Debt Dispersion, Creditor Conflicts, and Covenants in Corporate Loans*

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Abstract

How do conflicts between different creditors affect debt contract terms? We study this question by examining the effect of dispersion in firms' existing debt structures on the use of covenants in new corporate loans. We find that more covenants are included when firms' existing debt is more dispersed. This effect is strongest for firms with high default risk and opaque accounting. Our findings suggests that covenants are not only used to address creditor-shareholder conflicts but also conflicts between creditors. Further, our results indicate a dynamic component missing from static debt structure models: Dispersion today entails constraints when issuing future debt.

JEL classification: G32

Keywords: Debt Dispersion, Creditor Conflicts, Loan Covenants, Debt Structure

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1 Introduction

Companies obtain debt financing from many different sources simultaneously (e.g., Rauh and Sufi, 2010; Colla, Ippolito, and Li, 2013). The interests of different creditors, however, may not always be fully aligned. The owners of commercial paper, for example, may only care about the short-term prospects of the borrower, while relationship banks may take a more long-term view. Bondholders may only have a financial stake in the debtor, while leasing companies may also have commercial interests. Some lenders may hold senior, collateralized claims, while others hold junior, unsecured debt. Creditors holding different types of debt may thus disagree on the corporate policies that the borrowing firm should follow (e.g., the optimal level of cash holdings, capital investments, or R&D expenditures).

In this paper, we examine empirically how the potential for conflicts between different creditors affects the contract terms of debt instruments. In particular, we study how dispersion among different types of debt in firms' existing capital structures affects the use of covenants in new corporate loans. Using detailed information on the debt structures of 1,557 U.S. firms and on the contract terms of 4,537 loans issued between 2001 and 2010, we show that new loans include more covenants when the borrowing firms' existing debt is more dispersed. Specifically, our estimates imply that an increase in debt dispersion from the 25th to the 75th percentile of the sample distribution entails an increase in the total number of covenants by 12%. This finding is consistent with the notion that more dispersed debt structures go hand in hand with a greater potential for conflicts between different lenders: As some creditors may try to influence the borrower's actions to their benefit – and to the detriment of others – new lenders may seek protection by including additional contract terms, such as covenants, in the loan agreement. To the best of our knowledge, we are the first to empirically show this link between dispersion in firms' existing debt structures and the use of covenants in new debt instruments.

When examining which covenants are affected, we find that dispersion leads to an increase

in the use of cash flow sweeps, minimum liquidity and earnings requirements, and restrictions on capital expenditures.[1] In contrast, we find no effect on dividend or leverage restrictions or minimum net worth requirements. Consistent with the notion that creditor conflicts are particularly costly in times of distress and aggravated by asymmetric information, we further find that the effect of debt structure dispersion on the use of covenants is strongest for firms with high default risk, high leverage, and opaque accounting.

We also examine the relation between dispersion in firms' existing debt structures and other loan contract terms. We find no evidence of an effect on interest spreads, the use of performance pricing clauses, or the probability that a loan is collateralized. However, we find some tentative evidence that new loans of firms with more dispersed debt structures contain more default clauses.[2] Finally, we investigate the effect of debt structure dispersion on the contract terms of new bonds. This analysis reveals that dispersion in firms' existing debt is also associated with a larger number of covenants and default clauses in new bond contracts.

Our measure for the dispersion in a firm's existing debt structure is based on Colla, Ippolito, and Li (2013). First, we classify each component of a firm's total debt as one of seven types: senior bonds and notes, drawn credit lines, term loans, subordinated bonds and notes, capital leases, commercial paper, and other debt. Second, we compute the Herfindahl-Hirschman Index (HHI) among the seven debt types and define *Debt Dispersion* as $1 - HHI$.[3] We then estimate the effect of dispersion in the firm's existing debt structure on the use of covenants in new loans,

[1]Cash flow sweeps prescribe that the proceeds from certain activities (e.g., asset sales) be used to repay the loan. Throughout the paper, we refer to a number of restrictive provisions in the loan contracts – including cash flow sweeps – generically as covenants. Table A.1 in Appendix A provides a list.

[2]Default clauses specify the events that constitute a default. A performance pricing clause specifies how the interest rate varies with changes in measures of financial performance (e.g., the borrower's credit rating, leverage, or interest coverage ratio).

[3]The HHI measures concentration. Thus, to measure dispersion, we use $1 - HHI$. In addition, we normalize the HHI so that *Debt Dispersion* falls within the unit interval.

taking advantage of within-firm variation of debt dispersion that occurs over time.

A key challenge for our analysis is the concern that the observed relation between debt structure dispersion and the use of covenants is due to unobserved differences in the firms' credit risk. To provide evidence in support of a causal effect of dispersion on covenant usage, we thus include individual dummy variables for all possible credit ratings that a firm may have in all regression specifications. In addition, we control for firm and year fixed effects, different loan types and loan purposes, as well as for a number of time-varying firm and loan characteristics that have been shown to affect both debt structure dispersion and covenant usage.

The findings of Colla, Ippolito, and Li (2013) moreover suggest that credit risk and debt dispersion are negatively correlated. Further, lower credit risk should arguably lead to fewer covenants in the loan contracts. Hence, unobserved differences in credit risk should induce a negative correlation between debt dispersion and the use of covenants: A firm with lower unobserved credit risk would choose a more dispersed debt structure and obtain loans with fewer covenants. If anything, unobserved credit risk would thus bias against us, making it more difficult to find a positive relation between debt structure dispersion and covenant usage.

We further corroborate our findings with a two-stage least squares (2SLS) estimation. The idea is that if a large portion of a firm's long-term debt matures, the firm's debt structure changes. The timing when the long-term debt matures, however, was determined many years in the past and is thus plausibly exogenous. Hence, we use instances when a significant fraction of a firm's long-term debt matures to instrument the firm's debt dispersion. This instrumental variable approach confirms our main result: Debt structure dispersion has a positive and significant effect on covenant usage. Various robustness tests moreover show that our results are not explained by maturity dispersion, debt structure complexity, or differences in the slack of the covenants. Finally, we show that our findings are not sensitive to the way we measure debt structure dispersion.

Our paper is related to several strands of the literature: empirical work on debt contracting,

research on firms' simultaneous use of different types of debt, and papers on the effect of existing creditors on the contract terms or new debt instruments. Regarding empirical research on debt contracting, the existing literature has mostly focused on conflicts between shareholders and debtholders.[4] Our findings, however, highlight a second source of conflicts: dispersion among different debt types. Indeed, our findings provide evidence that covenants are not only used to mitigate conflicts between equity holders and creditors but also to address potential conflicts between creditors that own different types of debt. Hence, our results show that not only the level of debt or the ratio of debt to equity but also the composition of a firm's existing debt affects the contract terms of new debt instruments.

Concerning empirical research on firms' debt structures, several recent papers provide evidence on firms' simultaneous use of different types of debt and on the factors that influence the level of debt dispersion. Rauh and Sufi (2010), for example, show that debt heterogeneity is a first-order aspect of capital structure and that many firms use different types of debt at the same time. Colla, Ippolito, and Li (2013) find that large, rated firms tend to rely on multiple debt types, while small, unrated firms tend to rely predominantly on a single type of debt. However, so far, this literature is largely silent on the consequences of dispersion among different debt types.

Our findings contribute to this literature by showing how dispersion in a firm's existing debt structure affects the contract terms of new debt instruments. In particular, we show that existing debt structures that are more dispersed lead to additional covenants in future loans and bonds. Given that additional covenants are likely to impose additional constraints on a firm's operating and financial policies, our findings point to one of the costs of debt structure dispersion: additional, restrictive provisions in future debt contracts. The associated lack of

[4]E.g., Smith and Warner (1979), Bradley and Roberts (2004), Davydenko and Strebulaev (2007), and Demiroglu and James (2010). An exception are Dass, Nanda, and Wang (2012) who focus on conflicts within loan syndicates.

financial and operational flexibility may be one of the reasons why many firms appear to avoid excessive dispersion in their debt structures (e.g., Colla, Ippolito, and Li, 2013). Further, our empirical results indicate a dynamic component that is missing from static models of optimal debt dispersion: More debt dispersion today leads to additional covenants (i.e., constraints) in the future. Hence, our findings also have implications for the large body of theoretical research that seeks to understand the costs and benefits of concentrated versus dispersed debt structures.[5]

Finally, the question of how existing creditors affect the contract terms of new loans and bonds has received relatively little attention in the empirical literature. Two exceptions are Booth (1992) and Datta, Iskandar-Datta, and Patel (1999). Booth (1992) shows that bank loans obtained by firms with outstanding public debt carry lower spreads. He attributes this reduction in the cost of bank debt to the cross-monitoring by public debtholders. Datta, Iskandar-Datta, and Patel (1999) provide evidence that the existence of bank debt helps reduce the yield spread of first-time bond issuers. Our paper differs from these two papers in that we focus on the effect of potential conflicts between different debt types rather than on the benefits of cross-monitoring.

The rest of the paper is organized as follows. We develop our hypotheses in Section 2 and describe the data sources and variables in Section 3. In Section 4, we present our main findings regarding the effect of debt structure dispersion on the use of covenants. Robustness tests and potential alternative explanations are discussed in Section 5. Evidence regarding the effect of debt dispersion on loan contract terms other than covenants as well as on the contract terms of new bonds is presented in Section 6. Section 7 concludes.

[5]E.g., Berglöf and von Thadden (1994), Bolton and Freixas (2000), Bolton and Scharfstein (1996), Bris and Welch (2005), DeMarzo and Fishman (2007), Diamond (1991, 1993), and Park (2000). A key insight from this literature is that dispersion affects the costs of renegotiation and that the optimal debt structure depends on the trade-off between deterring strategic defaults ex ante and ensuring efficiency in case of liquidity defaults ex post.

2 Hypotheses

The existence of prior debt claims may make it easier or less expensive for a firm to obtain additional debt financing; or it may make it more difficult or more expensive. On the one hand, if its existing creditors play a monitoring or disciplining role, a firm may find it easier to obtain additional debt financing from new lenders (e.g., Booth, 1992; Datta, Iskandar-Datta, and Patel, 1999). Further, the existence of prior debt may improve a firm's reputation for being a good debtor, which in turn may decrease its borrowing costs (Diamond, 1989).

On the other hand, its existing creditors hold a claim against the firm's future cash flows, which may make it more difficult to attract additional debt. Moreover, a firm's creditors may disagree on the operating and financial policies that the firm should follow. While some lenders, such as bondholders, may have a purely financial relationship with the firm, others, such as leasing companies, may have both financial and commercial interests. Similarly, some creditors may have a short-term interest, while others, such as relationship banks, may take a more long-term view. Further, the different lenders' claims may differ in seniority and may be secured to varying degrees by different types of collateral. Hence, creditors holding different types of debt may disagree on issues such as a firm's optimal level of cash holdings, capital investments, R&D expenditures, or overall strategy.

Suppose, for example, a firm finds itself with excess cash on its hands. Creditors owning short-term commercial paper may prefer the firm to hoard the cash as a liquidity buffer until their claims mature. A leasing company, instead, may prefer the firm to invest the cash in a new project for which it can provide additional capital leases. A relationship bank may favor using the cash for an expansion into new regions in which it can provide further banking services. Different types of creditors are hence likely to disagree on the optimal use of the firm's resources.

The potential for such disagreement among different types of creditors is likely to be increasing in the dispersion of a firm's total debt among different debt types. Intuitively, if there is only

a single type of debt, all creditors hold the same type of claim against the firm. This limits the scope for conflicts between creditors.[6] If, however, the firm's debt structure is dispersed among many different types of debt, the potential for conflicts is likely to be larger as the different lenders' interests are less likely to be aligned.[7]

The potential for conflicts among a firm's lenders is relevant for the design of debt contracts to the extent that its creditors can influence the firm's actions. They may do so, for example, through board participation, the threat of withholding future financing, direct intervention after covenant violations, or through the bankruptcy proceedings in case of default. Chava and Roberts (2008), Roberts and Sufi (2009), and Nini, Smith, and Sufi (2009, 2012), for example, provide evidence that creditors indeed play an active role in borrowers' financing, investment, and governance decisions. In that case, some creditors may attempt to influence the firm's policies to their benefit and to the detriment of others.

Note that the potential for creditor conflicts is likely to be a concern even if the debt is senior or backed by collateral. If unmitigated creditor conflicts increase the firm's default risk, prolong possible bankruptcy proceedings, or reduce the value of collateral, even senior, secured lenders are affected. Hence, aware of the possibility that other creditors may influence the firm's policies, even senior, secured lenders are likely to consider possible creditor conflicts when deciding how much and at what conditions to lend to the firm.

One possible response to the potential for conflicts among a firm's different lenders is to include additional covenants in the debt contracts. This can reduce the expected cost of conflicts in several ways. First, covenants can address potential conflicts directly by prescribing certain actions and constraining others. For example, the covenants may limit M&A activities, prevent

[6]Conflicts between debtholders and shareholders may still arise, of course. Our paper, however, focuses on the effects of potential conflicts between a firm's creditors.

[7]An exception would be the case in which all creditors hold the firm's different debt types in equal proportions (i.e., all creditors are equally invested in the firm's bonds, loans, capital leases, commercial paper, and other debt).

the firm from selling core assets, or prescribe that excess cash be used to repay its debt. Second, covenants can indirectly affect the firm's actions by prescribing that certain financial ratios be met. For example, the firm may be obliged to maintain its debt-to-assets ratio below a given level or to ensure that its interest coverage ratio remains above a certain threshold. Such covenants also help reduce the firm's default risk. This is important because creditor conflicts are likely to be particularly costly in times of distress (e.g., Hoshi, Kashyap, and Scharfstein, 1990). Finally, covenants provide debtholders with decision rights in case the covenants are violated (e.g., Gârleanu and Zwiebel, 2009; Roberts and Sufi, 2009). In that case, the lenders can ask for an immediate debt repayment or they may choose to renegotiate the debt contract or to waive the covenant violation. Denis and Wang (2014) moreover show that a firm's creditors can influence its operating and financial policies through covenant renegotiations even outside of default and in the absence of any reported covenant violation. Debt covenants can thus address potential conflicts of interest between a firm's creditors by prescribing certain actions and constraining others, by reducing the risk of financial distress, and by allocating decision rights to the lenders. We therefore predict that new lenders respond to greater dispersion in a firm's existing debt structure by including more covenants in the new debt contracts.

Note that our prediction is about the effect of dispersion among creditors holding different types of claims (i.e., different types of debt). This is important as the existing literature typically makes predictions about the effect of dispersion among creditors holding the same type of claim (i.e., the same type of debt). Gârleanu and Zwiebel (2009), for example, predict that dispersedly held public bonds contain less strict covenants than privately held bank debt. The intuition is that covenants in a bank loan with concentrated ownership can be renegotiated, while free-rider and coordination problems among dispersed bondholders make covenant renegotiations virtually impossible. Hence, dispersion among creditors holding the same type of claim increases the cost of including covenants in the debt contract.

Our prediction is different. Dispersion among different types of debt – i.e., different types

of claims – is unlikely to affect the cost of renegotiating the covenants in a particular debt contract. If, for example, a covenant in a given bank loan is violated, renegotiation takes place between the borrower and the bank. The owners of other types of debt (e.g., bondholders) are not involved. Dispersion among different types of debt is thus unlikely to increase the cost of including covenants in a given contract. However, dispersion among different types of debt may increase the benefits of including covenants that address conflicts between different claimholders. Hence, we predict a positive effect of debt structure dispersion on the use of covenants.

> ***Hypothesis 1:*** *New debt that is raised by firms whose existing debt structures are more dispersed includes more covenants than debt raised by firms with less dispersed debt structures.*

One may expect that conflicts among a firm's lenders are both more severe and particularly damaging in times of distress. In good times, when the firm is able to meet all of its obligations, the interests of its various creditors are more likely to be aligned than during bad times. Furthermore, disagreement among its lenders is likely to be more costly in bad times, when refinancing and restructuring decisions must be taken swiftly. Indeed, Hoshi, Kashyap, and Scharfstein (1990) find that financial distress is more costly for firms that are likely to have significant creditor conflicts. Further, using data on Chapter 11 bankruptcy filings, Ivashina, Iverson, and Smith (2013) show that firms whose creditors are more dispersed are less likely to restructure with a pre-arranged plan, spend more time in bankruptcy, and are more likely to be liquidated rather than re-organized.

Hence, potential creditor conflicts are likely to have a stronger effect on the debt contract terms of firms with high default risk and high leverage. Intuitively, if a firm's debt is entirely risk-free, then diverging interests among different creditors should have no effect. If, however, the likelihood of financial distress is high, then new lenders may be particularly concerned about conflicts with other creditors. We thus hypothesize that debt structure dispersion has a stronger

effect on the use of covenants for firms with high default risk and/or high leverage.

> ***Hypothesis 2:*** *The effect of dispersion in firms' existing debt structures on the use of covenants is stronger for firms with high default risk and/or high leverage.*

Finally, new lenders may be particularly concerned about creditor conflicts if a firm's accounting practices are opaque, rendering the quality of reported information low and making it difficult to assess the firm's profitability and future prospects. If a firm's accounting quality is high, the information disclosed in the financial statements is likely to accurately reflect the firm's financial condition. If, however, a firm's accounting quality is low, opportunistic managers may manipulate the information that is disclosed, making it more difficult for investors to evaluate the firm's financial position. In that case, conflicts among the firm's creditors are likely to be aggravated by information asymmetries among the lenders as well as between the firm and its creditors. Thus, we conjecture that the effect of debt dispersion on the use of covenants is especially strong for firms with opaque accounting.

> ***Hypothesis 3:*** *The effect of dispersion in firms' existing debt structures on the use of covenants is stronger for firms with more opaque accounting.*

3 Data

3.1 Data sources

We obtain information on the different types of debt in the capital structures of U.S. firms from Capital IQ. This database provides detailed information on the firms' debt structures at the level of individual debt components such as bank loans, bonds, or capital leases. The data include the type of debt and its maturity, whether or not the debt is secured, and the amount outstanding. For each firm in the sample, we complement the debt capital structure data with accounting information from Compustat.

Following Colla, Ippolito, and Li (2013), we drop utilities (SIC codes 4900–4949) and financial firms (SIC codes 6000–6999) from the sample and keep only companies that are listed on the AMEX, NASDAQ, or NYSE. We also drop observations with missing or zero values for total assets or debt or if the firm's book leverage is outside the unit interval. Further, we remove observations for which the difference between the total debt reported in Compustat and the aggregated debt as reported in Capital IQ exceeds 10% of the firm's total debt as reported in Compustat.

We then augment the dataset with detailed information on new loans that are obtained by the firms in our sample during the years 2001 to 2010. The different loan characteristics (e.g., amount, maturity, covenants, and interest spread) are obtained from DealScan.[8] Events of default clauses are hand collected from the firms' SEC filings.

Each loan observation is paired with the financial and debt structure information of the borrowing firm, measured at the end of the fiscal year that precedes the date on which the loan is issued. If multiple loans are packaged into a single deal, we keep only the largest loan in the package. We do so because loan covenants are designed at the package level, i.e., the same set of covenants applies to all loans within a given package (e.g., Bradley and Roberts, 2004; Christensen and Nikolaev, 2012; Murfin, 2012). Our empirical findings are robust, however, to including all loans within each loan package in the sample. The final dataset comprises 1,557 firms and 4,537 new loans that are issued over the period from 2001 to 2010.

3.2 Debt structure dispersion

We measure the dispersion in a firm's existing debt structure as follows. As in Colla, Ippolito, and Li (2013), we begin by computing the (normalized) Herfindahl-Hirschman Index (HHI) for

[8] DealScan is the standard source of loan contract information used in the literature (e.g., Chava and Roberts, 2008; Christensen and Nikolaev, 2012; Denis and Wang, 2014; Graham, Li, and Qiu, 2008; Murfin, 2012).

each firm j at the end of each year t:

$$HHI_{j,t} = \frac{\sum_{i=1}^{7} h_{j,t,i}^2 - \frac{1}{7}}{1 - \frac{1}{7}}, \tag{1}$$

where $h_{j,t,i}$ for $i = 1, 2, \ldots, 7$ is the fraction of debt type i in firm j's total debt at the end of year t. The seven debt types are senior bonds and notes, drawn credit lines, term loans, subordinated bonds and notes, capital leases, commercial paper, and other debt.[9] We then define:

$$Debt\,Dispersion_{j,t} \equiv 1 - HHI_{j,t}. \tag{2}$$

Debt Dispersion ranges from zero to one. It takes the value zero if the firm relies only on a single type of debt. It takes the value one if the firm uses all seven types of debt equally (i.e., if $h_{j,t,i} = 1/7$ for all $i = 1, 2, \ldots, 7$). Low values of the measure thus indicate a low level of debt structure dispersion; high values indicate a high level of dispersion. In Section 5, we consider four alternative measures of debt structure dispersion and show that our findings are not sensitive to the way we define *Debt Dispersion*.

As Colla, Ippolito, and Li (2013) point out, dispersion between different types of debt is not necessarily identical to dispersion between the ultimate owners of these claims.[10] To the best of our knowledge, comprehensive ownership data for all debt types in our sample is not publicly available. This lack of data prevents us from computing a measure of dispersion that is based directly on the ownership of the different debt claims. However, to the extent that different types of debt tend to be held by different types of creditors, debt type dispersion is a plausible proxy for dispersion among different creditors. Indeed, Colla, Ippolito, and Li's (2013) finding that many firms avoid excessive debt-type-dispersion is consistent with the notion

[9] Other debt includes securities sold under an agreement to repurchase, securitization debt, securities loaned, trust preferred securities, and other unclassified borrowing.

[10] Further, by treating each debt type as a homogeneous mass, *Debt Dispersion* abstracts away from possible conflicts within each type of debt. Conflicts between creditors, however, are arguably more serious across different types of debt than within a given type, due to differences in seniority, control rights, and creditor protection.

that different types of debt are typically held by different types of creditors and that excessive creditor dispersion is costly. Throughout the paper, we thus maintain the implicit assumption that not all of a firm's different types of debt are held by the same creditor.

3.3 Firm and debt characteristics

All firm and debt characteristics that are used as control variables in our analyses are defined as in Colla, Ippolito, and Li (2013) and Graham, Li, and Qiu (2008). A detailed description of all variables is provided in Appendix B. To mitigate the effect of potential outliers, we winsorize all continuous firm and debt characteristics at the 1st and 99th percentile. Using non-winsorized data in the analyses leads to similar results.

3.4 Summary statistics

Table 1 presents summary statistics for our sample of new corporate loans. On average, the firms obtaining the new loans hold assets with a book value of $7.2 billion, have a leverage ratio of 29%, and a market-to-book ratio of 1.7. Almost half of the firms (47%) pay out cash dividends, and 30% have an investment-grade credit rating. Senior bonds and notes, drawn credit lines, and term loans are the most important sources of debt financing, accounting on average for 45%, 21%, and 14% of the firms' total debt, respectively. The average value of *Debt Dispersion* is 0.34. To put this number in perspective, consider a firm that relies on two different types of debt. In that case, a value of 0.34 corresponds to one debt type accounting for 82% and another for 18% of the firm's total debt.

The loans in the sample have an average face value of $510 million, a maturity slightly below four years, and carry an interest spread of 172 basis points above the LIBOR. On average, the loan contracts contain 3.2 covenants.[11] The average number of events of default clauses is 10.3.

[11] DealScan reports no covenants for 1,373 loans. If we drop these loans, the average number of covenants increases to 4.5. Excluding loans without reported covenants throughout the paper does not change our findings.

A performance pricing clause is included in 52% of the loans, and 66% of the loans are secured. About half of the loans (52%) are provided by a relationship bank.[12]

4 Results

4.1 Effect of debt structure dispersion on covenant usage

In this section, we test our prediction regarding the effect of dispersion in a firm's existing debt structure on the use of covenants in new loans (Hypothesis 1). To do so, we regress the number of covenants that are specified in a new loan agreement on the dispersion in the borrowing firm's existing debt, measured at the end of the fiscal year that precedes the date on which the new loan is issued.

A potential concern regarding this analysis is that *Debt Dispersion* is not randomly assigned. A firm may target a certain level of dispersion and choose its debt structure accordingly. Indeed, Colla, Ippolito, and Li (2013) identify several determinants of debt structure dispersion: expected bankruptcy costs, information collection and monitoring costs, and limited access to certain segments of the debt markets. To mitigate the concern that differences along these dimensions confound the effect of debt structure dispersion on covenant usage, we control in our regressions for all explanatory variables that are found to affect a firm's debt structure in Colla, Ippolito, and Li (2013).

Specifically, we control for each firm's leverage, size, tangibility, profitability, market-to-book ratio, cash flow volatility, R&D intensity, and an indicator for firms that distribute cash dividends (*Firm Characteristics*).[13] Importantly, as both Rauh and Sufi (2010) and Colla, Ippolito, and Li (2013) highlight the role of a firm's credit quality, we also include a vector of

[12] We consider a loan provided by a relationship bank if any lead arranger of the loan has been a lead arranger of any previous loan obtained by the borrower during the past five years.

[13] In addition to *Leverage*, we also include $Leverage^2$ in the regressions to allow for a non-linear effect of leverage. Dropping $Leverage^2$ from the regressions does not change our findings.

dummy variables for all possible credit ratings – including no rating – that the firms in our sample may have (*Credit Rating*). This specification allows us to control in a non-parametric way for any possible non-linear effects that a firm's credit rating may have on the number of covenants. We further include a vector of firm dummies (*Firm*), and a vector of dummy variables indicating the year during which the new loan is issued (*Year*).

The Frisch-Waugh-Lovell theorem implies that the approach described above is equivalent to the following three-step procedure. Step 1: Modeling a firm's target level of debt structure dispersion as the sum of an unobservable firm-specific base level, an unobservable year-specific effect, an unobservable effect that is specific to the firm's credit rating, and a linear combination of the time-varying firm characteristics that are included in the regression. Step 2: Computing each firm's "excess debt dispersion" as the difference between the realized debt dispersion and the firm's target level of debt dispersion. Step 3: Regressing the number of covenants in a new loan on the borrowing firm's "excess debt dispersion" and control variables. Hence, the crucial identifying assumption in our setup is that a firm's "excess debt dispersion" is as good as randomly assigned (conditional on covariates).

In addition to the time-varying control variables and fixed effects mentioned above, we also control for different loan characteristics (*Loan Characteristics*) in the regressions: the loan amount, the maturity of the loan, and dummy variables for different loan types and different loan purposes.[14] Moreover, we include an indicator for loans obtained from relationship banks. Finally, we include the number of covenants that are already specified in the borrowing firm's existing loans and bonds that are outstanding at the time when the new loan is issued (*Prior Covenants*).[15]

[14]The different loan types are term loan, revolver-line $<$ one year, revolver-line $\geq$ one year, 364-day facility, and undeclared. The different loan purposes are corporate purposes, debt repayment, takeover, working capital, and undeclared. Our results are robust to dropping *Loan Characteristics* from the regressions.

[15]*Prior Covenants* is based on data for previously issued loans and bonds from DealScan and Mergent FISD. If the same covenant is included in multiple outstanding loans or bonds of the firm, we count the covenant only

In summary, we control for the borrower's credit rating, various time-varying firm and loan characteristics, the number of covenants in already outstanding loans and bonds, and firm and year fixed effects. That is, we estimate regression models of the following form:

$$\begin{aligned} Number\,of\,Covenants_{i,j,t} \;=\; & F\,(\alpha + \beta \cdot Debt\,Dispersion_{j,t-1} \\ & + \gamma' Firm\,Characteristics_{j,t-1} + \delta' Credit\,Rating_{j,t-1} \\ & + \eta' Loan\,Characteristics_{i} + \theta \cdot Prior\,Covenants_{j,t} \\ & + \kappa' Firm_{j} + \lambda' Year_{t} + \varepsilon_{i,j,t}) \end{aligned} \tag{3}$$

where i, j, and t denote loans, firms, and years, respectively. To account for heterogeneity and correlation of the error terms across observations that pertain to the same firm, we compute heterogeneity robust standard errors that allow for clustering at the firm level.

Table 2 presents the results of these regressions. The first column displays the results regarding the effect of debt structure dispersion on the number of financial covenants that are included in the new loan contracts. The second column presents the results regarding the number of general covenants. The last two columns display the results for the total number of covenants (i.e., both financial and general).[16]

In all four columns in Table 2, the coefficient estimate on *Debt Dispersion* is positive and statistically significant (at the 5% level in the first column; at the 1% level in all other columns). Regarding the economic magnitude of the estimated effect, the OLS coefficient on *Debt Dispersion* implies an increase in the total number of covenants by 12% – relative to the sample average of three covenants – for an increase from the 25th to the 75th percentile of the sample

once. Dropping *Prior Covenants* from the regressions does not change our results.

[16]Debt covenants can be categorized as financial covenants or general covenants. Financial covenants require the borrower to ensure that certain accounting ratios remain above or below pre-specified thresholds. General covenants prevent the firm from engaging in certain activities, such as paying dividends or raising additional debt beyond pre-specified amounts. Table A.1 in Appendix A provides a list of the different financial and general covenants that we consider throughout the paper.

distribution of *Debt Dispersion*. This finding is consistent with Hypothesis 1: New loans include more covenants when the borrowing firms' existing debt is more dispersed. In Appendix A, we show that this finding remains unchanged if we drop loans from the sample for which the number of reported covenants is zero (Table A.2).[17]

The estimated effects of the control variables are comparable to those found in the literature (e.g., Graham, Li, and Qiu, 2008; Demiroglu and James, 2010). Large firms and firms with high market-to-book ratios have fewer covenants in their loan contracts. This is consistent with the notion that large firms are perceived as safer, and that firms with high market-to-book ratios try to avoid restrictive covenants that would prevent them from fully exploiting their growth opportunities. We further find that loans with a larger face value include more covenants, possibly because more money is at stake. Finally, we find negative and significant coefficient estimates on *Prior Covenants*. This is consistent with the notion that it may be optimal to include fewer covenants in new loans if a firm is already subject to a large number of covenants in its existing debt.

4.2 Cross-sectional evidence

In this section, we test our cross-sectional predictions. First, to test the prediction that the effect of debt dispersion on the use of covenants is stronger for firms with a high default risk and for firms with high leverage (Hypothesis 2), we define two indicator variables: *Near Default* and *High Leverage*. *Near Default* takes the value one if a firm's credit rating is CCC or lower. *High Leverage* takes the value one if a firm's leverage is larger than the sample median.

Second, we examine whether and how the effect of debt dispersion on the use of covenants

[17]This analysis is motivated by the potential concern that DealScan may miss some covenants in the data collection process. As a result, some loans may be falsely reported as not including any covenants, implying measurement error in the dependent variable. However, under standard assumptions, measurement error in the dependent variable does not bias the OLS coefficient estimates. Consistent with this argument, we find similar results after excluding loans for which DealScan does not report any covenants (Appendix A, Table A.2).

varies with a firm's accounting quality (Hypothesis 3). To do so, we rely on the modified Jones model proposed by Dechow, Sloan, and Sweeny (1995). This model allows us to separate a firm's total accruals into normal accruals, which arise from the firm's core operating activities, and abnormal accruals, which are likely to arise from management manipulation. Large abnormal accruals imply a large abnormal deviation between the cash flows and earnings of a firm. Such deviations make it more difficult for investors to assess the firm's true economic performance. Accordingly, we proxy for each firm's accounting quality in each sample year using an indicator variable, *Opaque Accounting*, that is equal to one if the firm's abnormal accruals (scaled by total assets) are higher than the sample median.[18]

Finally, we estimate OLS regressions that include interaction terms between *Debt Dispersion* and *Near Default*, *High Leverage*, and *Opaque Accounting* in addition to the variables specified in Equation (3).[19] We also include *High Leverage* and *Opaque Accounting* in the specifications to control for their direct effects. *Near Default* is not included because all regressions include dummy variables for all possible credit ratings.

Table 3 presents the results. The first column shows the results regarding the interaction between *Debt Dispersion* and *Near Default*. The coefficient estimate on the interaction term is positive and statistically significant at the 1% level. Similarly, the coefficient estimate on the interaction term between *Debt Dispersion* and *High Leverage* in the second column is positive and significant at the 5% level. Both results support Hypothesis 2: The effect of dispersion in a firm's existing debt structure on the inclusion of covenants in new loans is stronger for firms with high default risk and high leverage.

The third column of Table 3 displays the coefficient estimate on the interaction term between

[18] Assessing a firm's accounting quality based on measures of abnormal accruals is a standard approach in the accounting literature (e.g., Bharath, Sunder, and Sunder, 2008).

[19] We restrict attention to OLS models because the interaction effect in non-linear models (e.g., Poisson) is not, in general, equal to the marginal effect of the interaction term (e.g., Ai and Norton, 2003).

Debt Dispersion and *Opaque Accounting*. The estimated effect is positive and statistically significant at the 1% level. This finding supports Hypothesis 3: The effect of debt dispersion on the use of covenants is stronger for firms with more opaque accounting.

4.3 Effect on different types of covenants

We have provided evidence of a positive effect of debt structure dispersion on the total number of covenants in corporate loans. Nonetheless, not all types of covenants may be affected equally. If dispersion between different types of debt entails additional covenants because new lenders seek protection from potential conflicts between creditors that hold different types of debt, one would expect those covenants to be affected that address such conflicts. Different types of creditors may disagree, for example, on whether the firm should hold excess cash as a liquidity buffer or invest it in new projects. However, there should not be much disagreement between lenders on restricting dividend pay-outs to shareholders. Such restrictions are commonly thought of as addressing conflicts between equity holders and creditors. Hence, one may expect that debt structure dispersion affects the use of covenants that constrain the use of excess cash, require the firm to maintain a minimum amount of liquid assets, or restrict capital expenditures. Covenants that restrict dividend pay-outs, however, should not be affected.

To investigate which covenants are affected by debt structure dispersion, we thus classify each covenant as one of seven types: (1) restrictions on the maximum amount of dividend pay-outs, (2) restrictions on the maximum amount of leverage, (3) requirements to maintain a minimum amount of liquidity, (4) requirements to use excess cash flow to pay down the loan, (5) requirements to maintain a minimum amount of net worth, (6) restrictions on the maximum amount of capital expenditures, and (7) requirements to maintain a minimum amount of EBITDA.

Dividend restrictions as well as maximum leverage and minimum liquidity requirements are specified for more than half of the loans in our sample (55%, 55%, and 54%, respectively).

Cash flow sweeps, minimum net worth covenants, and restrictions on the maximum amount of capital expenditures are included in 27%, 20%, and 18% of the contracts. Only 7% of the loan contracts specify minimum EBITDA requirements. For each loan in our sample, we count the number of covenants within each category, and denote the resulting variables as follows: *Dividend Restrictions*, *Maximum Leverage*, *Minimum Liquidity*, *Cash Flow Sweeps*, *Minimum Net Worth*, *Maximum Capex*, and *Minimum EBITDA*.[20]

Table 4 presents the results of OLS regressions of these variables on *Debt Dispersion* and controls. The coefficient estimates on *Debt Dispersion* are positive and statistically significant in the regressions pertaining to *Minimum Liquidity*, *Cash Flow Sweeps*, *Maximum Capex*, and *Minimum EBITDA*. The estimated coefficients are not significant in the regressions for *Dividend Restrictions*, *Maximum Leverage*, and *Minimum Net Worth*. Hence, Table 4 provides evidence that dispersion among different types of debt increases the use of cash flow sweeps and minimum liquidity requirements but not of dividend restrictions or leverage and net worth constraints. In addition, the regression results provide some evidence that debt structure dispersion entails additional restrictions on capital expenditures as well as minimum earnings requirements.

5 Robustness Tests and Alternative Explanations

In this section, we discuss several robustness tests and potential alternative explanations for our findings. First, we corroborate our findings with a two-stage least squares (2SLS) estimation. Second, we address the concern that our results are driven by dispersion in the maturity structure of a firm's existing debt, the complexity of the existing debt structure, or differences in the slack of the covenants. We present empirical evidence that mitigates these concerns, showing that neither maturity dispersion nor debt structure complexity explains our findings. Third, we show that the covenants that are included in the loan contracts of firms with more dispersed

[20]Using dummy variables that indicate whether a contract contains at least one covenant of a given type does not change our findings regarding the effect of debt structure dispersion on the use of different types of covenants.

debt structures are not set more loosely, indicating that the additional covenants indeed provide additional protection to the lenders. Finally, we consider four alternative measures of debt structure dispersion and show that our results are not sensitive to the way we measure the dispersion in a firm's existing debt structure.

5.1 Instrumental variable regression

The regression specifications presented in the previous section remove the potentially confounding effects of firm characteristics that do not change over time and of time-varying characteristics that can be expressed as a linear function of the control variables. However, a remaining concern is whether *Debt Dispersion* is correlated with unobserved, time-varying firm characteristics that affect the use of covenants but are not captured by the control variables.

To mitigate this concern, we conduct an instrumental variable two-stage least squares (2SLS) estimation. First, for each firm-year combination in our sample, we obtain from Compustat the amount of long-term debt that matures during the course of the year. We then construct a dummy variable, *Long-Term Debt Maturing*, that takes the value one if the amount of long-term debt that is due during the year accounts for at least 5% of the firm's total debt at the beginning of the year.[21] Finally, we use *Long-Term Debt Maturing* as an instrument for *Debt Dispersion* in a 2SLS estimation procedure.

To be a valid instrument, *Long-Term Debt Maturing* must satisfy two conditions: (1) *Long-Term Debt Maturing* must have an effect on *Debt Dispersion*, and (2) *Long-Term Debt Maturing* must satisfy an exclusion restriction.[22]

The first condition can be tested. Indeed, the results of the first stage of the 2SLS procedure

[21] The sample mean of *Long-Term Debt Maturing* is 0.42.

[22] These two conditions are sufficient if the effect of debt dispersion on the use of covenants is homogeneous. An additional, untestable monotonicity condition regarding the effect of the maturing of long-term debt on the firms' debt dispersion is needed to estimate a local average treatment effect of debt dispersion on the use of covenants in case of heterogeneous treatment effects (Imbens and Angrist, 1994).

show that the average effect of *Long-Term Debt Maturing* on *Debt Dispersion* is positive and statistically significant.[23] Note that the 2SLS estimation does not require that all firms respond equally to the maturing of long-term debt. In particular, the concern that some firms increase their debt dispersion more than others due to differences in unobserved characteristics does not invalidate the use of *Long-Term Debt Maturing* as an instrument for *Debt Dispersion*.

The second condition cannot be tested. However, the timing when a firm's long-term debt matures was determined many years in the past (when the debt was originated) and is thus unlikely to be correlated with current changes in unobserved firm characteristics.[24] Hence, barring any direct effect of the maturing of long-term debt on the use of covenants, the variable *Long-Term Debt Maturing* is plausibly exogenous (i.e., uncorrelated with the error term in the structual equation of interest).

Table 5 presents the results of the 2SLS estimation. The first column displays the first stage. The coefficient estimate on *Long-Term Debt Maturing* is positive and statistically significant at the 1% level. This finding confirms that a firm's debt dispersion indeed changes when a significant fraction of the firm's long-term debt matures (i.e., that the instrument is relevant). The F-statistic on *Long-Term Debt Maturing* is 13.9 and thus exceeds the threshold of ten suggested by Stock, Wright, and Yogo (2002) to guard against weak instruments. The second column shows the results of the second stage. The estimated coefficient on *Debt Dispersion* is positive and statistically significant at the 5% level. This result is consistent with Hypothesis 1 and corroborates our earlier findings: Debt structure dispersion increases the use of covenants

[23] This finding is consistent with firms replacing some, if not all, of the maturing debt with new (and possibly different) debt instruments. In line with this interpretation, in unreported analyses, we find no evidence of a negative effect of *Long-Term Debt Maturing* on the total number of individual debt instruments that are outstanding at the end of the year.

[24] An exception would be the case in which, at the time when the long-term debt is originated, the firm foresees the changes in the relevant characteristics many years into the future and times the maturing of the long-term debt to coincide with these changes.

in corporate loans.

5.2 Maturity dispersion and debt structure complexity

We have shown that new loans contain more covenants when the borrowing firms' existing debt structures are more dispersed. This finding is consistent with the notion that new lenders consider the potential for creditor conflicts when deciding whether and at what terms to lend to a firm. To measure the extent of debt structure dispersion, we have classified all debt instruments in a firm's existing debt based on their type, arguing that creditor conflicts are likely to be most severe between different types of debt. A potential concern, however, could be that differences in the maturities of the various debt claims cause conflicts among the different debtholders, not differences in the debt types per se.

To address this concern, we construct a measure of maturity dispersion. First, we form five categories based on the remaining maturity of the debt instruments: less than one year, one-to-three years, three-to-five years, five-to-ten years, and more than ten years. We then classify each debt instrument in a firm's existing debt structure as belonging to one of the five categories. Finally, we compute the (normalized) HHI between the different maturity categories as:

$$HHI_{j,t}^{Maturity} = \frac{\sum_{i=1}^{5} h_{j,t,i}^2 - \frac{1}{5}}{1 - \frac{1}{5}}, \tag{4}$$

where $h_{j,t,i}$ for $i = 1, 2, \ldots, 5$ is the fraction of firm j's debt in maturity category i at the end of year t. We then define:

$$Maturity\,Dispersion_{j,t} \equiv 1 - HHI_{j,t}^{Maturity}. \tag{5}$$

Another concern may be that debt structures that are more dispersed between different types of debt are more complex, and thus, more difficult for potential new lenders to understand. In turn, new lenders may require that additional covenants be included in the loan contracts. To address this concern, we use the number of individual debt instruments in a firm's total debt

as a measure of the existing debt structure's complexity. For instance, if a firm's total debt is comprised of one senior bond and two different term loans, we count three different debt instruments. We denote the resulting variable *Debt Structure Complexity*.

To address the aforementioned concerns that our findings are driven by maturity dispersion or debt structure complexity, we then estimate the effects of *Maturity Dispersion* and *Debt Structure Complexity* on the number of covenants in new loans. Table 6 presents the results. We find no evidence of an effect of dispersion among the maturities of the existing debt claims on the use of covenants in new loans. This result indicates that dispersion among different debt types is different from dispersion among different maturities. Similarly, we do not find any effect of debt structure complexity as measured by the number of outstanding debt instruments. Importantly, however, controlling for *Maturity Dispersion* and *Debt Structure Complexity* does not affect the positive and significant coefficient estimate on *Debt Dispersion*.

5.3 Covenant slack

Firms with more dispersed debt structures obtain loans that include more covenants. Such additional covenants, however, may not provide added protection to the lenders if the thresholds of the covenants are set very loosely. To address this concern, we examine the empirical relation between debt structure dispersion and covenant slack.

For the purpose of this analysis, we focus on nine covenants that specify well-defined threshold values for different financial variables, allowing us to quantify the slack of these covenants. The covenants we consider specify minimum thresholds for a firm's current ratio, fixed charge coverage, interest coverage, quick ratio, tangible net worth, or net worth. Or they specify maximum thresholds for a firm's debt-to-EBITDA ratio, debt-to-equity ratio, or debt-to-tangible net worth ratio.

We assess the effect of debt structure dispersion on the slack of the covenants as follows. First, for each covenant in a given loan contract, we compute the absolute value of the difference

between the covenant threshold and the value of the corresponding financial variable at the end of the last fiscal quarter prior to the loan's origination date. We compute the absolute value of the difference between the threshold and the corresponding variable because, depending on the type of covenant, the threshold may represent a maximum or a minimum allowable value. We then divide the absolute value of this difference by the standard deviation of the corresponding financial variable, which we estimate over the 20 preceding quarters. Second, for a given loan, we compute the minimum, median, mean, and maximum slack across the different covenants in the contract. Finally, we regress the minimum, median, mean, and maximum slack on the measure of debt structure dispersion.

Table 7 presents the results. The regressions do not provide any evidence of an effect of dispersion in a firm's existing debt structure on the slack of the loan covenants. This finding indicates that the additional covenants that are included in the loan contracts of firms with a higher degree of debt dispersion are not set more loosely and indeed provide additional protection to the lenders.

5.4 Alternative measures of debt structure dispersion

In this section, we construct four alternative measures of debt structure dispersion. We then show that our results are not sensitive to the way we define debt dispersion. The first alternative measure is the number of different types of debt that are used by a firm, counting only types that individually account for at least 10% of the firm's total debt.[25] We denote this variable *Number of Debt Types >10%*. The second measure is an indicator that takes the value one if no debt type individually accounts for more than 90% of the firm's total debt. We denote this variable *No Debt Type >90%*.[26] The third alternative measure is based on the (normalized)

[25] Our results are not sensitive to the 10%-cutoff. Using 5%, 15%, or 20% leads to similar results.

[26] Note that *No Debt Type >90%* $= 1 - EXCL90$, where $EXCL90$ is defined as in Colla, Ippolito, and Li (2013) and takes the value one if any type of debt individually accounts for at least 90% of the firm's total debt.

Gini coefficient. Specifically, we compute

$$Gini_{j,t} = \sum_{i=1}^{7} h_{j,t,i} \cdot \frac{2i-7-1}{7} \cdot \left(1 - \frac{1}{7}\right)^{-1} = \frac{\sum_{i=1}^{7} h_{j,t,i}\,(i-4)}{3}, \tag{6}$$

where $h_{j,t,i}$ for $i = 1, 2, \ldots, 7$ is the fraction of debt type i in firm j's total debt at the end of year t, and $h_{j,t,i} \leq h_{j,t,k}$ for $i < k$. In analogy to $Debt\,Dispersion = 1 - HHI$, we then use $1 - Gini$ as an alternative measure. To construct the fourth alternative measure, we first aggregate all term loans and drawn credit lines of each firm. We then consider this aggregate amount as a single type of debt ("bank debt"). We further consider each firm's accounts payable as an additional debt type ("trade credit"). Finally, we compute the normalized Herfindahl-Hirschman Index – denoted HHI_{alt} – among all different types of debt and use $1 - HHI_{alt}$ as the fourth alternative measure of debt dispersion.

Table 8 displays the results from regressions using the four alternative measures of debt dispersion. All regressions are specified as in the Equation (3). However, to conserve space, we do not report the coefficient estimates and standard errors of the control variables. The estimated effect of debt structure dispersion on the use of covenants is positive and statistically significant across all four measures both in the OLS and the Poisson specifications. This corroborates our earlier findings and shows that our results are not sensitive to the way we measure the dispersion in a firm's existing debt structure.

6 Other Loan Contract Terms and Bond Contracts

6.1 Other loan contract terms

In this section, we study whether dispersion in a firm's existing debt structure has an effect on any other loan contract terms (in addition to its effect on the use of covenants). In particular, we examine how debt dispersion affects the use of events of default clauses, collateral, and performance pricing clauses, as well as the effect on interest spreads.

Debt contracts typically include a detailed "Events of Default" section that specifies the events triggering default. A declaration of insolvency, bankruptcy, or reorganization, the failure to pay principal or interest, and the violation of debt covenants are natural events of default. Common clauses, however, also include the failure to pay court judgments or the invalidation of debt guarantees provided by third parties.[27] Including more default clauses in a debt contract hence provides the lenders with additional protection as more events are specified in which control rights are allocated to the creditors. Therefore, similar to the effect on the number of covenants, one may conjecture that firms with more dispersed debt structures obtain loans that contain a larger number of default clauses.

Another way to protect the new lenders' interests is to collateralize the debt. If the debt is fully secured, then the claimants may worry less about disagreeing with other creditors on how to proceed in the event of default. In that case, they can seize the collateral. If, however, the lenders hold an unsecured claim, disagreement among the creditors in case of distress is likely to be more costly. A higher degree of debt dispersion may thus increase the likelihood that new debt is secured.

Rather than offering more protection to the new lenders in the form of additional covenants, default clauses, or collateral, the debt contract could also include a performance pricing clause or specify a higher interest rate. Hence, debt raised by firms with more dispersed debt structures may be more likely to include a performance pricing clause and to carry a higher interest spread.

Table 9 presents the results of regressions that estimate the effect of debt dispersion on the different loan contract terms (other than covenants). The first two columns show the results regarding the number of events of default clauses in the loan contracts. The estimated coefficient on the measure of debt dispersion is positive and statistically significant at the 10% level. The OLS coefficient estimate implies an increase in the number of default clauses by 2% – relative to

[27] Li, Lou, and Vasvari (2015) show that there is indeed substantial cross-sectional variation in the number of default clauses that are included in firms' debt contracts.

the sample average of ten default clauses – for an increase from the 25th to the 75th percentile of the sample distribution of *Debt Dispersion*.

The third and fourth column of Table 9 present the results regarding the use of collateral. In both columns, the outcome variable is an indicator that takes the value one if the loan is secured.[28] The coefficient estimate on *Debt Dispersion* is neither significant in the OLS specification nor in the conditional Logit model.

The results pertaining to the use of performance pricing clauses are shown in the fifth and sixth column of Table 9. The estimated coefficients on the measure of debt dispersion are positive both in the OLS specification and the conditional Logit model but not significantly different from zero. The result regarding the effect of debt dispersion on the interest spread of the loans, presented in the last column, is similar. The coefficient estimate on *Debt Dispersion* is positive but not statistically significant.

Overall, Table 9 provides some tentative evidence that dispersion in a firm's existing debt structure affects the use of default clauses in new loans. We do not, however, find any evidence of an effect of debt dispersion on interest spreads or the use of performance pricing clauses and collateral.

6.2 Evidence from new bonds

In all the analyses so far, we have examined a sample of new loans. However, our hypotheses regarding the effect of debt structure dispersion on the different contract terms are not specific to loans and should apply to debt contracts in general. We thus construct a sample of 2,206 new corporate bonds using the Mergent Fixed Income Securities Database (FISD). We present summary statistics for the sample of new bonds in Appendix A, Table A.3. The data on the characteristics of these bonds are matched with the information on the issuing firms' existing debt structures, as in the loan sample. Finally, we regress the different bond contract terms on

[28] DealScan reports whether or not a loan is secured for only 3,140 of the 4,537 loans in our sample.

the measure of debt structure dispersion. As firms issue bonds less frequently than loans – so that there is less within-firm variation of debt dispersion and bond contract terms – we replace the firm fixed effects in the regressions with industry fixed effects based on the first two digits of the firms' SIC codes.

Almost all (97%) of the bonds in our sample are unsecured, and none of the bond contracts include performance pricing clauses. Thus, unlike in the loan sample, we do not estimate regressions regarding these contract features. However, only 28% of the bond contracts in our sample include a cross-default clause. If the contract contains such a clause, then defaulting on any other debt triggers a default on the bond. Hence, a cross-default clause in the bond contract may substitute for other default clauses. Therefore, we examine the effect of debt structure dispersion on the use of cross-default clauses, in addition to the effect on the total number of default clauses.[29]

Table 10 displays the results. New bonds that are issued by firms with more dispersed existing debt structures contain more covenants and more default clauses. However, there is no evidence of a positive association between *Debt Dispersion* and the use of cross-default clauses. Similarly, as in the loan sample, there is no evidence of a significant effect on the yield spread of the bonds.

7 Conclusion

We have shown that new corporate loans include more covenants when the borrowing firms' existing debt structures are more dispersed. This effect of debt structure dispersion on the use of covenants is stronger for firms with higher default risk and higher leverage and more pronounced for firms with more opaque accounting practices. Further, we have provided evidence for a similar effect of dispersed debt structures on the contract terms of new bonds.

[29] We do not examine the effect of debt dispersion on the use of cross-default clauses in the loan sample because such clauses are included in 97% of the loan contracts.

Our results are consistent with the idea that new lenders seek to protect their interests from potential creditor conflicts by including additional covenants in the debt contracts. The existing literature has highlighted the role of covenants in mitigating conflicts between creditors and shareholders. Our findings suggest that debt covenants play an additional role: addressing conflicts between creditors that hold different types of debt.

Additional covenants imply additional constraints on a firm's operating and financial policies. Thus, our findings point to one of the costs of dispersed debt structures. Further, our results indicate a dynamic component that is missing from static models of optimal debt dispersion: More debt dispersion today leads to additional covenants (i.e., constraints) in the future, when new loans and bonds are issued. The associated lack of financial and operational flexibility may be one of the reasons why many firms appear to avoid excessive dispersion in their debt structures (e.g., Colla, Ippolito, and Li, 2013).

Presumably, when attempting to attract new lenders, a firm with a more dispersed debt structure could try to offer a higher interest spread instead of more covenants. However, we have not found any evidence of an effect of debt structure dispersion on yield spreads. This finding raises an interesting question for future research: Why does debt dispersion affect the use of covenants but not the yield spreads of the debt instruments? We leave this question for future work.

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Table 1: Summary statistics

This table presents summary statistics for the sample of 4,537 new loans that are obtained by 1,557 firms between 2001 and 2010. Data on the number of default clauses, whether the loan is secured, and the interest spread is only available for 2,405, 3,140, and 3,987 loans, respectively. *Total Assets* is the book value of total assets. *Leverage* is long-term debt plus debt in current liabilities divided by total assets. *Tangibility* is net property, plant, and equipment divided by total assets. *Profitability* is EBITDA divided by total assets. *Market-to-Book* is the market value of equity plus the book value of debt divided by total assets. *Cash Flow Volatility* is the standard deviation of quarterly cash flows from operations over the 12 prior quarters divided by total assets. *Dividend Payer* is an indicator for firms that pay out cash-dividends. *R&D/Total Assets* is R&D-expense divided by total assets. R&D-expense is set to zero if the firm does not report any R&D-expense. *Investment Grade* is an indicator for firms with an investment grade credit rating. *Prior Covenants* is the number of covenants specified in a firm's existing loans and bonds. *Debt Dispersion* is the measure of dispersion in a firm's existing debt structure. It equals $1 - HHI$, where HHI is the normalized Herfindahl-Hirschman Index of concentration among the seven different debt types: *Senior Bonds and Notes*, *Drawn Credit Lines*, *Term Loans*, *Subordinated Bonds and Notes*, *Capital Leases*, *Commercial Paper*, and *Other Debt*. For each of the seven types, the table presents summary statistics for the fraction of a firm's total debt that is accounted for by that type of debt. *Face Value* is the face value of the loan. *Maturity* is the maturity of the loan. *Number of Financial Covenants* is the number of financial covenants in the loan contract. *Number of General Covenants* is the number of general covenants in the loan contract. *Total Number of Covenants* is the total number of covenants in the loan contract. *Secured* is an indicator for secured loans. *Performance Pricing* is an indicator for loans with a performance pricing clause. *Number of Default Clauses* is the total number of default clauses in the loan contract. *Interest Spread* is the difference between the interest rate on the loan and the LIBOR. *Relationship Bank* is an indicator for loans provided by relationship banks.

Variable	Observations	Mean	Median	Std. Dev.	Min.	Max.
Firm Characteristics:						
Total Assets (in USD million)	4,537	7,157	1,380	18,853	20	133,830
Leverage	4,537	0.29	0.26	0.18	0.00	0.83
Tangibility	4,537	0.32	0.25	0.25	0.01	0.91
Profitability	4,537	0.13	0.13	0.09	-0.25	0.39
Market-to-Book	4,537	1.71	1.47	0.82	0.71	5.29
Cash Flow Volatility	4,537	0.05	0.04	0.03	0.01	0.20
Dividend Payer	4,537	0.47	0	0.50	0	1
R&D/Total Assets	4,537	0.02	0.00	0.04	0.00	0.24
Investment Grade	4,537	0.30	0	0.46	0	1
Prior Covenants	4,537	8.74	8	7.61	0	31
Existing Debt Structures:						
Debt Dispersion	4,537	0.34	0.36	0.26	0.00	0.80
Senior Bonds and Notes	4,537	0.45	0.45	0.39	0	1
Drawn Credit Lines	4,537	0.21	0.01	0.32	0	1
Term Loans	4,537	0.14	0.00	0.27	0	1
Subordinated Bonds and Notes	4,537	0.10	0.00	0.23	0	1
Capital Leases	4,537	0.04	0.00	0.16	0	1
Commercial Paper	4,537	0.02	0.00	0.10	0	1
Other Debt	4,537	0.04	0.00	0.13	0	1
Newly Issued Loans:						
Face Value (in USD million)	4,537	510	224	843	4	5,407
Maturity (in months)	4,537	43.5	48	21.1	5	85
Number of Financial Covenants	4,537	1.69	2	1.49	0	7
Number of General Covenants	4,537	1.46	1	1.92	0	6
Total Number of Covenants	4,537	3.15	3	3.02	0	12
Number of Default Clauses	2,405	10.30	10	2.31	4	20
Secured	3,140	0.66	0	0.47	1	1
Performance Pricing	4,537	0.52	1	0.50	0	1
Interest Spread (in basis points)	3,987	172	150	127	15	650
Relationship Bank	4,537	0.52	1	0.50	0	1

Table 2: Effect of debt structure dispersion on covenants in loan contracts

This table presents regression results for the effect of dispersion in firms' existing debt structures on the use of financial and general covenants in new loans. The sample period is 2001 to 2010. *Financial Covenants* is the number of financial covenants that are included in the loan contract. *General Covenants* is the number of general covenants. *All Covenants* is the sum of *Financial Covenants* and *General Covenants*. *Debt Dispersion* is the measure of dispersion in a firm's existing debt structure. It equals $1 - HHI$, where HHI is the normalized Herfindahl-Hirschman Index of concentration among the different debt types in the firm's total debt. *Firm* fixed effects are dummy variables for the different firms obtaining the loans. *Year* fixed effects are dummy variables indicating the year during which the loan is issued. *Loan Type* and *Loan Purpose* fixed effects are dummy variables for the loan type (term loan, revolver-line $<$ one year, revolver-line $\geq$ one year, 364-day facility, or undeclared) and the loan purpose (corporate purposes, debt repayment, takeover, working capital, or undeclared). *Credit Rating* fixed effects are dummy variables for the different possible credit ratings of the firm obtaining the loan. All other variables are defined as in Table 1. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	Financial Covenants (OLS)	General Covenants (OLS)	All Covenants (OLS)	All Covenants (Poisson)
Debt Dispersion	0.328**	0.440***	0.767***	0.280***
	(0.131)	*(0.170)*	*(0.264)*	*(0.085)*
Prior Covenants	-0.036***	-0.050***	-0.086***	-0.018***
	(0.007)	*(0.009)*	*(0.014)*	*(0.004)*
Leverage	0.183	0.237	0.419	0.280
	(0.669)	*(0.939)*	*(1.394)*	*(0.381)*
Leverage^2	0.108	0.258	0.366	-0.184
	(0.888)	*(1.236)*	*(1.882)*	*(0.494)*
Ln(Total Assets)	-0.151	-0.333***	-0.484***	-0.188***
	(0.096)	*(0.115)*	*(0.182)*	*(0.056)*
Tangibility	-0.123	-0.760	-0.883	-0.333
	(0.529)	*(0.675)*	*(1.044)*	*(0.325)*
Profitability	1.096**	0.496	1.592*	0.404
	(0.482)	*(0.564)*	*(0.888)*	*(0.317)*
Market-to-Book	-0.175***	-0.171**	-0.346***	-0.102***
	(0.055)	*(0.068)*	*(0.103)*	*(0.037)*
Cash Flow Volatility	0.107	-2.771	-2.665	-1.099
	(1.487)	*(1.927)*	*(2.975)*	*(0.896)*
Dividend Payer	0.103	-0.042	0.061	-0.005
	(0.132)	*(0.134)*	*(0.227)*	*(0.068)*
R&D/Total Assets	-2.468	1.457	-1.011	-0.194
	(2.347)	*(3.442)*	*(5.194)*	*(1.429)*
Relationship Bank	-0.031	-0.011	-0.042	-0.023
	(0.046)	*(0.059)*	*(0.092)*	*(0.032)*
Ln(Face Value)	0.192***	0.329***	0.521***	0.225***
	(0.037)	*(0.045)*	*(0.070)*	*(0.029)*
Ln(Maturity)	0.111*	-0.087	0.024	-0.059
	(0.065)	*(0.088)*	*(0.132)*	*(0.045)*
Fixed Effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.645	0.656	0.659	0.367
Observations	4,537	4,537	4,537	4,537

Table 3: Cross-sectional heterogeneity of the effect of debt structure dispersion

This table presents regression results regarding the effect of debt structure dispersion on the use of covenants in loan contracts for firms that are near default, firms with high leverage, and firms with opaque accounting. The sample period is 2001 to 2010. *Near Default* is a dummy variable indicating firms with a credit rating of CCC or lower. *High Leverage* is a dummy variable indicating firms whose leverage is larger than the sample median. *Opaque Accounting* is a dummy variable indicating firms whose discretionary accruals are larger than the sample median. Information on the firms' discretionary accruals is only available for 4,500 of the 4,537 new loans. All other variables are defined as in Tables 1 and 2. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	All Covenants (OLS)	All Covenants (OLS)	All Covenants (OLS)
Debt Dispersion · Near Default	9.702***		
	(2.921)		
Debt Dispersion · High Leverage		1.246***	
		(0.419)	
Debt Dispersion · Opaque Accounting			0.866**
			(0.368)
Debt Dispersion	0.768***	0.179	0.290
	(0.264)	*(0.267)*	*(0.313)*
Prior Covenants	-0.086***	-0.086***	-0.086***
	(0.014)	*(0.014)*	*(0.014)*
Leverage	0.327	1.143	0.570
	(1.390)	*(1.520)*	*(1.382)*
Leverage^2	0.458	-0.480	0.168
	(1.877)	*(1.904)*	*(1.867)*
Ln(Total Assets)	-0.486***	-0.496***	-0.508***
	(0.181)	*(0.181)*	*(0.182)*
Tangibility	-0.847	-0.875	-0.904
	(1.043)	*(1.038)*	*(1.034)*
Profitability	1.499*	1.585*	1.483
	(0.882)	*(0.890)*	*(0.903)*
Market-to-Book	-0.343***	-0.339***	-0.338***
	(0.102)	*(0.102)*	*(0.104)*
Cash Flow Volatility	-2.527	-2.357	-2.133
	(2.972)	*(2.969)*	*(2.975)*
Dividend Payer	0.020	0.066	0.021
	(0.227)	*(0.228)*	*(0.229)*
R&D/Total Assets	-1.092	-1.876	-1.108
	(5.192)	*(5.135)*	*(5.265)*
Ln(Face Value)	-0.038	-0.040	-0.043
	(0.092)	*(0.092)*	*(0.093)*
Ln(Maturity)	0.515***	0.526***	0.504***
	(0.070)	*(0.070)*	*(0.071)*
Relationship Bank	0.014	0.025	0.024
	(0.132)	*(0.132)*	*(0.133)*
High Leverage		-0.494**	
		(0.215)	
Opaque Accounting			-0.516***
			(0.152)
Fixed Effects:			
Credit Rating	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes
R^2	0.660	0.660	0.661
Observations	4,537	4,537	4,500

Table 4: Effect on different types of covenants

This table presents the results of OLS regressions regarding the effect of debt structure dispersion on different types of covenants. The sample period is 2001 to 2010. The dependent variables – *Dividend Restrictions*, *Maximum Leverage*, *Minimum Liquidity*, *Cash Flow Sweeps*, *Minimum Net Worth Maximum Capex*, and *Minimum EBITDA* – are the number of covenants of a given type that are included in the loan contract. *Cash Flow Sweeps* comprises asset sales sweeps, debt issuance sweeps, equity issuance sweeps, insurance proceeds sweeps, and excess cash flow sweeps. *Minimum Liquidity* comprises minimum interest coverage, fixed charge coverage, current ratio, debt service coverage, quick ratio, and cash interest coverage requirements. *Maximum Leverage* comprises maximum debt to EBITDA, senior debt to EBITDA, debt to assets, debt to tangible net worth, debt to equity, leverage, senior leverage, and loan to value requirements as well as minimum equity to assets requirements. *Minimum Net Worth* comprises minimum net worth, tangible net worth, and net worth to total assets requirements. All other variables are defined as in Tables 1 and 2. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	Dividend Restrictions (OLS)	Max. Leverage (OLS)	Min. Liquidity (OLS)	Cash Flow Sweeps (OLS)	Min. Net Worth (OLS)	Max. Capex (OLS)	Min. EBITDA (OLS)
Debt Dispersion	0.044	0.074	0.141***	0.396***	-0.009	0.065*	0.056**
	(0.042)	*(0.060)*	*(0.055)*	*(0.148)*	*(0.034)*	*(0.034)*	*(0.023)*
Prior Covenants	-0.006***	-0.011***	-0.010***	-0.044***	-0.003	-0.009***	-0.003**
	(0.002)	*(0.003)*	*(0.003)*	*(0.008)*	*(0.002)*	*(0.002)*	*(0.001)*
Leverage	-0.178	0.007	0.238	0.415	-0.236	0.135	0.039
	(0.216)	*(0.291)*	*(0.271)*	*(0.844)*	*(0.184)*	*(0.194)*	*(0.161)*
Leverage^2	0.269	0.105	-0.297	-0.011	0.187	-0.095	0.208
	(0.278)	*(0.376)*	*(0.338)*	*(1.113)*	*(0.228)*	*(0.266)*	*(0.228)*
Ln(Total Assets)	-0.057*	0.027	-0.130***	-0.276***	-0.025	-0.015	-0.008
	(0.034)	*(0.045)*	*(0.046)*	*(0.098)*	*(0.026)*	*(0.023)*	*(0.017)*
Tangibility	-0.127	0.007	0.086	-0.632	0.062	-0.130	-0.149*
	(0.178)	*(0.247)*	*(0.247)*	*(0.582)*	*(0.134)*	*(0.128)*	*(0.090)*
Profitability	0.172	0.419*	0.593**	0.323	0.257*	0.005	-0.178*
	(0.186)	*(0.231)*	*(0.234)*	*(0.476)*	*(0.139)*	*(0.130)*	*(0.098)*
Market-to-Book	-0.051***	-0.032	-0.074***	-0.120**	-0.031*	-0.038***	-0.001
	(0.019)	*(0.025)*	*(0.024)*	*(0.060)*	*(0.018)*	*(0.014)*	*(0.011)*
Cash Flow Volatility	-0.786	-0.035	-0.049	-1.986	0.385	-0.188	-0.008
	(0.522)	*(0.700)*	*(0.614)*	*(1.682)*	*(0.387)*	*(0.394)*	*(0.319)*
Dividend Payer	-0.031	0.065	0.019	-0.011	0.010	-0.012	0.021
	(0.039)	*(0.059)*	*(0.055)*	*(0.118)*	*(0.036)*	*(0.035)*	*(0.027)*
R&D/Total Assets	-0.478	-1.338	-1.862*	1.935	-0.164	0.225	0.670
	(0.929)	*(0.936)*	*(1.006)*	*(2.852)*	*(0.566)*	*(0.827)*	*(0.602)*
Relationship Bank	0.015	-0.003	-0.024	-0.026	-0.012	0.001	0.007
	(0.015)	*(0.021)*	*(0.019)*	*(0.052)*	*(0.012)*	*(0.012)*	*(0.008)*
Ln(Face Value)	0.063***	0.091***	0.070***	0.266***	0.022**	0.021**	-0.010*
	(0.012)	*(0.017)*	*(0.015)*	*(0.040)*	*(0.010)*	*(0.008)*	*(0.006)*
Ln(Maturity)	0.009	0.071**	0.073***	-0.096	-0.018	0.000	-0.016
	(0.021)	*(0.028)*	*(0.027)*	*(0.077)*	*(0.014)*	*(0.015)*	*(0.010)*
Fixed Effects:							
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.609	0.610	0.645	0.658	0.648	0.648	0.643
Observations	4,537	4,537	4,537	4,537	4,537	4,537	4,537

Table 5: Instrumental variable regression

This table presents the results of a 2SLS instrumental variable regression regarding the effect of dispersion in firms' existing debt structures on the use of covenants in new loans. The sample period is 2001 to 2010. *Long-Term Debt Maturing* is a dummy variable that takes the value one if at least 5% of a firm's long-term debt matures during the year before a new loan is issued. All other variables are defined as in Tables 1 and 2. The sample size is smaller than in Tables 1 and 2 because data on the amount of long-term debt that matures during the year before a new loan is issued is only available for 4,346 of the 4,537 loans. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable	Debt Dispersion (First Stage)	All Covenants (Second Stage)
Debt Dispersion		6.285**
		(3.121)
Long-Term Debt Maturing	0.038***	
	(0.010)	
Prior Covenants	0.000	-0.084***
	(0.001)	*(0.017)*
Leverage	0.847***	-3.957
	(0.154)	*(3.066)*
Leverage^2	-0.578***	3.293
	(0.190)	*(2.717)*
Ln(Total Assets)	0.081***	-0.995***
	(0.018)	*(0.321)*
Tangibility	0.083	-1.553
	(0.102)	*(1.262)*
Profitability	0.100	0.753
	(0.087)	*(1.062)*
Market-to-Book	-0.023**	-0.245*
	(0.011)	*(0.139)*
Cash Flow Volatility	-0.258	-2.413
	(0.275)	*(3.732)*
Dividend Payer	0.026	-0.046
	(0.023)	*(0.269)*
R&D/Total Assets	0.678	-3.798
	(0.449)	*(5.891)*
Relationship Bank	-0.005	-0.018
	(0.007)	*(0.103)*
Ln(Face Value)	0.011**	0.472***
	(0.005)	*(0.088)*
Ln(Maturity)	-0.008	0.062
	(0.008)	*(0.148)*
Fixed Effects:		
Credit Rating	Yes	Yes
Loan Type & Purpose	Yes	Yes
Firm & Year	Yes	Yes
F-statistic on instrument	13.9	–
R^2	0.722	0.600
Observations	4,346	4,346

Table 6: Effect of maturity dispersion and debt structure complexity

This table presents regressions regarding the effect of *Maturity Dispersion* and *Debt Structure Complexity* on the number of covenants in new loans. The sample period is 2001 to 2010. *Maturity Dispersion* is the measure of dispersion in the maturity structure of a firm's existing debt. *Debt Structure Complexity* is the number of individual debt instruments in a firm's existing debt structure. All other variables are defined as in Tables 1 and 2. The sample size in the first, third, and fourth column is smaller than in Tables 1 and 2 because data on the maturity structure of the firms' existing debt is only available for 3,196 of the 4,537 new loans. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	All Covenants (OLS)	All Covenants (OLS)	All Covenants (OLS)	All Covenants (Poisson)
Debt Dispersion			0.927**	0.360***
			(0.373)	*(0.131)*
Maturity Dispersion	0.035		-0.228	-0.126
	(0.316)		*(0.335)*	*(0.104)*
Debt Structure Complexity		0.017	0.014	0.013
		(0.015)	*(0.020)*	*(0.009)*
Prior Covenants	-0.085***	-0.085***	-0.086***	-0.020***
	(0.018)	*(0.014)*	*(0.018)*	*(0.005)*
Leverage	2.143	0.994	1.252	0.180
	(1.972)	*(1.369)*	*(1.998)*	*(0.625)*
Leverage^2	-1.749	-0.090	-1.091	-0.187
	(2.667)	*(1.887)*	*(2.661)*	*(0.758)*
Ln(Total Assets)	-0.549**	-0.448**	-0.612***	-0.239***
	(0.218)	*(0.185)*	*(0.220)*	*(0.069)*
Tangibility	-1.113	-0.879	-1.135	-0.460
	(1.386)	*(1.049)*	*(1.384)*	*(0.459)*
Profitability	1.697	1.684*	1.617	0.660*
	(1.088)	*(0.895)*	*(1.076)*	*(0.395)*
Market-to-Book	-0.395***	-0.359***	-0.391***	-0.146***
	(0.141)	*(0.104)*	*(0.140)*	*(0.051)*
Cash Flow Volatility	-5.773	-2.852	-5.789	-2.511**
	(3.727)	*(2.973)*	*(3.672)*	*(1.114)*
Dividend Payer	0.008	0.086	-0.015	-0.028
	(0.280)	*(0.227)*	*(0.280)*	*(0.085)*
R&D/Total Assets	-7.179	-0.579	-7.070	-2.619
	(6.261)	*(5.310)*	*(6.276)*	*(1.884)*
Relationship Bank	0.046	-0.046	0.052	0.016
	(0.118)	*(0.093)*	*(0.118)*	*(0.040)*
Ln(Face Value)	0.504***	0.527***	0.492***	0.224***
	(0.088)	*(0.070)*	*(0.088)*	*(0.037)*
Ln(Maturity)	0.053	0.016	0.070	-0.058
	(0.159)	*(0.132)*	*(0.159)*	*(0.055)*
Fixed Effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.671	0.658	0.672	0.380
Observations	3,196	4,537	3,196	3,196

Table 7: Debt structure dispersion and covenant slack

This table presents regression results regarding the effect of debt structure dispersion on the slack of financial covenants. The sample period is 2001 to 2010. The sample size is smaller than in Tables 1 and 2 because data on the slack of the covenants is only available for 2,742 of the 4,537 new loans. For a given financial covenant, *Slack* is the absolute value of the difference between the financial covenant threshold and the actual value of the covenant variable at the end of the last fiscal quarter prior to the loan's origination date, divided by the standard deviation of the corresponding financial variable (estimated over the 20 preceding quarters). For a given loan contract, *Minimum Slack*, *Median Slack*, *Mean Slack*, and *Maximum Slack* are the minimum, median, mean, and maximum of *Slack* computed across the different covenants included in the contract. All other variables are defined as in Tables 1 and 2. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	Minimum Slack (OLS)	Median Slack (OLS)	Mean Slack (OLS)	Maximum Slack (OLS)
Debt Dispersion	0.095	2.170	2.162	4.246
	(0.419)	*(1.843)*	*(1.876)*	*(3.732)*
Prior Covenants	-0.038	-0.054	-0.054	-0.073
	(0.025)	*(0.042)*	*(0.042)*	*(0.074)*
Leverage	-13.178**	-23.375***	-22.835***	-31.861***
	(6.582)	*(8.335)*	*(8.309)*	*(12.114)*
Leverage^2	13.736*	13.590	13.030	11.664
	(7.848)	*(12.768)*	*(13.627)*	*(24.636)*
Ln(Total Assets)	0.200	1.926	1.688	2.933
	(0.472)	*(1.540)*	*(1.432)*	*(2.653)*
Tangibility	1.280	7.403	7.775	14.719
	(2.349)	*(5.351)*	*(5.374)*	*(10.002)*
Profitability	0.248	1.532	3.027	7.186
	(3.365)	*(4.201)*	*(3.970)*	*(5.511)*
Market-to-Book	1.557*	2.232	2.098	2.484
	(0.877)	*(1.629)*	*(1.600)*	*(2.767)*
Cash Flow Volatility	22.630	14.175	11.630	-1.962
	(17.595)	*(21.833)*	*(22.474)*	*(33.514)*
Dividend Payer	-0.042	0.294	0.481	1.288
	(0.362)	*(0.525)*	*(0.545)*	*(0.974)*
R&D/Total Assets	34.108	65.971	70.105	110.462*
	(44.855)	*(48.411)*	*(49.159)*	*(59.984)*
Relationship Bank	0.069	-1.097	-1.206	-2.606
	(0.149)	*(0.753)*	*(0.842)*	*(1.743)*
Ln(Face Value)	0.547	0.492	0.517	0.516
	(0.460)	*(0.646)*	*(0.634)*	*(0.981)*
Ln(Maturity)	-0.597	-0.879	-0.928	-1.329
	(0.406)	*(0.784)*	*(0.760)*	*(1.296)*
Fixed Effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes
R^2	0.986	0.966	0.968	0.937
Observations	2,742	2,742	2,742	2,742

Table 8: Alternative measures of debt structure dispersion

This table presents the results of regressions using four alternative measures of debt structure dispersion. The sample period is 2001 to 2010. In the first two regressions, we use $Number\,of\,Debt\,Types > 10\%$, the number of debt types in a firm's existing debt structure that account individually for at least 10% of the firm's total debt. In the second set of regressions, we use $No\,Debt\,Type > 90\%$, an indicator variable equal to one if no type of debt individually accounts for more than 90% of the firm's total debt. In the third set of regressions, we use $1 - Gini$ as the measure of debt dispersion, with $Gini = \sum_{i=1}^{7} h_i\,(i-4)\,/3$, where h_i for $i = 1, 2, \ldots, 7$ is the fraction of debt type i in the firm's total debt, and $h_i \leq h_j$ for $i < j$. In the last two regressions, we use $1 - HHI_{alt}$, where HHI_{alt} is the normalized HHI of debt structure concentration after aggregating term loans and drawn credit lines to a new debt type ("bank debt") and considering a firm's accounts payable ('trade credit") as an additional type of debt. All other variables are defined as in Tables 1 and 2. *Control Variables* is a vector of all control variables specified in Equation (3). Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	All Covenants (OLS)	All Covenants (Poisson)	All Covenants (OLS)	All Covenants (Poisson)	All Covenants (OLS)	All Covenants (Poisson)	All Covenants (OLS)	All Covenants (Poisson)
Number of Debt Types >10%	0.216**	0.083***						
	(0.084)	*(0.030)*						
No Debt Type >90%			-0.086***	-0.017***				
			(0.014)	*(0.004)*				
1 - Gini					1.940**	0.765***		
					(0.815)	*(0.270)*		
1 - HHI_{alt}							1.153***	0.412***
							(0.368)	*(0.116)*
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects:								
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.659	0.367	0.658	0.366	0.659	0.367	0.660	0.367
Observations	4,537	4,537	4,537	4,537	4,537	4,537	4,537	4,537

Table 9: Effect of debt structure dispersion on other loan contract terms

This table presents regression results regarding the effect of debt structure dispersion on loan contract terms other than covenants. The sample period is 2001 to 2010. All variables are defined as in Tables 1 and 2. The sample sizes of the conditional Logit models are smaller than those of the OLS models because firms for which the value of the outcome variable does not change across loans cannot be included in the conditional Logit estimations. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	Default Clauses (OLS)	Default Clauses (Poisson)	Secured (OLS)	Secured (Cond. Logit)	Perf. Pricing (OLS)	Perf. Pricing (Cond. Logit)	Interest Spread (OLS)
Debt Dispersion	0.459*	0.044*	0.023	-0.329	0.005	0.190	8.893
	(0.271)	*(0.026)*	*(0.036)*	*(0.674)*	*(0.045)*	*(0.302)*	*(7.631)*
Prior Covenants	-0.020	-0.002	-0.002	-0.083**	-0.000	0.001	-1.621***
	(0.017)	*(0.002)*	*(0.002)*	*(0.040)*	*(0.003)*	*(0.016)*	*(0.503)*
Leverage	-0.023	0.002	0.280	7.269**	-0.107	-1.023	86.012*
	(1.420)	*(0.135)*	*(0.185)*	*(3.428)*	*(0.224)*	*(1.522)*	*(51.841)*
Leverage^2	1.268	0.110	-0.385*	-10.582**	0.131	1.284	24.014
	(1.890)	*(0.176)*	*(0.224)*	*(4.698)*	*(0.288)*	*(1.965)*	*(72.771)*
Ln(Total Assets)	-0.043	-0.003	-0.095***	-1.607**	-0.058*	-0.405*	-15.034**
	(0.266)	*(0.025)*	*(0.029)*	*(0.645)*	*(0.034)*	*(0.222)*	*(6.675)*
Tangibility	-1.126	-0.108	-0.118	-3.111	0.129	1.024	4.444
	(1.305)	*(0.120)*	*(0.138)*	*(3.165)*	*(0.174)*	*(1.129)*	*(42.111)*
Profitability	0.731	0.064	-0.387**	-3.628	0.323*	1.297	-119.841***
	(1.354)	*(0.128)*	*(0.177)*	*(4.231)*	*(0.185)*	*(1.320)*	*(42.899)*
Market-to-Book	-0.075	-0.007	-0.011	-0.395	-0.031	-0.158	-13.677***
	(0.120)	*(0.012)*	*(0.021)*	*(0.475)*	*(0.022)*	*(0.161)*	*(3.649)*
Cash Flow Volatility	-1.621	-0.131	-0.719**	-6.576	-0.890*	-6.633**	-119.514
	(3.205)	*(0.304)*	*(0.343)*	*(9.458)*	*(0.501)*	*(3.139)*	*(105.288)*
Dividend Payer	0.147	0.013	0.002	-0.294	0.054	0.361	-4.631
	(0.295)	*(0.029)*	*(0.038)*	*(0.684)*	*(0.044)*	*(0.349)*	*(7.597)*
R&D/Total Assets	1.855	0.191	-1.035**	-9.402	0.014	0.546	309.872
	(5.742)	*(0.546)*	*(0.485)*	*(11.489)*	*(0.944)*	*(6.000)*	*(198.215)*
Relationship Bank	-0.137	-0.014	0.017	0.415	-0.025	-0.178	3.446
	(0.097)	*(0.009)*	*(0.015)*	*(0.269)*	*(0.017)*	*(0.113)*	*(2.990)*
Ln(Face Value)	0.000	-0.001	0.012	0.030	0.101***	0.707***	-5.608*
	(0.091)	*(0.009)*	*(0.014)*	*(0.257)*	*(0.013)*	*(0.095)*	*(2.864)*
Ln(Maturity)	-0.112	-0.010	0.019	0.350	0.047**	0.225	-0.303
	(0.136)	*(0.013)*	*(0.021)*	*(0.339)*	*(0.022)*	*(0.157)*	*(5.156)*
Fixed Effects:							
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.788	0.084	0.836	0.421	0.590	0.255	0.835
Observations	2,405	2,405	3,140	632	4,537	2,786	3,987

Table 10: Effect of debt structure dispersion on bond contract terms

This table presents results for the effect of debt structure dispersion on different bond contract terms. The sample period is 2001 to 2010. *Industry* fixed effects are based on the first two digits of a firm's SIC code. All other variables are defined as in Tables 1, 2, and A.3. The sample size of the Logit model regarding the use of a cross-default clause is smaller than that of the corresponding OLS model because observations for which the firm's credit rating or industry classification perfectly predicts the inclusion of a cross-default clause in the bond contract cannot be included in the Logit estimation. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	All Covenants (OLS)	All Covenants (Poisson)	Default Clauses (OLS)	Default Clauses (Poisson)	Cross Def. Clause (OLS)	Cross Def. Clause (Logit)	Yield Spread (OLS)
Debt Dispersion	0.935**	0.149**	0.471**	0.080**	0.111	0.148	2.264
	(0.370)	*(0.062)*	*(0.194)*	*(0.033)*	*(0.093)*	*(0.937)*	*(16.885)*
Prior Covenants	0.066***	0.009***	-0.002	-0.000	0.008	0.051	-1.738**
	(0.019)	*(0.002)*	*(0.013)*	*(0.002)*	*(0.006)*	*(0.049)*	*(0.773)*
Leverage	0.144	-0.188	0.257	0.044	0.784	9.328	-46.434
	(2.471)	*(0.405)*	*(1.704)*	*(0.278)*	*(0.759)*	*(6.886)*	*(100.146)*
Leverage^2	-1.499	0.090	0.568	0.084	-1.121	-12.071	154.298
	(3.019)	*(0.437)*	*(2.445)*	*(0.390)*	*(1.180)*	*(9.385)*	*(127.046)*
Ln(Total Assets)	-0.832***	-0.256***	-0.139**	-0.024**	-0.132***	-1.451***	-14.541***
	(0.113)	*(0.046)*	*(0.069)*	*(0.011)*	*(0.026)*	*(0.246)*	*(3.997)*
Tangibility	-1.246*	-0.172	-0.632	-0.111	-0.032	-0.487	26.630
	(0.684)	*(0.112)*	*(0.456)*	*(0.076)*	*(0.226)*	*(1.542)*	*(33.153)*
Profitability	0.736	-0.053	0.508	0.082	0.357	2.400	-121.406
	(1.591)	*(0.240)*	*(1.033)*	*(0.165)*	*(0.551)*	*(5.680)*	*(76.745)*
Market-to-Book	-0.357**	-0.073**	0.000	0.001	-0.049	-0.512	-51.102***
	(0.177)	*(0.037)*	*(0.088)*	*(0.016)*	*(0.054)*	*(0.701)*	*(7.610)*
Cash Flow Volatility	0.230	0.256	-3.034	-0.485	-1.813	-19.052	572.007**
	(5.100)	*(0.706)*	*(2.576)*	*(0.425)*	*(1.415)*	*(12.599)*	*(245.544)*
Dividend Payer	-0.546**	-0.061	-0.061	-0.010	0.004	-0.713	-15.874
	(0.255)	*(0.039)*	*(0.160)*	*(0.026)*	*(0.061)*	*(0.652)*	*(10.491)*
R&D/Total Assets	0.746	0.237	-4.462*	-0.902**	0.540	-5.003	224.208
	(4.749)	*(0.904)*	*(2.486)*	*(0.442)*	*(1.252)*	*(14.337)*	*(253.641)*
Ln(Face Value)	0.723***	0.419***	-0.025	-0.004	0.017	0.607***	4.339
	(0.068)	*(0.097)*	*(0.020)*	*(0.003)*	*(0.012)*	*(0.229)*	*(2.764)*
Ln(Maturity)	0.160*	0.042*	-0.000	-0.000	-0.003	-0.061	12.439**
	(0.088)	*(0.024)*	*(0.038)*	*(0.007)*	*(0.018)*	*(0.219)*	*(5.856)*
Fixed Effects:							
Credit Rating	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry & Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.767	0.443	0.604	0.031	0.628	0.582	0.655
Observations	2,206	2,206	1,120	1,120	1,120	972	2,206

Appendix A: Supplementary Material

Table A.1: List of loan covenants

This table presents a list of the different general and financial loan covenants that are considered in our analyses. The sample comprises 4,537 loans obtained by 1,557 firms over the period from 2001 to 2010. *Number of Loans with Covenant* (*Fraction of Loans with Covenant*) is the number (fraction) of loans in the sample that include a given type of covenant.

Type of Covenant	Number of Loans with Covenant	Fraction of Loans with Covenant
General Covenants:		
Dividend Restrictions	2,477	0.546
Asset Sales Sweep	1,127	0.248
Debt Issuance Sweep	922	0.203
Equity Issuance Sweep	808	0.178
Insurance Proceeds Sweep	798	0.176
Excess CF Sweep	501	0.110
Financial Covenants:		
Maximum Debt to EBITDA	1,897	0.418
Minimum Interest Coverage	1,221	0.269
Minimum Fixed Charge Coverage	1,123	0.248
Maximum Capex	800	0.176
Minimum Net Worth	527	0.116
Maximum Leverage Ratio	422	0.093
Maximum Senior Debt to EBITDA	370	0.082
Minimum Tangible Net Worth	368	0.081
Minimum EBITDA	306	0.067
Minimum Current Ratio	218	0.048
Maximum Debt to Tangible Net Worth	181	0.040
Minimum Debt Service Coverage	118	0.026
Minimum Quick Ratio	72	0.016
Minimum Cash Interest Coverage	19	0.004
Maximum Debt to Equity	11	0.002
Maximum Senior Leverage	8	0.002
Maximum Loan to Value	3	0.001
Minimum Net Worth to Total Assets	1	0.000

Table A.2: Excluding loans with no reported covenants

This table presents regression results for the effect of dispersion in firms' existing debt structures on the use of financial and general covenants in new loans. Loans for which DealScan reports no financial (general) covenants are excluded from the regression regarding the effect on financial (general) covenants. Loans for which DealScan reports neither financial nor general covenants are excluded from the regressions regarding the effect on the total number of covenants. The sample period is 2001 to 2010. All variables are defined as in Tables 1 and 2. Heterogeneity robust standard errors that allow for clustering at the firm level are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dependent Variable (Specification)	Financial Covenants (OLS)	General Covenants (OLS)	All Covenants (OLS)	All Covenants (Poisson)
Debt Dispersion	0.397***	0.359*	0.875***	0.191***
	(0.106)	*(0.214)*	*(0.236)*	*(0.051)*
Prior Covenants	-0.019***	-0.033***	-0.064***	-0.010***
	(0.005)	*(0.011)*	*(0.012)*	*(0.002)*
Leverage	0.569	2.008*	2.428*	0.533**
	(0.551)	*(1.081)*	*(1.245)*	*(0.238)*
Leverage^2	-0.438	-2.751*	-2.583	-0.610*
	(0.753)	*(1.424)*	*(1.720)*	*(0.313)*
Ln(Total Assets)	-0.008	-0.238	-0.246	-0.067**
	(0.069)	*(0.146)*	*(0.153)*	*(0.032)*
Tangibility	0.054	-0.373	-0.585	-0.194
	(0.417)	*(0.801)*	*(0.941)*	*(0.193)*
Profitability	0.760*	-0.938	0.211	0.014
	(0.436)	*(0.809)*	*(0.828)*	*(0.192)*
Market-to-Book	-0.108**	-0.176*	-0.224*	-0.043*
	(0.049)	*(0.107)*	*(0.120)*	*(0.026)*
Cash Flow Volatility	1.628	-3.248	0.725	0.048
	(1.208)	*(2.606)*	*(2.652)*	*(0.562)*
Dividend Payer	0.051	-0.029	-0.047	-0.013
	(0.093)	*(0.165)*	*(0.201)*	*(0.042)*
R&D/Total Assets	-5.930***	5.693	-1.352	-0.325
	(1.898)	*(4.816)*	*(4.207)*	*(1.014)*
Relationship Bank	0.032	0.088	0.127	0.021
	(0.035)	*(0.078)*	*(0.084)*	*(0.019)*
Ln(Face Value)	0.017	0.325***	0.390***	0.082***
	(0.034)	*(0.067)*	*(0.079)*	*(0.018)*
Ln(Maturity)	-0.047	-0.126	-0.127	-0.060**
	(0.056)	*(0.119)*	*(0.128)*	*(0.029)*
Fixed Effects:				
Credit Rating	Yes	Yes	Yes	Yes
Loan Type & Purpose	Yes	Yes	Yes	Yes
Firm & Year	Yes	Yes	Yes	Yes
R^2/pseudo R^2	0.804	0.795	0.802	0.256
Observations	3,017	2,593	3,164	3,164

Table A.3: Summary statistics for the bond sample

This table presents summary statistics for the sample of 2,206 bonds that are issued by the firms in our sample between 2001 and 2010. Data on the number of default clauses is only available for 1,120 of the 2,206 new bonds. *Number of Covenants* is the total number of covenants in the bond contract. Typically, bond contracts do not include any financial covenants, so we do not distinguish between financial and general covenants as we do in the sample of new loans. *Cross-Default Clause* is an indicator for bond contracts containing a cross-default clause. *Yield Spread* is the difference between the yield at issuance and the yield of a treasury bill with matched maturity. All other variables are defined as in Table 1.

Variable	Observations	Mean	Median	Std. Dev.	Min.	Max.
Firm Characteristics:						
Total Assets (in USD million)	2,206	29,223	13,054	43,548	335	265,245
Leverage	2,206	0.32	0.30	0.15	0.06	0.80
Tangibility	2,206	0.38	0.35	0.24	0.01	0.91
Profitability	2,206	0.14	0.14	0.07	-0.05	0.36
Market-to-Book	2,206	1.77	1.48	0.81	0.82	4.50
Cash Flow Volatility	2,206	0.04	0.04	0.02	0.01	0.12
Dividend Payer	2,206	0.74	1	0.44	0	1
R&D/Total Assets	2,206	0.01	0.00	0.02	0.00	0.12
Investment Grade	2,206	0.70	1	0.46	0	1
Prior Covenants	2,206	11.10	9	7.14	0	34
Existing Debt Structures:						
Creditor Dispersion	2,206	0.42	0.47	0.23	0.00	0.80
Senior Bonds and Notes	2,206	0.64	0.72	0.29	0	1
Term Loans	2,206	0.08	0.00	0.16	0	1
Commercial Paper	2,206	0.07	0.00	0.13	0	1
Subordinated Bonds and Notes	2,206	0.07	0.00	0.18	0	1
Drawn Credit Lines	2,206	0.07	0.00	0.15	0	1
Capital Leases	2,206	0.02	0.00	0.06	0	1
Other Debt	2,206	0.05	0.00	0.12	0	1
New Bonds:						
Face Value (in USD million)	2,206	413	300	429	1	2,250
Maturity (in months)	2,206	121.7	120	81.7	24	360
Number of Covenants	2,206	5.26	5	4.41	0	18
Number of Default Clauses	1,120	5.59	5	1.06	4	10
Cross-Default Clause	1,120	0.28	0	0.45	0	1
Yield Spread (in basis points)	2,206	254	198	200	0.2	919

Appendix B: Variable Definitions

Firm Characteristics:	
Cash Flow Volatility	Standard deviation of quarterly cash flows from operations over the 12 prior quarters divided by total assets
Credit Rating Dummies	Set of dummy variables for the different possible credit ratings of a firm, including no rating
Debt Dispersion	$1 - HHI_{j,t}$ with $HHI_{j,t} = (\sum_{i=1}^{7} h_{j,t,i}^2 - 1/7)/(1 - 1/7)$. $h_{j,t,i}$ for $i = 1, 2, \ldots, 7$ is the fraction of debt type i in firm j's total debt at time t
Debt Structure Complexity	Number of different debt instruments in a firm's existing debt
Dividend Payer	Dummy variable that equals one if a firm pays out cash-dividends
No Debt Type >90%	Dummy variable that equals one if no type of debt individually accounts for more than 90% of a firm's total debt
Gini	$Gini_{j,t} = \sum_{i=1}^{7} h_{j,t,i} \, (i-4) \, /3$. $h_{j,t,i}$ is the fraction of debt type i in firm j's total debt at time t, and $h_{j,t,i} \leq h_{j,t,k}$ for $i < k$
HHI_{alt}	Normalized HHI after aggregating term loans and drawn credit lines and treating accounts payable as an additional debt type
High Leverage	Dummy variable that equals one if a firm's leverage is larger than the sample median
Investment Grade	Dummy variable that equals one if a firm has an investment grade credit rating
Leverage	Long-term debt plus debt in current liabilities divided by total assets
Long-Term Debt Maturing	Dummy variable that equals one if at least 5% of a firm's long-term debt is maturing during the year
Market-to-Book	Market value of equity plus book value of debt divided by total assets
Maturity Dispersion	$1 - HHI_{j,t}^{Maturity}$, where $HHI_{j,t}^{Maturity}$ is the (normalized) Herfindahl-Hirschman Index of maturity concentration
Near Default	Dummy variable that equals one if a firm's credit rating is CCC or lower
Number of Debt Types >10%	Number of debt types in a firm's existing debt structure that account individually for at least 10% of the firm's total debt
Opaque Accounting	Dummy variable that equals one if a firm's abnormal accruals are larger than the sample median
Prior Covenants	Total number of prior covenants already specified in a firm's existing loans and bonds outstanding when a new loan or bond is issued
Profitability	Earnings before interest, tax, depreciation, and amortization divided by total assets
R&D/Total Assets	R&D expenses divided by total assets (equal to zero if R&D expenses are missing)
Tangibility	Net property, plant, and equipment divided by total assets
Total Assets	Book value of total assets
Debt Characteristics:	
All Covenants	Total number of covenants included in the debt contract
Cross Default Clause	Dummy variable that equals one if the debt contract includes a cross default clause
Default Clauses	Number of events of default clauses included in the debt contract
Face Value	Face value of the debt instrument
Financial Covenants	Number of financial covenants included in the debt contract
General Covenants	Number of general covenants included in the debt contract
Interest Spread	Difference between the interest rate on a loan and the LIBOR
Loan Purpose Dummies	Set of indicators for the different loan purposes: corporate purposes, debt repayment, takeover, working capital, and undeclared
Loan Type Dummies	Set of indicators for the different loan types: term loan, revolver-line < one year, revolver-line ≥ one year, 364-day facility, and undeclared
Maturity	Maturity of the debt instrument
Performance Pricing	Dummy variable that equals one if a loan has a performance pricing clause
Relationship Bank	Dummy variable that equals one if any of the lead arrangers of a loan has been a lead arranger of any previous loan obtained by the borrowing firm during the five years prior to the loan issuance date
Secured	Dummy variable that equals one if a debt instrument is backed by collateral
Yield Spread	Difference between the yield at issuance of a bond and the yield of a Treasury bill with matched maturity