Amendment thresholds and voting rules in debt contracts*

Judson Caskey
UCLA Anderson School of Management
judson.caskey@anderson.ucla.edu

Kanyuan Huang
Chinese University of Hong Kong, Shenzhen
huangkanyuan@cuhk.edu.cn

Daniel Saavedra
UCLA Anderson School of Management
daniel.saavedra@anderson.ucla.edu

This draft: November 2022

* Acknowledgements: We appreciate comments from Ying Cao, Richard Carrizosa, Jacky Chau, Henry Friedman, Mark Grinblatt, Zhaoyang Gu, Mingyi Hung, Shohini Kundu, Xinlei Li, Francis Longstaff, Rahul Menon, Arthur Morris, Han Stice, Avanidhar Subrahmanyam, Ivo Welch, Chunmei Zhu, and participants at CUHK, HKUST, the UCLA Finance Seminar, University of Leeds, and the Egyptian Online Seminars in Business, Accounting, and Economics.

Amendment thresholds and voting rules in debt contracts

Abstract

We study the voting rules to modify, amend, and renegotiate syndicated loan contracts. We base our hypotheses on a model that shows how amendment thresholds mitigate agency conflicts within the lending syndicate, limit renegotiation costs, and maintain borrowers' incentives to pursue valuable investment opportunities. Consistent with our model's predictions, we find that voting rules are (i) more stringent when some lenders have potential conflicts of interest, as evidenced by prior underwriting relationships with the borrower, (ii) more lenient when the participant banks are less concerned about the misaligned incentives of the lead, as evidenced by stronger syndicate relations, and (iii) more lenient when the syndicate includes "hard bargainers" (hedge funds). Further, we show that loan amendment thresholds are negatively associated with default risk. These results are consistent with contracting parties using voting thresholds to limit lenders' ability to extract the surplus of profitable projects and thereby maintain borrowers' incentives to pursue value-enhancing investment opportunities. Lastly, we find that voting rules are decreasing in the number of performance covenants, consistent with renegotiation cost considerations playing a role in contract design. Overall, our results shed light on the economic incentives behind the wide use of voting rules in loan contracts.

JEL classification: G21, G28, G32, H25, H32
Keywords: Amendment Thresholds, Voting Rules, Agency Problems, Bank Loans, Renegotiation.

1 Introduction

Agreements for syndicated loans, which are funded by multiple lenders, specify "required lenders" clauses that determine lender voting rules to amend or renegotiate the contract (hereafter "voting rules").[1] These clauses specify the minimum fraction of loan holdings necessary to modify contract terms in the event of a loan renegotiation.[2] For example, the following loan contract between Chase Bank, the lead lender, and General Mills illustrates a typical voting clause:

> No amendment or waiver of any provision of this Agreement or any other Loan Document, and no consent with respect to any departure by the Company therefrom, shall be effective unless the same shall be in writing and signed by the Majority Banks.[3]

The contract defines Majority Banks as the holders of at least 51% of the outstanding principal. Approximately 75% of syndicated loan contracts in the US set this threshold to 51%. The remaining contracts set thresholds above 51%, primarily at 66.7%. Lender voting rules implicitly specify the minimum number of lenders required to approve proposed changes to a loan contract.[4]

Why do loan contracts include a provision for voting rules? How do lenders and borrowers set voting thresholds in loan contracts? While there is extensive research, both empirical and analytical, on incomplete contracts and loan renegotiations, voting rules have been largely overlooked by researchers despite being one of the most common features in loan agreements. In this paper, we shed light on the drivers of super-majority voting rules by deriving

[1] These clauses are sometimes referred to as "required banks", "requisite lenders", "requisite banks", "majority lenders" or "majority banks" in the loan contract.
[2] These voting rules correspond to many common contract modifications such as covenant waivers. Exceptions are so called "sacred rights" (changes to interest rate, payment schedule, and commitment amount), which require unanimous consent by all lenders. We discuss this in detail in Section 2.
[3] https://www.sec.gov/Archives/edgar/data/40704/000089710101500115/generalmills010796_ex99-1.txt
[4] As a norm in loan contracts, the required lenders clause is often set to either 51% or 66.7% in terms of the principal. As we discuss in Section 4.3, these voting rules generate substantial variation in the number of lenders required to approve changes.

and testing theoretical predictions from an extension of Gârleanu and Zwiebel (2009).

We extend Gârleanu and Zwiebel's (2009) model by introducing a lending syndicate, post-borrowing investment costs, and an interim signal that can be used to assign control over an interim investment decision. Importantly, we assume that some lenders have private incentives to allow shareholders to invest in new projects without extracting concessions. For example, some lenders might agree to waive covenant violations because they wish to maintain a good relationship with the borrower in order to improve their chances of future business (Drucker and Puri 2005, Bharath et al. 2007). The heterogeneity in lenders' incentives creates agency conflicts within lending syndicates, which gives rise to the need for voting rules in lending agreements.

Our model's optimal voting rule takes heterogenous lenders' incentives into account. In particular, it balances the need to maintain borrowers' incentives to pursue valuable investment opportunities against borrowers' reluctance to terminate risky-but-unprofitable projects after borrowing. Strict voting rules benefit borrowers *ex ante* by implementing efficient liquidation decisions, but expose borrowers to potential hold-up problems by lenders who could extract the value of positive net present value (NPV) projects. The optimal voting rule ensures that the marginal voter has private benefits such that they waive covenants when the firm has positive NPV projects, but deny waivers when the firm has negative NPV projects.

Our model yields three testable predictions. First, voting rules are increasing in agency costs within the lending syndicate. *Ceteris paribus*, when the syndicate includes lenders with high private incentives to side with the borrower, there is a greater chance that the syndicate will waive covenants that allow negative NPV projects. In such cases, the optimal voting rule is more stringent to ensure the marginal vote rests with a lender that will deny negative NPV projects. Second, voting rules are decreasing in the borrower's default risk. Higher risk makes lenders less

likely to waive covenants, even for positive NPV projects. Lower voting thresholds offset this tendency by giving the marginal vote to a lender with relatively high private benefits. Third, voting thresholds are negatively associated with the number of contractable signals. The probability of technical default and the expected renegotiation costs increase as the contract requires the borrower to satisfy more performance-related benchmarks. The optimal voting rule offsets this by using a low voting threshold that ensures the marginal voter has moderate private benefits and will waive covenants that allow positive NPV projects, thereby reducing renegotiation costs.

We conduct our empirical tests using Dealscan loan data from 1995 to 2017 and two measures of the contract amendment threshold. The first measure uses the fraction of outstanding principal needed to amend the contract, as specified in the loan contract's "required lenders" clause. The second measure uses the percentage of lenders required to approve an amendment, computed using the "required lender" variable and each lender's share of the loan.[5] The two measures are highly correlated. The second measure more precisely gauges the allocation of voting power; however, many Dealscan loans do not report the lender shares. For this reason, we use both measures for our analyses.

Our main tests support the prediction that higher agency costs within the syndicate lead to more stringent voting rules. Specifically, we find that amendment thresholds are negatively associated with past relations between the lead lender and participant banks, where a stronger past syndicate relationship proxies for lower agency costs as it increases the lead lender's reputational costs from leniency. Further, we find that the presence of hedge funds in lending syndicates is associated with more lenient amendment thresholds, where we conjecture that

[5] Section 4 provides details on the construction of this measure.

hedge funds have low private benefits from leniency as indicated by their tendency to be "hard bargainers" in renegotiations. Lastly, we find that amendment thresholds are more stringent when there are prior underwriting relationships between the borrower and syndicate lenders, which proxies for higher agency costs within the lending syndicate (Drucker and Puri 2005, Fernando et al. 2012). Overall, these results suggest that agency concerns within lending syndicates impact the structure of loan agreements. Loan contracts use more stringent voting rules in situations where some lenders are more likely to have private benefits of being lenient with the borrower.

We also find support for our second prediction that higher default risk leads to less stringent voting rules. This occurs because fewer lenders will waive covenants that allow positive NPV projects when the firm is risky, and there is less of a risk that lenders will waive covenants for negative NPV projects. A less stringent voting rule renders it more likely that the marginal lender will waive covenants for positive NPV projects. Consistent with this prediction, we find that voting rules are negatively associated with loan spreads and the KZ-index (Kaplan and Zingales 1997), and are more stringent for investment-grade firms that have lower default risk.

Additional tests use the 2014 oil price drop as a shock to default risk of firms in oil-related industries. Between October and December 2014, the U.S. crude oil price dropped from $80 per barrel to around $40 due to a supply glut, and the low price continued for the following two years. We conjecture that this increased the default risk for firms in the oil industry, but likely decreased the default risk in other industries. Using a difference-in-differences test design, we find that lenders reduce loan amendment thresholds for oil companies after 2014 relative to non-oil firms. Overall, these results support our prediction that amendment thresholds are

negatively correlated with default risk, consistent with the view that contracts use voting rules to maintain borrowers' incentives to pursue profitable investment opportunities.

Lastly, we test our third prediction that voting rules are decreasing in the number of contractable signals. We use performance covenants as empirical approximations for the contractable signals in the model.[6] Consistent with the model's prediction, we find that voting thresholds are negatively associated with the number of performance covenants. This result also complements Christensen and Nikolaev's (2012) findings that performance covenants are "tripwires" on the borrower, and they facilitate the efficient allocation of control rights. In our model, contracting on multiple performance-related signals behaves like applying a tighter "tripwire" on the borrower, which increases the expected renegotiation costs. The optimal voting rule is thus more lenient to reduce the inefficiency from excessive renegotiations.

This paper contributes primarily to the literature on incomplete contracting (for recent reviews, see Hart 2001; Roberts and Sufi 2009a; Armstrong, Guay, and Weber 2010; Christensen, Nikolaev, and Wittenberg-Moerman 2015). These studies build on the idea that contracting parties such as borrowers and lenders cannot perfectly anticipate all future scenarios, and may accordingly maximize the joint surplus by renegotiating or amending the original contract in response to new information. Despite the widespread use of incomplete contracting theories, empirical studies have not examined the voting rules that determine the renegotiation process. This paper contributes to the literature by providing initial evidence about voting rules in syndicated loan contracts.

To the best of our knowledge, this is the first paper to systematically test the economic drivers of lender voting rules in syndicated loan contracts based on a model of incomplete

[6] Performance covenants are covenants that are formulated using income statement or cash flow statement information. As we discuss further in Section 3, they are conceptually similar to the contractable signals in the model.

contracts. Our finding that "required lenders" clauses are widely used in private debt contracts suggests that contracting parties view voting rules as an important feature in the renegotiation process. We provide evidence that this clause mitigates agency concerns within the loan syndicate. It also balances the need to economize on renegotiation costs and to maintain borrowers' incentives. These results shed light on the use of voting rules as an important, yet previously overlooked, part of loan contracts.

The next section reviews institutional details on the "required lenders" clause and related literature. Section 3 develops our model and hypotheses. Section 4 describes our empirical design and sample. Sections 5 presents our empirical results. Section 6 concludes.

2 Institutional background and related literature

2.1 Institutional background

Most syndicated loan contracts contain a "required lenders" clause that specifies the minimum fraction of loan holdings needed to modify a loan contract. In a typical syndicated loan, the lead lender represents the lending group when interacting with the borrower. The lead lenders perform due diligence, monitor the loan, and process principal and interest payments. However, lead lenders do not have sole discretion to amend contracts. Contract amendments require the consent of a minimum fraction of "required lenders." For example, U.S. loan agreements typically require the consent of at least 51% of the outstanding principal to modify the loan agreement.

Certain provisions in loan contracts are not subject to the "required lenders" clause. These exceptions, sometimes referred to as "sacred rights", require unanimous consent of all lenders. "Sacred rights" are terms directly related to each lender's payoffs. They typically include changes to the interest rate, payment schedule, and commitment amount (Roberts and

Sufi 2009, LSTA 2016 and Proskauer 2020).

A minimum of the 'required lenders' must approve any other modifications, such as waivers to covenant violations or amendments to financial covenants.[7] Studies have shown that loan contracts are frequently amended to waive a covenant violation or amend a covenant to avoid technical default (Dichev and Skinner 2002, Roberts and Sufi 2009). The "required lenders" clause is a crucial feature in loan agreements as it directly affects the renegotiation process by allocating control rights, and the expectation of future loan renegotiations will be embedded in the *ex ante* contract design. Aside from the use by the contracting parties in syndicated loans, the "required lenders" clause is also used by rating agencies in evaluating loan contracts. For example, Moody's uses the amendment threshold as an input when constructing its Covenant Quality Indicator.[8]

2.2 Related literature

Our paper is related to the literature on incomplete contracting and debt renegotiation. Theoretical work suggests that renegotiation considerations affect the structure of lending syndicates and contract features (e.g., Gârleanu and Zwiebel 2009, Zhong 2021). With respect to voting rules, Bolton and Scharfstein (1996) analytically show that lenders can use voting rules to reduce the costs of strategic default by borrowers.[9] Empirically, studies document that debt contracts are frequently renegotiated (Beneish 1993, Dichev and Skinner 2002, Roberts and Sufi

[7] Appendix D provides an example of the "required lenders" clause. The credit agreement defines required lenders as 50% of the loan commitment. The agreement also states exceptions to the required lenders rule, including changes to loan commitments, payment schedules, the release of collateral, and the definition of required lenders. Any other modifications require approval by only the required lenders.
[8] We thank Moody's for providing an example of a loan quality report.
[9] Bolton and Scharfstein's (1996) model assumes that voting rules directly alter lenders' payoff functions. As we discuss in the institutional background, this assumption may not hold in practice, as most loans require unanimous approval for changes to the interest rate, payment schedule, or commitment amount (LSTA 2016). For this reason, we build a model based on Gârleanu and Zwiebel (2009), which does not rely on such assumptions. We obtain the same predictions from a model based on Bolton and Scharfstein (1996), suggesting that the main economic intuitions behind voting rules are robust to different model assumptions.

2009, Denis and Wang 2014). More recently, there is a growing literature examining the determinants and consequences of renegotiations. Roberts (2015), Nikolaev (2018) and Dou (2020) find that renegotiation is associated with borrowers' financial health and accounting quality, the lead lender's monitoring incentives, and the cost of renegotiation. Asquith et al. (2002), Li et al. (2016), Demerjian (2017), and Saavedra (2018) show that renegotiation considerations affect loan pricing and covenant packages at loan initiation.

This paper is also related to the literature on agency conflicts within lending syndicates. Sufi (2007) shows that agency costs within the syndicate affect the share of the loan held by the lead lender, Ivashina (2009) provides evidence that within-syndicate information asymmetry leads to higher loan spreads, and Dass et al. (2020) provide evidence that loan contracts use financial covenants to mitigate within-syndicate agency conflicts. Champagne and Kryzanowski (2007) and Li (2021) document that lenders are more likely to form syndicates if they have prior syndicate relationships, and this effect is stronger for more opaque lenders. These results suggest that syndicate choice is affected by lenders' incentives to reduce within-syndicate conflict.

This paper contributes to this literature in two ways: first, while agency conflicts within the lending syndicate are well-documented in the empirical literature, they do not receive much attention from the theoretical literature, which often assumes a single lender or a set of homogenous lenders. Our paper provides a formal framework to analyze conflicts of interest within the lending syndicate; second, we differ from prior studies in that we examine how syndicate relationships affect voting rules.

3 Model and hypotheses development

This section uses a model based on Gârleanu and Zwiebel (2009) to motivate our empirical tests. Figure 1 presents the model's timeline, where a firm borrows I to fund a project

that yields a payoff of R. After borrowing, the firm has the opportunity to invest in a risky project that increases shareholder payoffs by $y + x$ in the good state G, and by x in the bad state B. The project reduces lender payoffs by x in the good state, and by $y + x$ in the bad state. As in Gârleanu and Zwiebel (2009), the net payoff y represents the positive (negative) net present value (NPV) of the project in the good (bad) state, and the wealth transfer x is a reduced-form representation of the impact of project risk on shareholder and lender payoffs. The *ex-ante* probability of the good state is $p_0 = \mathrm{P}_0(G)$ where the 0 subscript denotes probabilities conditional on Time 0 information. Parties observe the state and have the opportunity to renegotiate prior to making the investment decision.

(Insert Figure 1 about here)

We deviate from Gârleanu and Zwiebel (2009) by assuming that (i) a syndicate, rather than an individual lender, issues the initial loan proceeds I, (ii) after borrowing the firm incurs a cost c_e to generate the project opportunity, and (iii) there is a contractable signal that yields the posterior belief $p_1 = \mathrm{P}_1(G)$. For example, the contractable signal could be a financial metric such as EBITDA, and $\mathrm{P}_1(G)$ equals P(Good state | EBITDA). The law of iterated expectations implies that $p_0 = \mathrm{E}_0[p_1]$. We model conflicts of interest within the lending syndicate by assuming that some lenders realize a private benefit δ when the firm pursues the project without granting any concessions to lenders, such as a higher interest rate. The private benefit δ can reflect benefits from later business (Drucker and Puri 2005, Fernando et al. 2012), relationships with management, and so on.

We assume that the contract gives lenders control over the investment decision when p_1 falls below a threshold $\hat{p}_1$.[10] Gârleanu and Zwiebel (2009) consider whether the shareholders or

[10] For example, if $\mathrm{P}_1(G)$ equals P(Good state|EBITDA), then $p_1 < \hat{p}_1$ corresponds to EBITDA falling below a contractually specified minimum value.

lenders have unconditional control over whether to allow the investment, which can be thought of as special cases where $\hat{p}_1 \in \{0,1\}$. We assume that renegotiation reduces lenders' monetary payoffs by c_r, and that the project has a positive net-of-renegotiation-cost NPV: $p_0 y - c_e > c_r$.

The following payoffs accrue to a lender n who holds fraction γ_n of the loan and has private benefit δ_n from waiving covenant:

	Action		
	Deny	Renegotiate	Waive
G	$\gamma_n D$	$\gamma_n (D + y - c_r)$	$\gamma_n (D - x) + \delta_n$
B	$\gamma_n D$	$\gamma_n (D - c_r)$	$\gamma_n (D - y - x) + \delta_n$

(1)

Renegotiation in the good state allows lenders to extract the project's positive NPV y through, for example, a higher interest rate. Because the magnitude of NPV exceeds renegotiation costs $(y > c_r)$, renegotiation dominates denying investment in the good state. The payoffs in expression (1) imply that the lender prefers the following actions:

	Lender's preferred action		
	$\frac{\delta_n}{\gamma_n} < y + x - c_r$	$\frac{\delta_n}{\gamma_n} \in (y + x - c_r, y + x)$	$\frac{\delta_n}{\gamma_n} > y + x$
G	Renegotiate	Waive	Waive
B	Deny	Deny	Waive

(2)

The actions in expression (2) show that lenders with sufficiently low agency conflicts make the first-best choice to prohibit investment in negative NPV projects. The resulting shareholder payoffs are the following:

	Lender control			Shareholder control
	$\frac{\delta_n}{\gamma_n} < y + x - c_r$	$\frac{\delta_n}{\gamma_n} \in (y + x - c_r, y + x)$	$\frac{\delta_n}{\gamma_n} > y + x$	
G	$R - D$	$R + y + x - D$	$R + y + x - D$	$R + y + x - D$
B	$R - D$	$R - D$	$R + x - D$	$R + x - D$

(3)

We derive the equilibrium covenants and face values in Appendix A. The debt's face value is determined by the breakeven condition of the syndicate member with the lowest private benefit δ, which we assume is zero. The firm's payoff, the debt's face value, and the covenant

threshold are as follows:

Private benefits of marginal vote:	
High $(\frac{\delta_n}{\gamma_n} > y + x)$:	
Firm's expected payoff	$R - I + p_0 y - c_e - (1 - p_0) y$
Debt face value (D)	$D = I + x + (1 - p_0) y$
Covenant threshold $(\hat{p}_1)$	(Not applicable)
Moderate $(y + x - c_r < \frac{\delta_n}{\gamma_n} < x + y)$:	
Firm's expected payoff	$R - I + p_0 y - c_e$
Debt face value (D)	$D = I + x$
Covenant threshold $(\hat{p}_1)$	$\hat{p}_1 = 1$
Low $(\frac{\delta_n}{\gamma_n} < y + x - c_r)$:	
Firm's expected payoff	$R - I + p_0 y - c_e - \underbrace{\mathrm{E}\left[1_{p_1 > \hat{p}_1}(1 - p_1) + 1_{p_1 < \hat{p}_1} p_1\right]}_{\text{P(Renegotiate)}} c_r$
Debt face value (D)	$D = I + \mathrm{E}\left[1_{p_1 > \hat{p}_1} x\right] - \mathrm{E}\left[1_{p_1 < \hat{p}_1} p_1 y\right] + \text{P(Renegotiate)} c_r$
Covenant threshold $(\hat{p}_1)$	$\hat{p}_1 = \min\left\{\frac{1}{2}, \hat{p} \text{ that solves } \mathrm{E}\left[1_{p_1 > \hat{p}}(p_1 y + x)\right] = c_e\right\}$

(4)

In addition to the payoff realized by the firm, lenders realize private benefits when the firm invests. The lenders' realization of private benefits depends on the syndicate including arms-length lenders whose required face value prevents the firm from extracting lenders' private benefits.

The firm realizes the first-best payoff when the voting threshold results in the marginal vote having moderate private benefits. In such cases, the loan will have a high covenant threshold. When that is not feasible because, for example, few syndicate members have moderate private benefits, the firm realizes the next best outcome by using a high voting threshold to ensure that a lender with low private benefits has the marginal vote to waive covenants. Such lenders extract the value of positive NPV projects when they control the investment decision, which discourages the firm from seeking positive NPV projects in a manner similar to the debt overhang problem (Myers 1977). The optimal contract mitigates this cost by using fewer and/or

looser covenants to limits lenders' control over the investment decision.

Figure 2, Panel A illustrates how the firm's preferred voting threshold varies with the agency costs within lending syndicates (i.e., lenders' private benefit δ). The shaded regions denote the range of voting thresholds that implement the optimal policy of ensuring that lenders with marginal votes will waive covenants for only positive NPV projects. Syndicate members with high private benefits have the highest propensity to waive covenants, so the figure accordingly plots the syndicate members' private benefits in descending order. Because syndicate members with high private benefits waive covenants for negative NPV projects, the optimal voting threshold is sufficiently high to ensure that such members do not have a deciding vote. In other words, our model predicts that the optimal voting threshold is increasing in lenders' agency costs.

(Insert Figure 2 about here)

To test this prediction empirically, we examine settings where lenders' agency costs are high/low. Specifically, we hypothesize that prior syndicate relationships increase the lenders' reputational costs from leniency, which behaves like a reduction in the private benefit from waiving covenants. We further predict that voting thresholds will be more lenient when the syndicate includes hedge funds, which we conjecture would prefer to extract value rather than waive covenants when the borrower has a positive NPV project. This is consistent with hedge funds being "hard bargainers" that are more difficult to renegotiate with (Jiang et al. 2012). Conversely, banks may waive covenants if they believe that will help them keep underwriting business (Drucker and Puri 2005, Fernando et al. 2012). This behaves like an increase in lenders' private benefits from waiving covenants. This gives our first three empirical predictions:

> ***Prediction 1.1:*** *Voting rules are more lenient when lenders have a stronger prior syndicate relationship.*

Prediction 1.2: *Voting rules are more lenient when there is a hedge fund in the lending syndicate.*

Prediction 1.3: *Voting rules are more stringent when some lenders and the borrower have prior underwriting relationships.*

Next, we turn our attention to the borrower's risk profile and voting rules. Bolton and Scharfstein (1996) predict a negative association between the voting rule and the borrower's default risk. The same prediction also carries over to our model. Figure 2, Panel B illustrates how the firm's preferred voting threshold varies with its risk. Higher risk makes lenders less likely to waive covenants, even for positive NPV projects. Accordingly, for firms with high risk, the optimal contract includes a low voting threshold so that the marginal voter has relatively high agency costs, and thus higher incentives to waive covenants in the good state. If the firm's risk is sufficiently high that no lenders will waive the covenant in good states, then voting thresholds cannot ensure that covenants are waived for positive NPV projects. In that case, optimal contract will instead make covenants more lenient to reduce lenders' ability to extract the value of positive NPV projects. This gives our second prediction:

Prediction 2: *Voting thresholds are negatively correlated with default risk.*

Lastly, we examine how voting thresholds vary with the number of contractable signals. When the voting threshold is set so that the marginal voter is a lender with moderate private benefits, our model predicts that the contract has more stringent covenants. We model this as directly depending on the posterior probability of the good state i.e., $p_1 = \mathrm{P}_1(G)$, whereas the contract defines covenants in terms of observable metrics. In particular, a strict covenant in terms of the posterior probability p_1 can be implemented by the common practice of employing multiple technical default thresholds, any one of which transfers control to lenders. In other words, our model predicts that the use of multiple signals will be more common in contracts with

low voting thresholds that give marginal voting power to lenders with moderate private benefits.

Empirically, we use performance covenants in loan contracts as proxies for contractable signals in the model. Performance covenants are metrics formulated using income statement or cash flow statement data. They are timely indicators of firms' future distress, and act as tripwires that facilitate contingent control allocations. These features resemble the contractable signals in our model.[11] This gives our third prediction:

> ***Prediction 3:*** *Amendment thresholds are negatively correlated with the number of performance covenants.*

4 Research design and sample

4.1 Test specification

To investigate the determinants of the amendment threshold, we employ the following regression framework for firm i, loan package ℓ, and year t:

$$\text{Amendment threshold}_{i\ell t} = b_1 \text{Independent variable}_{i\ell t} + \boldsymbol{b}' \text{Controls}_{i\ell t} + \text{Fixed effects} + e_{i\ell t}. \quad (5)$$

We use two measures of our outcome variable *Amendment Threshold*. The first measure, *Amendment Threshold (Amount)*, is the minimum percent of the total loan amount required to approve an amendment, which Dealscan reports as the variable "required lenders." We verify the accuracy of the Dealscan data by conducting a textual analysis that compares Dealscan's "required lender" variable to the information provided by EDGAR. This test confirms that the Dealscan data are consistent with the data extracted from the loan contracts that firms file with the SEC and post on EDGAR. The second measure, *Percent of Lenders Required,* is the minimum percent of the lenders required to approve the amendment. It is defined as the

[11] There is another type of covenants called capital or balance sheet covenants, which are formulated using balance sheet information (Demerjian 2011; Christensen and Nikolaev 2012). Unlike performance covenants, capital covenants are often used to address the incentive misalignment between the borrower and the lenders (Christensen and Nikolaev 2012). We discuss the implication of capital covenants on voting rules at the end of Section 5.

minimum number of lenders required to approve an amendment divided by the total number of lenders in the syndicate. We derive this measure from the *Amendment Threshold (Amount)* and each lender's share of the loan.[12]

The *Percent of Lenders Required* better captures our theoretical construct for the relative reliance on arm's-length lenders to approve loan modifications. However, the measure requires frequently unpopulated Dealscan data on individual syndicate members' holdings. Therefore, we also present results using the *Amendment Threshold (Amount)* dependent variable, which is available for a larger sample.

To test for a negative relation between voting thresholds and the strength of syndicate relationships (Prediction 1.1), we measure the intensity of the prior syndicate relationship between the lead lender and non-lead lenders as the percentage of the lead lenders' deals over the past three years that include at least one of the current participants (*Syndicate Relationship Intensity*). In cases where there are multiple lead lenders, we use the average of this measure among all lead lenders. We identify the lead lender if the field "lender roles" in Dealscan is one of the followings: administrative agent, agent, lead arranger, arranger, mandated lead arranger or lead bank.[13] Ivashina (2009) and Saavedra (2018) use similar measures as proxies for the lead lender's reputation in the syndicate. To test for a negative relation between voting thresholds and syndicates that include hedge fund lenders (Prediction 1.2), we match Dealscan lenders to hedge funds in the Hedge Fund Research (HFR) database. We use an indicator variable that equals one

[12] For example, suppose that the *Amendment Threshold (Amount)* is 51%, and the syndicate includes three lenders where the lead arranger holds 40% of the loan, and the two participant banks each hold 30%. Then this *Percent of Lenders Required* equals 2/3 because any loan modification requires the agreement of at least two lenders, and the syndicate includes three members.

[13] Dealscan sometimes assigns a bank to multiple lender IDs. For instance, in our sample, Wells Fargo is associated with 3 different lender IDs with 3 slightly different names. We aggregated these banks into one lender. Details of this aggregation is reported in Appendix B. However, we obtain very similar results without this aggregation step.

if at least one of the participant banks is a hedge fund.[14]

To test for a positive relation between voting thresholds and underwriting relationships (Prediction 1.3), we use an indicator variable that equals one if at least one of the lenders has underwritten the borrower's security issuances in the past three years. We retrieve security issuance data from the SDC's new issues database, which covers equity and bond issuances in the US and provides information on underwriters for each security issuance. Following Jeon et al. (2015), we identify an underwriter as the lead underwriter if SDC classifies it as the bookrunner or joint bookrunner of the issuance. We expect that the amendment threshold is higher for loans in which lenders were also lead underwriters for the borrower in prior security issuances (Prediction 1.3).

To test for a negative relation between voting thresholds and default risk (Prediction 2), we use three proxies for the borrower's default risk. First, we use loan spread because higher loan spreads are indicative of higher default risk. Thus, we expect that the amendment threshold is higher for loans with low spread (i.e., lower default risk). Second, we use an indicator for whether the firm's long-term debt has an investment grade rating at the time of borrowing. Because an investment grade rating indicates low default risk, we expect that loans taken by investment grade borrowers will have more stringent voting rules. Lastly, we use the Kaplan and Zingales (1997) Index (KZ-index). The KZ-index is a widely used measure of financial constraints (Lamont et al. 2001, Christensen and Nikolaev 2012). We expect a negative correlation between the KZ-index and the amendment threshold, as firms with high KZ-index are more financially constrained and are more likely to default on the loan.

To test our last prediction on the relation between financial covenants and voting rules,

[14] About 1.5% of the loans in our sample have a hedge fund participant. The most frequent hedge fund lenders in our sample are Eaton Vance Management, Oppenheimer, Octagon Credit Investors, CypressTree Investment Management and Mountain Capital.

we follow Christensen and Nikolaev (2012) to classify performance covenants (e.g., debt-to-EBITDA) as covenants that use income statement or cash flow statement information. We expect a negative association between the number of performance covenants and stringent voting rules. In addition, while we do not have a prediction with respect to capital covenants, i.e., covenants that rely on balance sheet information, we nevertheless control for them in some of the regression specifications as robustness checks.

Our tests also include various package- and firm-level controls. Specifically, the package-level controls are the number of lenders in the syndicate, loan amount and loan maturity. The firm-level controls are total assets, ROA and book leverage. All control variables are winsorized at 1% to 99% level. Following prior literature (Bharath et al. 2011, Prilmeier 2017), we include fixed effects for the borrower's industry (i.e. two-digits SIC code) and loan starting year. In addition, we include lead lender fixed effects to control for heterogeneity among lenders.[15]

4.2 Sample construction

Table 1 presents the sample construction. Our base sample consists of all Dealscan loans that can be linked to Compustat Quarterly Fundamental Data using the Dealscan-Compustat Linking Table for all US companies. Our sample starts in 1995 and ends in 2017, which is the year the Dealscan-Compustat Linking Table ends. We exclude loans that are missing the "required lenders" variable in Dealscan. We also exclude loans with only one lender, as the amendment threshold does not apply to these loans.[16] Lastly, we require non-missing values for loan- and firm-level controls. Our final sample consists of 17,568 loan packages. Table 2 reports the distribution of *Amendment Threshold (Amount)*. Approximately 75% of the loans set the

[15] We treat loans with more than one lead lender as one group when applying lender fixed effects. These loans account for 8.4% of our sample. Excluding these loans does not affect our main results.
[16] Many contracts will specifically define "required lenders" as two or more lenders (i.e. see https://www.sec.gov/Archives/edgar/data/313616/000110465903022902/a03-3858_1ex10d1.htm).

amendment threshold to 51%. 21% of the loans set this threshold to 66.7%. The rest of loans set it anywhere between 51% and 100%.

(Insert Table 1 and Table 2 about here)

As described in the previous sub-section, our second measure of voting rules, *Percent of Lenders Required*, uses data on each lender's share of the loan. However, these data are missing for a large number of loans in Dealscan. Because of this, we create a subsample of loans with non-missing lender shares. This subsample consists of 8,237 loan packages.

Figure 3 plots the time series patterns of the two measures of amendment thresholds. Both measures are decreasing over time. Specifically, the average of *Percent of Lenders Required* variable decreases from over 55% in the 1990s to less than 45% in the 2010s, and the average of *Amendment Threshold (Amount)* variable also decreases from 60% to around 52%.[17]

(Insert Figure 3 about here)

4.3 Summary statistics

Table 3 reports the summary statistics of our sample. Among the 8,237 loans with non-missing data on each lender's share of the loan, the average (median) percent of lenders required to approve an amendment is 50.4% (46.7%). Approximately half of the loans require at least 50% of lenders to approve an amendment. Figure 4 plots the distribution of *Percent of Lenders Required*. We observe significant variation in voting rules, with some loans (about 5% in our sample) requiring only one out of three lenders' approval and some others (about 6% in our sample) requiring all lenders' approval.

Syndicates include, on average, 11 lenders. Approximately 11.4% of the loans syndicated by the lead lender in the past 3 years have at least one participant bank in the current syndicate,

[17] We control for time fixed effects in all regressions. As a result, our results do not reflect any secular trends in voting thresholds

and 15.3% of the loans are syndicated by a lender who was the lead underwriter for at least one of the borrower's security issuances in the past 3 years. The second half of Table 3 compares these 8,237 loans with non-missing lender share data to the full sample of the 17,568 Dealscan loans. The two samples have similar values for *Syndicate Relationship Intensity* and the underwriting relationship variables. The borrowers are slightly larger and less financially constrained in the sample with non-missing lender's share data. The pairwise correlation between our measures of voting rights (i.e., *Percent of Lenders Required* and *Amendment Threshold (Amount)*) is 0.61, suggesting that they capture similar constructs.

(Insert Table 3 and Figure 4 about here)

Table 3, Panels B and C report the *Percent of Lenders Required* by industry and by lead lenders. With respect to industries, the oil and gas (SIC=13) industry has the highest voting thresholds, with close to half of the loans requiring a supermajority vote. On the other hand, the communication industry has the most lenient voting thresholds, with only 13.5% of loans demanding a supermajority vote. With respect to lead lenders, we find that reputable lead banks, defined as in Bushman and Wittenberg-Moerman (2012), tend to have less stringent voting rules, with only 15% of their loans requiring a supermajority vote. [18] This number increases to 39% for less reputable banks. This is consistent with Bushman and Wittenberg-Moerman's (2012) findings that the lead bank's reputation acts as a certification for the syndication quality, which potentially reduces the probability of agency conflicts within the syndicate. Further, because we observe within-industry and within-bank variation in voting thresholds, the thresholds do not appear to reflect boilerplate practices for a given bank or industry.

[18] Bushman and Wittenberg-Moerman (2012) define a bank as a reputable bank if it has more than 2% market share in the syndicated loan market in the sample period.

5 Main results

5.1 Agency costs and voting rules

To provide evidence for prediction 1.1, Table 4 tests associations between voting rules and prior syndicating relationships. In Section 3, we predict that voting rules are more lenient when the lead lender and non-lead lenders have a stronger prior syndicate relationship (Prediction 1.1). We test this in columns 1 to 3 using *Percent of Lenders Required* as the dependent variable and *Syndicate Relationship Intensity* as the independent variable. The negative and significant coefficient on *Syndicate Relationship Intensity* supports our prediction that the voting rule is more lenient when the lead lender and participant banks have a stronger syndicate relationship. In other words, when reputational costs are high, lenders have fewer incentives to side with the borrower in renegotiations in order to obtain private benefits. The -0.219 coefficient in column 3 implies that a one standard deviation increase in syndicate relationship intensity is associated with a 2.2% percentage point decrease in the amendment threshold.[19]

(Insert Table 4 about here)

Table 4, columns 4 to 6 use the amount of loan holdings required to approve an amendment (i.e. *Amendment Threshold (Amount)*) as the dependent variable, and the results are qualitatively similar. Overall, these results are consistent with our prediction that prior syndicate relationships mitigate agency concerns within the syndicate and thus reduce amendment thresholds.

The coefficient on *# Lenders* is negative, suggesting that voting rules are more lenient in larger syndicates. This is consistent with prior studies' findings that larger syndicates are

[19] Alternatively, given that the standard deviation of the amendment threshold is 0.18, a 2.2% decrease (e.g., from 68% to 65.8%) translates into 0.12 standard deviations decrease in the amendment threshold.

associated with higher renegotiation costs (e.g., Asquith et al. 2005; Saavedra 2018), which reduces voting thresholds. In addition, other control variables show that voting rules tend to be more lenient for larger firms, firms with high ROA, and firms with high book leverage. The rules are also more lenient for larger loans and loans with longer maturity.

Table 5 tests our predictions that lending agreements use more lenient voting rules when there is a hedge fund in the lending syndicate (Prediction 1.2), and more stringent voting rules when lenders and the borrower have prior underwriting relationships (Prediction 1.3).[20] In column 1, we find a negative association between the presence of hedge fund participants and voting rules. The coefficient on *Hedge Fund Participant* is -0.066 (p=1%), which is equivalent to a 0.37 standard deviation decrease in amendment thresholds. This is consistent with voting rules being set to prevent giving the marginal vote to hedge funds, who may be "hard bargainers" that will not waive covenants for positive NPV projects. In column 2, we find a positive association between prior underwriting relationships and voting thresholds. The coefficient *on Have Underwriting Relationship* is 0.023 (p=1%), suggesting that voting rules are about 0.13 standard deviations higher when lenders have a potential conflict of interest, as evidenced by prior underwriting relationships with the borrower.

In Column 3, we break down the underwriting relationship by the lead lender and non-lead lenders. We find that the coefficients on *Underwriting by Lead* and *Underwriting by non-Lead* are both positive and statistically significant at 1%, suggesting the agency cost within the syndicate can stem from both the lead and non-lead lenders. However, the agency cost from the

[20] In untabulated results, we examine the relationship between voting rules and prior lending relationships (computed in the same manner as the prior underwriting relationships), and do not find a significant relationship between the two variables. One potential explanation is that lending relationships may capture repeated contracting, which increases contracting efficiency. The positive effect of efficiency gains from repeated contracting may offset the negative effect of higher agency costs. As a result, the net effect of the lending relationship on voting rules is unclear.

underwriting relationship between the lead lender and the borrower appears to have a slightly larger impact on the voting rules, as indicated by the larger coefficient on *Underwriting by Lead* (p=10%). Overall, the results in Table 4 and Table 5 are consistent with our model's predictions that voting rules are impacted by agency concerns within the lending syndicate, with tighter (more lenient) voting rules being associated with proxies of high (low) within-syndicate agency costs.

(Insert Table 5 about here)

5.2 Default risk and voting rules

This subsection tests for a negative relation between default risk and voting rules (Prediction 2). In Section 3, we predict that higher firm risk reduces the potential for lenders to waive covenants for negative NPV projects and increases the potential for lenders to extract the value of positive NPV projects. Accordingly, we predict that optimal debt contracts use less stringent voting rules when firms have greater default risk.

Table 6, columns 1 – 3 report the results using *Percent of Lenders Required* as the dependent variable, and columns 4 – 6 report results using the *Amendment Threshold (Amount)* as the dependent variable. In columns 1 and 4, we measure default risk using *Loan Spread*, which is the all-in spread drawn as provided in the Dealscan database. Because higher spreads indicate high default risk, we predict a negative coefficient on *Loan Spread*. In columns 2 and 5, we measure default risk using the *KZ-Index* of financial constraints (Kaplan and Zingales 1997, Lamont et al. 2001). Because financial constraints increase default risk, we predict a negative coefficient on *KZ-Index*. In columns 3 and 6, we measure default risk using an *Investment Grade* indicator variable that equals one if the S&P long-term debt rating is equal to or greater than BBB-. Because investment grade debt has lower default risk, we predict a positive coefficient on

Investment Grade. Table 6 shows negative (positive) coefficients for *Loan Spread* and *KZ-Index* (*Investment Grade*). This result supports our prediction that contracts with firms with lower default risk use stricter voting rules.

(Insert Table 6 about here)

While our analyses thus far show negative associations between voting rules and various proxies of default risk, it is still possible that these results are driven by omitted unobservable variables that are correlated with both default risk and voting thresholds. To alleviate this concern, we conduct an additional test of the relation between default risk and voting thresholds using the 2014 oil crisis as an exogenous shock to oil companies' default risks, and examine the subsequent changes in lender voting rules. From October 2014 to the end of 2014, excess supply caused the U.S. crude oil price to drop from over $80 per barrel to around $40 per barrel.[21] This sharp decline in oil prices was largely unexpected at the time and the low oil price environment persisted for the next two years. Figure 5 plots the oil prices from 2013 to 2016. The 2014 oil crisis provides a clean setting to test the effect of default risk on loan amendment thresholds, as the sharp decline in oil price increases the default risk in the oil industry while not affecting or even decreasing default risk in other industries. We expect that contracting parties set lower amendment thresholds for oil firms following the 2014 oil crisis relative to firms in other industries.

(Insert Figure 5 about here)

We test the effect of the oil-price shock on voting rules using the following difference-in-differences regression:

$$\begin{aligned}\text{Amendment threshold}_{i\ell t} &= b_1 \text{Oil \& gas industry}_{i\ell t} \times \text{Post}_{i\ell t} + b_2 \text{Post}_{i\ell t} \\ &\quad + \boldsymbol{b}' \text{Controls}_{i\ell t} + \text{Fixed effects} + e_{i\ell t}.\end{aligned} \tag{6}$$

[21] http://wrld.bg/EfiR30iCP3C

The indicator variable *Oil &Gas Industry* equals one if the company is in the oil and gas extraction (SIC=13) or petroleum refining and related (SIC=29) industries, zero otherwise.[22] *Post* is an indicator variable that equals one if the loan is taken after October, 2014. The regression includes industry, year, and lender fixed effects. The industry fixed effects subsume the main effect of the *Oil & Gas Industry* indicator. The year fixed effects do not completely subsume the effect of the *Post* indicator due to loans taken in November and December 2014. In untabulated robustness tests, we use adjacent months, such as September or November, as the starting month for the post-treatment period, and results are qualitatively similar. We limit our sample to loans issued between 2013 and 2016, roughly 2 years before the oil shock to 2 years after the oil shock.

Table 7, Panel A, shows that oil companies' revenues and operating cash flows declined relative to non-oil companies during the 2014 oil crisis.[23] This supports our tests' identifying assumption that the 2014 oil price shock had a negative impact on the oil industry that was not offset by cash flow hedging.

(Insert Table 7 about here)

Table 7, Panel B reports our estimates of the difference-in-differences regression (6). Consistent with our prediction of a negative relation between voting rules and default risk, the coefficient on *Oil &Gas Industry* × *Post* is negative and statistically significant in column 1 ($p<5\%$), where the dependent variable is *Percent of Lenders Required*; the coefficient on the interaction term is negative but statistically insignificant in column 2, where the dependent variable is *Amendment Threshold (Amount)*.

[22] Most companies in the oil and gas extraction industry (SIC=13) receive revenue from both oil and natural gas production. Thus, it is difficult to focus on companies that only produce oil. In addition, the natural gas price also plummeted in late 2014 (i.e., Henry Hub natural gas spot price decreased from over $4 per million Btu to around $2 per million Btu), concurrent with the oil price drop. For this reason, we include all firms in oil and gas extraction industry as the treatment group.

[23] We find a negative but insignificant effect on net income, suggesting that accounting earnings are less sensitive to fluctuations in oil prices than cash flows. This is consistent with earnings smoothing (Dechow et al. 2010).

Overall, we document negative associations between amendment thresholds and proxies of the borrower's default risk in Table 6. Table 7 exploits the oil price crisis in 2014 as a negative shock to the oil industry, and shows weak evidence of a reduction in amendment thresholds for oil companies after 2014. These results are largely consistent with the model's prediction that voting rules are decreasing in the borrower's default risk.

5.3 Debt covenants and voting rules

In this section, we test our third prediction that voting rules are negatively associated with the number of performance covenants. Performance covenants serve as "tripwires" on the borrower (Christensen and Nikolaev 2012), as the income statement measures used are more informative about the current state of the firm (Saavedra 2018).[24] When the loan contract is written on multiple performance covenants, it increases the probability of future covenant violations, which are costly to the contracting parties if lenders do not waive covenants when the firm has profitable projects. Optimal voting rules mitigate the efficiency loss from expected future renegotiations by giving marginal voting power to lenders with moderate private benefits who waive covenants in high profit states (i.e., more lenient thresholds).

Table 8, columns 1 and 3 report the relation between voting rules and the number of performance covenants. Consistent with our model's prediction, we find that the number of performance covenants has a negative relation with voting thresholds. In columns 2 and 4, we control for the number of capital covenants. The coefficients on performance covenants remain negative and statistically significant ($p<1\%$). Interestingly, we find a positive association between the number of capital covenants and voting thresholds, suggesting that voting rules are

[24] Balance sheet variables are the result of a variety of decisions that are not necessarily informative about the borrower's current performance. For example, net worth is a summary measure that includes current income, retained earnings (including big bath charges, acquisition accounting, cookie jar ''reserves''), and dividend and payout decisions. In other words, the current performance of the firm (i.e., current net income) is only one of many components of net assets or net worth.

more stringent when the loan contains more capital covenants.

(Insert Table 8 about here)

Christensen and Nikolaev (2012) show that capital covenants, which require shareholders to maintain enough capital inside the firm, primarily serve to align shareholders' interests with those of lenders when there is an agency problem. Likewise, our model predicts that strict voting rules mitigate agency problems between shareholders and the lending syndicate. Overall, these results are consistent with weaker voting rules being used for performance covenants that facilitate efficient control allocation, and that capital covenants have a complimentary relationship with voting rules in mitigating conflicts between shareholders and lenders.

6 Conclusion

We study the determinants of voting rules in syndicated loan contracts. Consistent with our extension of Gârleanu and Zwiebel (2009), we find evidence consistent with the use of voting rules to mitigate agency costs that arise within loan syndicates, to economize on renegotiations costs, and to maintain borrowers' incentives to pursue positive NPV projects. Specifically, our tests show that voting rules are decreasing in the strength of prior relationships between lenders and the presence of hedge fund creditors who may extract value from borrowers. Voting rules are increasing in the strength of relationships between lenders and borrowers. We caution that while we document strong associations between proxies of within-syndicate agency costs and amendment thresholds, we are not able to draw causal inference on these two variables, as the choice of syndicate members is affected by many factors that are unobservable to researchers.

We also find that strict voting rules are negatively associated with default risk, consistent with risk reducing the likelihood that lenders will waive covenants for negative NPV projects.

Lastly, we find that voting rules are more lenient when there are more performance covenants, and more stringent when there are more capital covenants, suggesting that the voting rules are implemented in conjunction with debt covenants to limit renegotiation costs and mitigate the incentive misalignment between shareholders and lenders

To the best of our knowledge, this paper is the first study to systematically examine the determinants of voting rules in loan contracts. The allocation of voting power has been widely studied in other settings, such as in shareholder voting and corporate governance (Harris and Raviv 1988, Sjostrom and Kim 2007, Ertimur et al. 2015). Voting rules are important in debt contracting as they affect renegotiation considerations, which are embedded in the *ex ante* contract design. By deriving and testing empirical predictions from an extension of Gârleanu and Zwiebel (2009), this paper identifies important economic incentives behind the use of the "required lenders" clause in loan contracts and contributes to the literature on incomplete contracting.

References

Asquith, P., Beatty, A. and Weber, J., 2005. Performance pricing in bank debt contracts. *Journal of Accounting and Economics*, 40(1-3):101-128.

Armstrong, C., W. Guay, and J. Weber. 2010. The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics* 50(2-3): 179-234.

Beneish, M.D. and Press, E., 1993. Costs of technical violation of accounting-based debt covenants. *The Accounting Review*, 233-257.

Bharath, S., S. Dahiya, A. Saunders, and A. Srinivasan. 2007. So what do I get? The bank's view of lending relationships. *Journal of Financial Economics* 85(2): 368-419.

Bharath, S., S. Dahiya, A. Saunders, and A. Srinivasan. 2011. Lending relationships and loan contract terms. *The Review of Financial Studies* 24(4): 1141-1203.

Bolton, P. and S. Scharfstein. 1996. Optimal debt structure and the number of creditors. *Journal of Political economy* 104(1): 1-25.

Bushman, R.M. and Wittenberg-Moerman, R., 2012. The role of bank reputation in "certifying" future performance implications of borrowers' accounting numbers. *Journal of Accounting Research*, 50(4): 883-930.

Champagne, C. and Kryzanowski, L., 2007. Are current syndicated loan alliances related to past alliances? *Journal of Banking & Finance*, 31(10): 3145-3161.

Christensen, H., and V. Nikolaev. 2012. Capital versus performance covenants in debt contracts. *Journal of Accounting Research* 50(1): 75-116.

Dass, N., V. Nanda, and Q. Wang. 2020. Within-syndicate conflicts, loan covenants, and syndicate formation. *Financial Management* 49(2): 547-583.

Dechow, P., Ge, W. and Schrand, C., 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics*, 50(2-3): 344-401.

Demerjian, P.R., 2011. Accounting standards and debt covenants: Has the "balance sheet approach" led to a decline in the use of balance sheet covenants? *Journal of Accounting and Economics*, 52(2-3): 178-202.

Demerjian, P.R., 2017. Uncertainty and debt covenants. *Review of Accounting Studies*, 22(3): 1156-1197.

Denis, D., and J. Wang. 2014. Debt covenant renegotiations and creditor control rights. *Journal of Financial Economics* 113(3): 348-367.

Dichev, I.D. and Skinner, D.J., 2002. Large-sample evidence on the debt covenant hypothesis. *Journal of Accounting Research*, 40(4):1091-1123.

Dou, Y., 2020. The debt-contracting value of accounting numbers and financial covenant renegotiation. *Management Science*, 66(3), pp.1124-1148.

Drucker, S., and M. Puri. 2005. On the benefits of concurrent lending and underwriting. the *Journal of Finance* 60(6): 2763-2799.

Ertimur, Y., F. Ferri, and D. Oesch. 2015. Does the director election system matter? Evidence from majority voting. *Review of Accounting Studies* 20(1): 1-41.

Fernando, C., A. May, and W. Megginson. 2012. The value of investment banking relationships: Evidence from the collapse of Lehman Brothers. *The Journal of Finance* 67(1): 235-270.

Gârleanu, N., and J. Zwiebel. 2009. Design and renegotiation of debt covenants. *The Review of Financial Studies* 22(2): 749-781.

Harris, M., and A. Raviv. 1988. Corporate governance: Voting rights and majority rules. *Journal of Financial Economics* 20: 203-235.

Hart, O., 2001. Financial contracting. *Journal of Economic Literature*, 39(4): 1079-1100.

Ivashina, V. 2009. Asymmetric information effects on loan spreads. *Journal of Financial Economics* 92(2): 300-319.

Jeon, J., C. Lee, T. Nasser, and M. Via. 2015. Multiple lead underwriter IPOs and firm visibility. *Journal of Corporate Finance* 32: 128-149.

Jiang, W., Li, K. and Wang, W., 2012. Hedge funds and Chapter 11. *Journal of Finance*, 67(2): 513-560.

Kaplan, S., and L. Zingales. 1997. Do investment–cash flow sensitivities provide useful measures of financial constraints? *Quarterly Journal of Economics* 112(1): 159-216.

Lambert, R.A., 2001. Contracting theory and accounting. *Journal of Accounting and Economics*, 32(1-3): 3-87.

Lamont, O., C. Polk, and J. Saaá-Requejo. 2001. Financial constraints and stock returns. *The Review of Financial Studies* 14(2): 529-554.

Li, N., Vasvari, F.P. and Wittenberg-Moerman, R., 2016. Dynamic threshold values in earnings-based covenants. *Journal of Accounting and Economics*, 61(2-3): 605-629.

Li, X., 2021. Relationship lending in syndicated loans: A Participant's Perspective. Working paper.

LSTA., 2016. The handbook of loan syndications and trading, second edition.

Myers, S. 1977. Determinants of corporate borrowing. *Journal of Financial Economics* 5(2): 147-175.

Nikolaev, V. 2018. Scope for renegotiation in private debt contracts. *Journal of Accounting and Economics* 65(2-3): 270-301.

Proskauer. 2020. Navigating the Club in Private Credit Deals. https://www.proskauer.com/alert/navigating-the-club-in-private-credit-deals

Prilmeier, R. 2017. Why do loans contain covenants? Evidence from lending relationships. *Journal of Financial Economics* 123(3): 558-579.

Roberts, M. 2015. The role of dynamic renegotiation and asymmetric information in financial contracting. *Journal of Financial Economics* 116(1): 61-81.

Roberts, M., and A. Sufi. 2009. Renegotiation of financial contracts: Evidence from private credit agreements. *Journal of Financial Economics* 93(2): 159-184.

Saavedra, D. 2018. Syndicate size and the choice of covenants in debt contracts. *The Accounting Review* 93(6): 301-329.

Sjostrom Jr, W., and W. Kim. 2007. Majority voting for the election of directors. *Connecticut Law Review* 40(2): 459-510.

Sufi, A. 2007. Information asymmetry and financing arrangements: Evidence from syndicated loans. *The Journal of Finance* 62(2): 629-668.

Zhong, H. 2021. A dynamic model of optimal creditor dispersion. *The Journal of Finance*, 76(1): 267-316.

Appendix A: Derivations for model (Section 3)

This Appendix derives the equilibrium debt contract and payoffs described in Section 3. The debt's face value must allow the syndicate members without private benefits to break even in expectation, which gives the following face values where 1_X is an indicator function for event X and lender n denotes the marginal voter:[25]

$$\begin{aligned}
&\tfrac{\delta_n}{\gamma_n} < y + x - c_r && D = I + \underbrace{\mathrm{E}\left[1_{p_1 > \hat{p}_1}\left(x + (1-p_1)c_r\right)\right]}_{\text{Shareholder control, renegotiate if } B} - \underbrace{\mathrm{E}\left[1_{p_1 < \hat{p}_1}\, p_1 (y - c_r)\right]}_{\text{Lender control, renegotiate if } G}, \\
&\tfrac{\delta_n}{\gamma_n} \in \left(y + x - c_r, y + x\right) && D = I + \underbrace{\mathrm{E}\left[1_{p_1 > \hat{p}_1}\left(x + (1-p_1)c_r\right)\right]}_{\text{Shareholder control, renegotiate if } B} + \underbrace{\mathrm{E}\left[1_{p_1 < \hat{p}_1}\, p_1\right] x}_{\text{Lender control, waive if } G}, \qquad \text{(A1)} \\
&\tfrac{\delta_n}{\gamma_n} > y + x && D = I + x + (1-p_0)y.
\end{aligned}$$

When shareholders control the investment decision $(p_1 > \hat{p}_1)$, lenders pay x to 'bribe' the shareholders to forgo the investment in the bad state so that lenders always lose x when shareholders control the investment decision. When lenders control the investment decision, they lose value x if they waive the covenant or gain the value $y - c_r$ if they renegotiate, both of which occur only in the good state.

Turning to the firm's decisions, if lenders renegotiate covenants in the good state and deny the project in the bad state, the firm's *ex post* payoff reflects that lenders will extract the value of positive NPV projects in the good state:

$$R - D + \mathrm{E}\left[1_{p_1 > \hat{p}_1}(p_1 y + x)\right] - c_e. \qquad \text{(A2)}$$

Accordingly, the firm will invest only if $\mathrm{E}\left[1_{p_1 > \hat{p}^*}(p_1 y + x)\right] > c_e$. Given the face value from (A1), the firm's *ex ante* payoff is:

$$R - I + p_0 y - c_e - \underbrace{\left(\mathrm{E}\left[1_{p_1 > \hat{p}_1}(1-p_1)\right] + \mathrm{E}\left[1_{p_1 < \hat{p}_1}\, p_1\right]\right) c_r}_{\text{Expected renegotiation costs}}. \qquad \text{(A3)}$$

[25] If all syndicate participants have private benefits from waiving covenants, the firm will reduce the face value so that the lender with the lowest private benefits breaks even in expectation.

The payoff (A3) is increasing (decreasing) in $\hat{p}_1$ for $\hat{p}_1 < \frac{1}{2}$ ($\hat{p}_1 > \frac{1}{2}$) so that the covenant threshold will be set to the lesser of $\frac{1}{2}$ or the value that sets $\mathrm{E}\left[1_{p_1 > \hat{p}^*}(p_1 y + x)\right] = c_e$.

If lenders waive the covenant in the good state and deny the project in the bad state, the assumption that $p_0 y > c_e$ ensures that the firm always has an *ex post* incentive to invest in the project. The firm's *ex ante* payoff is:

$$R - I + p_0 y - c_e - \mathrm{E}\left[1_{p_1 > \hat{p}_1}(1 - p_1)\right] c_r, \tag{A4}$$

which implies that the firm can eliminate renegotiation costs and maximize its payoff by setting $\hat{p}_1 = 1$. If lenders always waive the covenant, the firm's *ex ante* payoff equals:

$$R - I + p_0 y - c_e - (1 - p_0) y, \tag{A5}$$

and does not depend on the covenant threshold.

Appendix B: Variable Descriptions

Variable	Description
Amendment Threshold (Amount)	Minimal percent of loan amount required for loan amendment, specified in the loan contract
Percent of Lenders Required	Minimal # lenders required to reach the amendment threshold divided by total # lenders
Syndicate Relationship Intensity	The average number of deals arranged by the lead bank with at least one of the current participants, measured over a three-year horizon and expressed as a percent of the total deals underwritten during this period
Have Underwriting Relationship	An indicator variable equal to one if one of the lenders was also a lead underwriter for the borrower in prior security issuances in the past three years
Underwriting by Lead	An indicator variable equal to one if the lead lender was also a lead underwriter for the borrower in prior security issuances in the past three years. We use SDC's new issues database to identify past debt/equity issuances
Underwriting by non-Lead	An indicator variable equal to one if the non-lead lender was a lead underwriter for the borrower in prior security issuances in the past three years
Hedge fund participant	An indicator variable equal to one if the non-lead lender is a hedge fund. We use Hedge Fund Research (HFR) database to identify the list of hedge fund lenders
# Lenders	Number of lenders in the syndicate
Book Leverage	Total debt/total assets, measured at the quarter end before the loan starting date
ROA	Net income/total assets, measured at the quarter end before the loan starting date
Log (Asset)	Log Asset, measured at the quarter end before the loan starting date
Log (Amount)	Log Loan Amount
Log (Maturity)	Log Loan Maturity. If a loan package has multiple facilities, the package maturity is maximum maturity of all facilities
Loan Spread	The spread the borrower pays in basis points over LIBOR for each dollar drawn down. If a loan package has multiple facilities, the spread is calculated as the average spread of all facilities
Investment Grade	An indicator variable equal to one if the S&P long term debt rating of the borrower is equal to or better than BBB-
KZ-index	Following Christensen and Nikolaev (2012), KZ-index= -1.002 × Cash Flow/K + 0.28× Q +3.139×Debt/Total Capital – 39.368×Dividend/K – 1.315× Cash/K, where Cash flow is calculated as earnings before extraordinary items plus depreciation; K is net PP&E; Tobin's Q is measured as the market value of equity plus the book value of debt divided by long-term debt plus equity; Total capital is measured as the sum of long-term debt and equity
# Performance Covenants	Number of performance covenants, where performance covenants include interest coverage, cash interest coverage, fixed charge coverage, debt to EBITDA, Debt service coverage and minimum EDBITDA covenants
# Capital Covenants	Number of capital covenants, where capital covenants include net worth , leverage ratio, debt to equity, debt to tangible net worth, current ratio and quick ratio covenants
Reputable Bank	Bank has more than 2% market share in the syndicated loan market in the sample period (Bushman and Wittenberg-Moerman 2012)

Appendix C. Lender ID aggregation

This table aggregates lenders with slightly different names that are likely to belong to the same parent bank. While this list is by no means capturing all variations in lenders' names in Dealscan, it covers a majority of loans in our sample.

Old Lender ID	Old Lender Name	New Lender ID	New Lender Name
127349	Bank of America Merrill Lynch	6532	Bank of America
84685	Bank of America NA	6532	Bank of America
68290	Citibank NA	5893	Citibank
6231	Citicorp North America Inc	5893	Citibank
10432	Citicorp USA Inc	5893	Citibank
30949	Citigroup	5893	Citibank
113896	Credit Suisse Cayman Islands	7828	Credit Suisse AG
1468	Credit Suisse First Boston	7829	Credit Suisse AG
99326	Deutsche Bank AG New York Branch	7861	Deutsche Bank AG
14037	Fleet Bank NA	6225	Fleet Bank
5972	Fleet National Bank	6225	Fleet Bank
6531	JP Morgan & Co	38939	JP Morgan
87488	JP Morgan Chase	87000	JP Morgan Chase Bank NA
83272	JP Morgan Chase & Co	87000	JP Morgan Chase Bank NA
84950	JPMorgan Chase Bank	87000	JP Morgan Chase Bank NA
28124	Key Bank NA	22334	Key Bank
27114	Keybank NA	22334	Key Bank
87225	PNC Bank NA	6542	PNC Bank
13252	Toronto Dominion Bank [Texas]	7827	Toronto Dominion Bank
87229	Wachovia Bank NA	6443	Wachovia Bank
6541	Wells Fargo & Co	6123	Wells Fargo Bank
87407	Wells Fargo Bank NA	6123	Wells Fargo Bank

Appendix D. Example of Required Lenders clause

Below is an excerpt from a loan agreement between THQ Inc. and a group of lenders. The loan is syndicated by Bank of America.[26]

"Required Lenders": Lenders (subject to Section 4.2. Defaulting Lenders) having (a) Revolver Commitments in excess of 50% of the aggregate Revolver Commitments; and (b) if the Revolver Commitments have terminated, Loans in excess of 50% of all outstanding Loans.

14.1. Consents, Amendments and Waivers.

14.1.1. Amendment. No modification of any Loan Document, including any extension or amendment of a Loan Document or any waiver of a Default or Event of Default, shall be effective without the prior written agreement of Agent (with the consent of Required Lenders) and each Obligor party to such Loan Document; provided, however, that

(a) without the prior written consent of Agent, no modification shall be effective with respect to any provision in a Loan Document that relates to any rights, duties or discretion of Agent;

(b) without the prior written consent of Issuing Bank, no modification shall be effective with respect to any LC Obligations or Section 2.3;

(c) without the prior written consent of each affected Lender, no modification shall be effective that would (i) increase the Commitment of such Lender; or (ii) reduce the amount of, or waive or delay payment of, any principal, interest or fees payable to such Lender; and

(d) without the prior written consent of all Lenders (except a Defaulting Lender as provided in Section 4.2), no modification shall be effective that would (i) extend the Revolver Termination Date; (ii) alter Section 5.6, 7.1 (except to add Collateral) or 14.1.1; (iii) amend the definitions of Borrowing Base (and the defined terms used in such definition), Pro Rata or Required Lenders; (iv) increase any advance rate or increase total Commitments; (vi) release Collateral with a book value greater than $10,000,000 during any calendar year, except as currently contemplated by the Loan Documents; or (vii) release any Obligor from liability for any Obligations, if such Obligor is Solvent at the time of the release.

[26] https://www.sec.gov/Archives/edgar/data/865570/000110465909062958/a09-31246_1ex10d1.htm

Figure 1: Timeline

Figure 1 plots the model's timeline. The gray box denotes the firm's post-borrowing investment, which is an action not present in Gârleanu and Zwiebel (2009).

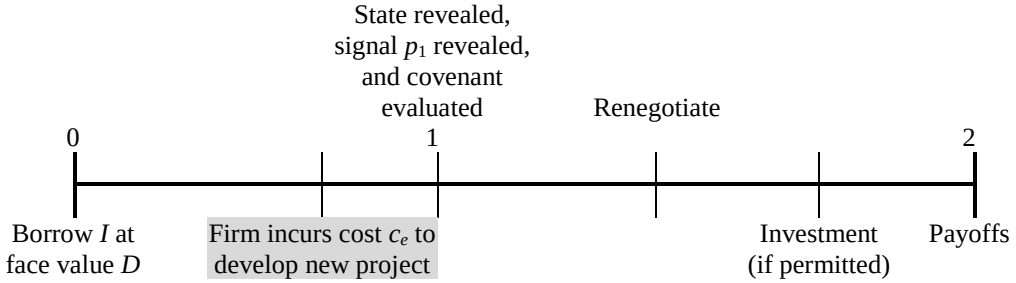
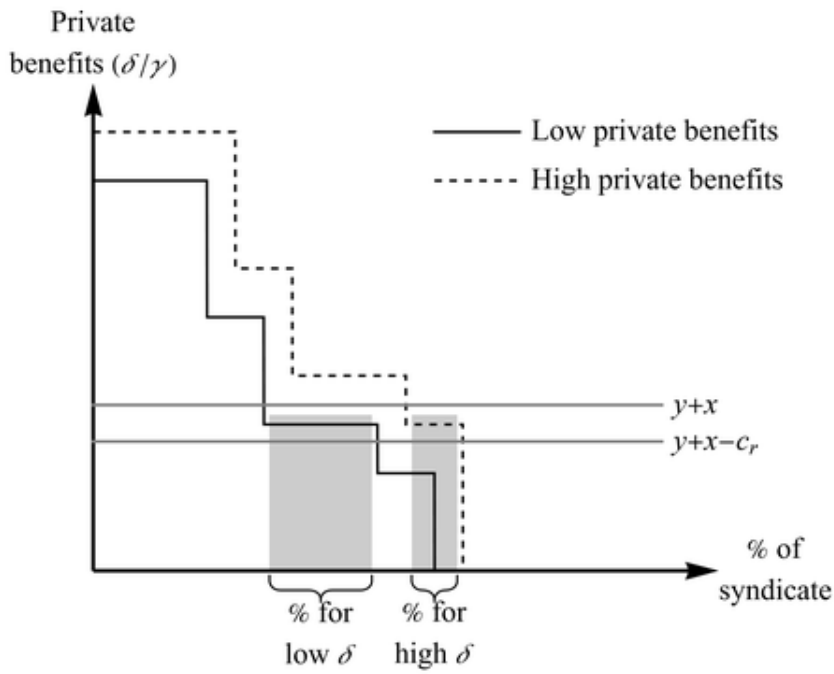


Figure 2: Voting thresholds

Figure 2 illustrates the optimal voting threshold to waive covenants. The plots illustrate the private benefits of syndicate members in descending order, based on their percent of the syndicate holdings. The shaded regions denote the range of voting thresholds that ensure that the marginal vote has private benefits between $y + x$ and $y + x - c_r$.

Panel A: Impact of private benefits δ



Panel B: Impact of risk x

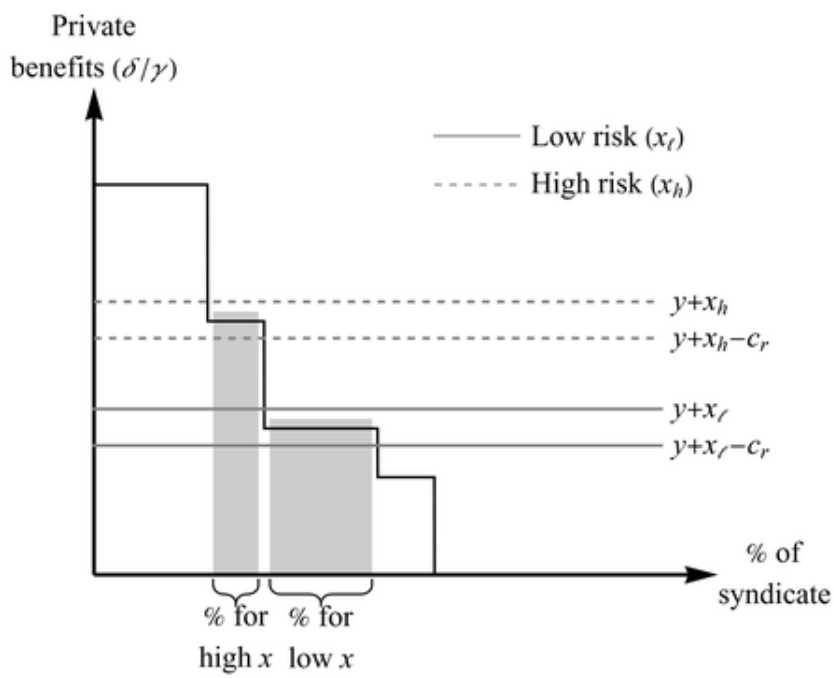


Figure 3: Average Amendment threshold by year

This table plots the average amendment threshold by year. Variables are defined in Appendix B.

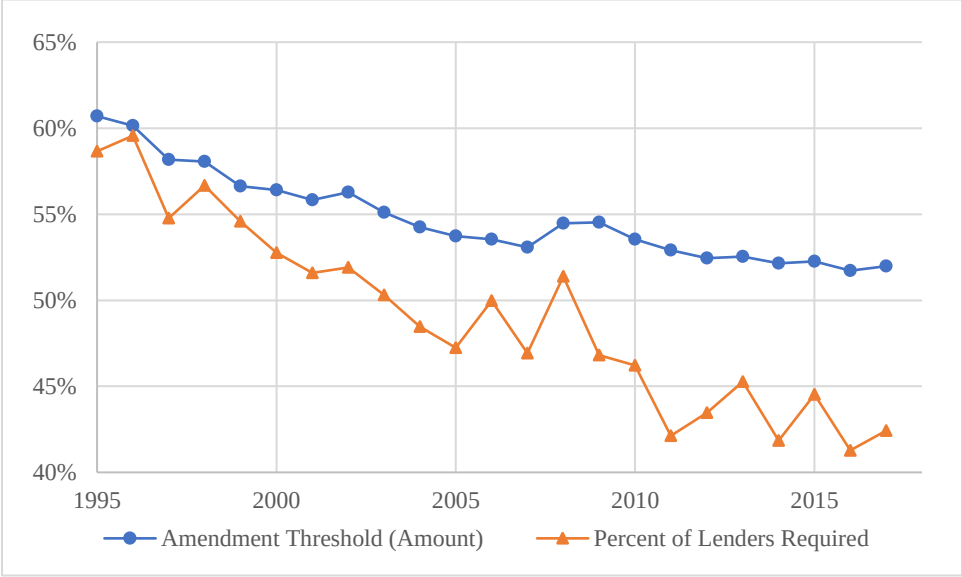


Figure 4: Distribution of the percent of lenders required

This table plots the distribution of *Percent of Lenders Required*, which is the minimal number of lenders required to approve the loan divided by the total number of lenders. The X axis is *Percent of Lenders Required*. The Y axis is the faction of loans that fall into each bin. The red dashed line represents the 50% mark.

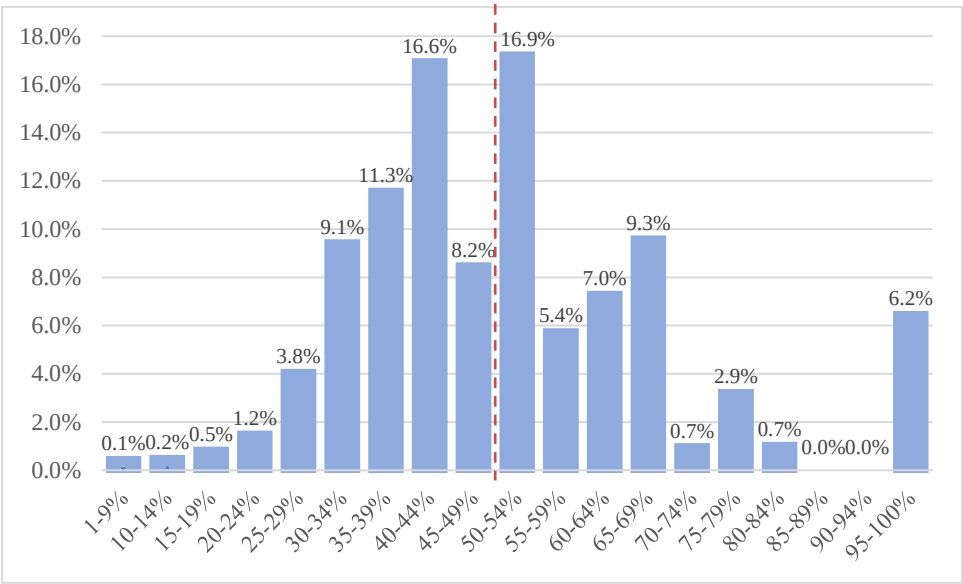
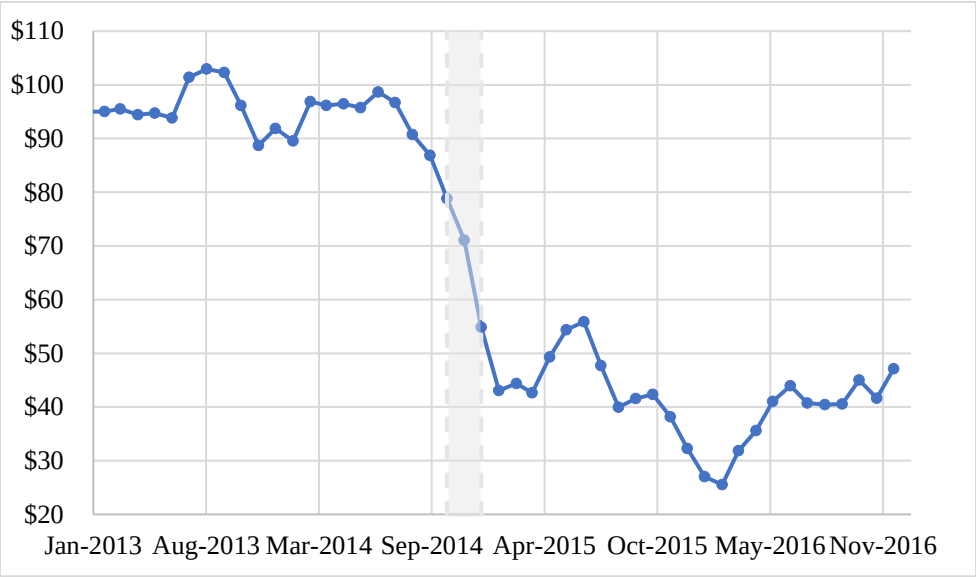


Figure 5: US crude oil price

The table plots the monthly US crude oil price from 2013 to 2016.[a] The Y Axis is the U.S. crude oil first purchase price (Dollars per Barrel). The grey area covers the period between Oct 2014, the beginning of the oil price decline, and Dec 2014.



[a] Source: https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=f000000__3&f=m

Table 1: Sample construction

This table provides details on the construction of our samples of Dealscan loan packages.

	# Loans
# Loans in Dealscan	51,976
Minus	
Missing required lender data	(30,752)
Loans with only one lender	(2,389)
Missing loan/firm level controls	(1,267)
# Loans in Sample	17,568
Minus	
Loans with lender's share	(9,331)
# Loans in Subsample	8,237

Table 2: Distribution of the amendment threshold

This table reports the distribution of the Amendment Threshold (*Amount*) in our sample. The amendment threshold specifies the percent of the loan amount required to approve an amendment.

Amendment Threshold	# loans	Amendment Threshold	# loans
51.0%	13,099	70.0%	17
51.1%	3	71.0%	10
51.5%	1	72.0%	2
52.0%	6	75.0%	110
55.0%	20	75.1%	1
56.0%	7	76.0%	9
57.0%	1	77.0%	2
59.0%	2	80.0%	12
60.0%	175	81.0%	2
60.1%	1	84.0%	1
61.0%	45	85.0%	7
62.0%	9	87.5%	6
62.5%	3	90.0%	5
63.0%	3	95.0%	1
63.3%	2	98.0%	3
64.0%	4	100.0%	60
64.5%	1		
65.0%	39		
66.0%	83		
66.2%	2		
66.5%	2		
66.7%	3,705		
67.0%	104		
67.1%	1		
68.0%	2		
Total number of loans			17,568

Table 3: Summary statistics

Panel A reports summary statistics of loan package and firm characteristics in our sample. All variables are defined in Appendix B. Panel B reports the amendment threshold by industry. Panel C reports the amendment threshold by lead lender. *Supermajority Percent* in Panel C is the percentage of loans with *Amendment Threshold (Amount)* greater than 51%.

Panel A.

Loans with lender's holding	N	mean	sd	p1	p25	p50	p75	p99
Percent of Lenders Required	8,237	0.504	0.179	0.200	0.385	0.467	0.600	1.000
Syndicate Relationship Intensity	8,237	0.114	0.101	0.000	0.031	0.087	0.176	0.375
Have Underwriting Relationship	8,237	0.153	0.360	0.000	0.000	0.000	0.000	1.000
Lead Underwriting Relationship	8,237	0.074	0.261	0.000	0.000	0.000	0.000	1.000
Non-Lead Underwriting Relationship	8,237	0.125	0.330	0.000	0.000	0.000	0.000	1.000
Have Hedge Fund Participant	8,237	0.008	0.089	0.000	0.000	0.000	0.000	0.000
# Lenders	8,237	10.910	7.914	2.000	5.000	9.000	15.000	38.000
Book Leverage	8,237	0.317	0.214	0.000	0.165	0.302	0.436	1.010
ROA	8,237	0.009	0.027	-0.129	0.003	0.010	0.019	0.076
Log (Asset)	8,237	7.392	1.686	3.969	6.114	7.309	8.582	11.214
Log (Amount)	8,237	19.458	1.187	16.973	18.644	19.390	20.253	22.110
Log (Maturity)	8,237	3.696	0.607	1.792	3.584	3.989	4.094	4.554
Loan Spread	8,055	1.516	1.070	0.200	0.750	1.250	2.000	5.500
Investment Grade	8,237	0.366	0.482	0.000	0.000	0.000	1.000	1.000
KZ-index	7,252	-4.356	14.114	-105.81	-3.155	-0.728	0.448	4.436
# Performance Covenants	7,539	1.463	0.978	0.000	1.000	1.000	2.000	4.000
# Capital Covenants	7,539	0.843	0.795	0.000	0.000	1.000	1.000	3.000
All Loans	N	mean	sd	p1	p25	p50	p75	p99
Percent of Lenders Required	17,568	0.551	0.074	0.510	0.510	0.510	0.600	0.750
Syndicate Relationship Intensity	17,568	0.108	0.098	0.000	0.027	0.081	0.167	0.371
Have Underwriting Relationship	17,568	0.156	0.363	0.000	0.000	0.000	0.000	1.000
Lead Underwriting Relationship	17,568	0.082	0.274	0.000	0.000	0.000	0.000	1.000
Non-Lead Underwriting Relationship	17,568	0.123	0.328	0.000	0.000	0.000	0.000	1.000
Have Hedge Fund Participant	17,568	0.015	0.122	0.000	0.000	0.000	0.000	1.000
# Lenders	17,568	10.069	7.720	2.000	4.000	8.000	14.000	38.000
Book Leverage	17,568	0.340	0.232	0.000	0.174	0.318	0.466	1.135
ROA	17,568	0.007	0.030	-0.152	0.002	0.009	0.019	0.083
Log (Asset)	17,568	7.340	1.605	4.009	6.160	7.253	8.420	11.214
Log (Amount)	17,568	19.522	1.179	16.973	18.644	19.519	20.367	22.181
Log (Maturity)	17,568	3.779	0.598	1.792	3.584	4.094	4.094	4.605
Loan Spread	17,048	1.809	1.227	0.200	0.950	1.500	2.500	6.250
Investment Grade	17,568	0.288	0.453	0.000	0.000	0.000	1.000	1.000
KZ-index	15,785	-3.945	14.136	-106.20	-2.725	-0.416	0.898	5.918
# Performance Covenants	15,985	1.639	1.012	0.000	1.000	2.000	2.000	4.000
# Capital Covenants	15,985	0.693	0.772	0.000	0.000	1.000	1.000	3.000

Table 3: Summary statistics (continued)

Panel B. Amendment Threshold by Industry (Top 10)

Rank	SIC	Industry	# Loans	Percent Lender Required	Supermajority Percent[a]
1	49	Electric, Gas and Sanitary Services	842	47.9%	17.93%
2	67	Holding and Other Investment Offices	729	53.2%	49.73%
3	13	Oil and Gas Extraction	573	55.8%	49.82%
4	73	Business Services	540	52.4%	20.83%
5	35	Machinery and Computer Equipment	366	49.1%	23.51%
6	28	Chemicals and Allied Products	346	48.2%	14.78%
7	63	Insurance Carriers	302	48.4%	20.49%
8	36	Electronic & Other Electrical Equipment & Components	286	53.0%	24.52%
9	48	Communications	266	46.0%	13.51%
10	38	Measuring, Photographic, Medical, & Optical Goods	258	50.8%	14.71%
		Total # Loans	8,237		

Panel C. Amendment Threshold by Lead Lender (Top 10)

Lead Lender	# Loans	Percent Lender Required	Supermajority Percent
Large Banks	*4,234*	*45.55%*	*14.9%*
Bank of America	1,165	47.20%	18.1%
JP Morgan Chase Bank	808	44.85%	11.3%
Citicorp USA	685	43.24%	10.8%
JP Morgan	507	41.89%	5.6%
Chase Manhattan Bank	379	49.35%	26.3%
Wells Fargo & Co	402	45.80%	20.6%
Credit Suisse	82	45.03%	7.2%
Barclays	54	44.15%	5.4%
Deutsche Bank	49	48.28%	6.7%
BNP Paribas	48	53.86%	45.3%
Small Banks	*4,003*	*55.62%*	*39.0%*
Total # Loans	8,237		

[a] The "Supermajority Percent" in Panel B and Panel C is based on the full sample of 17,568 loans.

Table 4: Amendment thresholds and syndicate relationship

This table reports the regression results of amendment threshold on information asymmetry among lenders. Each observation is a loan package. In columns 1 to 3, the dependent variable *Percentage of Lenders Required* is the minimal number of lenders needed to reach the amendment threshold, divided by the total number of lenders. In columns 4 to 6, the dependent variable *Amendment Threshold (Amount)* is the amendment threshold stated in the contract, which is the fraction of loan principal required to amend the contract. The independent variables are described in Appendix B. Robust standard errors are applied to all regression specifications. Each coefficient's t-statistic appears directly below the coefficient estimate. ***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels. The fixed effects reduce the sample size from the 8,237 and 17,568 observations in Table 1.

Dependent Variables	Percentage of Lenders Required			Amendment Threshold (Amount)		
	(1)	(2)	(3)	(4)	(5)	(6)
Syndicate Relationship Intensity	-0.338***	-0.291***	-0.219***	-0.079***	-0.056***	-0.044***
	(-9.35)	(-8.15)	(-6.56)	(-8.55)	(-6.15)	(-4.89)
# Lenders	-0.010***	-0.009***	-0.005***	-0.001***	-0.001***	-0.000**
	(-34.34)	(-27.92)	(-15.49)	(-13.56)	(-8.14)	(-2.41)
Book Leverage		-0.036***	-0.029***		-0.007***	-0.004*
		(-3.91)	(-3.18)		(-2.99)	(-1.76)
ROA		-0.177**	-0.048		-0.075***	-0.043**
		(-2.40)	(-0.66)		(-4.16)	(-2.42)
Log (Asset)		-0.013***	-0.001		-0.006***	-0.005***
		(-7.37)	(-0.59)		(-13.86)	(-8.93)
Log (Package Amount)			-0.046***			-0.006***
			(-14.72)			(-8.46)
Log (Package Maturity)			-0.026***			-0.011***
			(-7.52)			(-11.79)
Constant	0.724***	0.806***	1.654***	0.630***	0.667***	0.814***
	(79.87)	(60.01)	(32.01)	(172.88)	(145.33)	(65.65)
Observations	8,072	8,072	8,072	17,362	17,362	17,362
R-squared	0.453	0.459	0.488	0.326	0.335	0.347
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES	YES	YES

Table 5. Amendment thresholds and syndicate characteristics

This table reports the regression results of amendment threshold on whether the syndicate has a hedge fund participant and whether lenders have prior underwriting relationship with the borrower. Each observation is a loan package. In columns 1 and 4, the independent variable *Hedge Fund Participant* is an indicator variable equal to one if one of the syndicate members is a hedge fund. In columns 2 and 5, *Have Underwriting Relationship* is an indicator variable equal to one if the syndicate has at least one lender with an underwriting relationship with the borrower. In columns 3 and 6, the independent variable *Have Underwriting by (non) Lead* is an indicator variable equal to one if the (non) lead lender has prior underwriting relationship with the borrower. Robust standard errors are applied to all regression specifications. Each coefficient's t-statistic appears directly below the coefficient estimate. ***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variables	Percentage of Lenders Required			Amendment Threshold (Amount)		
	(1)	(2)	(3)	(4)	(5)	(6)
Hedge Fund Participant	-0.066***			-0.008**		
	(-3.48)			(-2.40)		
Have Underwriting Relationship		0.023***			0.005***	
		(5.92)			(4.27)	
Underwriting by Lead			0.028***			0.011***
			(5.16)			(6.23)
Underwriting by non-Lead			0.014***			0.002
			(3.30)			(1.21)
Syndicate Relationship Intensity	-0.225***	-0.223***	-0.229***	-0.046***	-0.045***	-0.047***
	(-6.74)	(-6.69)	(-6.84)	(-5.06)	(-5.00)	(-5.18)
Control Variables	YES	YES	YES	YES	YES	YES
Observations	8,072	8,072	8,072	17,362	17,362	17,362
R-squared	0.489	0.489	0.490	0.347	0.347	0.348
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES	YES	YES

Table 6: Amendment threshold and default risk

This table reports the regression results of amendment threshold on measures of default risk. Each observation is a loan package. In columns 1 to 3, the dependent variable *Percentage of Lenders Required* is the minimal number of lenders needed to reach the amendment threshold, divided by the total number of lenders. In columns 4 to 6, the dependent variable *Amendment Threshold (Amount)* is the amendment threshold stated in the contract. In column 1 (4), the independent variable *All-in spread drawn* is the amount the borrower pays in basis points over LIBOR or the LIBOR equivalent for each dollar drawn down. In column 2 (5), KZ-Index is the Kaplan-Zingales Index. In column 3 (6), *Investment Grade* is an indicator variable equal to 1 if the S&P long term debt rating is equal to or better than BBB-. Firm and loan level controls variables are the same as in previous tables and are omitted for reporting. Robust standard errors are applied to all regression specifications. Each coefficient's t-statistic appears directly below the coefficient estimate. ***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variables	Percentage of Lenders Required			Amendment Threshold (Amount)		
	(1)	(2)	(3)	(4)	(5)	(6)
Loan spread	-0.011***			-0.002***		
	(-4.34)			(-3.19)		
KZ-Index		-0.0003**			-0.0001*	
		(-2.51)			(-1.68)	
Investment Grade			0.015***			0.003**
			(4.03)			(2.14)
Syndicate Relationship Intensity	-0.234***	-0.208***	-0.224***	-0.048***	-0.033***	-0.046***
	(-6.91)	(-5.81)	(-6.70)	(-5.20)	(-3.55)	(-5.03)
Control Variables	YES	YES	YES	YES	YES	YES
Observations	7,900	7,091	8,072	16,867	15,580	17,362
R-squared	0.489	0.496	0.489	0.346	0.340	0.347
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES	YES	YES

Table 7: Amendment threshold and the 2014 oil shock

Panel A reports the effect of the 2014 oil shock on firms' operating performance. The dependent variables are percentage changes of revenue, operating cash flow, and net income relative to the prior year. The independent variable *Oil & Gas Industry* equals 1 if the firm is in the oil and gas extraction (SIC=13) or petroleum refining and related (SIC=29) industries. *Post* is an indicator variable that equals 1 if the loan is taken after Oct 2014. Panel B reports the effect of the oil shock on voting rules. The dependent variables are amendment thresholds. Firm and loan level controls variables are the same as in previous tables and are omitted for reporting. Coefficients on *Oil & Gas Industry* are omitted due to collinearity with industry fixed effects. Robust standard errors are applied to all regression specifications. Each coefficient's t-statistic appears directly below the coefficient estimate. ***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A.

Dependent Variables	Δ Revenue	Δ OCF	Δ Earnings
	(1)	(2)	(3)
Oil & Gas Industry × Post	-0.364***	-0.536**	-1.065
	(-5.37)	(-2.05)	(-1.32)
Post	0.046*	0.061	0.250
	(1.66)	(0.37)	(0.71)
Syndicate Relationship Intensity	-0.025	0.116	-0.230
	(-0.20)	(0.21)	(-0.12)
Control Variables	YES	YES	YES
Observations	2,436	2,441	2,442
R-squared	0.227	0.088	0.103
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Lender FE	YES	YES	YES

Table 7: Amendment threshold and the 2014 oil shock (continued)

Panel B.

Dependent Variables	Percentage of Lenders Required	Amendment Threshold (Amount)
	(1)	(2)
Oil & Gas Industry × Post	-0.071**	-0.006
	(-2.12)	(-0.50)
Post	0.006	0.001
	(0.37)	(0.25)
Syndicate Relationship Intensity	-0.124	-0.046**
	(-1.16)	(-1.99)
Control Variables	YES	YES
Observations	960	2,450
R-squared	0.488	0.284
Year FE	YES	YES
Industry FE	YES	YES
Lender FE	YES	YES

Table 8: Amendment threshold and financial covenants

This table reports the regression results of amendment threshold on financial covenants. Each observation is a loan package. In columns 1 and 2, the dependent variable *Percentage of Lenders Required* is the minimal number of lenders needed to reach the amendment threshold, divided by the total number of lenders. In columns 3 and 4, the dependent variable *Amendment Threshold (Amount)* is the amendment threshold stated in the contract. *# Performance Covenants* and *# Capital Covenants* are the number of performance covenants and the number of capital covenants, defined as in Christensen and Nikolaev (2012) in Appendix B. Robust standard errors are applied to all regression specifications. Each coefficient's t-statistic appears directly below the coefficient estimate. ***, **, and * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent Variables	Percentage of Lenders Required		Amendment Threshold (Amount)	
	(1)	(2)	(3)	(4)
# Performance Covenants	-0.011***	-0.008***	-0.004***	-0.002**
	(-5.23)	(-3.59)	(-6.51)	(-2.35)
# Capital Covenants		0.010***		0.011***
		(3.95)		(11.64)
Syndicate Relationship Intensity	-0.210***	-0.208***	-0.048***	-0.051***
	(-5.62)	(-5.59)	(-4.98)	(-5.32)
Control Variables	YES	YES	YES	YES
Observations	7,380	7,380	15,793	15,793
R-squared	0.492	0.493	0.348	0.355
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Lender FE	YES	YES	YES	YES