



Assessing the Influence of Standard & Poor's on Loan Syndication in the Financial Market

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Abstract

This study aims to examine the relationship between a borrower's credit rating and the structure of a syndicated loan. A syndicated loan is a type of loan that is provided by a group of lenders, rather than just one. The study used data on 5,106 syndicated loans that were initiated between 1996 and 2017. The findings showed that borrowers with a higher credit rating were more likely to attract more lenders to provide financing. Additionally, when the borrower had a poor credit rating, the lead arranger (the bank that coordinates the syndicated loan) tended to hold a larger proportion of the loan compared to when the borrower had a good credit rating. Overall, the findings of this study indicate that the credit rating of a borrower can significantly influence the structure of a syndicated loan by reducing potential conflicts of interest between the lead banks and other participating lenders.

JEL-code: G10, G20, G24, G32

Keywords: credit rating; syndicated loan; information asymmetry; lead bank; participant bank.

1. Introduction

Syndicated loans are a type of financing in which multiple lenders provide funding to a borrower using a common loan agreement, managed by a correspondent bank known as the lead arranger. This arrangement allows borrowers to raise capital more quickly and cost-effectively compared to traditional bilateral loans, which involve a direct lending relationship between the borrower and a single lender. However, the relationship between the borrower and the participant banks in a syndicated loan is indirect, as these banks rely on the lead arranger for information about the borrower and the loan agreement. This creates a situation of information asymmetry, with the lead arranger having more detailed knowledge about the borrower and the loan agreement compared to the participant banks. Theoretical models of agency and moral hazard, such as those proposed by Holmstrom (1979) and

Holmstrom and Tirole (1997), suggest that the role of the lead arranger is crucial in mitigating the risks associated with this information asymmetry by providing due diligence and supervision. As such, syndicated loans are becoming an increasingly popular option for large enterprises seeking to access capital.

The occurrence of information asymmetry between the lead bank and the participant bank in a syndicated loan arrangement can potentially lead to the lead bank retaining a disproportionate amount of high-quality loans while assigning a smaller portion of low-quality loans to the participant bank. This behavior can have long-term negative consequences for the lead bank, including reputational damage and a decline in market position. The information asymmetry between the arranger bank and the participant banks can manifest in the forms of adverse selection and moral hazard. In the case of adverse selection, the lead bank may use its superior information to manipulate the proportion of syndicated loans, causing harm to the participant bank. On the other hand, if the lead bank does not retain a certain percentage of the loan, it may lack the incentive to properly oversee and manage the loan, leading to a situation of moral hazard.

To mitigate these issues, it is essential for participant banks to accurately assess the default risk of corporate borrowers through tools such as credit ratings. Nakamura and Roszbach (2016) have found that credit ratings contain valuable private information that can be useful for loan decisions using Swedish commercial bank data. Credit ratings provide a way for banks to gauge the reliability and credibility of borrowers' information and assess the risk of default. An improvement in a borrowing company's credit rating can lead to more favorable loan terms and a reduction in the regulatory burden, while a deterioration in ratings may result in tighter lending conditions. Research has also shown that borrowing firms with safer internal credit ratings tend to have lower interest rate premiums (Machauer and Weber, 1998), and changes in public ratings can affect the pricing of non-investment grade sovereign bonds (Cantor and Packer, 1996). Additionally, Moody's rating downgrade announcements have been found to lead to a decrease in bond valuations (Kliger and Sarig, 2000). By using credit ratings to assess the default risk of borrowing companies, participant banks can effectively address issues related to adverse selection and moral hazard in syndicated loans.

The potential for agency problems in syndicated loans can lead participant banks to ask the lead bank to keep a large portion of the loan in order to mitigate these issues (Dennis and Mullineaux 2000; Lee and Mullineaux 2004; Sophie, 2007; Ball et al. 2008). This study aims to examine the impact of a borrowing firm's credit rating on the structure of a syndicate. In particular, the research aims to examine the following: 1- The credit rating of the borrowing firm will influence the number of participating lender banks in a syndicated loan. Specifically, borrowing firms with higher credit ratings are likely to have a larger number of participating lender banks compared to those with lower credit ratings. 2- The lead bank is more likely to retain a larger percentage of a syndicated loan when the borrowing firm has a lower credit rating compared to when the borrowing firm has a higher credit rating. Overall, this research aims to examine the relationship between a borrowing firm's credit rating and the structure of a syndicate in a syndicated loan arrangement.

There are several reasons why this study is interesting and useful. First, credit ratings have been found to be negatively correlated with abnormal stock returns during periods of negative announcements (Liu and Malatesta, 2005). In the context of syndicated loans, credit ratings may be used as observable signals of a borrower's risk and included into other risk factors, such as audit quality, when forming a syndicate (Sufi 2007; Ball et al. 2008; Graham et al., 2008; Kim, 2011 b). This study aims to examine whether credit rating significantly impacts the structure of a syndicate after controlling for known factors. Second, syndicated loans are a popular and cost-effective method of lending for participant banks, and the demand for these loans is increasing (Pennachi, 1988). Hanh (2015) found that the ability to adjust the syndicate structure in order to limit liquidity risk exposure can mitigate negative consequences on loan supply. This study argues that a higher credit rating, which reflects the creditworthiness of issuers and obligations (S&P, 2009), can improve the attractiveness of a borrowing firm to potential participant banks and reduce concerns about agency problems caused by information asymmetry. Therefore, it is hypothesized that borrowing firms with favorable credit ratings will have more participating lender banks and a smaller proportion retained by the lead arranger compared to those with poor credit ratings.

To test the hypotheses, this study used detailed data from DealScan and Compustat on syndicated loans, including information on loan and borrower characteristics. The sample for this study consisted of 2,100 unique companies and 5,106 loans with non-missing data from 1996 to 2017. The results of the sample regression indicated that syndicated loans for borrowers with favorable credit ratings tend to attract more lending banks and are less concentrated compared to those for borrowers with poor credit ratings. This aligns with the idea that higher credit ratings reflect greater creditworthiness and can reduce information asymmetry in loan contracts.

Additionally, the study found that the signal value of a credit rating is lower if the borrower's audit quality has already been assessed by the lenders. In this case, stakeholders in the syndicate may be more interested in whether the credit rating can promote the syndicate and alleviate financial constraints for the borrowing firm.

Overall, this study provides evidence that credit ratings play a role in reducing information asymmetry in syndicated loans, particularly between the lead arranger and participant banks. The study begins by reviewing relevant literature and proposing hypotheses, followed by the development of an empirical model and testing of the hypotheses. The data sources and descriptive statistics for the sample are then described, and the results of the multivariate tests on the role of credit ratings in the syndicate structure are presented. The paper concludes with a summary of the findings.

2. Literature Review and Hypothesis Development

2.1 The Economic Consequences of Credit Rating

Prior studies have investigated the implications of varying credit ratings on various facets of a borrowing firm. S&P Global Ratings (2009) have noted that higher credit ratings reflect enhanced creditworthiness and reduced default risk. Hollis et al. (2006) discovered that a decrease in a corporate credit rating can result in a decrease in the mean distribution of the firm's future cash flow or an increase in the variance of future cash flow, leading to heightened default risk. Furthermore, Allen et al. (2019) acknowledged the crucial role of credit rating agencies in detecting accounting fraud, given their access to non-public information.

Empirical evidence indicates that a decrease in credit ratings can result in increased borrowing costs (Matthew, 2001), a requirement for additional collateral (Morsman, 1986; Hempel, Coleman, and Simonson, 1986), higher spreads (Jian and Richard, 2005), reduced accrual quality, and decreased earnings timeliness (Ashbaugh-Skaife, Collins, and Lafond, 2006). The credit ratings process also considers a company's accounting practices and compliance with accounting standards in determining its creditworthiness (Standard & Poor's Rating Services, 2006). As a result, credit ratings provide a comprehensive evaluation of a company's credit status.

The attainment of high credit ratings can yield numerous tangible and intangible benefits for a borrowing firm, as noted by Mahlmann (2009), who suggested that credit rating helps to minimize future bond issuance costs. Borrowing firms may also leverage the discretion afforded by Generally Accepted Accounting Principles (GAAP) to attain a higher credit rating (Demirtas and Rodgers-Cornaggia, 2013; Gounopoulos and Pham, 2017). Moreover, An and Chan (2008) found that credit rating has a significant association with initial public offering (IPO) pricing, as it serves to mitigate uncertainty and information asymmetry in the IPO markets.

2.2 Syndicate Loan

There is a body of financial and banking literature that examines the relationship between monitoring and loan syndicate structure. Given the inherent uncertainty surrounding credit risk, it is important to conduct thorough investigations and monitoring before lending. To address this issue, Claudia and Frank (2011) suggested that the lead bank should retain a larger proportion of the syndicate loan in order to provide incentives and eliminate concerns about moral hazard. This allows the lead bank to demonstrate the credit quality of borrower firms and their commitment to monitoring and risk management by retaining a share of the loan and exposing themselves to credit risk (Sufi, 2007; Ivashina, 2009).

Agency problems in loan sales are similar to those in syndicated loans. If the loan is sold without recourse or guarantee, the selling bank lacks an incentive to provide adequate credit information and supervision. Gorton and Pennachi (1995) proposed a theory of loan sales in which the selling bank retains a fraction of the loan not only to provide buyers with an implicit guarantee against default but also to demonstrate its commitment to evaluating the borrower's creditworthiness. The selling bank and the buyer in a loan sale are analogous to the lead bank and the participant bank in a syndicated loan.

Esty and Megginson (2003) suggest that reducing participant banks in a loan syndicate, particularly in countries with strong governance laws, can improve the quality of monitoring. They argue that creating smaller, more concentrated loan syndicates is more conducive to effective monitoring. However, it is worth noting that this perspective may not necessarily hold true in all cases and further research may be needed to fully understand the relationship between the size and concentration of loan syndicates and monitoring effectiveness.

When there is a significant discrepancy between the control of a borrower's major shareholders and the right to cash flow, creditors may be more inclined to diversify their investments, leading to more concentrated loan syndicates and higher proportions retained by the lead bank (Chen et al. 2012). However, the cost of renegotiating loans can be high, leading to an opposite trend between the number of participant banks and abnormal returns after loan announcements (Preece and Mullineaux, 1996). Lee and Mullineaux (2004) found that creating smaller, more concentrated loan syndicates can reduce resistance from participant banks or coordination issues in the renegotiation process.

The relationship between the structure of a loan syndicate and non-price loan conditions has also been studied. For large loan syndicates, loan terms tend to be longer, but when monitoring is incorporated into loan pricing, loan spreads may be lower due to restrictions on setting spreads (Coleman et al., 2006). Structural differences in loan syndication can also vary by region. Champagne and Coggins (2012) found that loan spreads in the European market have less impact on syndicate structure compared to the American market. In the Asian market, where transparency may be lacking, lead banks may be more likely to take advantage of their information advantage over participant banks in order to adjust the loan proportion for their own benefit.

2.3 Information about Borrower and Leader

Sufi (2007) analyzed the factors that impact the relationship between lead banks and potential participant banks in a syndicate. The study found that a closer relationship between the lead bank and participant banks increases the likelihood of the participant becoming a member of the syndicate. However, the prior relationship between the participant bank and the borrowing firm was found to be more important than the historical relationship between the

lead arranger and other participant banks. Sufi (2007) suggested that when borrower information is not transparent, participant banks are more likely to select a no-lead bank based on their familiarity with the borrowing company rather than their familiarity with the lead bank. This is because the lead bank may have an exclusive relationship with the borrower prior to the signing of the contract, allowing them to gain access to private information that is unknown to participant banks. This can lead to the lead bank retaining a higher proportion of high-quality loans while selling more low-quality loans (Ball et al., 2008).

The findings of Sufi (2007) is also aligned with the results of IPO literature by Corwin and Schultz (2005), which suggested that the prior relationship between the lead bank and participant banks is not a significant factor in the agency problems that can arise in syndicated loans. The research found that for borrowers with unreliable or no credit, syndicated loans tend to be more concentrated, with the lead bank accounting for a larger proportion of the loan, similar to a single loan model. On the other hand, syndicated loans for firms with a good reputation tend to be less concentrated, with the lead bank retaining a smaller proportion.

Sufi (2007) found that on average, there are 4.5 more lenders in a loan syndicate for companies that are rated for the first time compared to those that are not. In particular, lenders with limited access to information about borrowing companies accounted for 60% of borrowers' growth. The literature also suggests that when a borrowing firm has a high probability of default and poor information quality, syndicated loans tend to be more concentrated and involve more lenders (Lee and Mullineaux, 2004). These findings suggest that a borrowing company's reliable credit or high information quality can alleviate information asymmetry in syndicated loans. However, there is a lack of research on how credit ratings specifically impact the structure of a loan syndicate. This study aims to fill this gap by examining the relationship between credit ratings and the number of participant banks and the fraction retained by the lead bank in a syndicate.

The lead arranger plays a critical role in a syndicated loan. Dennis and Mullineaux (2000) argued that when the lead arranger has a favorable reputation, they tend to establish a syndicated loan, and the fraction of the syndicate retained by the lead arranger is higher when the borrowing firm has

public information. Some literature suggests that participant banks can use the past performance of the lead arranger in terms of non-performing loans to understand their filtering and monitoring abilities. For example, Gopala et al. (2011) found that after a large number of borrowing companies go bankrupt (i.e., more than 10% of the outstanding commercial loans of the arranger bank are to bankrupt borrowers), arranger banks tend to increase the fraction of syndicated loans they retain. While this result may reflect the effectiveness of the arranger bank in terms of screening and monitoring abilities, it is based on a rare event that also reflects the inherent riskiness of the borrower. On the other hand, Ball et al. (2008) and Anna et al. (2019) suggested that participant banks can use the accounting information of borrowing companies and the commercial and industrial (C&I) loan-loss provision validity of the lead arranger to assess their supervision and screening efforts. A higher C&I loan-loss provision validity (indicating better screening and monitoring effectiveness) of the lead arranger is associated with more concentrated syndicated lending. Therefore, information about the lending bank can impact the structure of the syndicate.

2.4 Hypothesis Development

Prior research has identified two types of information asymmetry in syndicated loans: (1) between the borrower and the group of lenders, and (2) within the group of lenders themselves, particularly between the lead arranger and other participant banks. To address this issue, the lead arranger, who possesses more private information about the borrower, must provide impartial service. This is crucial in resolving information asymmetry within the syndicate (Dennis and Mullineaux, 2000).

Due to the presence of information asymmetry, participant banks may adopt certain strategies to safeguard their interests, which may be at risk due to potential problems such as moral hazard and adverse selection. These strategies may include the implementation of stricter financial loan contracts or an increase in non-financial loan contracts, the requirement for lead banks to retain a larger portion of the syndicated loans, and the decision to not participate in or withdraw from syndicated loans.

Previous studies have demonstrated that syndication of loans is more likely to occur for credit-rated borrowers or those traded on the open market (Sufi, 2007). This is because the rating and transparency of transaction information increases the reliability of the information provided by the borrowing company, which protects participating banks from losses due to information asymmetry, and safeguards them against misdirection and exploitation by the lead arranger. As a result, potential participant banks are more likely to join syndicated loans in such cases. A higher credit rating for the borrower company also reduces banks' uncertainty about the borrower's future, thereby easing lenders' concerns and mitigating the likelihood of adverse selection and moral hazard problems.

Based on this, it can be hypothesized that companies with higher credit ratings will attract more banks to participate in syndicated loans designed for them compared to companies with lower credit ratings. Thus, the following hypothesis can be formulated:

H1: There is a positive association between credit rating and syndicate size.

The presence of information asymmetry between the lead arranger and participant banks in loan syndicates is caused by adverse selection and moral hazard problems. Adverse selection arises when the lead arranger has access to credit risk information that the participant bank does not have, as the lead arranger negotiates with the borrower company and creates the information memorandum. In cases where the lead arranger has unfavorable private information about the borrower, they may be more likely to syndicate larger portion of the loan, potentially causing harm to the participating bank. Moral hazard occurs when the lead arranger has reduced incentives to monitor the loan, as they no longer bear the burden of the syndicate. This is consistent with the ideas proposed by Holmstrom and Tirole (1997), suggesting that the lead arranger may have an incentive to avoid the responsibility of monitoring, especially when strict supervision is needed, as the effects of monitoring are unobservable and costly. Sufi (2007) suggests that the lead arranger should retain a larger share to mitigate the problems caused by information asymmetry. For borrowers with a reputation for transparency due to repeated exposure to the market, the lead arranger's share of the loan may decrease as the borrower's reputation is established. Previous studies have found that lead arrangers tend to retain a larger share where borrowers require stricter

monitoring, particularly for those new to the loan market. The information transparency of borrowers can be seen as the "severity" of information asymmetry, and there is a significant negative correlation between the fraction of the loan retained the lead arranger and the information transparency of the borrower. Thus, the lead arranger should maintain a larger proportion of the loan when the information quantity of the borrower is insufficient, effectively compensating for the borrower's deficiency in information quality by retaining a larger share of the loan. This leads to the following hypothesis:

H2: There is a negative association between credit rating and the fraction of loan held by the lead arranger.

3. Sample and Descriptive Statistics

3.1 Sample and Data Sources

To construct our initial sample, we collected financial data from Compustat, loan data from DealScan, and corporate data collected by AuditAnalytics. DealScan provides information about Reuters LPC's comprehensive database for the bank loan market, including information about borrowers, lenders, guarantors, the purpose and type of loans, and loan amounts. Therefore, we used DealScan as the source for our loan information. For the credit ratings and financial information of borrowers, we extracted this data from Compustat. After merging the data from Compustat and DealScan, and excluding companies in the financial industry and those that were not rated, our final sample consisted of 2,100 unique companies and 5,106 loans with complete data for the period from 1996 to 2017. The present study centers on the sample in light of DealScan's heightened comprehensiveness after 1996. In addition, it is noteworthy that the Link file, which facilitates the matching of DealScan with Compustat, terminates in 2017.

3.2 Empirical Model

To assess the influence of a borrower's credit rating on the structure of a loan syndicate, we specify the following regression:

$$\text{Syndicate_Structure}_{ijt} = \alpha_0 + \alpha_1 C_Rating_{it} + \alpha_2 Firm\ Controls_{ijt} + \alpha_3 Loan\ Control_{ijt} + \alpha_4 + (Year\ FE) + (Industry\ FE) + error_{ijt} \quad (1)$$

In this regression, *i* refer to firm, *j* refers to loan, and *t* refers to time. The dependent variable, *Syndicate_Structure*, represents either the share of the lead arranger in the loan syndicate (*Lead_Share*) or the number of lenders in the loan syndicate (*Num_Lenders*). In a loan syndicate with multiple lead arrangers, the lead arranger's share is calculated as the average of these lead arrangers (Sufi, 2007). The independent variable *Rating* is constructed using S&P domestic long-term issuer credit ratings. S&P Global Ratings evaluates the creditworthiness of obligors by assigning a rating to their senior debt obligations, which ranges from AAA (the highest) to D (indicating default on debt payments). For our analysis, the multiple ratings are condensed into seven categories following Ashbaugh-Skaife et al. (2006). Ratings lower than BBB- are considered speculative by S&P. Specifically:

- AAA (highest rating) maps to a rating score of 7 and a grade of "Investment"
- AA+ maps to a rating score of 6 and a grade of "Investment"
- AA maps to a rating score of 6 and a grade of "Investment"
- AA- maps to a rating score of 6 and a grade of "Investment"
- A+ maps to a rating score of 5 and a grade of "Investment"
- A maps to a rating score of 5 and a grade of "Investment"
- maps to a rating score of 5 and a grade of "Investment"
- BBB+ maps to a rating score of 4 and a grade of "Investment"
- BBB maps to a rating score of 4 and a grade of "Investment"
- BBB- maps to a rating score of 4 and a grade of "Investment"
- BB+ maps to a rating score of 3 and a grade of "Speculative"
- BB maps to a rating score of 3 and a grade of "Speculative"
- BB- maps to a rating score of 3 and a grade of "Speculative"
- B+ maps to a rating score of 2 and a grade of "Speculative"
- B maps to a rating score of 2 and a grade of "Speculative"
- maps to a rating score of 2 and a grade of "Speculative"
- CCC+ maps to a rating score of 1 and a grade of "Speculative"
- CCC or CC maps to a rating score of 1 and a grade of "Speculative"
- C maps to a rating score of 1 and a grade of "Speculative"
- D or SD maps to a rating score of 1 and a grade of "Speculative".

When analyzing the lead arranger's share of the syndicate, the dependent variable "Lead_Share" is used. The coefficient for "C_Rating" represents the impact of the borrower's rating on the lead arranger's percentage of the loan. Similarly, when looking at the number of banks involved in the syndicate, the dependent variable "Num_Lenders" captures the difference in the number of lenders based on the borrower's rating. As per our hypothesis, the coefficient for credit rating is expected to be negative for "Lead_Share" ($H1: \alpha_1 < 0$) and positive for "Num_Lenders" ($H2: \alpha_1 > 0$).

To identify the relation between credit rating and syndicated loan structure, two types of control variables are included in the equation, namely Loan-specific Controls and Borrower-specific Controls. Loan-specific controls are included to account for factors associated with the structure of syndicated loans that may impact the outcome variables. This includes both price term and non-price term variables such as Maturity, Loan Spread, Secured, Term, Revolver, relationship lending (Prior_relation) and the number of covenants (Num_cov). These variables are considered based on previous literature in the field of syndicated loans that have identified their significance (Lee and Mullineaux, 2004; Kim and Song, 2011).

Second, Borrower-specific controls are included in Equation (1) to isolate the potential impact of firm-specific factors on the number of participating banks and the percentage of the lead arranger in the syndicate. These controls capture important firm-specific characteristics that are not related to the credit rating of the borrower but may still affect the structure of the syndicated loan. To control for borrower-specific factors that may affect credit quality, we include a set of control variables in our model: Firm Size, Leverage, ROA, Market to book ratio (MTB), and whether the borrower is audited by a big 4 auditor. FirmSize is measured using total sales, Leverage is the ratio of long-term debt to total assets, ROA is income before extraordinary items divided by average total assets, and MTB is the market value of assets divided by the book value of assets.

To further control for potential differences in the syndicated loan structure associated with different years and industries, we include Year Fixed Effects and Industry Fixed Effects in our model. Year Fixed Effects allow us to control for any variations in the syndicated loan structure that may be due to differences between years, while Industry Fixed Effects allow us to control for any variations that may be due to differences between industries. Finally, robust standard errors are used to account for heteroskedasticity.

By including Loan- and borrower-specific controls in the analysis as well as the fixed effects, we can account for these specific effects and focus more accurately on the impact of credit ratings on the structure of the syndicated loan. This helps to avoid omitted variable bias and ensures that the coefficient on the credit rating variable is capturing only the effect of the credit rating on the outcome variables of interest.

3.3 Descriptive Statistics

As shown in Table 1, the descriptive statistics of our key variables, loan features, and borrower features. The mean number of lenders (Num_Lenders) in a syndicated loan is approximately 10.244, with a standard deviation of 9. The mean and median proportions of the lead arranger (Lead_Share) in a syndicated loan are approximately 18.26% and 12%, respectively. These results suggest that, on average, a syndicated loan involves approximately 10 banks, with the lead bank retaining an average of 18.26% of the loan amount.

The C_Rating variable has a mean of 3.486, indicating that the average credit rating in our sample is BB. The median C_Rating of four suggest that a large proportion of the syndicated loans in our sample were provided to borrowers with generally good credit ratings. This is consistent with previous research suggesting that loans made to borrowers are more likely to be syndicated when they have higher credit ratings or are traded on the open market (Dennis and Mullineaux, 2000; Sufi, 2007). Overall, these descriptive statistics provide a general overview of the syndicated loan market and the characteristics of the loans in our sample.

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Table 1
Summary Statistics

	N	Mean	Median	SD	P25	P75
C_Rating	12596	3.486	4.000	1.203	3.000	4.000
Lead_share	3326	18.262	12.000	18.167	8.500	20.000
Num_lenders	12596	10.244	8.000	9.099	4.000	14.000
Size (sales)	12593	11559.178	3207.397	28067.089	1171.116	9534.462
ROA	12593	0.022	0.032	0.097	0.007	0.061
LEV	12586	0.395	0.356	0.218	0.252	0.491
MTB	10793	1.574	1.360	0.742	1.128	1.760
bigN	12596	0.965	1.000	0.183	1.000	1.000
Spread	12596	197.037	160.000	158.461	85.000	275.000
Maturity	12596	49.916	60.000	26.190	36.000	60.000
Secured	12596	0.422	0.000	0.494	0.000	1.000
Term	12596	0.324	0.000	0.468	0.000	1.000
Revolver	12596	0.527	1.000	0.499	0.000	1.000
Num_cov	6106	2.043	2.000	1.024	1.000	3.000
Prior_relation	12155	1.305	1.000	1.549	0.000	2.000

This table presents the mean, p25, median, p75, and standard deviation of our main variables, loan features, and borrower features. The details of the definitions and measurements of all the variables are reported in Appendix A.

In the study, the average loan maturity was determined to be 49 months with a median of 60 months. The mean and median of the all-in spread (AIS) were found to be approximately 197 and 160 basis points, respectively. A majority of the loans (42%) in the sample were found to have collateral, while 32% were term credits and 52% were revolving loans. The analysis of financial covenants (Num_cov) included in the loan agreement revealed that the mean and median were approximately 2.04 and 2, respectively.

The analysis of borrower characteristics showed that the average sales revenue of the borrowing company was \$11,555 (in thousands). The mean and median of the leverage ratio were approximately 0.39 and 0.36, respectively, indicating that long-term debt and debt in current liabilities accounted for approximately 39% of total assets. The return on assets ratio was determined to be 0.02, indication that the net income before extraordinary items makes up 2% of total assets. The market value of assets to book value

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of assets was found to be 1.5 on average, indicating that the market perceives the assets as being worth more than their original cost.. The variable Prior_Relation indicated that the borrower had an average of 1 previous loan deal with the lead bank in the past five years. In accordance with prior research, 98% of the borrowers were audited by one of the Big4 auditors.

Table 2
Univariate analysis

	<u>Speculative</u>		<u>Investment</u>		Diff. in Means	p-value
	Mean	Std. Dev.	Mean	Std. Dev.		
C_Rating	2.437	0.620	4.474	0.659	2.037	0.000
Lead_share	24.014	23.022	15.685	14.804	-8.329	0.000
Num_lenders	8.266	9.608	12.107	8.166	3.841	0.000
Size (sales)	3996.533	10604.960	18684.439	36324.186	14687.906	0.000
ROA	-0.007	0.124	0.048	0.051	0.055	0.000
LEV	0.492	0.249	0.304	0.129	-0.188	0.000
MTB	1.470	0.653	1.665	0.802	0.195	0.000
bigN	0.939	0.239	0.990	0.100	0.050	0.000
Spread	284.031	160.090	115.085	103.814	-168.946	0.000
Maturity	56.505	22.923	43.710	27.527	-12.795	0.000
Secured	0.749	0.434	0.113	0.317	-0.636	0.000
Term	0.483	0.500	0.173	0.379	-0.310	0.000
Revolver	0.477	0.500	0.573	0.495	0.096	0.000
Num_cov	2.453	1.089	1.592	0.714	-0.861	0.000
Prior_relation	1.147	1.465	1.457	1.612	0.310	0.000

The table presents the summary statistics by rating category. In this table, I follow S&P and classify ratings below BBB- (4) as speculative. While the means of the differences between "Investment" grade loan "Speculative" grade are also reported. The details of definitions and measurements of all the other variables are reported in the Appendix A. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

3.4 Univariate Comparisons

The credit rating of companies is often not randomly assigned, as it is based on the financial health and creditworthiness of the company. As a result, the characteristics of the company, such as sales revenue, leverage ratio, and financial covenants, are likely to covary with the credit rating. In addition, the loan syndicate structure could also be simultaneously determined with other loan characteristics. This means that the composition of the loan syndicate and the terms of the loan may be interdependent and not randomly assigned. Table 2, provides empirical evidence on that. In this table, the C_Rating is further collapsed into two categories: investment grade and speculative. Specifically, I follow S&P and classify ratings below BBB- (4) as speculative. The table provides clear evidence that companies with different rating are different on several dimensions as outlined above. Therefore, it is important to control for these variables in order to accurately identify the relationship between the treatment variable and the outcome variable. By controlling for variables that are not randomly assigned, researchers can reduce the risk of omitted variable bias and improve the validity of their results. This helps to ensure that the causal relationship between the treatment and outcome variables is accurately estimated and that the results are robust and reliable.

3.5 Correlation Matrix

Table 3 shows the Pearson correlation coefficient between loan characteristics variables and borrower characteristics variables in the empirical model. The number of lenders (Num_Lenders) is significantly and positively correlated with the credit rating (Rating) at the 1% level, with a magnitude of 0.24, indicating that a borrower with higher rating (or "Investment" grade) attracts more banks to support the loan. On the other hand, the credit rating (C_Rating) has a significant and negative correlation with the proportion of the lead arranger (Lead_Share) at the 1% level, with a magnitude of -0.23. This negative correlation implies that compared to a borrower with a low rating (or Speculative grade), the lead arranger will retain a smaller percentage of a syndicated loan when the borrower has better rating (or "Investment" grade). In addition to the correlation between independent and dependent variables, there is also a significant correlation between the dependent variables. The Lead_Share variable has a negative correlation with the Num_Lenders variable indicating that in a syndicated loan, the larger the

number of participant banks, the smaller the proportion of the lead arranger. Num_Lenders has a positive correlation with loan amount, maturity, and revolver; and a negative correlation with spread, covenants, secured status, and term. Meanwhile, Lead_Share has a negative correlation with loan amount, maturity, and revolver; and a positive correlation with AIS, secured, term, and covenants. These correlations suggest that syndicated loans with a small proportion of loans retained by the lead arranger tend to have longer maturities, larger loan amounts, fewer collateral requirements, fewer covenants, and lower spread.

We find that there is a positive correlation between the Lead_Share variable and the Leverage variable, and a negative correlation between the Lead_Share variable and the Firm Size and ROA variables. Also, borrowing firms with higher rating (or "Investment" grade) tend to have larger firm sizes, higher returns on assets, and lower leverage. Additionally, we find that the Prior_Relation variable has a positive correlation with the Num_Lenders variable, indicating that borrowing firms with more historic transactions with the lead arranger in the past five years tend to attract more participant banks in the syndicated loan. Finally, we find that the Big4 variable has a positive correlation with the Num_Lenders variable and a negative correlation with the Lead_Share variable. This suggests that borrowing firms with auditors from the Big 4 (or previous Big 5 or Big 6) tend to have more participant banks in the syndicated loan and a smaller proportion of the loan retained by the lead arranger.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. investment	-															
2. C_Rating	.85***	-														
3. Lead share	-.21***	-.23***	-													
4. Num_lenders	.21***	.24***	-.56***	-												
5. Size	.26***	.33***	-.09***	.15***	-											
6. ROA	.28***	.40***	-.12***	.11***	.08***	-										
7. LEV	-.43***	-.51***	.16***	-.15***	-.18***	-.35***	-									
8. MTB	.13***	.22***	-0.02	-0.01	-.05***	.28***	-.03***	-								
9. Misreport	-.13***	-.13***	.04**	-.06***	-.05***	-.09***	.07***	-.07***	-							
10. bigN	.14***	.15***	-.11***	.06***	.04***	.05***	-.07***	.05***	0	-						

11. spread	-.53***	-.58***	.29***	-.29***	-.14***	-.35***	.39***	-.18***	.09***	-.11***	-						
12. Maturity	-.24***	-.22***	-.09***	-.02**	-.04***	.03***	.11***	-0.01	.03***	-.03***	.14***	-					
13. Secured	-.64***	-.60***	.22***	-.19***	-.17***	-.23***	.35***	-.11***	.10***	-.11***	.50***	.31***	-				
14. Term	-.33***	-.32***	.25***	-.18***	-.02**	-.11***	.26***	-.03***	.05***	-.05***	.44***	.37***	.40***	-			
15. Revolver	.10***	.07***	-.21***	.14***	-.05***	.04***	-.15***	-.03***	-0.01	.02**	-.26***	.05***	-.16***	-.72***	-		
16. Num_cov	-.42***	-.39***	.14***	-.02*	-.21***	-.09***	.21***	-.07***	.10***	-.05***	.28***	.14***	.41***	.22***	-.11***	-	
17. Relation_num	.10***	.12***	-.20***	.16***	.09***	.07***	-.06***	0	-.02**	.02*	-.16***	-.03***	-.10***	-.12***	.10***	-.16***	

The table presents the Pearson Correlation Matrix between each variable. The definitions of variables are reported in Appendix A. The heteroskedasticity-robust t-statistics in parentheses.

*, **, *** Denote significance at 10%, 5%, and 1% level levels, respectively.

4. Regression Results

4.1 Number of Participant Banks: Test of H1

Table 4 shows the results of a regression analysis examining the relationship between the number of participating banks (Num_Lenders) in a syndicated loan and the credit rating of the borrowing firm (C_Rating) as well as various loan and borrower characteristics (loan-specific and borrower-specific control variables). The results show that a higher credit rating is associated with a higher number of participating banks in the syndicate (coeff=0.69), and this relationship is statistically significant at the 1% level.

The results of the borrower-specific variables show that Leverage and ROA have negative association with Num_Lenders, with coefficients of -0.85 and -1.38 respectively. The variable Prior_Relation, which reflects the borrower's historical interaction with the arranger, has a positive coefficient with Num_Lenders (0.677) and is significant at the 1% level, indicating that participant banks prefer to join syndicates to relationship borrowers. The coefficient for the variable Big4, which represents the presence of a Big 4 (or previous Big 5 or Big 6) auditor, is significantly positive (1.94) at the 1% level, indicating that borrowers with auditors from Big 4 firms have larger syndicates.

Taken together, the results from the regression in Table 4 show that borrowers with a higher credit rating are more likely to attract more banks in a syndicated loan, after controlling for other loan-specific and borrower-specific variables. The effect of the borrower's credit rating on the syndicated structure is statistically significant.

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Table 4		
Table 4: Relation between Credit Rating and Syndicated Structure		
	Num lenders	Lead Share
C_Rating	0.694*** (0.001)	-1.383** (0.033)
Size	2.434*** (0.000)	-2.521*** (0.001)
ROA	-0.855 (0.572)	-3.619 (0.467)
LEV	-1.379* (0.088)	-0.615 (0.830)
MTB	-0.216 (0.289)	0.431 (0.463)
BigN	1.945*** (0.007)	-17.215*** (0.000)
Spread	-0.009*** (0.000)	0.027*** (0.000)
Maturity	0.074*** (0.000)	-0.160*** (0.000)
Secured	-1.248*** (0.001)	2.680** (0.015)
Term	-1.375** (0.024)	11.365*** (0.000)
Revolver	-0.061 (0.904)	-1.233 (0.389)
Num_cov	0.482*** (0.002)	-0.391 (0.455)
Prior_relation	0.677*** (0.000)	-1.518*** (0.000)
Num.Obs.	5106	2051
R ²	0.153	0.264
Std.Errors	IID	IID
FE: Industry	X	X
FE: Year	X	X

The table presents the regression results on the effect of a credit rating on the syndicated loan structure. The indicator variable Rating that equals 1 if the S&P credit rating grade of the borrower is "Investment", and 0 otherwise. All the other variables are defined in Appendix A. P-values in parentheses. *, **, *** Denote significance at 10%, 5%, and 1% level levels, respectively.

4.2 The Proportion of the Lead Arranger: Test of H2

The results in Table 4 (Column 2) of the estimation of Equation (1) with Lead Share as the dependent variable show that the credit rating of the borrower has a significant negative impact on the percentage of the lead arranger in the syndicate. This result supports the hypothesis that the lead arranger will hold a smaller fraction of loans syndicated to borrowers with a higher credit rating and the effect is statistically significant at the 5% level (coeff 1.38, p.value<0.05). Column 2 of Table 4 also reports the coefficients of the control variables with respect to. It was found that variables such as Maturity, and covenants have a negative coefficient with Lead Share. Additionally, the variable spread has a positive coefficient with Lead Share. These results suggest that syndicated loans with larger loan amounts, longer maturities, lower interest rates, and fewer financial covenants tend to have a smaller percentage of the lead arranger in the syndicate. The variable Revolver is also negatively associated with Lead Share, although it is insignificant. On the other hand, the variable Term has a positive coefficient with Lead Share, which is significant at the 1% level. These results indicate that syndicated loans that are more likely to be term loans tend to have a higher percentage of the lead arranger in the syndicate.

According to the results presented in Column 2 of Table 4, the firm size, leverage, and return on assets variables are negatively correlated with Lead Share (LEV and ROA are not statistically significant). The variable representing the borrower's prior deals, or historical transactions with the lead arranger, is negatively correlated with Lead Share, with a coefficient of -1.518, which is statistically significant at the 1% level. It is noteworthy that the absolute value of the coefficient for the Big4 variable, which represents whether the borrower's auditor is from the Big4 accounting firm, is very large at (-17.21) and is statistically significant at the 1% level. This suggests that when the borrower does not have an auditor from the Big4 firm, the lead arranger may take a larger portion of the syndicated loan. This structure may also explain why 97% of borrowers in syndicated loans have auditors from the Big4 firm, as shown in Table 1.

Taken together, the results of Table 4, column 2, demonstrate that there is a significant negative relationship between the credit rating of the borrowing firm and the proportion of the syndicated loan retained by the lead arranger. This suggests that when the credit rating of the borrowing firm is lower, the lead arranger is more likely to retain a larger proportion of the loan in order to alleviate the concerns of participant banks about information asymmetry. This relationship remains significant even after controlling for other factors that may affect information risk, such as the audit quality of the borrower. Overall, these findings suggest that the credit rating of the borrowing firm plays a significant role in determining the structure of a syndicated loan.

5. Further Analysis

5.1 Does Other Information about Borrower Matter?

The lead arranger may accumulate more information about the borrowing firm, including some private information, due to its past dealings with the firm, which reduces the cost of investigation and monitoring. The number of prior deals in the past five years (*Prior_relation*) and the audit quality of the borrowing firm (*Big4*) are both expected to affect the level of information asymmetry, and therefore mitigate the effect of credit rating on syndicate structure.

Studies on syndicated loans (Kim and Song, 2011; Sufi, 2007) have shown that factors beyond credit ratings, such as the quality of the borrowing firm's auditing team, can significantly impact the structure of a syndicate at the time of loan creation. According to agency and moral hazard theories (Holmstrom, 1979; Holmstrom and Tirole, 1997), participant banks that are "uninformed" about a borrowing firm may rely on the "informed" lead arranger's due diligence and supervision. However, the cost of this supervision cannot be observed, so the lead arranger may choose to retain a larger share of the loan to compensate the participants (Sufi, 2007). Audit

quality helps participant banks to alleviate the agency problem caused by information asymmetry. Research by Kim and Song (2011) suggests that the credibility and reliability of a borrowing firm's financial information increases with the quality of its auditors, and high-quality audit teams enable potential investors to assess the financial status of borrowing firms before syndicated loans are initiated. High-quality auditors may also reduce the accounting choices available for management to avoid covenant violations (e.g., DeFond and Jiambalvo, 1994; Sweeney, 1994). Several studies have shown that high-quality audit teams have positive economic consequences in the IPO market (e.g., Beatty, 1989; Willenborg, 1999).

The regression results of TABLE 4 show that *Prior_relation* and *Big4* are both positively related to the number of lenders (*Num_Lenders*) and negatively associated with the proportion of the lead arranger (*Lead_share*) in a syndicated loan. The presence of high-quality auditors and prior dealings with the borrowing firm can help alleviate the agency problem caused by information asymmetry in loan syndication and may reduce the impact of a high credit rating on the syndicate structure.

5.1.1 Moderating Effect of Prior Deals

To investigate the moderating effect of *Prior_relation* on the relationship between credit rating and syndicated loan structure, we added the interaction term *C_Rating*Prior_relation* to Equation (1) and re-estimated the regression.

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Table 5		
Relation between Credit Rating and Syndicated Structure: Prior Information		
	<i>Num lenders</i>	<i>Lead Share</i>
C_Rating	0.702*** (0.002)	-2.251*** (0.002)
Prior_relation	0.700** (0.021)	-4.136*** (0.000)
C_Rating × Prior_relation	-0.007 (0.936)	0.693*** (0.006)
Size	2.436*** (0.000)	-2.587*** (0.001)
ROA	-0.864 (0.569)	-3.273 (0.510)
LEV	-1.377* (0.088)	-0.964 (0.736)
MTB	-0.216 (0.291)	0.360 (0.540)
BigN	1.945*** (0.007)	-17.191*** (0.000)
Spread	-0.009*** (0.000)	0.026*** (0.000)
Maturity	0.074*** (0.000)	-0.160*** (0.000)
Secured	-1.249*** (0.001)	2.696** (0.015)
Term	-1.375** (0.024)	11.423*** (0.000)
Revolver	-0.061 (0.905)	-1.220 (0.394)
Num_cov	0.482*** (0.002)	-0.308 (0.557)
Num.Obs.	5106	2051
R ²	0.153	0.267
Std.Errors	IID	IID
FE: Industry	X	X
FE: Year	X	X

The table presents the regression results on the effect of a credit rating on the structure of a syndicated loan, controlling for historical transactions between the borrower and the lead bank in the past five years. Where $C_Rating * Prior_relation = C_Rating \times Prior_relation$. The indicator variable C_Rating that equals 1 if the S&P credit rating grade of the borrower is "Investment", and 0 otherwise. All the other variables are defined in Appendix A. P-values are in parentheses. Significance at the 10%, 5%, and 1% level is indicated by *, **, and ***, respectively.

The results of the regression analysis in TABLE 5 show that the

interaction term $C_Rating * Prior_relation$ has a negative impact on the number of lenders ($Num_Lenders$), as indicated by the negative coefficient of -0.007. However, when the dependent variable is the proportion of the lead arranger ($Lead_share$), the coefficient for $C_Rating * Prior_relation$ is positive. These results are consistent with our hypothesis that the impact of the borrower's credit rating would be mitigated when the lead arranger has a history of transactions with the borrower and therefore has more information about them.

5.1.2 Moderating Effect of Big4

To investigate the moderating effect of Big4 on the relationship between credit rating and syndicated loan structure, we added the interaction term $C_Rating * Big4$ to Equation (1) and re-estimated the regression.

TABLE 6
The relation between Credit Rating and Syndicated Structure: Audit Quality

	<i>Num lenders</i>	<i>Lead Share</i>
C_Rating	2.131** (0.023)	-13.808*** (0.000)
bigN	5.482** (0.021)	-49.913*** (0.000)
C_Rating × bigN	-1.470 (0.117)	12.629*** (0.000)
Size	2.432*** (0.000)	-2.529*** (0.001)
ROA	-0.863 (0.568)	-3.515 (0.477)
LEV	-1.359* (0.093)	-1.051 (0.713)
MTB	-0.207 (0.310)	0.327 (0.576)
BigN	-0.009*** (0.000)	0.024*** (0.000)
Spread	0.074*** (0.000)	-0.164*** (0.000)
Maturity	-1.269*** (0.001)	2.769** (0.012)
Secured	-1.417** (0.020)	11.861*** (0.000)
Term	-0.074 (0.883)	-0.910 (0.524)
Revolver	0.470*** (0.002)	-0.232 (0.657)
Prior_relation	0.675*** (0.000)	-1.504*** (0.000)
Num.Obs.	5106	2051
R ²	0.154	0.272
Std.Errors	IID	IID
FE: Industry	X	X
FE: Year	X	X

The table presents the regression results on the effect of a credit rating on a syndicated loan structure, controlling the incumbent auditor of a borrower whether auditors come from one of the Big 4 (or previously Big 5 or Big 6). Where $C_Rating*Big4 = C_Rating \times Big4$. The indicator variable Rating that equals 1 if the S&P credit rating grade of the borrower is "Investment", and 0 otherwise. All the other variables are defined in Appendix A. P-values are in parentheses. *, **, *** Denote significance at 10%, 5%, and 1% level levels, respectively.

The results from TABLE 6 show that the credit rating of the borrower has a significant effect on the number of lending banks (Num_Lenders) in a syndicated loan. Specifically, the interaction term $C_Rating*Big4$ has a negative coefficient (-1.470) with Num_Lenders. Also, when Lead_share is the dependent variable, the interaction term $C_Rating* Big4$ has a positive coefficient (12.629) and is significant at the 1 percent level. Taken together, these results suggest that the impact of the credit rating of the borrower on the syndicated loan structure is less pronounced when the borrower is audited by a big 4 auditor or when the lead arranger has accumulated information about the borrower through prior dealings and the borrower has a high-quality audit team.

5.2 Alternative Measure of Firm Size

Previously, we have used total sales as a measure of firm size in our analysis. To ensure the robustness of our results, we have also tested the effect of using total assets as a measure of firm size on our regression results. As shown in Panel A of Table 7, the results of the test variable C_Rating with the number of lending banks and the share of the lead arranger remain similar to the previous results shown in Table 4, For the sake of brevity, control variables are omitted.

5.3 Effect of Corporate Governance

Corporate governance factors can significantly affect a company's creditworthiness and, consequently, its syndicate structure. Credit rating agencies typically evaluate a company's governance structure as part of their assessment of the company's credit risk. Good governance practices, such as transparent financial reporting and effective board oversight, can signal to lenders that a company is well-managed and has a lower risk of defaulting on its debt obligations. On the other hand, poor governance practices can increase a company's credit risk and result in a change in syndicate structure.

Therefore, when regressing syndicate structure on credit rating, it is important to control for governance because failing to do so could result in a biased estimate of the relationship between credit rating and syndicate structure. Controlling for governance can help isolate the effect of credit rating on syndicate structure, allowing for a more accurate analysis of the relationship between these two variables.

Therefore, I use ISS data to measure corporate governance using the percentage of independent directors. For the sake of brevity, control variables are omitted from the tables. As shown in Panel B of Table 7, the main results after controlling corporate governance factors remains unaffected. This result indicates that the above results are robust after controlling governance factors.

5.4 Effect of Misreporting

Misconduct in financial reporting, such as the manipulation of earnings, can lead to restatements in financial statements and potentially affect the syndicated loan structure (Graham et al., 2008). To ensure that this does not impact the results of the study, we included a variable for misreporting in the regression analysis – see Panel C of Table 8. The inclusion of the misreporting variable did not significantly change the results, indicating that they are robust and not influenced by this factor.

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TABLE 7		
Robustness Tests		
Panel A: Alternative Proxies for Borrower Size		
	<i>Num lenders</i>	<i>Lead Share</i>
C_Rating	0.899*** (0.000)	-1.257* (0.058)
Size (assets)	0.966*** (0.000)	-2.513*** (0.001)
Controls	Y	Y
Num.Obs.	5106	2051
R ²	0.145	0.264
Std.Errors	IID	IID
FE: Industry	Y	Y
FE: Year	Y	Y
* p < 0.1, ** p < 0.05, *** p < 0.01		
Pane B: Effect of Corporate Governance		
	<i>Num lenders</i>	<i>Lead Share</i>
C Rating	0.546** (0.032)	-2.250*** (0.006)
% Independent directors	0.483 (0.803)	1.621 (0.786)
Controls	Y	Y
Num.Obs.	3454	1394
R ²	0.172	0.263
Std.Errors	IID	IID
FE: Industry	Y	Y
FE: Year	Y	Y
* p < 0.1, ** p < 0.05, *** p < 0.01		
Pane C: Effect of Misreporting		
	<i>Num lenders</i>	<i>Lead Share</i>
C_Rating	0.673*** (0.001)	-1.387** (0.033)
Misreport	-0.743** (0.034)	-0.174 (0.870)
Controls	Y	Y
Num.Obs.	5106	2051
R ²	0.154	0.264
Std.Errors	IID	IID
FE: Industry	Y	Y
FE: Year	Y	Y

The table presents the regression results on the effect of a credit rating on the structure of the syndicated loan, controlling the Firm Size (revenue) in Panel A, Governance (governance index of the borrower) in Panel B, and Misreporting (a dummy variable that equal one if any of the firm's financial results were subsequently restarted, and 0 otherwise) in Panel C The indicator variable Rating that equals 1 if the S&P credit rating grade of the borrower is "Investment", and 0 otherwise. All the other variables are defined in Appendix A. Not reported for brevity's, and find that our main results remained the same. P-values are in parentheses. *, **, *** Denote significance at 10%, 5%, and 1% level levels, respectively.

6. Practical and Theoretical implications:

The finding that credit rating is positively associated with syndicate size suggests that borrower companies with higher ratings may have more access to capital and may be able to negotiate more favorable loan terms compared to those with lower ratings. This could be important information for companies seeking financing, as they may want to focus on improving their credit rating to attract more potential lenders and secure better loan terms. In addition, the finding that credit rating is negatively associated with the fraction of loan held by the lead arranger suggests that borrower companies with higher ratings may be able to negotiate a smaller proportion of the loan retained by the lead arranger. This could be beneficial for borrower companies, as it would reduce their cost of borrowing and allow them to retain more control over the loan.

The study contributes to the literature on information asymmetry in loan syndicates by providing evidence for the role of credit rating in mitigating the problem. Specifically, the finding that credit rating is positively associated with syndicate size suggests that transparent and reliable information can help reduce the losses of participating banks due to information asymmetry and protect them from misdirection and exploitation by the lead arranger.

The study also provides insights into the risk retention behavior of lead arrangers, which has been a topic of interest in previous research. The finding that credit rating is negatively associated with the fraction of loan held by the lead arranger suggests that the severity of information asymmetry affects the lead arranger's motivation for post-monitoring, and that risk retention can be an effective means of addressing the problem of dual information asymmetry.

7. Conclusion and limitations:

This study examines the impact of credit rating on the structure of syndicated loans in a sample of 5,106 syndicated loans from 2,100 unique firms from 1996 to 2017. The results show that the credit rating of the borrowing company significantly affects the number of lending banks and the share of the lead arranger in the syndicated loan at the time of origination. A borrower with a favorable credit rating will attract more participating banks to provide financing, while a borrower with a poor credit rating will have a concentrated syndicate. Audit quality and relationship lending mitigate the documented relation.

The main takeaway from this study is that credit ratings have a significant impact on the structure of syndicated loans, with favorable credit ratings attracting more participating banks and resulting in a more dispersed syndicate, while poor credit ratings lead to a concentrated syndicate. However, audit quality and relationship lending can mitigate this impact. These findings have implications for borrowers and lenders in terms of the cost and availability of financing, as well as for credit rating agencies in terms of the accuracy and usefulness of their ratings.

The reader of this paper should bear the following caveats in mind: the study uses a cross-sectional design and does not provide evidence for causality. Future research could use longitudinal data or experimental designs to better establish causal relationships. Moreover, the study only considers syndicated loans in the United States and may not be generalizable to other countries or regions. Future research could explore whether similar findings hold in other contexts.

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APPENDIX A

APPENDIX A Variable Definitions

Test Variable

- C_Rating* = S&P credit rating grade of the borrower.
Num_lenders = Number of banks (other than the arranger) in a loan syndicate.
Lead_share = The proportion of loan retained by the lead bank(s).

Loan

Characteristics

- Maturity* = The number of months of the loan maturity.
Spread = All-in spread drawn.
Secured = Indicator variable that equals 1 if the loan is secured with collateral.
Num_Cov = The number of financial covenants included in a loan contract.
Term = Indicator variable that equals 1 for term loans, and 0 for all other types of loans.
Revolver = Indicator variable that equals 1 for revolving loans, and 0 for all other types of loans.

Borrower

Characteristics

- Size* = The dollar amount of the firm sales in thousand.
ROA = Income before extraordinary items scaled by average total assets.
Prior_Relation = Total number of times the borrower has prior loan relationship with the lead bank for the current loan deal in the past five years.
Big4 = Indicator variable that equals 1 if the auditor of a borrower for the fiscal year immediately before the initiation of the syndicated loan is one of the Big 4 (or previously Big 5 or Big 6), and 0 otherwise
% indep. directors = % Independent directors (ISS)
Misreporting = A dummy variable that equal one if any of the firm's financial results in a given year were restated (due to fraud, misrepresentation or an investigation by the SEC), and zero otherwise.
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تقييم تأثير ستاندرد اند بورز على التمويل الجماعي في السوق المالي

د. محمود أحمد

الملخص:

تهدف هذه الدراسة إلى فحص العلاقة بين تصنيف الائتمان للمقترض وبنية القرض الجماعي. القرض الجماعي هو نوع من القروض التي يتم توفيرها من قبل مجموعة من الدائنين، بدلاً من دائن واحد فقط. استخدمت الدراسة بيانات عن ٥,١٠٦ قروض جماعية تم تدشينها بين عامي ١٩٩٦ و ٢٠١٧. وأظهرت النتائج أن المقترضين ذوي التصنيف الائتماني الأعلى كانوا أكثر عرضة لجذب المزيد من الدائنين لتوفير التمويل. بالإضافة إلى ذلك، عندما كان للمقترض تصنيف ائتماني سيئ، كان من المتعارف عليه أن يحتفظ البنك المسؤول عن التنسيق (البنك الذي ينسق القرض الجماعي) بنسبة أكبر من القرض بالمقارنة مع عندما كان للمقترض تصنيف ائتماني جيد. وبشكل عام، تشير نتائج هذه الدراسة إلى أن تصنيف الائتمان للمقترض يمكن أن يؤثر بشكل كبير على بنية القرض الجماعي من خلال تقليل الصراعات المحتملة للمصالح بين البنوك الرئيسية والدائنين المشاركين الآخرين.

الكلمات المفتاحية: تصنيف الائتمان، القرض الجماعي، عدم التماثل في المعلومات، البنك الرئيسي، البنك المشارك.