



State contract law and the use of accounting information in debt contracts

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Abstract

This paper examines the relation between state contract law and the use of accounting information in debt contracts. Contract theory suggests that balance sheet based covenants resolve debtholder-shareholder conflicts ex ante, whereas income statement based covenants serve as trip-wires that trigger the switch of control rights ex post. It is more difficult for lenders to exert their control rights ex post if the contract law is more favorable to debtors (i.e., the law is pro-debtor), suggesting that balance sheet based covenants are more efficient in these jurisdictions. We therefore test and find evidence that lenders using pro-debtor (pro-lender) law are more (less) likely to rely on balance sheet based covenants. We measure reliance using both the weight of balance sheet covenants relative to income statement covenants and the covenant strictness. Our analysis further shows that contracts with performance pricing grids are less likely to include interest increasing grids when the law is more favorable to debtors. The results provide initial evidence that contract law is an important determinant for the design of debt contracts.

Keywords Contract law · Debt contracts · Income statement based covenants · Balance sheet based covenants · Pricing grids

JEL Classification G21 · G30 · K12 · M41

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1 Introduction

This paper examines the relation between the legal environment, as captured by the state law governing the contract, and debt contract design. Following a covenant violation, the lender's remedies will vary depending on the applicable law, and that law varies across the United States. Although every state's law permits lenders to pull or modify a loan if the borrower has violated a covenant, some states allow the lender to be far more aggressive than others. For example, in some states, the lender can call the loan immediately, whereas best practices in other states dictate that lenders first give the borrower time to find a replacement loan. Studies have shown that contracts governed by more pro-debtor laws have higher interest rates in some circumstances (Honigsberg et al. 2014),¹ but this work has not examined how state contract law affects the nonprice contract terms that are meant to mitigate agency problems and protect lenders (Coase 1937; Klein et al. 1978; Grossman and Hart 1986; Aghion and Bolton 1992; Christensen et al. 2016).

In this study, we provide evidence that state contract law is an important determinant for the design of debt contracts. We use the heterogeneity in US state contract laws, in terms of their favorability to debtors or lenders, and examine how contract terms vary across the different legal regimes. Our analysis focuses on the variation in covenant mix. We measure the covenant mix through the type of covenants—that is, balance sheet versus income statement-based covenants—and through the strictness of the different types of covenants. In addition, we examine the design of performance pricing grids and analyze the relation between state contract law and the inclusion of interest increasing grids.

The distinction between balance sheet- and income statement-based covenants is tied to Aghion and Bolton's (1992) incomplete contract model, which specifies conditions in which ex ante or ex post control allocation between contracting parties is efficient. Extrapolating from this theory, Christensen and Nikolaev (2012) examine the determinants of the covenant mix (i.e., balance sheet- and income statement-based covenants) and suggest that balance sheet-based covenants align the interests of the contracting parties ex ante (i.e., cash flow rights), whereas income statement-based covenants reallocate decision rights in the event of ex post risk (i.e., control rights).² Consistent with this intuition, Christensen and Nikolaev (2012) also document that income statement-based covenants are violated more frequently.

Our paper extends this work by considering how the use of specific covenants interacts with the legal regime. Upon violating any financial covenant, the borrower's breach allows the lender to take a number of actions to protect her investment. However, the lender's response will be guided by the applicable law. In many jurisdictions, lenders have very wide latitude in recovering their funds, and they have no obligation to consider how their actions will affect the borrower. In other jurisdictions, however, best practices dictate that the lender take reasonable steps to mitigate harm to the borrower (e.g., provide notice before calling a loan). If the lender does not

¹ Honigsberg et al. (2014) document that the higher interest rates are limited to out-of-state borrowers, who opt into favorable (more pro-debtor) state laws.

² Christensen and Nikolaev (2012) classify covenants as *capital covenants* and *performance covenants*. Although there is a difference in terminology, these classifications measure the same construct as balance sheet-based covenants and income-statement covenants, respectively.

take these steps, the borrower can sue the lender based on a number of claims that are broadly grouped together under the umbrella of lender liability.

We begin our empirical analysis by examining the association between state contract law and the reliance on balance sheet-based and income statement-based information in debt covenants. We measure reliance on covenants using the mix of covenants and the strictness of different types of accounting-based debt covenants, where strictness is measured as the aggregate probability of covenant violation provided by Demerjian and Owens (2016). We document that borrower-lender pairs rely more on balance sheet-based covenants when the governing law is more pro-debtor and that income statement-based covenants are tighter when the governing state contract law is more pro-lender.

One difficulty in this study—and in this literature more broadly—is that borrowers and lenders select the state contract law that governs their agreement. In theory, borrowers and lenders that are more likely to use specific types of accounting information might self-select into different states' contract laws. We attempt to address this potential bias through a series of robustness tests. First, we conduct two within sample tests to address omitted variable concerns. The first within sample test includes only the subset of borrowers that use contract law from multiple states (providing that those states vary in their law), allowing us to address potential borrower-specific correlated omitted variables. The second within sample test uses only contracts governed by one of the four states that experienced a change in its debt-contracting laws during our sample period, allowing us to address potential jurisdiction-specific correlated omitted variables. We run separate pre and post tests for each state to examine how contract terms changed after the change in state contract law.

Second, we conduct cross-sectional tests to determine whether our results are driven by particular subsets. These tests first examine the subset of loans where endogeneity is likely to be least severe: when the lender, borrower, and contract law are from the same state (presumably the selection of contract law is less of a “choice” in this instance). The results suggest that this subsample drives our primary findings, providing greater confidence that our results are not driven by selection. The cross-sectional tests further consider whether our results are driven by bargaining power. In theory, the party with greater bargaining power could drive the selection of both contract terms and contract law. Using two proxies for bargaining power, we find no evidence that our results are driven by the subset of loans where inequity in bargaining power is likely to be greatest, suggesting that relative bargaining power does not drive our results.

Although the within sample and cross-sectional tests reduce selection concerns, we run two additional tests to further address potential endogeneity. First, we estimate a two-stage model by instrumenting the choice of state contract law using the location of the borrower and lender. Second, we identify debt contract amendments where the state law governing the contract changes. This sample allows us to run tests within the same loan deal, allowing us to address contract-specific omitted variables. Our results remain consistent throughout these tests.³ However, we caution the readers that these solutions are imperfect at best and selection remains a concern.

Our analysis further examines performance pricing grids, which link the loan's interest rate to the borrower's ex post performance (Asquith et al. 2005). Performance

³ We perform additional robustness tests and analyses that we do not tabulate for brevity (e.g., we re-estimate our performance pricing model at the facility rather than deal level and obtain weaker but consistent results).

pricing can be considered a mechanism to allocate bargaining power to lenders when the borrower underperforms or to reward the borrower when it overperforms (Roberts and Sufi 2009; Christensen et al. 2016). Borrowers are incentivized to renegotiate loans as the interest increases, thereby shifting bargaining power to the lender. We follow Asquith et al. (2005) to classify performance pricing grids into interest increasing and interest decreasing grids, and we examine their association with state contract law. From a legal perspective, performance pricing has asymmetric risk. Lowering the interest rate through an interest decreasing grid presents no risk that the lender will be subject to lender liability, but raising the interest rate could incite litigation. Although unlikely to succeed in court, borrowers have sued lenders that raised interest rates after the contract was in effect. Therefore we expect and find that debt contracts are more likely to include interest increasing performance pricing grids when the contract is governed by more pro-lender state contract law.

Our analysis makes several contributions to the literature. First, stated broadly, our results complement the literature on incomplete contracting and contract design. Our finding that, when the law is more (less) favorable to lenders, parties rely more on income statement- (balance sheet-) based covenants demonstrates how the use of accounting information interacts with the legal regime when future contract terms are unknown. In this regard, our study complements international studies on legal regime and contract design, such as the work of Qian and Strahan (2007). However, to our knowledge, our study is the first to analyze how state contract law impacts contract design and the use of accounting information. Not only does this setting allow us to provide additional insights with respect to specific contract terms and ratios used, but our study is not affected by differential federal securities regulations and other country-level characteristics affecting international studies.

Second, we contribute to literature on contracting itself. Based on prior literature, it is not obvious that variations in contract law across states would relate to the use of financial covenants. Indeed, some legal studies have found that contract terms are sticky and do not change despite changes in the legal regime (e.g., Gulati and Scott 2012; Nyarko 2020). These papers frequently attribute their findings to the structure of modern day law firms, which typically have a stock set of documents for each type of deal. Carefully tailoring those stock documents for a particular deal is expensive, and it may be economically beneficial to include standardized contract terms in some circumstances.

Finally, we show that state contract law is an important factor in understanding how accounting information is used in debt contracts. There is strong theoretical motivation for the inclusion of accounting numbers in debt covenants, and a rich line of empirical work supports the theoretical motivation. However, there is still much to learn about this topic (Skinner 2011). The research in this area shows that a variety of accounting signals are used in debt contracts, but the literature has not explained this variation. For example, Armstrong et al. (2010) note that it is important to understand “which factors affect the choice of financial ratios over which covenants are written.” Likewise, Christensen et al. (2016) emphasize that “what explains differences in the choice of accounting signals and how their thresholds are set is not well understood.” Our study makes an important contribution by showing that the applicable law is an important factor in understanding the variation of accounting numbers used in debt covenants.

2 Motivation and hypotheses development

2.1 State contract law and debt contracts

The relation between debt markets and the legal environment stems from the need for authority in contractual settings. Contracts are inherently incomplete because they cannot address all possible contingencies. The incomplete contract theory explains the need for authority (or decision power) when market mechanisms become too costly to coordinate economic activities (Christensen et al. 2016). The use of authority in contractual settings has been formalized by studies, such as those by Grossman and Hart (1986) and Hart and Moore (1990), and theory suggests a natural relation between contract design and the enforcement of decision rights among contracting parties.

Empirically, the relation between law (which affects enforcement) and debt contracting has been studied extensively, since the influential work by La Porta et al. (1997, 1998). Although most studies use cross-country settings, a growing number use within country designs. For example, Mansi et al. (2009) show that firms incorporated in states with greater creditor protections under corporate law have lower bond yield spreads and higher credit ratings. Similarly, studies have examined the variation in state laws with respect to debt collateral repossession (Minnis and Sutherland 2017) and the foreclosure initiation process (Brown et al. 2006; Mian et al. 2015).⁴

Honigsberg et al. (2014) emphasize the distinction between state corporate law and state contract law. They note that the relationship between shareholders and management is primarily governed by state corporate law, whereas the law governing each commercial contract is determined by the parties to the contract and is typically stated in the contract itself. Lenders and borrowers have substantial flexibility in choosing the law that will govern their debt contract,⁵ and the state of contract and state of incorporation frequently differ.⁶ In our sample, most firms use corporate law from Delaware and contract law from New York (especially in the later periods, when New York is especially popular).

The parties may prefer the law of one state over another for a variety of reasons. (1) Substantive law differs across states (e.g., the exact same provision may be enforced in one state but not another). (2) The certainty of law differs across states (e.g., New York has more relevant precedent related to debt contracting than any other state, so parties using New York are likely to have more certainty over their legal rights and obligations should an unforeseen situation arise). (3) The quality of court systems differs across states (by using one state's law, parties can often litigate in that state, and the quality of

⁴ Within country designs are not limited to US settings. Recent work analyzing changes in bankruptcy laws in Italy has shown that bankruptcy laws affect loan interest rates and firm investment decisions (Bonetti 2017; Rodano et al. 2016).

⁵ In the context of commercial contracts, courts will enforce the contracting parties' choice of law only if that state has a "reasonable relationship" to the contract. However, the "reasonable relationship" term has been interpreted very broadly in recent decades (Eisenberg and Miller 2010). Additionally, in an effort to create work for state-licensed attorneys, many states have enacted statutes that are meant to ensure choice of law clauses in commercial contracts are enforced. Combined, these factors provide parties to commercial contracts with substantial flexibility in selecting the law that will govern their agreement (Eisenberg and Miller 2010).

⁶ Using a sample of over 3000 debt contracts, Honigsberg et al. (2014) show that the borrower's state of incorporation differs from the state law governing the debt contract more than 90% of the time.

judges and efficiency of the court system varies significantly).⁷ (4) Familiarity with the relevant law (parties often hesitate to learn a new state's law; lawyers in particular prefer familiar law because they are often licensed in only one jurisdiction). (5) The responsiveness of legislators (e.g., if there is a bizarre court opinion that upsets equilibrium, can parties count on the state legislators to reset the law?). Of course, the relevance of each factor (and others not noted but that are plausibly relevant such as location) varies by deal.

Based on the substantive and procedural differences in contract law across states, Honigsberg et al. (2014) develop an index to measure the ease with which lenders can enforce their contractual rights. Using the index to classify some states as pro-debtor (e.g., California) and some states as pro-lender (e.g., New York), they find differences in contract terms—namely interest rates and cash collateral—that suggest borrowers and lenders use other contractual features to substitute for lenders' relatively weaker ability to enforce their control rights under pro-debtor state contract law. However, their main analysis compares the repercussions of covenant violations depending on the law governing the contract. They find that, when the law is favorable to the lender, there are significantly fewer covenant violations but the repercussions of covenant violations (measured as changes in the borrower's investment policy) are more severe. These results lead to a natural question: does differential ex post enforcement across state contract laws affect the design of the contract in the first place? We attempt to address this question by studying the design of debt covenants.

2.2 Balance sheet-based versus income statement-based information in debt contracts

Debt covenants are used extensively by private lenders to protect themselves from value destroying actions by borrowers. Accounting information serves as the basis for financial debt covenants, but contracting parties routinely modify the definition and use of accounting inputs (Dichev and Skinner 2002; Li 2010). For example, Li (2010) shows that transitory earnings components are usually excluded from covenant definitions—a finding that is consistent with a rich line of literature suggesting that conservative accounting numbers are preferable for debtholders (e.g. Aier et al. 2014; Ball et al. 2008; Zhang 2008).⁸

One of the choices faced by borrowers and lenders is whether to use financial ratios based on balance sheet or income statement numbers. Based on Aghion and Bolton (1992)'s model,⁹ Christensen and Nikolaev (2012) suggest that balance sheet-based covenants primarily address agency problems by aligning the interests of the borrower

⁷ Bankruptcy proceedings do not affect our analysis. When firms file for bankruptcy, the bankruptcy courts will apply the law that was selected in the contract. Further, although there are some differences in procedure that are controlled by the local jurisdiction, bankruptcy law itself is federal.

⁸ In their review of the literature on debt covenants, Armstrong et al. (2010) note that debtholders value some accounting attributes but not others, and they urge researchers to analyze factors that lead debtholders to favor certain types of accounting information.

⁹ Aghion and Bolton (1992) show two types of efficient control allocations: unilateral and contingent control allocations. The unilateral control allocation regime assigns control to the borrower (and in some cases to the lender) by aligning the interests of the lender and borrower at the initiation of the contract, while the contingent control allocation regime reallocates control between the lender and borrower based on signals during the term of the contract.

and lender *ex ante*.¹⁰ By contrast, income statement-based covenants have an *ex post* function: they allow the lender to identify poor performance in a timely manner and to seize control rights if necessary.

Consistent with differing contractual roles of income statement- and balance sheet-based covenants, Christensen and Nikolaev (2012) show that the use of balance sheet-based covenants is negatively associated with the financial constraints of the borrower and with the contractibility of the borrower's accounting information. In a related study, Demerjian (2011) suggests that the decreasing prominence of covenants based on balance sheet numbers can be, at least in part, attributed to the switch in standard setting to a balance sheet focus (e.g., the effect of fair value adjustments may reduce the balance sheet's relevance in bond valuation and contracting (Givoly et al. 2016)). Moreover, Saavedra (2018) argues that balance sheet covenants are more restrictive when the firm is performing well, therefore reducing the flexibility of borrowers. He shows that contracting parties avoid balance sheet covenants when the syndicate size is large, primarily to avoid coordination problems. The collective evidence from these studies shows that balance sheet numbers are deemed more useful than income statement numbers in certain situations, and vice versa.

2.3 Hypothesis development

Ex ante, the relation between the legal regime and the use of accounting information in covenants is unclear. On the one hand, significant legal literature has found that contracts are not as closely tailored to the legal regime as one would expect under efficient conditions. For example, Gulati and Scott (2012) track the use of boilerplate language in contracts, with a particular focus on the *pari passu* clause in sovereign debt agreements. Despite a novel judicial interpretation of this clause that opened sovereigns to increased risk if they continued to include the clause, Gulati and Scott (2012) find that sovereign debt agreements issued after the novel opinion still contained the clause in question. Nyarko (2020) finds a similar result using forum selection clauses. These authors attribute the stickiness of contract provisions to the structure of modern day law firms, which typically have such a high volume of transactions that the lawyers use a stock set of documents that may not be customized to the transaction.

On the other hand, other work has found that contract provisions are tailored to the governing law. Qi and Wald (2008) examine the variation in state corporate law with respect to the minimum asset-to-liabilities ratio necessary to issue distributions to shareholders and find that firms incorporated in states with stricter restrictions are less likely to include dividend payout restrictions in their debt contracts. Sanga (2018) shows that executive contracts governed by California law, where post-employment covenants not to compete are unenforceable, are more likely to retain discretion over severance bonuses—thus providing firms with some level of control over the executive post-employment even without a noncompete clause. Miller and Reisel (2012) show that public bonds are more likely to include covenants when the creditor protection

¹⁰ Covenants that include a mix of both balance sheet and income statement numbers (e.g., debt to EBITDA ratio) are classified as income statement-based covenants, because income statement numbers are flow numbers that use the stock number as a scalar. Balance sheet-based covenants include balance sheet numbers only. See Appendix 2 for covenant mix classifications.

laws of the issuer's country are weak, and Hong et al. (2016) report that debt covenants are more prevalent in countries with weaker creditor rights.

It is therefore an open question whether the covenant mix relates to the state contract law. If the contracts are sticky and lawyers use the same covenants in each contract, there will be no variation. However, if the covenants are tailored to the regime, we would expect variation. In particular, income statement-based covenants may be more appealing under pro-lender law, as the tripwire feature is even more powerful, because the lender can respond more aggressively to a violation. By contrast, if the borrower-lender pair use pro-debtor law, balance sheet-based covenants may be more appealing. These covenants are meant to align the interests of the borrower and lender *ex ante* and are violated less frequently, implying that lenders' ability to enforce their rights in a timely manner is less important.

Based on the above discussion, we form the following hypothesis in alternative form.

Hypothesis 1a: Debt contracts governed by pro-debtor (pro-lender) state contract law rely more (less) on balance sheet-based covenants than on income statement-based covenants.

As an extension of our first hypothesis, we examine covenant strictness. To understand whether a lender can rely on a covenant to align the borrower's behavior with her own, it is important to know the restrictiveness of the covenant. For example, a borrower may be entirely unconstrained by a contract with a multitude of very loose covenants. However, that same borrower might be significantly constrained by a contract with only one tight covenant.

If there is an interaction between the contract law and the covenant mix, we expect that income statement-based covenants will be stricter under pro-lender law and that balance sheet-based covenants will be stricter under pro-debtor law. However, as before, there may be no variation if the contracting parties use stock documents that are not tailored to the particular transaction. For example, De Franco et al. (2019) report that, when a firm uses the same legal counsel as its peers, the restrictiveness of its bond covenants highly resembles that of its peers.

Based on the above discussion, we form the following hypothesis in alternative form.

Hypothesis 1b: The probability of violating balance sheet- (income statement-) based covenants is higher when the debt contract is governed by pro-debtor (pro-lender) state contract law.

Our next set of tests explores performance pricing grids. Performance pricing links a loan's interest rate to the borrower's performance; if performance increases, the interest rate decreases (and vice versa) (Asquith et al. 2005). Performance pricing grids can lead to contract negotiations and shifts in bargaining power. In particular, as interest rises due to deteriorating performance, borrowers may seek to renegotiate the contract, thus transferring power to the lender.

We follow Asquith et al. (2005) to classify performance pricing grids into two types: interest increasing and interest decreasing. Interest decreasing grids reward the borrower for improved credit quality. This benefits both the borrower and lender by decreasing interest rates without incurring renegotiation costs (decreasing the interest rate benefits

lenders that fear the borrower will prepay or defect to other lenders) (Asquith et al. 2005). Interest increasing grids provide the lender an option to increase the interest rate if the borrower's credit quality deteriorates. Therefore interest increasing performance pricing grids provide a less severe alternative to actual covenant violations (Asquith et al. 2005).

The asymmetry in performance pricing grids raises the question of whether their use relates to the state law governing the contract. Although unlikely to succeed in court, borrowers have been known to sue lenders that raise the interest rate, charge additional fees, or both after a contract is in effect.¹¹ Therefore a contract using pro-lender law may be more likely to include an interest increasing performance pricing grid (i.e., because the likelihood of success is even lower under pro-lender law, there may be greater reliance on these features). By contrast, because it is extremely unlikely that a borrower will sue a lender for decreasing the interest rate, we make no parallel prediction regarding decreasing pricing grids.

Hypothesis 2: Debt contracts governed by pro-debtor (pro-lender) state contract law are less (more) likely to include interest increasing performance pricing grids.

3 Sample selection and methodology

3.1 Sample

Our sample includes the set of material contracts available on the SEC's EDGAR website from 1996 to 2017 that can be matched to the Loan Pricing Corporation's (LPC) Dealscan database. For the years from 1996 to 2005, we follow Honigsberg et al. (2014) and use Nini et al.'s (2009) dataset, which the authors kindly provide online. We extend Nini et al.'s (2009) data from 2006 until 2017 by using WRDS SEC Analytics Suite, as described in Appendix 4. In total, the sample includes 3951 loan contracts.

We access covenants and other contract specific information through Dealscan. In addition to SEC filings, Dealscan compiles data from loan syndicators and other internal sources, therefore providing a high level of coverage of the US loan market. The loan data in Dealscan is organized in deals (or packages) and facilities (or tranches). A loan deal refers to a specific agreement between a borrower and a lender (or a syndicate of lenders) and might include several facilities with different terms and characteristics. We perform our analyses at the deal level, as the set of covenants written in the loan contract apply to the overall deal.

We access firm specific accounting data through the Compustat and CRSP databases. Although Dealscan provides some information on the borrowing firms, such as the names, industries, and countries, it does not provide a universal firm identifier for matching with other databases. We therefore use the matching table described by Chava and Roberts (2008) and kindly provided by Michael Roberts on his website,¹² to match the borrowing firms in Dealscan with the Compustat database.

¹¹ See, e.g., *Layne v. Ft. Carson Nat'l Bank*, 655 P.2d 856 (Colo. 1982) (borrower sued bank after a 5% increase in the interest rate, alleging that the bank acted in bad faith); *Homelife Props. Ltd. v. Fahey Banking Co.*, 2010 Ohio Misc. LEXIS 522 (borrower sued bank, alleging that it improperly tried to increase the interest rate on a commercial loan); *First Nat'l Mont. Bank v. McGuinness*, 705 P2d 579 (borrowers sued bank after the bank informed the borrowers that the interest rate would be raised on the final year of a contract extension).

¹² This matching link data is available until 2017. <http://finance.wharton.upenn.edu/~mrobert/styled-9/styled-12/index.html>

3.2 Variable measurement

3.2.1 Classification of state contract law

We classify state contract law using the two measures defined by Honigsberg et al. (2014). First, we use the Pro-Debtor Index, which is an aggregate score from six features of state common and statutory law that relate to the lender's ability to enforce the contract as written. The Pro-Debtor Index ranges from 6 to 12, with higher scores reflecting that the state contract law is more favorable to the debtor. The specific provisions are as follows. (1) Does the state enforce predispute jury trial waivers? (2) Does the state have specialized business courts? (3) Does the state recognize the tort of deepening insolvency? (4) Does the state enforce waivers of lender liability? (5) Does the state have statutes allowing for its law and forum to be used in commercial contracts of a minimum dollar value? (6) To what extent must a lender act in good faith when taking discretionary action? These provisions are explained in detail in [Appendix 1A](#).

Second, we classify state law based on the perceived litigation risk posed to lenders (Honigsberg et al. 2014). This metric, which is calculated as number of lender liability lawsuits per state divided by number of debt contracts per state,¹³ follows much prior literature in estimating litigation risk using an ex post approach based on the number of lawsuits (e.g., Li et al. 2012; Heninger 2001; Francis et al. 1994). Although the frequency of litigation is often considered to reflect the amount of uncertainty in the law and is not necessarily indicative of the substantive law (Priest and Klein 1984),¹⁴ lender liability is a narrow context in which we can conclude that uncertainty is worse for defendants (i.e., the lenders).¹⁵ As such, the states with the highest frequency of litigation are characterized as pro-debtor, and vice versa.

Consistent with Honigsberg et al. (2014), we categorize only the 10 states with 1% or more of the total number of contracts. The classification of these 10 states under the Pro-Debtor Index is presented in [Appendix 1B](#). The most pro-debtor state is California with a Pro-Debtor Index of 12, while the most pro-lender state is New York with a Pro-

¹³ We identified the number of lender liability lawsuits by relying on Cappello (2009), the leading treatise on lender liability. This treatise is focused on the branch of law that seeks to protect borrowers—not equity holders or other stakeholders—from unfair lending practices. To eliminate cases unrelated to state law, we eliminated all cases brought exclusively under federal law (e.g., the bankruptcy code). The hundreds of remaining cases in the treatise largely consist of claims arising under contract law, deceptive practices statutes, environmental law, fiduciary relationships, and sales of collateral.

¹⁴ The intuition is that parties are more likely to settle rather than litigate when the legal rules are certain, because they can anticipate how the courts will rule and will not waste time and money in litigation. Hence it is only worthwhile to litigate when the case outcome is uncertain.

¹⁵ Common law was traditionally very friendly to lenders, but over time a series of borrower friendly cases have muddled the law in certain jurisdictions and created uncertainty. As an example, consider the most famous lender liability case: *K.M.C. Co. v. Irving Trust Co.*, 757 F.2d 752 (6th Cir. 1985). In this case, the lender refused to provide additional funds that were available under the borrower's line of credit, because the lender believed that the borrower posed a credit risk. When the borrower went out of business and sued the lender for violating the duty of good faith, the jury awarded the borrower \$7,500,000. The case was highly unusual at the time, because the lender was found liable for taking an action that was expressly permitted by the contract terms. As many would expect, the frequency of similar claims spiked after this case. What had previously seemed clear in the law—that the lender could withhold funds if the contract permitted him to do so—was now uncertain. As such, plaintiffs had incentives to bring litigation in instances where there was previously no reason for them to waste their time. Hence this case illustrates the idea that uncertainty in this particular area of law is bad for lenders.

Debtor Index of 6. The classification of these 10 states following the perceived litigation risk is shown in Appendix 1C. Following Honigsberg et al. (2014), the three states with the highest rate of litigation are considered pro-debtor, the three states with the lowest frequency of litigation are considered pro-lender, and all other states are considered to pose a medium risk. We use this ranking to create two indicator variables: the first reflects the states with high litigation risk (pro-debtor)— California, Florida, and Pennsylvania—and the second reflects the states with low litigation risk (pro-lender)— Illinois, North Carolina, and New York.

3.2.2 Classification of covenants

We classify covenants into balance sheet- and income statement-based covenants, following Christensen and Nikolaev (2012). To study the covenant mix, we use two dependent variables. First, following Christensen and Nikolaev (2012), we use the balance sheet ratio, which is defined as the ratio of the number of balance sheet covenants over the sum of balance sheet-based covenants and income statement-based covenants. As Christensen and Nikolaev (2012) argue, this measure captures the variation in the covenant packages of firms that rely on both balance sheet- and income statement-based covenants.

Second, we follow a discrete modeling approach and construct two indicator variables based on whether the covenant mix includes balance sheet-based covenants but not income statement-based covenants, and vice versa. This is partially similar to Demerjian (2011), who constructs indicator variables that take the value of one if the covenant package includes a balance sheet-based covenant or an income statement-based covenant.¹⁶

3.2.3 Strictness of covenants

We conceptualize the strictness of covenants as the ex ante probability that the covenant will be violated (Murfin 2012; Demerjian and Owens 2016). In an attempt to provide a clean measure of covenant strictness, Demerjian and Owens (2016) perform simulations on hand-coded data to provide an aggregate measure for the probability of covenant violation for each loan deal at initiation, and they kindly provide these data on their website.¹⁷ We use these covenant strictness measures as dependent variables to test our second hypothesis.

3.2.4 Performance pricing grids

We follow Asquith et al. (2005) to identify interest increasing performance pricing grids. We focus on loan packages that include performance pricing grids and analyze whether the contract includes an interest increasing grid. This approach estimates a discrete model.

¹⁶ Demerjian (2011) uses a subset of the covenants used by Christensen and Nikolaev (2012). For consistency, we follow the classification of Christensen and Nikolaev (2012) as described in Appendix 2.

¹⁷ <http://faculty.washington.edu/pdemerj/data.html>

3.3 Empirical models

To test the relation between the covenant mix and the law governing the contract, we estimate the following model augmented from Christensen and Nikolaev (2012).

$$\begin{aligned} \text{Balance sheet ratio} = & \beta_0 + \beta_1 \text{State Contract Law} + \beta_2 \text{AGE} + \beta_3 \text{DIVYIELD} + \beta_4 \text{LEV} \\ & + \beta_5 \text{SIZE} + \beta_6 \text{BTM} + \beta_7 \text{ROA} + \beta_8 \text{LOSS} + \beta_9 \text{ADV} + \beta_{10} \text{RD} + \beta_{11} \text{TANG} + \beta_{12} \text{ALTZ} \\ & + \beta_{13} \text{RETVOL} + \beta_{14} \text{DEALSIZE} + \beta_{15} \text{SPREAD} + \beta_{16} \text{LEADSIZE} + \beta_{17} \text{MATURITY} \quad (1) \\ & + \beta_{18} \text{LENDFREQ} + \beta_{19} \text{REVOLVER} + \beta_{20} \text{SECURED} + \text{Year Fixed Effects} \\ & + \text{Industry Fixed Effects} + \varepsilon, \end{aligned}$$

where *State Contract Law* refers to the empirical proxies of state law defined above (i.e., the Pro-Debtor Index and the indicator variables representing the state's perceived litigation risk). The model controls for the firm and loan specific characteristics most likely to affect the covenant mix, as determined by Christensen and Nikolaev (2012). (All such variables are defined in Appendix 3.) If loan contracts governed by pro-debtor law give more weight to balance sheet-based covenants, the Pro-Debtor Index will be positively associated with the balance sheet ratio (i.e., β_1 will be positive). We further substitute the balance sheet ratio with the indicator variables *Only Balance Sheet Covenant* and *Only Income Statement Covenant* using a logit model.

To test the association between the state contract law and strictness of covenant types, we estimate the following model.

$$\begin{aligned} \text{Balance Sheet or Income Statement Covenant Strictness} \\ = & \beta_0 + \beta_1 \text{State Contract Law} + \beta_2 \text{LEV} + \beta_3 \text{SIZE} + \beta_4 \text{BTM} + \beta_5 \text{NUMCOV} \\ & + \beta_6 \text{RATING} + \beta_7 \text{ALTZ} + \beta_8 \text{MATURITY} + \beta_9 \text{DEALSIZE} + \beta_{10} \text{SPREAD} \\ & + \beta_{11} \text{SECURED} + \text{Year Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon, \end{aligned} \quad (2)$$

where *Covenant Strictness* refers to the aggregate probability of violation of balance sheet- and income statement-based covenants (Demerjian and Owens 2016). We control for the firm and loan specific characteristics that are likely to affect ex post covenant violations (Demerjian and Owens 2016). If loan contracts governed by pro-debtor state law have tighter balance sheet-based covenants, the Pro-Debtor Index will be positively associated with the *Balance Sheet Covenant Strictness* (i.e., β_1 will be positive). Similarly, if loan contracts governed by pro-debtor state law have looser income-sheet-based covenants, the Pro-Debtor Index will be negatively associated with the *Income Statement Covenant Strictness* (i.e., β_1 will be negative).

To test the association between the state contract law and the inclusion of interest increasing performance pricing grids, we estimate the following logit model at the deal level.

$$\begin{aligned} \text{Logit (Contract Includes an Interest Increasing Performance Pricing Grid)} = \\ \beta_0 + \beta_1 \text{State Contract Law} + \beta_2 \text{DecGrid} + \beta_3 \text{AGE} + \beta_4 \text{DIVYIELD} + \beta_5 \text{LEV} \\ + \beta_6 \text{SIZE} + \beta_7 \text{BTM} + \beta_8 \text{ROA} + \beta_9 \text{LOSS} + \beta_{10} \text{ADV} + \beta_{11} \text{RD} + \beta_{12} \text{TANG} + \beta_{13} \text{ALTZ} \\ + \beta_{14} \text{RETVOL} + \beta_{15} \text{DEALSIZE} + \beta_{16} \text{SPREAD} + \beta_{17} \text{LEADSIZE} + \beta_{18} \text{MATURITY} \quad (3) \\ + \beta_{19} \text{LENDFREQ} + \beta_{20} \text{REVOLVER} + \beta_{21} \text{SECURED} + \text{Year Fixed Effects} \\ + \text{Industry Fixed Effects} + \varepsilon, \end{aligned}$$

where the dependent variable is an indicator that takes the value of one if the loan contract includes an interest increasing performance pricing grid and zero otherwise. We control for the firm and loan specific characteristics that are likely to affect the design of performance pricing grids (Christensen and Nikolaev 2012; Hollander and Verriest 2016). If loan contracts governed by pro-debtor state law are less likely to include interest increasing performance pricing grids, the Pro-Debtor Index will be negatively associated with the inclusion indicator (i.e., β_1 will be negative).

4 Results

4.1 Descriptive statistics

Descriptive statistics for our sample of 3951 loan contracts are tabulated in Table 1, Panel A. The descriptive statistics on the covenant mix are consistent with prior literature. Approximately one-third of the financial covenants are balance sheet-based covenants (mean balance sheet ratio is 0.30), which is consistent with the results of Christensen and Nikolaev (2012). Additionally, 14% of loan contracts include at least one balance sheet-based covenant but not an income statement-based covenant, while 49% include at least one income statement-based covenant but not a balance sheet-based covenants. The initial probability of violation (i.e., strictness) of balance sheet-based and income statement-based covenants is 8% and 28%, respectively. The corresponding probabilities in Demerjian and Owens' (2016) full sample are 12% and 32%, which implies that our sample consists of loan deals with relatively less risky borrowers. Consistent with the literature, roughly one-third (31%) of all deals include an interest increasing performance pricing grid.

Table 1, Panel B, reports the correlation matrix for our main variables. As expected, the Pro-Debtor Index is negatively associated with the low litigation risk indicator and positively associated with the high litigation risk indicator. More importantly, the Pro-Debtor Index is positively associated with the balance sheet ratio and with balance sheet covenant strictness. Further, the inclusion of interest increasing performance pricing grids is negatively associated with the pro-debtor ranking of the state contract law. In sum, the correlation matrix provides preliminary support for our three hypotheses.

Figure 1 visually supplements our univariate analysis with a bar-chart showing the variation of balance sheet-based covenants across each pro-debtor index ranking (i.e., from 6 to 12). Although not linear, there is an increasing trend in the use of balance sheet-based covenants as the state contract law becomes more pro-debtor. There is a significant difference in the use of balance sheet-based covenants in the loan contracts governed by the most pro-lender state (i.e., New York, Pro-Debtor Index = 6) and the most pro-debtor state (i.e., California, Pro-Debtor Index = 12). Their average balance sheet ratios are 27% and 42%, respectively.

4.2 State contract law and the covenant mix

Table 2, Panel A, examines the covenant mix using the estimation shown in model (1). In column 1, the coefficient on the Pro-Debtor Index is positive and significant (t -

statistic is 2.31), indicating that contracts governed by pro-debtor law include more balance sheet-based covenants. In column 2, we use the low litigation risk indicator and find that the coefficient is negative and significant (t -statistic = -1.65). In column 3, we include the high litigation risk indicator, and the coefficient is positive and significant (t -statistic = 2.10). In sum, the results in Table 2, Panel A, suggest that the use of balance sheet-based covenants is positively associated with pro-debtor law.

As far as the economic significance is considered, keeping all other determinants at their mean values, in column 1, an interquartile change (from 6 to 10) in the Pro-Debtor Index increases the balance sheet ratio from 0.29 to 0.32 (by 10.3%). In column 2, switching to a low litigation risk state (e.g., New York) is associated with a decrease in the balance sheet ratio from 0.32 to 0.29 (by 9.4%). Similarly, in column 3, switching to a high litigation risk state (e.g., California) is associated with an increase in the balance sheet ratio from 0.29 to 0.34 (by 17.2%). As a benchmark, the effect of an interquartile increase in the borrower default risk (i.e., Altman's Z score) is associated with a decrease in the balance sheet ratio from 0.31 to 0.29 (by 6.5%). Christensen and Nikolaev (2012) report Altman's Z score as an important determinant of the balance sheet ratio, in line with the idea that it is more efficient to rely on contingent control reallocation when the borrowers face financial constraints (i.e., to include more trip-wires in the contract). Therefore we believe that the state contract law is a significant determinant of the covenant mix.

As an alternative specification, we replace the dependent variable in model (1) with indicators for whether the covenant package includes balance sheet covenants but not income statement covenants (*Only Balance Sheet Covenant*), or vice versa (*Only Income Statement Covenant*). Table 2, Panel B, tabulates the results of these logit models. Columns 1 through 3 report the estimation with the *Only Balance Sheet Covenant* indicator as the dependent variable, and columns 4 through 6 report the estimation with the *Only Income Statement Covenant* indicator as the dependent variable. The results show that the Pro-Debtor index is negatively associated with the *Only Income Statement Covenant* indicator (z -statistic = -4.24) but is not significantly associated with the *Only Balance Sheet* indicator. Similarly, the *Low Litigation Risk* indicator is positively associated with the *Only Income Statement Covenant* indicator (z -statistic = 3.63), while the *High Litigation Risk* indicator is positively associated with the *Only Balance Sheet Covenant* indicator (z -statistic = 1.97). Taken together, these results provide support for our initial hypothesis by showing that debt contracts governed by more pro-debtor states are less likely to include income statement-only covenant packages. Moreover, debt contracts governed by high litigation risk states are more likely to include balance sheet-only covenant packages, and those governed by low litigation risk states are more likely to include income statement-only covenant packages.

We also examine the marginal effects of these bivariate specifications to provide an economic intuition. Holding all other determinants at their mean levels, in column 3, switching to a high litigation risk state (e.g., California) is associated with an increase in the probability of a balance sheet-only covenant package from 4.8% to 8.3%. For comparison, an interquartile increase in the Altman's Z score is associated with a decrease in the probability of a balance sheet-only package from 5.5% to 4.9%. Similarly, in column 5, switching to a low litigation risk state is associated with an increase in the probability of an income statement-only package from 40% to 51%.

Table 1 Panel A: Descriptive Statistics, Correlation Matrix

Panel A: Descriptive Statistics		N	Mean	Median	Min.	5%	25%	75%	95%	Max.	Std. Dev.
Variables											
Pro-Debtor Index		3951	7.43	6	6	6	6	10	12	12	2.16
Low litigation risk (Pro-lender)		3951	0.76	1	0	0	1	1	1	1	0.43
High litigation risk (Pro-debtor)		3951	0.1	0	0	0	0	0	1	1	0.29
Balance Sheet Ratio		3951	0.3	0.25	0	0	0	0.5	1	1	0.35
Only Balance Sheet Covenant		3951	0.14	0	0	0	0	0	1	1	0.34
Only Income Statement Covenant		3951	0.49	0	0	0	0	1	1	1	0.5
Balance Sheet Covenant Strictness		3109	0.08	0	0	0	0	0.03	0.75	1	0.22
Income Statement Covenant Strictness		3109	0.28	0.04	0	0	0	0.61	1	1	0.39
PP Grid Indicator		3951	0.81	1	0	0	1	1	1	1	0.4
Interest Increasing PP Grid Indicator		3951	0.31	0	0	0	0	1	1	1	0.46
AGE		3951	2.92	2.94	0.69	1.61	2.3	3.66	4.01	4.2	0.81
DIVYIELD		3951	0.01	0	0	0	0	0.02	0.04	0.07	0.02
LEV		3951	0.17	0.14	0	0	0.05	0.25	0.46	0.64	0.15
SIZE		3951	7.61	7.61	2.08	4.73	6.4	8.79	10.45	13.69	1.75
BTM		3951	0.58	0.47	0.04	0.12	0.29	0.71	1.44	3.08	0.47
ROA		3951	0.04	0.04	-0.29	-0.09	0.01	0.07	0.14	0.23	0.07
LOSS		3951	0.18	0	0	0	0	0	1	1	0.38
ADV		3951	0.01	0	0	0	0	0.01	0.06	0.15	0.03
RD		3951	0.02	0	0	0	0	0.01	0.11	0.24	0.04
TANG		3951	0.31	0.24	0.01	0.03	0.12	0.47	0.81	0.9	0.24
ALTZ		3951	3.92	3.17	-0.06	0.76	2.04	4.83	9.53	19.51	3.1
RETVOL		3951	-2.27	-2.27	-3.87	-3.12	-2.63	-1.93	-1.4	-0.31	0.52
DEALSIZE		3951	19.42	19.52	11.85	17.03	18.42	20.4	21.56	24.14	1.39
SPREAD		3951	4.9	5.01	1.61	3.4	4.47	5.42	5.99	7.07	0.76

Table 1 (continued)

LEADSIZE	3951	0.91	0.69	0.69	0.69	1.1	1.61	2.56	0.31
MATURITY	3951	3.72	4.09	0	2.48	3.58	4.28	5.48	0.61
LENDFREQ	3951	3.22	3	1	1	2	7	13	2.18
REVOLVER	3951	0.93	1	0	0	1	1	1	0.26
SECURED	3951	0.5	0	0	0	0	1	1	0.5
NUMCOV	3951	1.13	1.1	0.69	0.69	1.1	1.39	1.61	1.95
Panel B: Correlation Matrix									
Variables									
1-Pro-Debtor Index	1	2	3	4	5	6	7	8	9
2-Low litigation risk (Pro-lender)	-0.87	<.0001	-0.58	-0.16	0.04	0.21	-0.25	-0.07	0.23
3-High litigation risk (Pro-debtor)	<.0001	0.53	<.0001	<.0001	0.0051	<.0001	<.0001	<.0001	<.0001
4-Balance Sheet Ratio	0.12	<.0001	0.09	<.0001	0.2142	-0.11	0.11	0.02	-0.12
5-Only Balance Sheet Covenant	-0.04	0.04	0.02	0.79	<.0001	-0.39	0.11	-0.50	0.37
6-Only Income Statement Covenant	0.0106	0.0051	0.2142	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
7-Balance Sheet Covenant	-0.23	0.21	-0.11	-0.83	-0.39	<.0001	-0.76	0.17	-0.11
Strictness	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
	0.15	-0.15	0.04	0.23	0.02	-0.32	0.04	-0.13	-0.13
	<.0001	<.0001	0.0457	<.0001	0.3306	<.0001	0.0132	<.0001	<.0001
	0.06	-0.05	0.01	-0.25	-0.29	0.09	0.08	-0.42	-0.42

Table 1 (continued)

	1	2	3	4	5	6	7	8	9
8-Income Statement Covenant Strictness	0.0019	0.0093	0.5899	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
9-Interest Increasing PP Grid Indicator	-0.26	0.23	-0.12	0.31	0.37	-0.11	-0.08	-0.28	<.0001
Variables	1	2	3	4	5	6	7	8	9
1-Pro-Debtor Index		-0.84	0.52	0.18	-0.05	-0.24	0.29	0.10	-0.27
2-Low litigation risk (Pro-lender)	-0.87	<.0001	<.0001	<.0001	0.0033	<.0001	<.0001	<.0001	<.0001
3-High litigation risk (Pro-debtor)	<.0001	-0.58	<.0001	-0.16	0.04	0.21	-0.25	-0.07	0.23
4-Balance Sheet Ratio	0.53	<.0001	<.0001	<.0001	0.0051	<.0001	<.0001	<.0001	<.0001
5-Only Balance Sheet Covenant	0.12	-0.11	0.09	0.10	0.02	-0.11	0.11	0.02	-0.12
6-Only Income Statement Covenant	<.0001	<.0001	<.0001	<.0001	0.2142	<.0001	<.0001	0.3204	<.0001
7-Balance Sheet Covenant Strictness	-0.04	0.04	0.02	0.79	0.63	-0.93	0.63	-0.35	0.25
8-Income Statement Covenant Strictness	0.0106	0.0051	0.2142	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
	-0.23	0.21	-0.11	-0.83	-0.39	-0.39	0.11	-0.50	0.37
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
	0.15	-0.15	0.04	0.23	0.02	-0.32	-0.76	0.17	-0.11
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
	0.06	-0.05	0.01	-0.25	0.3506	0.09	0.08	0.04	-0.13
	<.0001	<.0001	0.0457	<.0001	<.0001	<.0001	0.0132	0.0132	<.0001
	0.06	-0.05	0.01	-0.25	-0.29	0.09	0.08	0.04	-0.42

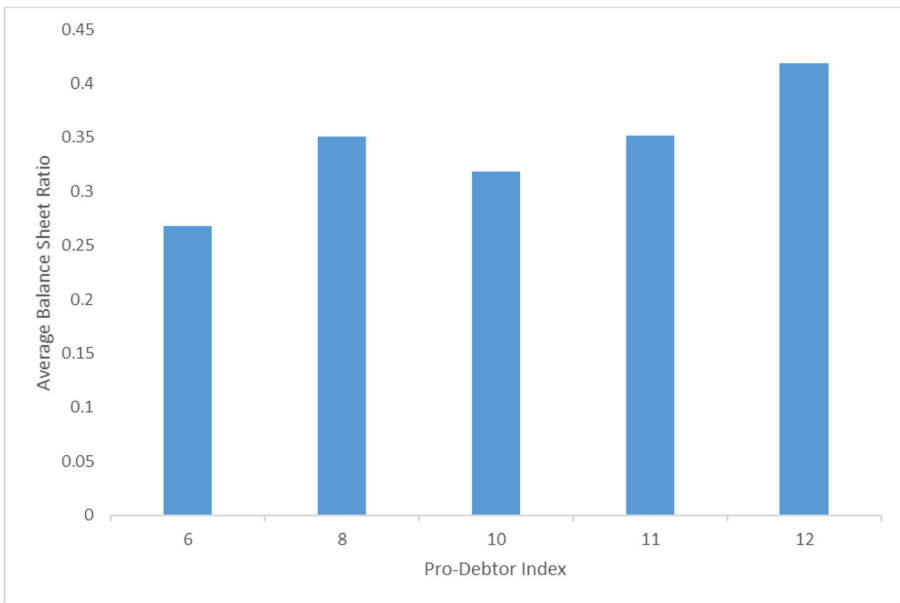


Fig. 1 The Use of Balance Sheet-Based Covenants by Pro-Debtor Index Value

Moreover, in column 4, an interquartile increase (from 6 to 10) in the Pro-Debtor Index is associated with a decrease in the probability of an income statement-only package from 52% to 42%. As a benchmark, an interquartile increase in the Altman's Z score is associated with an increase in the probability of an income statement-only package likelihood from 47% to 50%.

4.3 Robustness tests

An alternative explanation for our main results is that firm specific characteristics drive the association between the covenant mix and the governing state contract law. That is, borrowers or lenders who are more likely to use a specific type of information (e.g., balance sheet information versus income statement information) in debt contracts might self-select into specific states' contract laws. We attempt to address this concern through various subsample analyses, cross-sectional tests, and an instrumental variable (2SLS) approach.

4.3.1 Subsample tests

We conduct several subsample tests to address possible omitted variable concerns. First, to address potential firm-specific correlated omitted variables, we identify 214 borrowers that use contract laws from states with different pro-debtor index classifications (i.e., borrowers who have more than one contract, and those contracts are governed by state laws with different pro-debtor index rankings). This yields a sample of 700 debt contracts. Table 3 reports the estimation of a modified version of model (1), which includes firm-fixed effects to control for the firm-invariant characteristics in this

Table 2 Panel A: State Contract Law and the Covenant Mix, State Contract Law and the Covenant Mix, Bivariate Specification

Panel A: State Contract Law and the Covenant Mix			
VARIABLES	(1)	(2)	(3)
	Balance Sheet Ratio		
Pro-Debtor Index	0.007** (2.31)		
Low Litigation Risk		-0.024* (-1.65)	
High Litigation Risk			0.049** (2.10)
AGE	0.002 (0.27)	0.002 (0.20)	0.002 (0.23)
DIVYIELD	0.560 (1.11)	0.581 (1.15)	0.570 (1.13)
LEV	-0.163*** (-3.27)	-0.164*** (-3.29)	-0.164*** (-3.29)
SIZE	0.030*** (3.61)	0.029*** (3.52)	0.028*** (3.41)
BTM	0.032** (2.29)	0.031** (2.23)	0.032** (2.27)
ROA	-0.296** (-2.50)	-0.295** (-2.49)	-0.292** (-2.47)
LOSS	-0.032 (-1.57)	-0.032 (-1.59)	-0.032 (-1.57)
ADV	-0.422 (-1.52)	-0.432 (-1.55)	-0.424 (-1.53)
RD	0.489*** (2.59)	0.495*** (2.61)	0.482*** (2.58)
TANG	0.131*** (3.17)	0.134*** (3.23)	0.135*** (3.25)
ALTZ	-0.007*** (-2.87)	-0.007*** (-2.87)	-0.007*** (-2.90)
RETVOL	-0.023* (-1.69)	-0.023 (-1.65)	-0.023* (-1.69)
DEALSIZE	-0.043*** (-5.37)	-0.044*** (-5.39)	-0.043*** (-5.36)
SPREAD	-0.078*** (-6.13)	-0.079*** (-6.18)	-0.079*** (-6.19)
LEADSIZE	-0.005 (-0.24)	-0.006 (-0.26)	-0.005 (-0.20)
MATURITY	-0.053*** (-4.59)	-0.054*** (-4.64)	-0.054*** (-4.67)
LENDFREQ	-0.003	-0.003	-0.003

Table 2 (continued)

	(-0.86)	(-0.86)	(-0.86)
REVOLVER	-0.001	0.001	0.001
	(-0.03)	(0.03)	(0.04)
SECURED	-0.038***	-0.039***	-0.040***
	(-2.72)	(-2.79)	(-2.80)
Industry & Year Fixed Effects	YES	YES	YES
Observations	3951	3951	3951
Adj. R-squared	0.377	0.376	0.377

Panel B: State Contract Law and the Covenant Mix, Bivariate Specification

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	P (Covenant Package Includes Only Balance Sheet Covenants)			P (Covenant Package Includes Only Income Statement Covenants)		
Pro-Debtor Index	0.021 (0.50)			-0.105*** (-4.24)		
Low Litigation Risk		0.081 (0.38)			0.446*** (3.63)	
High Litigation Risk			0.571** (1.97)			-0.264 (-1.54)
AGE	-0.079 (-0.66)	-0.081 (-0.68)	-0.080 (-0.67)	-0.015 (-0.19)	-0.008 (-0.10)	-0.003 (-0.03)
DIVYIELD	9.809** (1.98)	9.678** (1.96)	9.762* (1.96)	-2.772 (-0.57)	-3.306 (-0.68)	-3.053 (-0.63)
LEV	-2.830*** (-3.23)	-2.884*** (-3.28)	-2.751*** (-3.17)	1.235** (2.57)	1.231** (2.57)	1.279*** (2.68)
SIZE	0.551*** (5.61)	0.542*** (5.56)	0.548*** (5.67)	-0.065 (-0.96)	-0.051 (-0.75)	-0.036 (-0.53)
BTM	0.814*** (4.11)	0.807*** (4.10)	0.819*** (4.09)	-0.145 (-1.17)	-0.130 (-1.05)	-0.133 (-1.09)
ROA	-3.713** (-2.26)	-3.700** (-2.24)	-3.764** (-2.31)	1.357 (1.46)	1.313 (1.41)	1.418 (1.55)
LOSS	0.453* (1.68)	0.455* (1.68)	0.461* (1.71)	0.558*** (3.08)	0.554*** (3.07)	0.568*** (3.16)
ADV	-9.290 (-1.58)	-9.292 (-1.56)	-9.293 (-1.59)	2.536 (0.91)	2.650 (0.95)	2.678 (0.97)
RD	7.707*** (3.47)	7.852*** (3.52)	7.337*** (3.33)	-1.847 (-1.41)	-1.885 (-1.43)	-1.933 (-1.48)
TANG	1.197** (2.30)	1.251** (2.43)	1.183** (2.30)	-0.913** (-2.46)	-0.933** (-2.50)	-0.989*** (-2.66)
ALTZ	-0.043 (-1.13)	-0.044 (-1.14)	-0.043 (-1.14)	0.042** (2.15)	0.042** (2.15)	0.040** (2.10)
RETVOL	-0.540*** (-3.08)	-0.537*** (-3.07)	-0.544*** (-3.08)	0.084 (0.68)	0.072 (0.59)	0.087 (0.71)

Table 2 (continued)

DEALSIZE	-0.427*** (-4.37)	-0.436*** (-4.44)	-0.407*** (-4.28)	0.231*** (3.21)	0.228*** (3.17)	0.247*** (3.41)
SPREAD	-1.052*** (-6.76)	-1.044*** (-6.73)	-1.065*** (-6.82)	0.277*** (2.72)	0.284*** (2.79)	0.285*** (2.80)
LEADSIZE	0.289 (1.19)	0.284 (1.16)	0.307 (1.25)	0.384* (1.83)	0.395* (1.88)	0.392* (1.87)
MATURITY	-0.625*** (-5.50)	-0.626*** (-5.52)	-0.632*** (-5.57)	0.194** (2.08)	0.198** (2.14)	0.211** (2.26)
LENDFREQ	-0.020 (-0.56)	-0.019 (-0.54)	-0.022 (-0.62)	0.037 (1.27)	0.038 (1.31)	0.037 (1.26)
REVOLVER	0.009 (0.03)	0.021 (0.08)	0.003 (0.01)	-0.029 (-0.16)	-0.040 (-0.23)	-0.064 (-0.37)
SECURED	-0.139 (-0.82)	-0.150 (-0.88)	-0.133 (-0.78)	0.443*** (3.39)	0.453*** (3.45)	0.462*** (3.54)
Industry & Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	3804	3804	3804	3938	3938	3938
Pseudo R-squared	0.355	0.355	0.358	0.293	0.291	0.289

This panel presents the results from estimating model (1). The dependent variable is the balance sheet ratio. Robust *t*-statistics are calculated by clustering standard errors at borrowing firm level, and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

This panel presents the results from estimating an alternative bivariate specification of model (1). The dependent variable is an indicator for whether the covenant package includes only balance sheet-based covenants (columns 1–3) or whether it includes only income statement-based covenants (columns 4–6). Robust *z*-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

subsample. In column 1, the Pro-Debtor Index is positive and significant (*t*-statistic is 1.72).

We repeat the same analysis with the litigation risk variable. Specifically, we require borrowers to have more than one contract, governed by different state laws classified as low, medium or high litigation risk. This filtering yields a sample of 469 debt contracts issued by 149 borrowers, and we estimate the firm-fixed effect model on this subsample. The results, reported in columns 2 and 3, show that low litigation risk is negative and significant (*t*-statistic is -1.87), while high litigation risk is positive but not statistically different from zero. Overall, the results in Table 3 are consistent with our primary findings and provide support that our results are not driven by a particular borrower characteristic.

Second, to address potential jurisdiction-specific correlated omitted variables, we examine a temporal change in the contract law of a single state. As explained in Appendix 1A, the Pro-Debtor Index is constructed by analyzing six legal practices.

Although the Pro-Debtor Index tends to be sticky over time; however, we identify changes in the relevant laws of New York, Georgia, California, and Massachusetts.

In 2004, New York declined to recognize the tort of deepening insolvency (states that recognized this tort allowed harmed parties to bring a claim against parties, such as secured lenders, deemed to have wrongfully prolonged a debtor company's life). Therefore New York became even friendlier to lenders. This change provides us with a good setting, because New York is the most popular contract law jurisdiction in the sample and the timing allows for a balanced panel of pre- and post-period observations. Column 1 of Table 4 estimates model (1) on the New York sample but includes the Pre-2004 variable as an indicator for the relatively more pro-debtor period. The Pre-2004 indicator variable is positive and significantly associated with the Balance sheet ratio, supporting our primary finding that pro-debtor state contract law is associated with a higher ratio of balance sheet covenants.¹⁸

In 2005, Georgia established specialized business courts, making it more favorable to lenders. Column 2 of Table 4 estimates whether there were changes in contracting after 2005. The analysis uses the sample of contracts governed by Georgia law and estimates model (1) with the inclusion of a Pre-2005 indicator variable, reflecting the relatively more pro-debtor period. The Pre-2005 indicator variable is positive and significantly associated with the balance sheet ratio, supporting our primary finding that pro-debtor state contract law is associated with a higher ratio of balance sheet covenants.

Similarly, in 2000, California established an alternate court system that resembles traditional business courts, a feature considered favorable to lenders. However, in 2005, predispute jury trial waivers became unenforceable in California, a decision considered more favorable to debtors. (Before 2005, the law regarding predispute jury trial waivers was uncertain.) We examine the subsample of contracts governed by California state contract law and code the period 2000–2004 as more pro-lender. In Table 4 column 3, we estimate model (1) on the contracts governed by California contract law. The *Between 2000 and 2004* indicator variable is negative and significantly associated with the balance sheet ratio, supporting our primary finding that pro-debtor state contract law is associated with a higher ratio of balance sheet covenants.

Finally, in 2000, Massachusetts established specialized business courts, which made its coding more favorable to lenders. Therefore we code Massachusetts as more Pro-Lender after 2000. Column 4 of Table 4 estimates model (1) on the contracts governed by Massachusetts contract law but includes an indicator variable for the relatively pro-debtor period prior to 2000. Consistent with our expectations, the Pre-2000 indicator variable is positively associated with the balance sheet ratio. However, it is not significant in conventional two-sided confidence levels.

¹⁸ In addition to controlling for year fixed effects, we conduct three pseudo-falsification tests with the New York subsample (untabulated): (1) we estimate the same regression over the pre period from 1995 to 2003, assuming a pseudo-change in year 2000; (2) we estimate the same regression over the post period from 2004 to 2017, assuming a pseudo-change in year 2011; and (3) we estimate the model over the sample of contracts governed by states other than New York during the full sample period, assuming a pseudo-change in year 2004. These pseudo change indicators do not show significant coefficients.

Table 3 Robustness Test, Subsample of Firms using Contract Law from Multiple States

	(1)	(2)	(3)
VARIABLES	Balance Sheet Ratio		
Pro-Debtor Index	0.011*		
	(1.72)		
Low Litigation Risk		-0.056*	
		(-1.87)	
High Litigation Risk			0.046
			(1.00)
AGE	-0.241***	-0.181***	-0.196***
	(-3.85)	(-3.38)	(-3.70)
DIVYIELD	-0.601	-1.092	-1.101
	(-0.46)	(-0.59)	(-0.63)
LEV	0.056	0.085	0.097
	(0.39)	(0.52)	(0.58)
SIZE	0.034	0.012	0.009
	(1.41)	(0.45)	(0.32)
BTM	-0.002	-0.003	-0.003
	(-0.40)	(-0.63)	(-0.71)
ROA	0.393	0.025	0.025
	(1.31)	(0.06)	(0.06)
LOSS	0.039	-0.010	-0.010
	(0.94)	(-0.19)	(-0.20)
ADV	0.803	0.097	0.222
	(0.60)	(0.07)	(0.17)
RD	-0.856	-2.923	-2.943
	(-0.50)	(-1.58)	(-1.57)
TANG	0.114	-0.013	-0.038
	(0.56)	(-0.05)	(-0.14)
ALTZ	-0.001	0.002	0.002
	(-0.22)	(0.29)	(0.24)
RETVOL	-0.007	-0.037	-0.032
	(-0.23)	(-1.05)	(-0.90)
DEALSIZE	-0.012	-0.015	-0.017
	(-0.65)	(-0.75)	(-0.82)
SPREAD	-0.007	-0.020	-0.027
	(-0.22)	(-0.57)	(-0.77)
LEADSIZE	-0.013	-0.063	-0.069
	(-0.24)	(-1.09)	(-1.16)
MATURITY	-0.035	-0.037	-0.044
	(-1.40)	(-1.14)	(-1.46)
LENDFREQ	-0.003	0.014*	0.013*
	(-0.41)	(1.88)	(1.85)
REVOLVER	-0.010	0.003	0.016

Table 3 (continued)

	(1)	(2)	(3)
	(-0.19)	(0.05)	(0.27)
SECURED	-0.028	-0.033	-0.032
	(-0.77)	(-0.75)	(-0.72)
Firm Fixed Effects	YES	YES	YES
Observations	700	469	469
Adj. R-squared	0.629	0.647	0.641

This table presents the results from estimating model (1) with firm-fixed effects on the subsample of borrowers that use more than one state's contract law (providing that the states differ in their favorability to lenders). The dependent variable is the balance sheet ratio. Robust t-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

4.3.2 Cross-sectional tests

In Table 5, we estimate cross-sectional tests to see whether our results are driven by particular subsets of loans. In column 1, we analyze the subset of loans that we expect is least subject to selection bias. In particular, we examine the observations where the borrower and lender are from the same state, and they select contract law from that state. Intuitively, when there is greater overlap in these characteristics, we expect the choice of law to be less of a choice and more of an automatic selection. In columns 2 and 3, we analyze the subset of loans where we expect lenders and borrowers to have greater inequity in bargaining power. In all columns, we create an indicator variable to reflect the relevant subset and interact that with the Pro-Debtor Index. The dependent variable is the balance sheet ratio (all models control for the variables noted in eq. 1).

Column 1 provides evidence that our results are more pronounced in the subset of loans where we would expect the fewest selection concerns—that is, the subsample for which the borrower, lender, and contract law are all from the same state (363 observations). The interaction term is positive and statistically significant at 1% (t -statistic = 3.01), while the coefficient on the Pro-Debtor Index is no longer statistically significant. In sum, column 1 provides evidence that our results are driven by a subsample with theoretically fewer selection concerns.¹⁹

We also investigate whether our results are driven by relative bargaining power between borrowers and lenders. In theory, the party with greater bargaining power could select all relevant contract terms, including the governing law and covenants, meaning that the relation between contract law and covenants could be driven entirely by bargaining power. Columns 2 and 3 consider this concern using two proxies for bargaining power. In column 2, we identify loans where the lead lender provided more than 50% of the total loans to the same borrower over the past three years. Santos and Winton (2008) label borrowers in such deals as “bank-dependent.” From the lender's

¹⁹ In untabulated tests, we experiment with less restrictive variations of this approach, identifying subsamples where (i) the home state of the lead lender is the same as the contract law, (ii) the home state of the borrower is the same as the contract law, and (iii) the lead lender and borrower are from the same state. In all such cross-sectional tests, the interaction term is positive and statistically significant.

Table 4 Robustness Test, Contracts Governed by the laws of New York, Georgia, California and Massachusetts

VARIABLES	Sub Sample	(1)	(2)	(3)	(4)
		Balance Sheet Ratio			
		New York	Georgia	California	Massachusetts
Pre 2004 Indicator (More Pro-Debtor)		0.196*** (2.69)			
Pre 2005 Indicator (More Pro-Debtor)			0.735** (2.00)		
Between 2000 and 2004 Indicator (More Pro-Lender)				-0.275* (-1.67)	
Pre 2000 Indicator (More Pro-Debtor)					0.596 (1.33)
AGE		0.000 (0.03)	-0.074 (-0.89)	0.038 (0.76)	-0.027 (-0.37)
DIVYIELD		0.405 (0.72)	1.310 (0.37)	-0.243 (-0.05)	-0.865 (-0.23)
LEV		-0.161** (-2.55)	-1.052* (-1.90)	-0.561* (-1.69)	0.786*** (2.73)
SIZE		0.020* (1.91)	0.056 (0.81)	0.056 (1.45)	0.017 (0.36)
BTM		0.037** (2.21)	0.207 (1.13)	0.077 (0.92)	-0.253*** (-3.01)
ROA		-0.319** (-2.42)	-0.169 (-0.25)	0.072 (0.18)	-0.474 (-1.37)
LOSS		-0.031 (-1.28)	-0.132 (-0.72)	0.023 (0.27)	0.001 (0.01)
ADV		-0.506 (-1.48)	6.577** (2.32)	-0.071 (-0.07)	-0.615 (-0.34)
RD		0.305 (1.25)	-1.265 (-0.78)	0.461 (0.91)	0.209 (0.35)
TANG		0.136** (2.55)	0.280 (0.70)	-0.216 (-1.19)	0.258 (0.60)
ALTZ		-0.010*** (-2.88)	-0.004 (-0.49)	-0.007 (-0.79)	0.011 (0.83)
RETVOL		-0.042** (-2.41)	0.017 (0.14)	0.037 (0.54)	0.078 (0.73)
DEALSIZE		-0.031*** (-3.09)	-0.087* (-1.83)	-0.071** (-2.09)	-0.002 (-0.04)
SPREAD		-0.109*** (-7.09)	-0.114 (-0.76)	0.134** (2.10)	0.026 (0.25)
LEADSIZE		-0.008 (-0.34)	0.516* (1.87)	-0.147 (-0.73)	0.232 (1.15)
MATURITY		-0.044***	0.012	0.019	-0.106

Table 4 (continued)

	(1)	(2)	(3)	(4)
	(-3.19)	(0.14)	(0.30)	(-1.27)
LENDFREQ	-0.004	0.004	0.014	-0.011
	(-0.85)	(0.13)	(1.06)	(-0.62)
REVOLVER	-0.001	0.115	-0.039	0.066
	(-0.06)	(0.62)	(-0.29)	(0.43)
SECURED	-0.052***	-0.005	-0.149**	0.103
	(-2.75)	(-0.04)	(-1.98)	(1.17)
Industry & Year Fixed Effects	YES	YES	YES	YES
Observations	2607	107	236	113
Adj. R-squared	0.435	0.286	0.277	0.433

This panel presents the results from estimating model (1) on the subsamples of borrowers that use contract law from New York, Georgia, California, and Massachusetts. The dependent variable is the balance sheet ratio. Robust t-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

perspective, they argue, having a large share of the borrower's previous loans provides advantages, such as better information and more bargaining power (Santos and Winton 2008). There are 1429 such deals in our sample.²⁰ In column 3, we use an alternative proxy for bargaining power and identify loans where the borrower has worked with multiple lead lenders over the past three years. We expect borrowers in such deals to have greater bargaining power.²¹ The results in both columns 2 and 3 show that the interaction terms lack significance and that our main results continue to hold. This mitigates the concern that our results are driven by bargaining power.²²

4.3.3 Further robustness tests

Although the results in Table 5 reduce selection concerns by providing evidence that the results are driven by observations with less severe selection concerns, we perform two additional tests to address potential endogeneity. First, we estimate a 2SLS model by instrumenting the choice of state contract law using the location of the borrower and lender. Because there is not an established model for the determination of state contract law in a loan deal, it is difficult to validate any instrument across both theoretical and

²⁰ Our descriptive analyses show that deals with bank dependent borrowers are more frequently governed by pro lender state contract laws.

²¹ We are grateful to an anonymous reviewer for suggesting this proxy for bargaining power. Although untabulated, we also use borrowers with non-investment grade debt (S&P long-term bond rating lower than BBB) as a proxy for bank dependence and find similar results.

²² In an untabulated analysis, we tested whether our results are stronger for the sample of firms with highly volatile income by interacting net income volatility with the Pro-Debtor Index. Although our main result continued to hold, the interaction term was not significant, suggesting that our results are not driven by firms with high income volatility. Similarly, our results are robust to controlling for income and cash volatility in the model.

Table 5 Robustness Test, Cross-Sectional Analyses

	(1)	(2)	(3)
	Balance Sheet Ratio		
VARIABLES	X = Indicator for Lead Lender and Borrower being from the Same State, using the Same Contract Jurisdiction	X = Indicator for Bank Dependent Borrowers	X = Indicator for Borrowers who worked with multiple Lead Lenders Over the Past 3 Years
Pro-Debtor Index	0.005 (1.43)	0.006* (1.88)	0.008** (2.15)
X	-0.209*** (-2.77)	-0.011 (-0.29)	0.027 (0.73)
Pro-Debtor Index x X	0.026*** (3.01)	0.002 (0.49)	-0.002 (-0.45)
Controls	YES	YES	YES
Industry & Year Fixed Effects	YES	YES	YES
Observations	3951	3951	3951
Adj. R-squared	0.379	0.376	0.376

This table presents the results from estimating model (1) with several interactions. The dependent variable is the balance sheet ratio. Robust *t*-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

statistical levels. However, we report the results of our instrumental variable analysis in [Appendix 5](#).

Second, to address potential loan-specific correlated omitted variables, we identify instances in which the governing law changed as part of a renegotiation. The loan renegotiation sample introduced by Roberts (2015) allows us to identify instances in which the governing law for the amended and restated credit agreement differs from that in the original contract. This variation provides us with a setting to estimate a change-in-change specification. However, over a sample of 63 loan paths with 95 amendment or restatement events that replace the original agreement, we could find only six cases where the contracting parties changed the state law governing the contract. We report the results of this analysis in Appendix 6.

4.4 State contract law and strictness of covenants

Our hypothesis 1b is that contracts governed by pro-debtor law will have tighter balance sheet-based covenants, while contracts governed by pro-lender law will have tighter income statement-based covenants. Table 6 tests this hypothesis by estimating model (2). In columns 1 through 3, we show the strictness of balance sheet-based covenants is positively associated with the Pro-Debtor Index (*t*-statistic = 2.57) and

negatively associated with the *Low Litigation Risk* indicator (t -statistic = -2.89). The *High Litigation Risk* indicator in column 3 is not significant. We model the strictness of income statement-based covenants in columns 4 through 6. As expected, we find opposite results. The strictness of income statement-based covenants is negatively associated with the Pro-Debtor Index (t -statistic = -1.88) but is positively associated with the *Low Litigation Risk* indicator (t -statistic = 1.76).

The results are economically significant. Holding all other determinants at their mean values, in column 1, an interquartile change (from 6 to 10) in the Pro-Debtor Index increases the *Balance Sheet Covenant Strictness* from 7% to 10%. Similarly, switching to a low litigation risk state (e.g., New York) is associated with a decrease in the *Balance Sheet Covenant Strictness* from 11% to 7%. As a benchmark, an interquartile increase in the borrower default risk (i.e., Altman's Z score) is associated with a decrease in the *Balance Sheet Covenant Strictness* from 10% to 7%. In column 4, an interquartile change (from 6 to 10) in the Pro-Debtor Index decreases the *Income Statement Covenant Strictness* from 30% to 27%. Similarly, in column 5, switching to a low litigation risk state (e.g., New York) is associated with an increase in the *Income Statement Covenant Strictness* from 27% to 30%. As a benchmark, an interquartile increase in the borrower default risk (i.e., Altman's Z score) is associated with a decrease in the *Income Statement Covenant Strictness* from 31% to 27%. Therefore we believe that the state contract law is an important determinant of covenant strictness.

In sum, the results in Table 6 provide support for our hypothesis 1b that state contract law relates to covenant strictness. Specifically, we find that the ranking of the state contract law under the Pro-Debtor Index is positively associated with the strictness of balance sheet-based covenants and negatively associated with the strictness of income statement-based covenants. These effects are economically significant.

4.5 State contract law and the design of performance pricing grids

Our second hypothesis is that contracts governed by pro-lender law will have more interest increasing performance pricing grids.²³ We test this hypothesis by estimating logit model (3), where the dependent variable is an indicator for whether the loan deal includes an interest increasing performance pricing grid. The results are tabulated in columns 1 through 3 of Table 7. As expected, the inclusion of interest increasing grids is negatively associated with the Pro-Debtor Index (z -statistic = -3.56) and the *High Litigation Risk* indicator (z -statistic = -1.93); and it is positively associated with the *Low Litigation Risk* indicator in (z -statistic = 2.57). In columns 4 through 6, we estimate an alternative specification that tests the frequency of performance pricing grids with interest increasing grids only. The results further support our hypothesis that interest increasing grids are less likely to be included in contracts governed by more pro-debtor state contract laws.

To provide an economic intuition, we look at the marginal effects of the model (3). Holding all other determinants at their mean levels, in column 1, an interquartile increase (from 6 to 10) in the Pro-Debtor Index is associated with a decrease in the probability that the performance pricing grid includes an interest increasing grid from

²³ In untabulated tests, we find no evidence of association between the state contract law and the inclusion of interest decreasing performance pricing grids.

Table 6 State Contract Law and Covenant Strictness

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Balance Sheet Covenant Strictness			Income Statement Covenant Strictness		
Pro-Debtor Index	0.006** (2.57)			-0.006* (-1.88)		
Low Litigation Risk		-0.032*** (-2.89)			0.029* (1.76)	
High Litigation Risk			0.003 (0.18)			-0.018 (-0.79)
LEV	0.008 (0.19)	0.010 (0.23)	0.004 (0.10)	0.268*** (4.11)	0.268*** (4.10)	0.272*** (4.17)
SIZE	0.001 (0.11)	0.000 (0.03)	-0.001 (-0.14)	0.013 (1.52)	0.014 (1.60)	0.015* (1.71)
BTM	-0.014 (-1.53)	-0.015 (-1.58)	-0.014 (-1.53)	0.047*** (2.75)	0.047*** (2.77)	0.047*** (2.75)
NUMCOV	0.120*** (7.30)	0.119*** (7.30)	0.121*** (7.36)	0.204*** (7.58)	0.204*** (7.58)	0.202*** (7.53)
RATING	0.004 (1.27)	0.003 (1.24)	0.004 (1.37)	0.016*** (3.67)	0.016*** (3.68)	0.015*** (3.61)
ALTZ	-0.008*** (-4.79)	-0.008*** (-4.81)	-0.008*** (-4.82)	-0.013*** (-3.89)	-0.013*** (-3.88)	-0.013*** (-3.86)
MATURITY	-0.025*** (-3.32)	-0.025*** (-3.32)	-0.025*** (-3.39)	-0.033*** (-3.08)	-0.033*** (-3.08)	-0.032*** (-3.02)
DEALSIZE	-0.012* (-1.93)	-0.011* (-1.85)	-0.013** (-2.13)	-0.022** (-2.55)	-0.022** (-2.56)	-0.021** (-2.44)
SPREAD	-0.005 (-0.51)	-0.005 (-0.54)	-0.006 (-0.66)	0.103*** (7.28)	0.104*** (7.31)	0.105*** (7.36)
SECURED	0.020* (1.88)	0.020* (1.87)	0.019* (1.75)	0.045** (2.51)	0.046** (2.54)	0.046*** (2.59)
Industry & Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	3593	3593	3593	3593	3593	3593
Adj. R-squared	0.118	0.118	0.115	0.282	0.281	0.281

This panel presents the results from estimating model (2). The dependent variable is the strictness of balance sheet- and income statement-based covenants, as described by Demerjian and Owens (2016). Robust t-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

13% to 8%. Similarly, in column 3, switching to a high litigation risk state (e.g., California) is associated with a decrease in the probability that the performance pricing grid includes an interest increasing grid from 12% to 7%. As a benchmark, switching a loan from unsecured to secured is associated with a decrease in the probability that the

contract will include an interest increasing performance pricing grid from 19% to 6%.²⁴

Overall, the results in Table 7 provide support for our second hypothesis that the governing law is an important determinant of the use of performance pricing grids.^{25,26} Specifically, we find that the pro-debtor ranking of the state contract law is negatively associated with the inclusion of interest increasing performance pricing grids. This effect is economically significant.

Finally, we take a comprehensive view of the contracting process and allow several contracting variables to be simultaneously determined. Specifically, we follow Costello and Wittenberg-Moerman (2011) to simultaneously estimate our three models, along with a loan spread and a loan maturity model. We also estimate a determinant model for the Pro-Debtor Index, same as the first-stage model reported in Appendix 5. The results of these seemingly unrelated regressions are reported in Table 8. Using the Pro-Debtor Index as the test variable, in columns 1 through 4, we find supporting results for all of our hypotheses, after allowing for their error terms to be correlated. In columns 5 through 7, we report the results with other variables that are simultaneously estimated with covenant package, covenant strictness, and interest increasing performance pricing grids. Our results remain consistent.

5 Conclusion

Our analysis contributes to the literature on the use of accounting information in debt contracts by showing that a novel factor—the state law governing the contract—is an important determinant of the covenant mix. In particular, we show that the composition of balance sheet- and income statement-based covenants, and the strictness of those covenants, varies depending on whether the law is more or less favorable to lenders. There is greater reliance on income statement-based covenants, which are tripwires that trigger the switch of control rights *ex post* in the event of a risky situation, when the law is favorable to lenders. By contrast, there is greater reliance on balance sheet-based covenants, which align the interests of debtholders and shareholders *ex ante*, when the law is more favorable to borrowers. Our findings, which hold in a battery of robustness tests, indicate that lenders place more reliance on *ex post* control rights when they can better enforce those rights under the applicable law. By demonstrating the importance of state contract law, our study complements literature on incomplete contracting and contract design.

Further, our results provide greater insight on two empirical observations noted elsewhere. First, the literature has noted the decline in the use of balance

²⁴ We use the presence of security as a benchmark because prior literature has shown that the security feature of the loan is an important determinant of performance pricing grid design (Christensen and Nikolaev 2012; Hollander and Verriest 2016).

²⁵ We perform performance pricing tests across two alternative sample specifications (untabulated). First we estimate model (3) over the sample of loans that include performance pricing grids. Results are robust, albeit weaker. Second, since the performance pricing grids are designed at the facility level, we estimate the model (3) at facility level, recalculating deal-level control variables at the facility level. The results resemble those reported in Table 7.

²⁶ We estimated our Performance Pricing model over within sample settings reported in Tables 3 and 4 for robustness. Due to the many fixed effects and small sample sizes, the logit model cannot be estimated in many cases and yields insignificant results when converged.

Table 7 State Contract Law and the Design of Performance Pricing Grids

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	The Deal Includes Interest Increasing Performance Pricing Grid			The Deal Includes ONLY Interest Increasing Performance Pricing Grid		
Pro-Debtor Index	-0.128*** (-3.56)			-0.156*** (-4.49)		
Low Litigation Risk		0.483** (2.57)			0.568*** (3.00)	
High Litigation Risk			-0.535* (-1.93)			-0.552** (-1.98)
DecGrid	-3.764*** (-19.47)	-3.779*** (-19.51)	-3.788*** (-19.59)			
AGE	0.069 (0.65)	0.069 (0.65)	0.071 (0.66)	0.164 (1.56)	0.168 (1.60)	0.172 (1.64)
DIVYIELD	5.163 (1.15)	4.829 (1.07)	5.097 (1.14)	14.941*** (3.34)	14.430*** (3.21)	14.786*** (3.30)
LEV	0.462 (0.61)	0.464 (0.62)	0.536 (0.71)	0.464 (0.66)	0.496 (0.70)	0.544 (0.76)
SIZE	0.368*** (3.99)	0.382*** (4.13)	0.403*** (4.38)	0.766*** (8.39)	0.789*** (8.58)	0.814*** (8.90)
BTM	-0.205 (-1.11)	-0.197 (-1.07)	-0.189 (-1.03)	0.184 (1.10)	0.196 (1.18)	0.190 (1.14)
ROA	-1.679 (-1.17)	-1.665 (-1.17)	-1.683 (-1.18)	0.228 (0.12)	0.206 (0.10)	0.008 (0.00)
LOSS	-0.895*** (-3.20)	-0.889*** (-3.19)	-0.903*** (-3.23)	-0.605** (-2.22)	-0.610** (-2.25)	-0.620** (-2.30)
ADV	-5.781 (-1.40)	-5.689 (-1.41)	-5.643 (-1.40)	0.586 (0.16)	0.902 (0.26)	0.828 (0.24)
RD	-1.041 (-0.49)	-1.117 (-0.52)	-1.186 (-0.56)	0.772 (0.42)	0.712 (0.39)	0.576 (0.31)
TANG	0.235 (0.53)	0.154 (0.34)	0.091 (0.20)	0.212 (0.47)	0.100 (0.22)	0.044 (0.10)
ALTZ	-0.083** (-2.47)	-0.084** (-2.51)	-0.083** (-2.45)	-0.128*** (-3.41)	-0.129*** (-3.47)	-0.126*** (-3.38)
RETVOL	0.046 (0.28)	0.041 (0.25)	0.045 (0.28)	-0.294* (-1.90)	-0.299* (-1.94)	-0.307** (-1.99)
DEALSIZE	0.424*** (4.77)	0.429*** (4.82)	0.433*** (4.85)	0.266*** (3.11)	0.266*** (3.13)	0.272*** (3.22)
SPREAD	-0.511*** (-3.46)	-0.498*** (-3.36)	-0.504*** (-3.41)	-0.773*** (-5.09)	-0.758*** (-5.00)	-0.765*** (-5.06)
LEADSIZE	0.421 (1.62)	0.411 (1.57)	0.399 (1.53)	0.349 (1.59)	0.352 (1.59)	0.338 (1.52)
MATURITY	0.677***	0.677***	0.674***	0.177*	0.175	0.174

Table 7 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
	(5.64)	(5.68)	(5.67)	(1.65)	(1.64)	(1.63)
LENDFREQ	-0.072**	-0.073**	-0.075**	-0.016	-0.017	-0.017
	(-2.20)	(-2.22)	(-2.31)	(-0.53)	(-0.54)	(-0.56)
REVOLVER	0.240	0.229	0.230	-0.031	-0.057	-0.060
	(1.19)	(1.14)	(1.14)	(-0.15)	(-0.28)	(-0.29)
SECURED	-1.330***	-1.307***	-1.282***	-1.524***	-1.492***	-1.471***
	(-7.94)	(-7.76)	(-7.63)	(-9.06)	(-8.82)	(-8.77)
Industry & Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	3928	3928	3928	3928	3928	3928
Pseudo R-squared	0.609	0.608	0.607	0.498	0.495	0.494

This panel presents the results from estimating model (3) using logit. In columns 1–3, the dependent variable is an indicator for whether the performance pricing grid includes interest increasing grids. In columns 4–6, the dependent variable is an indicator for whether the performance pricing grid includes only interest increasing grids. Robust z-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

sheet-based covenants and attributed the decline to the balance-sheet focus of the standard setters (Demerjian 2011). Our study suggests an alternate explanation: the growing dominance of New York's contract law (the state contract law that is friendliest to lenders). Over the past two decades, New York has increased its share of deals, and New York law now governs 90% of all debt contracts in our sample. The increasing use of New York law in this area suggests that either lenders have increased their bargaining power over time, that New York's contract law represents the most efficient contracting environment, or both. Such efficiency could arise due to the greater precedent (and thus greater certainty of law), the substantive law, the responsiveness of legislators, or the court system. Regardless of the explanation, this phenomenon could explain the decline in the use of balance sheet covenants, as our analysis shows that parties are less likely to rely on these covenants when using pro-lender law.

Second, we provide further insight on the empirical observation that income statement-based covenants are violated more frequently than balance sheet-based covenants. Consistent with the intuition of Christensen and Nikolaev (2012) that balance sheet-based covenants are primarily meant to align the interests of borrowers and lenders (and are not primarily designed to function as trip-wires), we provide further evidence in this regard—balance sheet-based covenants are used in conjunction with a legal regime that is less favorable for their enforcement.

However, we note an additional reason why these covenants may be violated less frequently: from a legal perspective, borrowers have greater incentives to avoid their violation. The typical fact pattern in a lender liability lawsuit is that the borrower breaches the contract, the lender acts (arguably) aggressively in recovering its funds, and the borrower sues the lender for various lender liability claims that essentially contend the

Table 8 Simultaneous Estimation of Contract Term Models

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Balance Sheet Ratio	Balance Sheet Covenant Strictness	Income Statement Covenant Strictness	Deal Inc. Interest Increasing Performance Pricing Grid	Pro-Debtor Index	SPREAD	MATURITY
Pro-Debtor Index	0.010*** (3.55)	0.004** (1.96)	-0.008** (-2.36)	-0.009*** (-2.86)		-0.001 (-0.26)	-0.012** (-2.23)
AGE	0.004 (0.54)			0.014 (1.53)	-0.076 (-1.54)	-0.036** (-2.51)	-0.024 (-1.49)
DIVYIELD	0.392 (0.89)			0.184 (0.39)	0.783 (0.30)	-0.122 (-0.16)	-0.651 (-0.77)
LEV	-0.162*** (-3.01)	0.034 (0.88)	0.262*** (4.22)	0.072 (1.28)	-0.705** (-2.24)	0.658*** (7.43)	0.184* (1.84)
SIZE	0.019** (2.45)	0.003 (0.47)	0.022** (2.45)	0.038*** (4.66)	-0.188*** (-4.33)	-0.163*** (-13.22)	-0.148*** (-10.62)
BTM	0.040*** (2.84)	-0.011 (-1.10)	0.055*** (3.40)	-0.002 (-0.14)	0.004 (0.05)	0.021 (0.89)	-0.058** (-2.20)
ROA	-0.212* (-1.84)			-0.179 (-1.43)	0.542 (0.78)	-0.546*** (-2.75)	0.575*** (2.58)
LOSS	-0.001 (-0.05)			-0.069*** (-3.12)	-0.053 (-0.44)	0.146*** (4.19)	-0.029 (-0.74)
ADV	-0.328 (-1.29)			-0.477* (-1.72)	-0.910 (-0.61)	-0.611 (-1.39)	-0.117 (-0.24)
RD	0.506*** (2.79)			-0.134 (-0.68)	-0.553 (-0.50)	0.512 (1.63)	-0.324 (-0.92)
TANG	0.118***			0.012	0.927***	-0.248***	0.143**

Table 8 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ALTZ	(3.32) -0.006* (-1.95)	-0.007*** (-3.81)	-0.015*** (-4.81)	(0.30) -0.009*** (-2.85)	(4.30) -0.022 (-1.32)	(-4.04) -0.017*** (-3.45)	(2.08) 0.003 (0.48)
RETVOL	-0.025* (-1.82)			0.005 (0.31)	0.030 (0.36)	0.226*** (9.56)	-0.064** (-2.37)
DEALSIZE	-0.031*** (-3.85)	-0.015*** (-2.59)	-0.032*** (-3.44)	0.038*** (4.49)	-0.187*** (-4.03)	0.008 (0.61)	0.170*** (11.41)
SPREAD	-0.096*** (-8.30)	-0.011 (-1.27)	0.130*** (9.37)	-0.101*** (-8.33)	-0.028 (-0.42)		0.106*** (4.90)
LEADSIZE	0.007 (0.30)			0.074*** (2.81)	-0.171 (-1.20)	0.260*** (6.21)	0.017 (0.36)
MATURITY	-0.059*** (-5.64)	-0.023*** (-3.08)	-0.032*** (-2.65)	0.052*** (4.66)	-0.093 (-1.59)	0.085*** (4.89)	
LENDFREQ	-0.004* (-1.66)			-0.002 (-0.76)	-0.005 (-0.28)	0.018*** (3.96)	-0.014*** (-2.64)
REVOLVER	-0.009 (-0.37)			0.067*** (2.61)	0.284** (2.01)	-0.408*** (-10.15)	0.364*** (8.03)
SECURED	-0.034** (-2.19)	0.017 (1.55)	0.048*** (2.70)	-0.110*** (-6.84)	-0.223** (-2.57)	0.472*** (19.83)	0.104*** (3.64)
NUMCOV		0.112*** (7.36)	0.163*** (6.58)				
RATING		0.004 (1.64)	0.011*** (2.65)				
DecGrid							-0.425***

Table 8 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lender State X Borrower State	NO	NO	NO				
Fixed Effects				(-30.90)			
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES
Observations	2661	2661	2661	2661	2661	2661	2661
R-squared	0.398	0.133	0.311	0.625	0.552	0.663	0.332

This table presents the results from estimating seemingly unrelated regression models of several debt contract variables. The t-statistics are reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions

lender recovered its funds in such a way that imposed unnecessary harm on the borrower (Cappello 2009). In evaluating the borrower's claims, the court will attempt to determine whether the lender's actions were reasonable. In making this determination, some courts will consider whether the borrower's breach was voluntary or involuntary.²⁷ If the breach was voluntary, courts tend to award the lender more leeway, making it more difficult for the borrower to succeed on lender liability claims. Thus balance sheet-based covenants may be violated less frequently than income statement-based covenants because, as suggested by Christensen and Nikolaev (2012), their primary purpose is incentive alignment *ex ante* rather than *ex post* violation and the legal regime provides borrowers with stronger incentives to avoid their violation.

Appendix 1A: Provisions to Construct the Pro-Debtor Index

The Pro-Debtor Index consists of six legal practices and standards that reflect the lender's ability to enforce a debt contract. The six features included in the index are not the only differences between states' laws but are meant to reflect the differences considered most relevant in the legal literature on lender liability (Honigsberg et al. 2014). The features are described in detail by Honigsberg et al. (2014), but we describe them briefly here. Each state receives a ranking of 1–3 for each feature, where 1 is considered pro-lender and 3 is considered pro-debtor.

(1) Does the state enforce predispute jury trial waivers?

It is common for commercial contracts to include a provision stating that, if litigation arises from the contract, the parties will not have the option to litigate in front of a jury (Eisenberg and Miller 2007). Instead, the case can only be heard by a judge. Some states allow these provisions to be enforced, but others do not. The Pro-Debtor Index codes states as 1 if such waivers are enforceable, 2 if the law is uncertain, and 3 if the waivers are unenforceable.

(2) Does the state have specialized business courts?

Many states have established specialized business courts to hear commercial disputes. These courts tend to benefit businesses by, for example, increasing the pace of litigation and ensuring that the judge has relevant expertise. From a lender's perspective, such courts can allow them to enforce a judgment more rapidly—hopefully before the debtor has spent all the money in question. The Pro-Debtor Index codes states as 1 if the state had business courts, 2 if the state had an alternative to the standard business court, and 3 if the state had no relevant business court or similar structure.

²⁷ For example, in *Diversified Foods, Inc. v. First National Bank of Boston* (1991), Me. Super. LEXIS 84, the borrower sued the lender, alleging that the lender violated the duties of good faith and fair dealing by taking actions such as raising the APR. In evaluating the borrower's claims, the court looked at the borrower's actions preceding the lender's alleged breaches and stressed repeatedly that the borrower had voluntarily breached the contract by, for example, violating the covenant related to intercompany advances. The lender, the court stated, simply exercised its rights under the loan agreement in response to the borrower's breaches. In effect, the borrower's voluntary breach created a defense for the lender against lender liability claims.

(3) Does the state recognize the tort of deepening insolvency?

A limited number of states recognize the tort (a wrongful civil act leading to legal liability) of deepening insolvency. This tort allows harmed parties to bring a claim against a party, such as a secured lender, who has wrongfully prolonged the corporation's life (e.g., a secured lender who has continued to provide funds rather than cause the corporation to file for bankruptcy). Lenders in states that recognize the tort face the prospect of liability under this additional cause of action. The Pro-Debtor Index codes the states that declined to recognize the tort as 1, the states that had not ruled on the tort (and where lenders would thus be concerned that the state would recognize the tort) as 2, and the states that explicitly recognized the tort as 3.

(4) Does the state enforce waivers of lender liability?

To avoid claims of lender liability, many lenders require borrowers to sign an agreement waiving all claims the borrower could theoretically bring against the lender. Some states are more comfortable enforcing these waivers than others. For example, some states hold that such waivers are unenforceable if the lender required the borrower to sign the waiver as a condition to a loan renegotiation, whereas other states may enforce the waiver under the same circumstances. The Pro-Debtor Index ranks the states as 1 if the case law surrounding waivers is the most beneficial to lenders, 2 if the case law is moderate, and 3 if the case law poses the highest risk to lenders.

(5) Does the state have statutes allowing for its law and forum to be used for commercial contracts of a minimum dollar value?

To provide work for state-licensed attorneys, states are often thought to compete to provide contract law for large commercial contracts (Eisenberg and Miller 2010). One of the first steps for the states that desire to compete is for the state legislature to pass statutes providing that parties to any commercial contract over a minimum dollar value (e.g., \$1 million) can use the state's laws and courts. These statutes can benefit lenders by providing them with greater certainty that the lawsuit will be resolved without unnecessary, time-consuming dispute over the choice of law, forum, or both. Further, these statutes provide lenders with greater certainty that their choice of law will be enforced, allowing them to act in accordance with the relevant law. The Pro-Debtor Index codes states as 1 if the state has both choice of law and choice of forum statutes, 2 if the state has only one statute, and 3 if the state has neither statute.

(6) To what extent must a lender act in good faith when taking discretionary action?

Courts will generally allow lenders to take discretionary actions permitted by the contract—such as calling a loan after the borrower has defaulted—even if the action harms the debtor. However, some states are more likely to impose restrictions on the lenders' discretionary actions if the action will harm the borrower—even if the contract states that the lender can take the action in question (Burton 1994; Gergen 1993). The Pro-Debtor Index ranks the states as 1 if the relevant case law is the most beneficial to lenders, 2 if the case law is moderate, and 3 if the case law poses the highest risk to lenders.

Appendix 1B

Table 9 Pro-Debtor Index

	Governing Law	Pro-Debtor Index
Most Pro-Debtor	California	12
	Georgia	11
	North Carolina	11
	Texas	11
	Ohio	10
	Pennsylvania	10
	Massachusetts	10
	Florida	8
	Illinois	8
Most Pro-Lender	New York	6

Appendix 1C

Table 10 Perceived Litigation Risk

Governing Law	Litigation Risk Group
California	High litigation risk group (Pro-debtor)
Florida	
Pennsylvania	
Ohio	Medium litigation risk group
Massachusetts	
Georgia	
Texas	
Illinois	Low litigation risk group (Pro-lender)
North Carolina	
New York	

Appendix 2

Table 11 Covenant Mix

Income Statement-Based Covenants	Balance Sheet-Based Covenants
Min. Cash Interest Coverage	Min. Quick Ratio
Min. Debt Service Coverage	Min. Current Ratio
Min. EBITDA	Max. Debt to Equity
Min. Fixed Charge Coverage	Max. Loan to Value
Min. Interest Coverage	Max. Debt to Tangible Net Worth
Max. Debt to EBITDA	Max. Leverage Ratio
Max. Senior Debt to EBITDA	Max. Senior Leverage
	Net Worth
	Tangible Net Worth

This appendix tabulates the covenant classifications into balance sheet-based and income statement-based covenants, following Christensen and Nikolaev (2012).

Appendix 3: Variable Definitions

ADV: Advertising expenditures scaled by total revenues. Compustat items: XAD/REVT. Missing values of XAD are set to zero

AGE: Natural logarithm of the number of years a firm exists in Compustat

ALTZ: Altman's (1968) Z score. Compustat items: $1.2*((ACT-LCT)/AT) + 1.4*(RE/AT) + 3.3*(PI/AT) + 0.6*((PRCC_F*CSHO)/LT) + 0.999*(REVT/AT)$

Balance sheet ratio: The ratio of the number of balance sheet covenants over the sum of balance sheet-based covenants and income statement-based covenants.

Balance Sheet Covenant Strictness: The ex ante probability of violation of balance sheet-based covenants in the loan agreement. This measure is calculated and provided by Demerjian and Owens (2016).

BTM: Book-to-market ratio of equity. Compustat items: $SEQ/(PRCC_F*CSHO)$.

DEALSIZE: Natural logarithm of total loan deal size specified in Dealscan.

DecGrid: An indicator variable that takes the value of 1 if the performance pricing grid includes interest decreasing grids, zero otherwise.

DIVYIELD: Dividend yield, calculated as the cash dividends paid divided by the market capitalization. Compustat items: $DVC/(PRCC_F*CSHO)$.

Event Duration: The number of months between the origination of the loan path and the renegotiation event.

Income Statement Covenant Strictness: The ex ante probability of violation of income statement-based covenants in the loan agreement. This measure is calculated and provided by Demerjian and Owens (2016).

LEADSIZE: Natural logarithm of the number of lead creditors that Dealscan indicates participated in the loan deal.

LENDFREQ: Lending frequency, as calculated by the number of loans a borrower received over the last five years according to Dealscan.

LEV: Leverage, calculated as long-term liabilities divided by market value of total assets. Compustat items: $DLTT/(AT-SEQ+(PRCC_F*CSHO))$.

Loan Duration: The number of months between the origination and the termination of the loan path.

LOSS: Loss indicator, taking the value of 1 if income before extraordinary items is negative, zero otherwise. Compustat item: IB.

MATURITY: Natural logarithm of the maturity of loan deal size specified in Dealscan.

NUMCOV: Natural logarithm of the number of financial covenants reported in Dealscan.

PP: Indicator variable taking the value of one if Dealscan indicates that the loan deal includes performance pricing indicator, zero otherwise.

RATING: S&P domestic long-term issuer credit rating, recoded numerically from 1 to 22, with 1 being “AAA” and 22 being “D.” For firms not rated by S&P, we estimate the ratings following Beatty et al. (2008). Debt rating is first regressed on a set of financial variables, including log of assets, ROA, leverage, dividend indicator, subordinated debt indicator and a loss indicator, with industry and year fixed effects for rated firms. The firm’s financial information is then used to compute a credit rating for each firm in each year. The computed rating values are winsorized at 1 and 22.

RD: Research and development expenditures scaled by total revenues. Compustat items: XRD/REVT. Missing values of XRD are set to zero.

Renegotiation Round: The sequence number of the renegotiation over the loan path. The first renegotiation takes the value of one, and so on.

RETVOL: Natural logarithm of return volatility, calculated over the last 24 months using the CRSP monthly file.

REVOLVER: Indicator variable taking the value of one if Dealscan indicates that the loan deal includes a revolving facility, zero otherwise.

ROA: Return on assets. Compustat items: IB/AT.

SECURED: Indicator variable taking the value of one if Dealscan indicates that the loan deal is secured, zero otherwise.

SIZE: Natural logarithm of the market value of assets. Compustat items: $AT-SEQ + (PRCC_F*CSHO)$.

SPREAD: Natural logarithm of the all in-drawn spread over LIBOR as reported in Dealscan.

TANG: Asset tangibility. Compustat items: PPENT/AT.

Appendix 4: Extending the Sample using WRDS SEC Analytics Suite

First, using the text-parsing macro described in WRDS Research Macros (2010), we search and identify all 10-K, 10-Q, and 8-K filings in the SEC Edgar system with the following 10 terms in capital letters: “credit agreement”, “loan agreement,” “credit facility,” “loan and security agreement,” “loan & security agreement,” “revolving credit,” “financing and security agreement,” “financing & security agreement,” “credit and guarantee agreement,” “credit & guarantee agreement.” We also add two additional terms to this search, following Bozanic et al. (2018): “credit and security agreement” and “credit & security agreement.”

Second, we require the filings above to include the term “table of contents” within 6000 characters after the initial search terms. We allow the term “table of contents” to be case insensitive. WRDS SEC Analytics Suite allows us to associate each filing with the firm identifier (GVKEY) and filing date. Using these two parameters, we link contracts with contract details in Dealscan database, using the Compustat-Dealscan matching table described by Chava and Roberts (2008). We identify 3891 loan deals with matching SEC filing information during the period from 2006 to 2017. As in the work of Bozanic et al. (2018), the frequency of new loan deals significantly decreases around the financial crisis in 2008. These factors explain the relatively low density of observations in the additional sample of 2006–2017 period, as compared to Nini et al.’s (2009) initial sample of 1996–2005 period.

Finally, we also use the WRDS paragraph-parsing macro to identify the jurisdiction of the contract. Specifically, we search for the term “governed by” in the contract and identify cases where it is followed by terms “law,” “laws,” “state,” and “commonwealth” after two lines and parse out these instances.²⁸ Then we search for the occurrences of names of the 50 US states in these parsed out texts. If the search algorithm returns nonmatching results or multiple state matches for a given contract, we drop these observations from the sample. We collect 2455 contracts with matching jurisdiction information for the period of 2006–2017. However, as explained in the Sample Selection section above, the sample is reduced because we lack test variables for some contracts.

Appendix 5: Instrumental Variable Analysis

Our instrumental variable analysis uses indicators for the home states of both the lender and borrower, and their interactions, as instruments.²⁹ The economic intuition behind the instruments is as follows. The home states of the contracting parties are primary candidates for the state law that will govern the debt contract. This leads to a strong correlation between home states (i.e., instruments) and contract law jurisdictions (i.e., regressors), and we believe this is the primary way through which the home states (i.e., instruments) affect the mix of covenants (i.e., dependent variable). The home state may relate to some cross-sectional characteristics such as industry, but we do not expect that the home state will be associated with other temporal variations in firm-specific characteristics. Moreover, although the home states of the contracting parties are likely to determine the state law governing the contract, this association is not overwhelming. In our sample, only 10% of the contracts are governed by the home states of borrowers, while 30% are governed by the home states of lenders. We believe this eliminates the concern of a spurious strong correlation between the instruments and the endogenous regressor.

²⁸ We developed this algorithm after reading numerous debt contracts to identify their governing law.

²⁹ We use the firms’ primary state of operations as their home states, not the state where the firms are incorporated.

Table 12 reports the second stage results of our instrumental variable analysis. We do not report the first stage estimation as we have many instruments as dummy variables.³⁰ Overall, when we control for potential endogeneity with instruments, we find similar results to those reported in Table 2, which provides support for our first hypothesis that borrower-lender pairs are more likely to use balance sheet-based covenants when the state contract law is more favorable to debtors.

Appendix 6: Changes in State Contract Law for the Same Loan Path

To address loan specific correlated omitted variable concerns, we identify instances in which the same borrower-lender pair changes the jurisdiction that governs the loan contract. The loan renegotiation sample introduced by Roberts (2015) provides us with a suitable setting for this identification. Roberts (2015) selects a random sample of 501 loan tranches and, manually investigating the SEC filings, analyzes the history of these loans to identify major renegotiations to provide descriptive evidence that renegotiation is an important mechanism to dynamically allocate control rights.

Roberts (2015) defines loan paths for each tranche that begin with an origination, include renegotiations, and end with a termination. We focus on the renegotiations where the lender-borrower pair changes some contractual features. During some of these renegotiations, an amended and restated credit agreement is written, which replaces the original contract.³¹ Although rare, we identify instances in which the governing law for the amended and restated credit agreement differs from that in the original contract. This variation provides us with a setting to estimate a change-in-change specification.

After merging our sample with the 501 loan paths provided by Roberts (2015), we have a sample of 63 loan paths with 95 amendment or restatement events that replace the original agreement.³² There is a change in the Pro-Debtor Index of the governing state contract law in six of these loan paths. We regress the change in the Pro-Debtor Index on the change in balance sheet ratio. The results are tabulated in Table 13. We include controls for borrower characteristics and event variables (e.g., event duration, loan duration at the time of the event, and renegotiation round), following Roberts (2015). In column 1, the change in the Pro-Debtor Index is positively associated with the change in the balance sheet ratio (t -statistic is 2.65). In columns 2 and 3, we break down the change in the Pro-Debtor Index into indicators of increase and decrease. The results show that a decrease in the Pro-Debtor Index is negatively associated with a change in the balance sheet ratio (t -statistic is -1.86). Similarly, an increase in the Pro-Debtor Index is positively associated with a change in the balance sheet ratio, but the significance level is marginally under the accepted levels (t -statistic is 1.65). These

³⁰ We check several diagnostics (untabulated) to assess the validity of our instrumental variable approach, following Larcker and Rusticus (2010). We find a partial R-squared of 37% with a significant first-stage partial F-statistic, which supports the choice of instruments. However, the Durbin-Wu-Hausman tests yield insignificant chi-square statistics for endogeneity, which can be seen as evidence of lack of endogeneity.

³¹ Dealscan typically treats these agreements as new agreements and assigns a new unique deal identifier.

³² We do not include renegotiation events that are coded as “amended” in Roberts’ (2015) sample, as these events do not lead to a new contract.

Table 12 Instrumental Variable Analysis

	(1)	(2)	(3)
VARIABLES	Balance sheet ratio		
Pro-Debtor Index	0.014** (2.54)		
Low Litigation Risk		-0.043* (-1.82)	
High Litigation Risk			0.098*** (2.88)
AGE	0.004 (0.40)	0.003 (0.29)	0.003 (0.32)
DIVYIELD	0.520 (1.00)	0.573 (1.11)	0.562 (1.09)
LEV	-0.166*** (-3.14)	-0.169*** (-3.19)	-0.170*** (-3.18)
SIZE	0.031*** (3.57)	0.029*** (3.39)	0.028*** (3.28)
BTM	0.038** (2.47)	0.036** (2.36)	0.036** (2.38)
ROA	-0.215* (-1.69)	-0.218* (-1.71)	-0.210* (-1.66)
LOSS	-0.019 (-0.93)	-0.020 (-0.97)	-0.019 (-0.93)
ADV	-0.429 (-1.46)	-0.458 (-1.56)	-0.436 (-1.48)
RD	0.476** (2.48)	0.488** (2.52)	0.467** (2.47)
TANG	0.127*** (2.89)	0.133*** (3.03)	0.134*** (3.04)
ALTZ	-0.008*** (-3.18)	-0.008*** (-3.19)	-0.008*** (-3.29)
RETVOL	-0.029** (-2.00)	-0.028* (-1.93)	-0.029** (-1.99)
DEALSIZE	-0.043*** (-5.03)	-0.044*** (-5.08)	-0.044*** (-5.06)
SPREAD	-0.076*** (-5.80)	-0.077*** (-5.87)	-0.077*** (-5.87)
LEADSIZE	-0.011 (-0.48)	-0.012 (-0.52)	-0.010 (-0.42)
MATURITY	-0.059*** (-4.94)	-0.060*** (-5.02)	-0.061*** (-5.07)
LENDFREQ	-0.003 (-0.92)	-0.003 (-0.93)	-0.003 (-0.91)
REVOLVER	-0.013	-0.010	-0.009

Table 12 (continued)

	(1)	(2)	(3)
SECURED	(-0.54) -0.034**	(-0.42) -0.036**	(-0.39) -0.035**
Industry & Year Fixed Effects	(-2.33) YES	(-2.47) YES	(-2.45) YES
Observations	3411	3411	3411
Adj. R-squared	0.390	0.390	0.390

This table presents the second stage 2SLS results with the predicted values for the legal regime. The dependent variable is the balance sheet ratio. Dummy variables for lender and borrower states and their interactions are used as instruments in the first stage (not tabulated). Robust t-statistics are calculated by clustering standard errors at borrowing firm level and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions.

Table 13 Changes in State Contract Law for the Same Loan Path

VARIABLES	(1)	(2)	(3)
	Change in Balance Sheet Ratio		
Change in Pro-Debtor Index	0.028*** (2.65)		
Increase in Pro-Debtor Index		0.122 (1.65)	
Decrease in Pro-Debtor Index			-0.151* (-1.86)
AGE	-0.037 (-0.78)	-0.042 (-0.97)	-0.046 (-0.86)
DIVYIELD	-0.050 (-0.06)	-0.195 (-0.23)	0.035 (0.04)
LEV	0.083 (0.34)	0.089 (0.35)	0.106 (0.42)
SIZE	0.003 (0.15)	-0.001 (-0.07)	0.005 (0.28)
BTM	-0.044 (-0.45)	-0.049 (-0.53)	-0.033 (-0.33)
ROA	0.652 (0.64)	0.797 (0.81)	0.665 (0.60)
LOSS	0.075 (0.66)	0.098 (0.85)	0.075 (0.61)
ADV	-0.132 (-0.38)	-0.204 (-0.61)	-0.194 (-0.52)
RD	-0.030 (-0.08)	-0.020 (-0.06)	-0.013 (-0.04)

Table 13 (continued)

	(1)	(2)	(3)
TANG	0.003 (0.04)	0.008 (0.13)	-0.012 (-0.15)
ALTZ	-0.008 (-0.52)	-0.010 (-0.67)	-0.008 (-0.48)
RETVOL	-0.043 (-0.82)	-0.055 (-1.00)	-0.051 (-0.98)
Renegotiation Round	-0.007 (-1.38)	-0.006 (-1.03)	-0.008 (-1.43)
Event Duration	-0.004* (-1.89)	-0.004** (-2.07)	-0.004* (-1.85)
Loan Duration	0.000 (0.10)	-0.000 (-0.27)	0.000 (0.29)
Constant	0.049 (0.36)	0.063 (0.49)	0.037 (0.28)
Observations	95	95	95
Adjusted R-squared	0.144	0.104	0.120

This table shows the results of an alternative change specification of model (1). Robust t-statistics are calculated by clustering standard errors at both loan path and year levels and reported in parentheses. *, ** and *** stand for significance at $p < 0.1$, $p < 0.05$, and $p < 0.01$ levels, respectively. Refer to Appendix 3 for variable definitions.

results support our main finding that the pro-debtor state contract law is associated with a higher use of balance sheet-based covenants in the loan contract. However, we caution the reader about the generalizability of the loan subsample test, as the sample size is very limited. (There are only six cases where the contracting parties change the state law governing the contract.)

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