finding are as follows. Directors with banking experience may facilitate the information flow between borrowers and banks, reducing the degree of information asymmetry (Sufi, 2007; Ivashina, 2009). Thereby, lead

arrangers may hold a larger share of syndicated loans. However, lead arrangers may also transfer more information to participant banks, which they receive from directors with banking experience. Participant banks then obtain a richer set of information to evaluate borrowers' risks and thereby reduce the risk uncertainty of borrowers. As a result, participant banks may also be willing to lend more to borrowers with directors with banking experience on the board. These two opposite effects offset each other. Thus, we find that the effect of the number of directors with banking experience on the loan shares of lead arrangers is not significant.

Table 6 The Effect of the Number of Directors with Banking Experience on Proportion of Loan Facility Retained by Lead Arrangers

	Coefficient	t-statistics
Intercept	0.859***	11.93
BANKING	0.002	1.11
SPREAD	0.019***	2.66
AMOUNT	-0.053***	-10.97
MATURITY	-0.068***	-8.23
SECURED	0.027***	3.69
ARRANGERS	0.079***	23.20
LENDERS	-0.021***	-24.14
CORPORATE	-0.013**	-2.08
REVOLVER	0.005	0.42
TERMLOAN	0.056***	4.18
SIZE	0.007*	1.65
ROA	-0.126***	-2.73
LEVERAGE	0.001	0.04
SOLVENCY	0.007**	2.00
MB	0.002**	2.04
BIG4	-0.042***	-3.21
Fixed effects		
Industry	Yes	
Year	Yes	
Observations	7,738	
Adjusted R^2	0.5586	

1. The table represents the result of the following regression:

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t$$

2. The dependent variable is loan shares (*PROPORTION*).
3. Variable definitions are in Table 2. Standard errors are clustered at the firm level.
4. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Among the control variables, we find that the coefficients of *SPREAD*, *SECURED*, *ARRANGERS*, *TERMLOAN*, *SIZE*, *SOLVENCY*, and *MB* are significantly positive, while the coefficients of *AMOUNT*, *MATURITY*, *LENDERS*, *CORPORATE*, *ROA*, and *BIG4* are significantly negative. In other words, lead arrangers tend to hold larger proportions of loans for large, high financial risk, and high growth borrowers.

Test of Hypothesis 3a

Table 7 presents the result of testing H3a using loan spreads as the dependent variable in equation (1). We divide the sample into two sub-samples, high information asymmetry and the low information asymmetry, based on R&D intensity (*RDINTEN*). In the high information asymmetry group, the coefficient of *BANKING* is negative and significant at the 1% level (-0.037, *t*-value = -2.85), while we do not find a similar result in the low information asymmetry group. Untabulated results show that the difference in the coefficient of *BANKING* between the high and low information asymmetry groups is significant (*t*-value = 2.28). The result indicates that having more directors with banking experience could reduce information asymmetry between borrowers and lenders, resulting in lower syndicated loan spreads, especially among firms with greater information asymmetry between management and investors. The adjusted R-square is 64.53% in the high information asymmetry group and 56.49% in the low information asymmetry group. Overall, the findings are consistent with H3a.

Of the borrowers' characteristics, we find that in both the high and low information asymmetry groups, the coefficient of *LEVERAGE* is significantly positive, while the coefficients of *SIZE*, *ROA*, and *MB* are significantly negative, which are consistent with the results in Table 5.

Test of Hypothesis 3b

Table 8 reveals the result of testing H3b relating to loan shares of lead arrangers between high and low information asymmetry groups. In the high information asymmetry group, the coefficient of *BANKING* is positive and significant at the 10% level (0.006, *t*-value = 1.79), while we do not find a similar result in the low information asymmetry group. The result suggests that the more directors with banking experience on the board, the larger is the proportion of loans retained by lead arrangers for the high information asymmetry firms, while there exists no such effect in the low information asymmetry firms. The adjusted *R*-square is 57.42% in the high information asymmetry group and 55.85% in the low information asymmetry group. These findings imply that directors with banking experience play a greater role in debt contracting when borrowers face greater information asymmetry.

Table 7 The Effect of the Number of Directors with Banking Experience on Syndicated Loan Spreads in the High Information Asymmetry Group and in the Low Information Asymmetry Group based on R&D intensity

	High information asymmetry		Low information asymmetry	
	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	5.887***	24.37	5.675***	22.56
BANKING	-0.037***	-2.85	-0.004	-0.51
AMOUNT	0.027	1.27	0.039**	2.56
MATURITY	0.029	0.84	0.045*	1.66
SECURED	0.387***	11.36	0.368***	12.69
ARRANGERS	0.031**	2.11	0.021**	2.07
LENDERS	-0.003	-0.80	-0.010***	-4.43
PROPORTION	0.088	1.24	0.159***	2.75
CORPORATE	-0.047*	-1.74	-0.043**	-2.10
REVOLVER	0.118**	2.10	0.043	1.00
TERMLOAN	0.408***	6.48	0.324***	6.86
SIZE	-0.202***	-9.17	-0.121***	-6.92
ROA	-1.631***	-9.18	-1.572***	-8.98
LEVERAGE	0.725***	5.62	0.349***	4.60
SOLVENCY	0.006	0.50	0.005	0.39
MB	-0.007***	-2.74	-0.006**	-2.04
BIG4	0.076	1.29	-0.041	-1.12
Fixed effects				
Industry	Yes		Yes	
Year	Yes		Yes	
Observations	3,137		4,601	
Adjusted R^2	0.6453		0.5649	

1. The table presents the result of the following regression:

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t$$

2. The dependent variable is loan spreads (*SPREAD*).
3. The subgroups are classified by the variable *RDINTEN*.
4. Variable definitions are in Table 2. Standard errors are clustered at the firm level.
5. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Table 8 The Effect of the Number of Directors with Banking Experience on Proportion of Loan Facility Retained by Lead Arrangers in the High Information Asymmetry Group and in the Low Information Asymmetry Group based on R&D intensity

	High information asymmetry		Low information asymmetry	
	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	1.046***	10.67	0.781***	8.70
BANKING	0.006*	1.79	0.001	0.39
SPREAD	0.014	1.23	0.026***	2.75
AMOUNT	-0.061***	-7.71	-0.047***	-7.69
MATURITY	-0.083***	-7.03	-0.055***	-5.09
SECURED	0.048***	3.98	0.016*	1.74
ARRANGERS	0.080***	14.48	0.078***	19.65
LENDERS	-0.021***	-13.66	-0.021***	-20.79
CORPORATE	-0.030***	-2.97	-0.002	-0.31
REVOLVER	0.026	1.44	-0.010	-0.64
TERMLOAN	0.074***	3.60	0.041**	2.42
SIZE	0.012*	1.83	0.004	0.76
ROA	-0.159**	-2.41	-0.050	-0.77
LEVERAGE	0.020	0.47	-0.010	-0.38
SOLVENCY	0.009*	1.79	0.007	1.21
MB	0.002***	3.06	0.000	-0.01
BIG4	-0.043**	-2.05	-0.045***	-2.78
Fixed effects				
Industry	Yes		Yes	
Year	Yes		Yes	
Observations	3,137		4,601	
Adjusted R^2	0.5742		0.5585	

1. The table represents the result of the following regression:

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t$$

2. The dependent variable is loan shares (*PROPORTION*).
3. The subgroups are classified by the variable *RDINTEN*.
4. Variable definitions are in Table 2.
5. Standard errors are clustered at the firm level.
6. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Among the control variables, we find that in the high information asymmetry group, the coefficient of *SECURED*, *ARRANGERS*, *TERMLOAN*, *SIZE*, *SOLVENCY*, and *MB*

are significantly positive, while the coefficient of *AMOUNT*, *MATURITY*, *LENDERS*, *CORPORATE*, *ROA*, and *BIG4* are significantly negative. In the low information asymmetry group, we find that borrower characteristics are generally not associated with the proportion of loan held by lead arrangers, except *BIG4*.

Additional Analyses

Alternative measure of information asymmetry

Following Kothari, Shu, and Wysocki (2009), we use the market-to-book ratio (*MB*) as our alternative proxy for information asymmetry. Firms with higher *MB* are generally associated with greater growth opportunities, which may increase information asymmetry between management and investors. The group of high (low) information asymmetry contains firms with *MB* higher (lower) than the yearly median value. There are 3,870 facilities in the high information asymmetry group and 3,868 facilities in the low information asymmetry group.

Table 9 reports the result of loan spreads. In the high information asymmetry group, the coefficient of *BANKING* is negative and significant at the 1% level (-0.026, *t*-value = -3.11), while we do not find similar evidence in the low information asymmetry group. The adjusted R-square of the high information asymmetry group is greater than that of the low information asymmetry group. Table 10 shows the result of the proportion of loans retained by the lead arrangers. The coefficient of *BANKING* is positive and significant at the 10% level based on a one-tailed test and is insignificant in the low information asymmetry group. These findings generally are consistent with the results using R&D intensity (*RDINTEN*) as a proxy for the degree of information asymmetry between management and investors. Directors with banking experience are likely to alleviate information asymmetry between borrowers and lenders, especially when the borrowers' business operation is associated with more uncertainty, such as greater investments in R&D or future growth opportunities.

Control for governance mechanisms

The presence of directors with banking experience on corporate boards may be correlated with other governance mechanisms such as board size (Yermark, 1996) and board independence (Rosenstein and Wyatt, 1990). We further control for board size and the percentage of independent directors in all regressions. Untabulated results show that in the regression of loan spreads, the coefficient of *BANKING* is significantly negative among high information asymmetry borrowers (-0.025, *t*-value = 1.92), while we do not find such evidence in the low information asymmetry group. For the regression of loan

shares, the coefficient of *BANKING* remains positive and significant among the high information asymmetry group after controlling for board size and independence of directors (0.007. *t*-value = 1.67). Overall, these findings are consistent with our predictions that the effect of the presence of directors with banking experience on the loan price term and syndicated structure is more pronounced among borrowers with greater information asymmetry.

Table 9 The Effect of the Number of Directors with Banking Experience on Syndicated Loan Spreads in the High Information Asymmetry Group and in the Low Information Asymmetry Group based on the market-to-book ratio

	High information asymmetry		Low information asymmetry	
	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	5.593***	38.57	5.764***	27.21
BANKING	-0.026***	-3.11	-0.004	-0.50
AMOUNT	0.047***	2.69	0.027*	1.72
MATURITY	0.055**	2.12	0.010	0.32
SECURED	0.387***	13.04	0.373***	13.30
ARRANGERS	0.028**	2.42	0.007	0.82
LENDERS	-0.006**	-2.23	-0.007**	-2.58
PROPORTION	0.105*	1.71	0.200***	3.51
CORPORATE	-0.031	-1.44	-0.046**	-2.04
REVOLVER	0.065	1.51	0.054	1.19
TERMLOAN	0.338***	7.10	0.342***	6.78
SIZE	-0.225***	-12.51	-0.080***	-4.97
ROA	-1.430***	-7.94	-1.351***	-8.92
LEVERAGE	0.626***	6.62	0.368***	5.25
SOLVENCY	0.011	1.02	-0.010	-0.86
BIG4	0.059	1.43	-0.062	-1.59
Fixed effects				
Industry	Yes		Yes	
Year	Yes		Yes	
Observations	3,870		3,868	
Adjusted R^2	0.6742		0.5190	

1. The table represents the result of the following regression:

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t$$

2. The dependent variable is loan spreads (*SPREAD*).
3. The subgroups are classified by the variable *MB*.
4. Variable definitions are in Table 2.
5. Standard errors are clustered at the firm level.
6. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.

Table 10 The Effect of the Number of Directors with Banking Experience on Proportion of Loan Facility Retained by Lead Arrangers in the High Information Asymmetry Group and in the Low Information Asymmetry Group based on the market-to-book ratio

	High information asymmetry		Low information asymmetry	
	Coefficient	t-statistics	Coefficient	t-statistics
Intercept	0.931***	11.66	0.700***	7.49
BANKING	0.004#	1.35	0.000	0.09
SPREAD	0.017*	1.71	0.035***	3.50
AMOUNT	-0.060***	-9.27	-0.047***	-6.77
MATURITY	-0.084***	-8.35	-0.050***	-4.11
SECURED	0.039***	3.74	0.012	1.23
ARRANGERS	0.073***	17.20	0.083***	16.42
LENDERS	-0.018***	-16.81	-0.024***	-20.44
CORPORATE	-0.020**	-2.31	-0.012	-1.43
REVOLVER	0.017	1.09	0.002	0.14
TERMLOAN	0.066***	3.67	0.049***	2.66
SIZE	0.010*	1.73	0.006	0.97
ROA	-0.195***	-2.85	-0.072	-1.12
LEVERAGE	-0.048	-1.54	0.018	0.62
SOLVENCY	0.008*	1.78	0.002	0.45
BIG4	-0.033*	-1.73	-0.045***	-2.80
Fixed effects				
Industry	Yes		Yes	
Year	Yes		Yes	
Observations	3,870		3,868	
Adjusted R^2	0.5651		0.5646	

1. The table represents the result of the following regression:

$$LOANFTE_t = \alpha_0 + \alpha_1 BANKING_t + \alpha_2 Loan\_features_t + \alpha_3 Borrower\_characteristics_{t-1} + Industry + Year + \varepsilon_t$$

2. The dependent variable is loan shares (*PROPORTION*).
3. The subgroups are classified by the variable *MB*.
4. Variable definitions are in Table 2. Standard errors are clustered at the firm level.
5. ***, **, and * indicate significance level of 1%, 5%, and 10% based on two-tailed test.
6. # indicates significance level of 10% based on one-tailed test.

Endogeneity

As governance is both a cause and an outcome of a firm's contractual relationships, the potential endogeneity is a common concern in corporate governance research. A

common way to control for endogeneity concerns is to re-estimate all regressions with lagged *BANKING*. The relationship between lagged *BANKING* and next year's loan spreads have signs and significance levels similar to the associations observed in the main tests. Specifically, the coefficient of lagged *BANKING* is significant at the 5% level (-0.0158, *t*-value = -2.13) in both the full sample and the high information asymmetry group (-0.040, *t*-value = -3.18). In the regression of loan shares, the coefficient of lagged *BANKING* remains insignificant in the full sample and is significant at the 10% level in the high information asymmetry group (0.007, *t*-value = 1.87).

Another approach to control for endogeneity is to conduct a two-stage instrumental variable approach. We run a first-stage model that estimates the observed number of directors with banking experience. We use the average age of non-executive directors as an instrument variable and all previously used controls. The predicted number of directors with banking experience (*BANKINGHAT*) from the first stage then replace *BANKING* in our second-stage model. The results for our second-stage model produce similar conclusions, suggesting that having directors with banking experience on corporate boards is associated with favorable loan spreads, especially among borrowers with high information asymmetry. In the regression of loan spreads, the coefficient of *BANKING* is significantly negative in both the full sample (-0.040, *t*-value = -2.72) and the high information asymmetry group (-0.084, *t*-value = -3.62). In addition, in the regression of loan share, the coefficient of *BANKING* is positive and significant in the high information asymmetry group (0.019, *t*-value = 1.92), consistent with our main finding that lead arrangers offer borrowers with high information asymmetry a larger loan share.

VI. Conclusion

We use a sample of U.S. borrowers comprising 7,738 facilities from the year 2001 to 2014 (excluding the years 2008 and 2009 to avoid the impact of the financial crisis) to investigate the effect of boards of directors with prior or current experience in the banking industry on the pricing of syndicated loan terms and the structure of syndicates. We provide empirical evidence showing that firms with more directors with working experience in the banking industry enjoy favorable syndicated loan spreads, while there is no evidence of such an effect on the proportion of loans held by lead arrangers. We further investigate whether directors with banking experience play an important role in debt contracting when firms face higher information asymmetry between management and stakeholders. We provide evidence showing that the negative association between loan spreads and directors with banking experience exists mainly among borrowers with

high information asymmetry, while there is no such evidence among low information asymmetry borrowers. In addition, we also find a positive association between the proportion of loans retained by lead arrangers and directors with banking experience among borrowers with high information asymmetry, while we do not find similar evidence for the low information asymmetry borrowers.

Overall, the results suggest that directors with prior or current experience in the banking industry facilitate communication between borrowers and lenders, which could alleviate information asymmetry and thereby is associated with lower loan spreads. Such a result is more likely to occur when borrowers face severe information asymmetry between management and stakeholders. The findings imply that directors with banking experience provide debt market expertise and help firms to obtain financing from banks, which would in turn lead to lower loan spreads charged by lenders and greater loan shares held by lead arrangers. The benefits of having directors with banking experience will be greater for firms facing severe information asymmetry.

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