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Creditor Control Rights, Capital Structure, and Legal Enforcement

Mai Daher

368A Olayan School of Business
American University of Beirut PO Box 11-0236
Riad El Solh 1107 2020
Beirut, Lebanon
Email: md88@aub.edu.lb

Abstract

I investigate whether the impact of financial covenant violations on corporate financing policy varies across countries depending on differences in legal enforcement. Covenant violations trigger creditors to use their contractual acceleration and termination rights to increase interest rates or halt any further supply of credit. For a sample of 518 firms in 28 countries, I find that the presence of strong enforcement alleviates a reported decline in net debt issuance following a covenant violation by close to 10%. The results are robust to alternative specifications, the inclusion of a number of control variables and country characteristics, and the use of alternative proxies for legal enforcement and creditor rights. This paper identifies a novel channel, debt covenants, through which creditors respond to the contracting environment, and emphasizes the importance of legal enforcement to financing activity.

Keywords:
Control Rights, Enforcement, Judicial Effectiveness, Financing Policy, Capital Structure, Creditor Rights
G15, G32, G21, K12

1. Introduction

Debt contracts are a central mechanism to economic growth as they provide a source to finance investment; however, a key to contract survival and effectiveness is the extent of enforcement of these contracts. A challenge in enforcing debt contracts arises in times of distress, when conflicts of interest between shareholders and bondholders aggravate (Jensen and Meckling, 1976). The establishment of financial covenants in debt contracts is a common practice that serves as a mechanism through which incentive conflicts can be mitigated, as it provides creditors with a tool for disciplining borrowers in case of misbehavior (Jensen and Meckling, 1976; Smith and Warner, 1979; Aghion and Bolton, 1992; Dewatripont and Tirole, 1994). Upon the violation of a covenant, often referred to as "technical default", creditors acquire the right to impose higher interest rates, declare all debt outstanding, and reduce the availability of credit. Technical defaults have been observed to negatively impact borrowers' financing and investment policies (Chava and Roberts, 2008; Roberts and Sufi, 2009a; Nini, Smith and Sufi, 2012). An important consideration, however, is how reliable and effective debt covenants are in different enforcement regimes.

The goal of the paper is to examine how legal enforcement affects borrowers' debt issuing activity through the channel of covenant violations. In particular, this study addresses the question of whether the quality of enforcement in a country affects the extent to which covenants in debt contracts are effective in altering borrowers' financing policy in case of technical default. The literature has typically examined loans amounts, maturities, and spreads as means for creditors to affect capital structure in countries with inefficient creditor protection (Laeven and Majnoni, 2005; Jappelli, Bianco and Pagano, 2005; Esty, 2004; Qian and Strahan, 2007; Bae and Goyal, 2009), and therefore this study sheds light on an additional dimension in financial contracting that helps understand how creditors respond to the legal and institutional environment.

Using an international dataset of 810 loan contracts (518 firms) in 28 different countries between 1996 and 2011, I observe that the average number of covenants in a single contract is highest among countries coming from a French legal origin, where creditor rights weakest (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998; LLSV henceforth), and legal enforcement is poorest. Consistent with prior research, average loan size is smallest and loan maturity is shortest for the French origin group as well. I also find that violations are quite common and occur in more than one quarter of the total number of firms in the sample used at any point in time. This large incidence of covenant violations is consistent with previous evidence reporting a similar percentage of firms violating a covenant in private credit agreements in a U.S. setting (Dichev and Skinner, 2002; Chava and Roberts, 2008; Roberts and Sufi,

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2009a; Nini, Smith and Sufi, 2012).

Covenant violations are central to understanding the relationship between creditor control rights and financing policy because the transfer of control rights following a violation gives creditors the right to accelerate repayment and restrict further financing, hence providing a mechanism through which the misalignment of incentives can directly affect financing policy (Tirole, 2006). In addition, covenant violations occur frequently (Dichev and Skinner, 2002), and in very rare cases signal payment defaults or bankruptcy (Gopalakrishnan and Parkash, 1995), implying that violations are not specific to a set of special circumstances, but are rather common, and hence constitute an important concern for firms in deciding their financing policies well outside of default states (Chava and Roberts, 2008; Roberts and Sufi, 2009a).

However, covenant violations raise the concern that financing policy and covenant thresholds might be jointly allocated. I mitigate this concern by using a regression discontinuity design as described by Chava and Roberts (2008). Violations are identified in this context by comparing the observed values of financial ratios to the thresholds specified for the same ratios in the credit agreement. Due to their discrete nature, covenant violations prove quite useful in determining the variation in the distance to the covenant threshold exogenously and hence facilitate the estimation of the effect of technical defaults on financing policy. However, since the breakage point at which control rights are transferred to the creditor is the violation itself, regardless of the amount by which the actual ratio misses the threshold, the distance to the covenant threshold is therefore irrelevant to creditors. This irrelevance provides a means to isolate the effect of the violation to the discontinuity which can be recorded exactly at the covenant threshold (Chava and Roberts, 2008).

Results reveal a sharp and persistent drop in the stock of debt capital after a covenant violation. Particularly, net debt issuance scaled by total assets decreases by 2.9 percentage points in the year following a covenant violation. Compared to a 3% average net debt issuance in non-violation states, this estimate represents an overall decline in the issuance of debt of almost 97%. This result is both statically and economically significant and reiterates, in an international setting, the robustness of the evidence provided in a U.S. setting about the effect of violations on financing policy.

I also find that, in countries with strong legal enforcement, the effect of a covenant violation on net debt issuance is not as pronounced as in countries with weaker enforcement. Bhattacharya and Daouk (2002, 2005) and Bae and Goyal (2009) show that it is the enforcement of laws, not their existence, that matters for debt contracts. I therefore focus on the Judicial/Legal Effectiveness Index (JLEI) of the World Bank (2004) in this study to proxy for legal enforcement. Results show that, while net

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debt issuance is observed to decline in the year following a covenant violation, the quality of legal enforcement provides a cushion for that decline. A one standard deviation increase in JLEI alleviates the decline in net debt issuance observed as a result of a covenant violation by approximately 1.8 percentage points. These results suggest that covenant violations affect net debt issuance more for firms in countries with weaker enforcement systems. Results are also consistent with predictions by Gennaioli and Rossi (2013) who show that the presence of strong investor protection allows large creditors with control rights to pledge a significant share of the borrowers' reorganization value in case of default, hence eliminating the bias toward liquidation that is inherent in the allocation of control rights to creditors (Aghion and Bolton, 1992; Hart and Moore, 1998). Consequently, the findings reported in this paper suggest that, when laws are properly enforced, creditors find themselves less compelled to react to a breach in financial covenants and hence the pressure they exert on borrowers' financing policy is less severe.

These results are statistically and economically significant, and robust to the inclusion of a number of contract- and firm-level control variables, country characteristics, and industry and time fixed effects. The results are also robust to the use of alternative proxies of legal enforcement, the addition of further country controls, and changing sample composition. I replace JLEI with a number of variables that are interchangeably used in the literature to measure legal enforcement; the outcomes of the use of these proxies are closely comparable to one another and to the original results employing JLEI. I also include additional country-level control variables relating to creditor rights, bankruptcy, agency, and information asymmetry costs to the regressions, and rerun a series of tests using a sample including both international and U.S. loans; the findings and resulting conclusions are not altered by the inclusion of these additional controls, or by changing the sample composition.

This paper is related to the literature that examines the effect of legal and institutional characteristics on corporate outcomes, namely capital structure. Earlier papers have found that, in countries with weaker creditor protection, contracting may be less reliable and effective, and consequently creditors tend to manipulate loan amounts, maturities, spreads, and ownership concentration as a means of hedging adversities ex-ante (Esty, 2004; Laeven and Majnoni, 2005; Jappelli, Bianco and Pagano, 2005; Qian and Strahan, 2007; González and González, 2008; Bae and Goyal, 2009; Gungoraydinoglu and Öztekin, 2011; Ge, Kim, and Song, 2012). Similarly, financial constraints have been observed to be exacerbated in countries with weak creditor rights, hence increasing the value of corporate liquidity in such countries (Kyröläinen, Tan, and Karjalainen, 2013). Conversely, strong creditor protection has been found to negatively affect capital structure as it deters managers

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and shareholders from using debt financing when bankruptcy codes favor creditors (Cho et al., 2014). Strong creditor protection has also been found to negatively affect corporate investment following the onset of the global financial crisis, particularly for firms with high bank debt, where creditors are more in control (González, 2016).

This study is also related to theoretical work by Aghion and Bolton (1992), Hart and Moore (1998), and Gennaioli and Rossi (2013). The latter show that investor protection plays a role in mitigating the inefficiencies associated with creditor control in financial distress by pledging the controlling creditor a large share of the firms reorganization value, hence eliminating creditors' tendency to overliquidate. This study also relates to empirical research by Roberts and Sufi (2009a), Chava and Roberts (2008), and Nini, Smith and Sufi (2009, 2012) who find severe effects of the transfer of control rights from borrower to creditor on corporate policies. Roberts and Sufi (2009a), and Nini, Smith and Sufi (2012) find sharp and persistent declines in net debt issuance, and a corresponding decline in leverage ratios, following a covenant violation. Consistently, Chava and Roberts (2008), and Nini Smith, and Sufi (2009, 2012) describe reported declines in corporate investment following a covenant violation as a way of creditors to control inefficient investment or penalize managers in case of misbehavior.

The contribution of this paper to the literature is therefore two-fold. First, I examine an additional aspect of loan contracting in relation to a country's legal framework. This study is the first of which I am aware to show that, in addition to loan amounts, maturities, spreads, and syndicate concentration, contractual rights, or debt covenants, are also an important facet of loan contracts used by creditors when enforcement is poor. Covenants give creditors a way to control borrowers, and are easier to enforce than other contract terms, hence offering creditors an additional means of protecting their claims in weak enforcement regimes. Second, this study is also the first to examine how legal institutions shape financing policy in the event a technical default, and shows that creditors are more restrictive in dealing with violations in weaker enforcement regimes. Previous studies have focused on a sample of U.S. firms when examining covenant violations and corporate policies; in contrast, I explore how the allocation of control rights dictates creditor behavior following a breach in contractual rights in a cross-country setting. The paper therefore bridges the gap between the law and finance literature which considers the effect of the legal environment on aggregate leverage, in isolation of technical defaults, and the control allocation literature which does not consider the legal dimension when exploring the impact of creditors' reaction to a technical default on various corporate policies.

The remainder of the paper is organized as follows: Section 2 describes the data sources and the sample construction. Section 3 presents some preliminary statistics

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of firm and country level variables. Section 4 introduces the empirical strategy and presents the main findings of this study. Section 5 performs some robustness checks using alternative proxies for legal enforcement and additional control variables. Section 6 concludes.

2. Data and Sample Selection

2.1. Loan Data

Covenant information is obtained from the Loan Pricing Corporation (LPC)'s DealScan database. DealScan provides coverage of private commercial loans made to large corporations around the world. Private loan agreements are of particular interest in this study because they contain a higher number of covenants with stricter thresholds than public loans (Kahan and Tuckman, 1995), and hence provide a unique opportunity to study covenant violations.

I select borrowers whose country is not the U.S. to be able to focus on international covenants characteristics. The number of available U.S. loans is almost seven times bigger than the number of available international loans, and therefore this might drive the result in a cross-country setting. I repeat the analysis however with a sample including both U.S. and international loans as a validation of the robustness of the results presented in this paper. Finally, I select loans initiated between 1996 and 2011. I choose 1996 as the starting date of the sample because DealScan's loan coverage before that date is quite scarce, especially when it comes to international data. I also exclude all financial firms (SIC 6000-6999) from the sample.

The unit of observation in DealScan is the loan, and several loans can be entered into by the same borrower under the same contract. Because this study focuses on unique firm-year observations, I group all related loans under the corresponding contract identified by the borrower and the year in which the contract was entered into. I also consider that firms are bound by covenants and other contract terms from initiation to maturity of that contract. This results in a total of 2,168 contracts entered into by 1,661 borrowers in 64 countries between 1996 to 2011.

The DealScan data is augmented with firm-level financial data from WorldScope. WorldScope covers international data and contains balance sheet and income statement information for large firms that are publicly traded in a number of countries (Qian and Strahan, 2007). The information downloaded from WorldScope is used to compute the accounting variables that I include in the regression analysis.

The final sample matched between DealScan and WorldScope consists of 3,130 firm-year observation encompassing 1,103 contracts (1,808 loans) entered into by 805 different borrowers in 28 countries between 1996 and 2011.

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2.2. Capital Structure Variables

I use two measures of capital structure in the analysis: Net Debt Issuance and Leverage, where net debt issuance is the dependent variable, and leverage is one of the main control variables. Leverage is defined as book debt scaled by total assets, where book debt is calculated as the sum of short term debt and long term debt; Net debt issuance is defined as the difference between book debt at year t and book debt at year t-1 scaled by total assets. I use book debt rather than market debt in the analysis because firms seem to be more concerned about book leverage ratios than market leverage ratios particularly when adjusting leverage ratios towards target (Welch, 2004; Cho et al., 2014). In addition, and of relevance to this study, Harvey et al. (2004) state that debt covenants are written in terms of book values not market values; therefore, it would be more sensible to use book leverage instead of market leverage in the analysis to capture the effect of covenant violations on financing policy. For robustness, I repeat the analysis using market values of debt instead of book values, and find that results are not altered.

2.3. Covenant Violations

In practice, upon the transfer of control rights following a covenant violation, creditors are granted the right to demand accelerated payment of outstanding amounts under the corresponding contract, and to go as far as revoking any unused portions of extended lines of credits or revolving credit facilities (Roberts and Sufi, 2009a). Yet, despite the acceleration and termination rights given to creditors as a result of a technical default, research suggests that the most common response to a technical default is usually a renegotiation of the contract terms and a waiver of the violation (Beneish and Press, 1993; Chen and Wei, 1993; Gopalakrishnan and Parkash, 1995). Creditors that actually exercise their acceleration rights generally try to extract amendment fees, increase interest rates, increase reporting and collateral requirements, cancel or reduce any unused credit availability, and restrict investments (Chen and Wei, 1993; Gopalakrishnan and Parkash, 1995; Sufi, 2009; Chava and Roberts, 2009; Nini, Smith and Sufi, 2009).

While the SEC requires that all firms report any breach of covenants as part of their 10-K and 10-Q filings, the access to international covenant violation information is not as straightforward. As a result, I focus on the methodology employed by Chava and Roberts (2008) in the identification of covenant violations. For this purpose, I impose that all contracts in the sample have at least one covenant restricting either the current ratio, the net worth, capital expenditures, or the earnings before interest, taxes, depreciation and amortization (EBITDA) of the borrower. These covenants are selected because of their frequent incidence in contracts found on

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DealScan (Dichev and Skinner, 2002; Chava and Roberts, 2008). As a matter of fact, I find that roughly 73% of the contracts in the sample contain at least one of these restrictive covenants. In addition, computing the ratios for these covenants is fairly straightforward and standardized as opposed to covenants restricting a debt-related ratio for example, where debt could refer to any of long-term debt, short-term debt, total debt, or any other definition of debt. The same applies to covenants restricting leverage and interest payments (Chava and Roberts, 2008).

Imposing that all contracts have at least one of the aforementioned covenants reduces sample size to 2,016 firm-year observation representing 518 firms that entered into 810 contracts (1,310 loans) in 28 different countries from 1996 to 2011.

2.4. Legal Enforcement

Most earlier studies focus on the Creditor Rights Index of Djankov, McLiesh, and Shleifer (2007) as a main determinant of capital structure in international studies. The legal rights that creditors have in reorganization and liquidation procedures are important to debt contract effectiveness as they determine who controls the insolvency process and the division of property in bankruptcy (Bae and Goyal, 2009). Bhattacharya and Daouk (2002, 2005) and Bae and Goyal (2009) however show that it is the enforcement, not the existence of laws, that matters for debt contracts. Consequently, the main focus of the analysis will be legal enforcement rather than creditor rights, although creditor rights are later included in tests of robustness.

To measure the quality of enforcement, I employ the Judicial/Legal Effectiveness Integrity Index (JLEI) developed by the World Bank in its 2004 Corporate Corruption and Ethics Indices compilation. The JLEI measure was constructed using the Executive Opinion Survey (EOS) conducted by the World Economic Forum under The Global Competitiveness Report. The survey is a collection of questions about bribery, legal corruption and corporate ethics (Kauffman, 2004), provides information about a country's economic and business environment, and assesses the ability of the country in achieving sustainable levels of prosperity and growth in isolation, and also in comparison to other countries (Browne and Geiger, 2011). The JLEI is constructed by mapping questions related to the effectiveness and integrity of the legal and judicial environment in a certain country. The index is computed by averaging the input of the relevant set of questions in the EOS and takes values between 0 and 100 where higher scores represent more effective legal environments. These values reflect the percentage of firms in each country that answer questions about judicial independence, judicial bribery, the quality of the legal framework, the protection of private property, and the effectiveness of both the parliament and the police with a satisfactory rating. A rating is deemed satisfactory if it takes values of 5, 6 or 7 on

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an overall scale going from 1 to 7 where 1 is the least satisfactory (Kauffman, 2004; Browne and Geiger, 2011).

For the purpose of this study, and to be consistent with the range of other indexes later used in the analysis, JLEI is rescaled to take values between 0 and 10. I also consider, as per Bae and Goyal (2009), that it is the local legal tradition and contract enforcement that matter in loan contracting, not the location of the lender, seeing as most borrowers file for bankruptcy in their country of origin.

2.5. Other Controls

The aim of this study is to isolate the impact of legal enforcement on net debt issuance, and hence I attempt to comprehensively control for contract, firm, and country level variables that are known to affect capital structure. I therefore use four sets of controls in the regressions: Covenant Control Variables, Covenant Interaction Variables, Country Control Variables, and Borrower Risk Characteristics (Rajan and Zingales, 1995; Bae and Goyal, 2009; Roberts and Sufi, 2009; Gungoraydinoglu and Öztekin, 2011; Ogden and Wu, 2013; Park et al., 2013, Cho et al., 2014) . *Covenant Control Variables* contain ratios on which covenants are written and hence make it possible to control for the variation in variables that are correlated with both covenant violations and net debt issuance. I include ratios that are most commonly encountered in the financial contracts of the sample used in this analysis. These comprise: the *Leverage* ratio, the *Net Worth to Assets* ratio, the *Interest Expense to Assets* ratio, the *Current Ratio*, the *Cash Flow to Assets* ratio, and the *Cash to Assets* ratio. *Covenant Interaction Variables* are included in this analysis because many covenants are written on combinations of the underlying variables (Roberts and Sufi, 2009), and therefore I use the interaction of the leverage ratio with the net worth to assets ratio, the interaction of the leverage ratio with the cash flow to assets ratio, and the interaction of the cash to assets ratio with the interest to assets ratio to reflect, respectively, the *Debt to Net Worth*, *Debt to Cash Flow*, and *Cash Interest* covenants found in the sample. *Country Control Variables* include *Information Sharing*, a dummy that takes the value of one if a credit registry operates in a country and zero otherwise, the annual rate of *Inflation*, *GDP Growth*, to proxy for the level of economic development in a country, which in turn is a reflection of the existence of laws and their enforcement (LLSV, 1998), and *Sovereign Debt Rating*, to reflect a country's risk. Finally, *Borrower Risk Characteristics* include *Firm Size*, measured as the natural logarithm of total assets in US dollars, *Profitability*, measured as the ratio of earnings before interest and tax to total assets, *Asset Tangibility* which is the ratio of property, plant, and equipment to total assets, the *Market-to-Book Ratio*, measured as the market value of equity to the book value of equity, the ratio of

research and development expense *R&D* to total assets, where R&D expenses are set to 0 if they are missing, *R&D Missing*, which is a dummy that takes the value of 1 if research and development expenses are not reported and 0 otherwise, and finally, the ratio of total *Income Tax* to pre-tax income. Variable definitions and sources are presented in the Appendix. To mitigate the effect of outliers, all contract-level and firm-level variables are winsorized at the top and bottom 5% of the distribution in all sample years.

3. Summary Statistics

I begin by examining which types of covenants are mostly written in international private credit agreements. Table 1 lists the types of covenants that appear in the sample, and presents statistics about their specified thresholds and frequency of occurrence. Because the sample I use is restrictive in terms of covenants, Table 1 lists the covenant characteristics of the DealScan sample both before (Panel A) and after (Panel B) imposing the covenant restrictions.

Panel A shows the statistics on the full sample of 1,103 financial contracts entered into by 810 firms. Almost 98% of all contracts contain at least one covenant restricting managerial behavior. As shown in the table, the covenants with the most occurrences include coverage ratios (69%), debt to cash flow (25%), debt to balance sheet items (31%), current ratio (43%) and net worth covenants (52%). Overall, 52% of the financial contracts in the sample contain a covenant restricting a ratio with debt in the numerator, and 69% of financial contracts contain a covenant restricting a ratio dictating interest payments. These percentages reflect the importance of covenants in determining borrowers' capital structure, because, as becomes apparent from Table 1, at least 82% of all financial contracts impose covenants that directly or indirectly affect borrowers' financing decisions.

Panel B repeats the same statistics for the sample of 810 financial contracts (1,310 loans) having a financial covenant restricting either the current ratio, net worth, capital expenditures, or EBITDA, and which I refer to as the "Covenants Sample". What is striking in this panel is that, despite filtering exclusively on the aforementioned covenants, the interest coverage ratio still appears in financial contracts at the highest frequency. As a matter of fact, 46% of all contracts have covenants restricting ratios with debt in the numerator, 70% of all contracts have covenants restricting ratios that define interest payments, and 79% of all contracts overall have at least one covenant that affects borrowers' total debt, which further emphasizes the importance of covenants in determining capital structure.
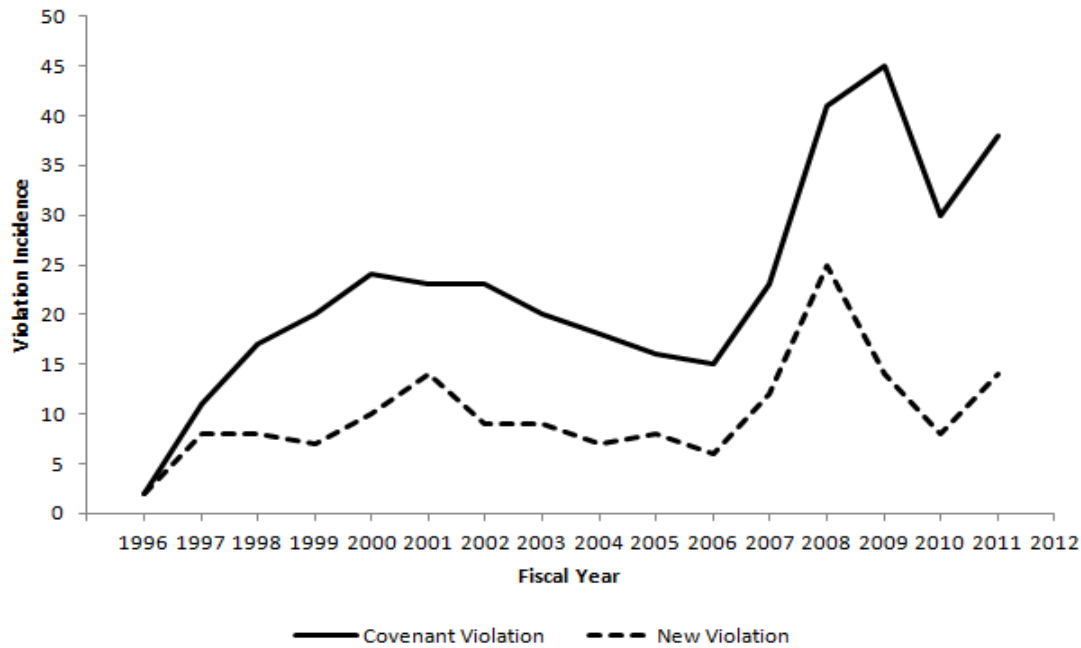
Figure 1. Covenant Violations from 1996 to 2011.
This figure presents the number of covenant violations per year during the years 1996 to 2011. A new covenant violation is a violation for a firm that is violating a covenant for the first time during the sample period. The sample includes 2,016 firm-year observations and 366 violations in total.

Insert Table 1 Here

The incidence of covenant violations in the Covenants Sample is illustrated in Figure 1. The figure shows that covenant violations peak between 2000 and 2002, which coincides with the early 2000s economic recession. After this peak, the occurrence of violations declines until 2006 before it peaks again between 2008 and 2009, the time of the great recession. The number of violations slightly drops after 2009 only to jump again after 2010 at the time of the Eurozone crisis. The dotted line reports the incidence of new covenant violations each year and roughly follows the same pattern as the solid line which reports all incidences of covenant violations.

Table 2 echoes previous empirical evidence documenting the frequent incidence of covenant violations (Dichev and Skinner, 2002; Chava and Roberts, 2008; Roberts and Sufi, 2009a; Nini, Smith and Sufi, 2009). On a sample of 810 financial contracts entered into by 518 firms over 15 years, approximately 26% of the firms violate a covenant at some point between 1996 and 2011, 18% of the firm-year observations

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are subject to a covenant violation during the sample period, and around 8% of all firm-years correspond to a first time violation by a borrower.

Among firms with an average book leverage ratio of greater than 5%, the percentage of violators does not change much and is still around 26% of total firms. The industry classification of violators in Table 2 shows that, in general, firms in different industries violate covenants in similar proportions, with the exception of the semiconductors and related devices industry where the fraction of violators is significantly higher than the rest of the industries. Firm size, as measured by assets size, does not seem to play a role in the likelihood of a firm violating a covenant however.

Insert Table 2 Here

Figure 2 reports the performance of violating firms in the four years prior to a covenant violation up until the time of violation denoted by time 0 on the x-axis. The figure was constructed using new violations only, in order to be able to better discern how firm performance is affected in the build up to this single violation without being affected by other violations along the way. The figure consists of six performance measures. Overall, all plots indicate that performance declines in the build up to a covenant violation and generally records its worst in the year just before the violation occurs. Operating cash flows exhibit a decline throughout the four years preceding a violation, but experience the sharpest decline in the year before the violation. The market-to-book ratio on the other hand seems to increase up until a year before the violation where it drops very sharply to its worst level in the reported four years. Interest expense climbs in all four years to reach its peak at the year of violation. Net worth declines in all four years prior to the violation and experiences its steepest fall in the year immediately before the violation occurs. Liquidity also drops considerably before a violation, as depicted by the current ratio, and again records its worst drop in the year right before the violation. Finally, the leverage ratio continuously increases during the four years preceding the covenant violation and exhibits the highest jump in value in the year right before the violation.

All plots indicate that firm performance is severely affected for up to four years before the violation occurs and not only in the year leading to the violation, suggesting that the change in performance can indeed be attributed to the violation rather than other factors possibly affecting performance. Also, because covenants are written on some of the ratios used as performance measures in Figure 2, it is highly probable that the violation occurs as a result of the deterioration in these ratios.

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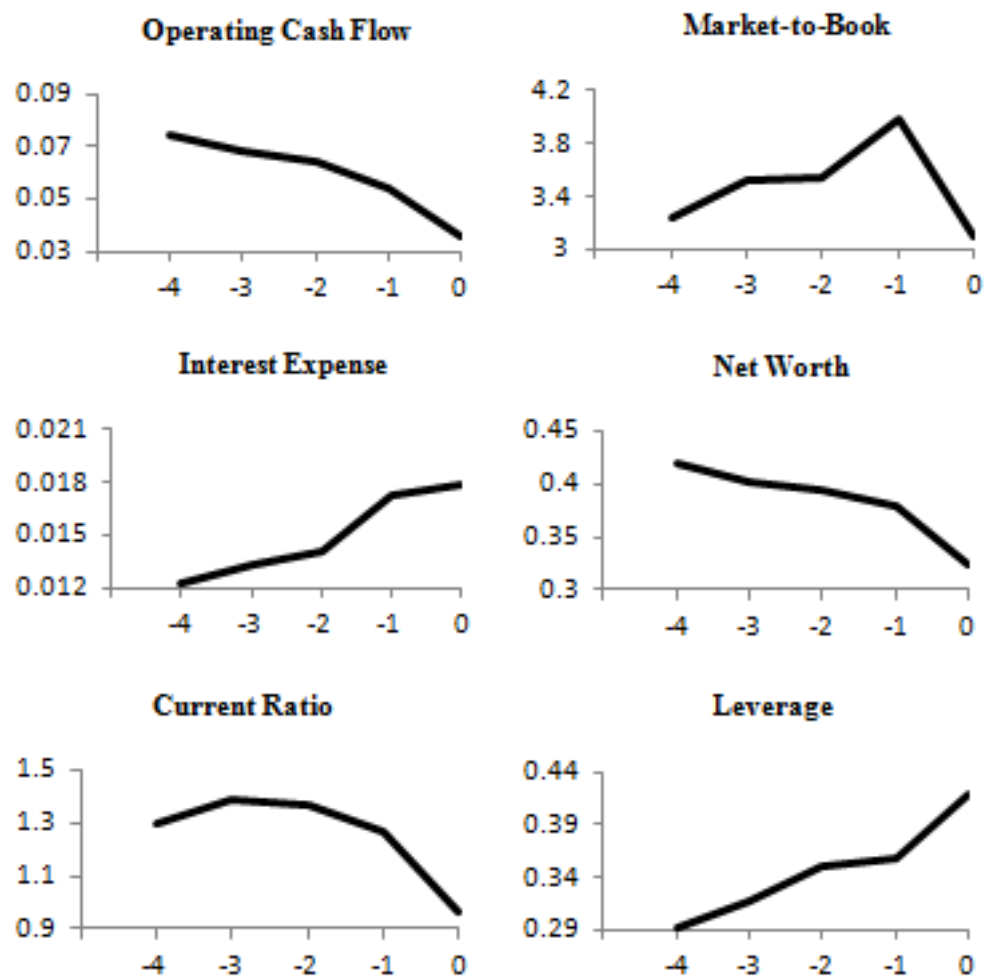
Figure 2. Firm Performance in Years Prior to New Covenant Violation.
The figure reports median values for a number of firm performance measures in the four years leading up to a new covenant violation. A new covenant violation is a violation for a firm that is violating a covenant for the first time during the sample period.

Table 3 presents country-level statistics and loan characteristics grouped by legal origin. LLSV (1998) group countries based on the origin of their legal system into English, French, German, and Scandinavian legal origin groups, where French law is the weakest at providing legal protection to creditors, while English legal origin lies at the other extreme. LLSV (1998) also develop the Creditor Rights Index, which was later revisited by Djankov, McLiesh, and Shleifer (2007), to measure secured

lenders rights in bankruptcy on a scale of 0 to 4, where higher scores reflect stronger creditor rights.

The first column of the table reports statistics for the JLEI measure which proxies for legal enforcement within a country. Consistent with the literature, countries belonging to the French legal group have the weakest legal enforcement on average (LLSV, 1998). The strongest enforcement is observed in the Scandinavian origin group and exceeds the average score of the English origin group, although the United Kingdom's score is one of the highest among the countries in the sample. It is worth noting though that while Finland and Sweden both scored 1 out of 4 on the Creditor Rights Index, both countries' score the highest on the JLEI measure, and are equivalent to the United Kingdom, which scored a 4 on the Creditor Rights Index. This therefore reiterates the importance of examining the effect of the enforcement of laws, rather than their existence, on capital structure.

Table 3 also shows that the median loan size varies from \$75 million to \$121 million in developing economies such as Thailand, Indonesia and China, to roughly \$1 billion in developed economies such as Germany and Sweden. It is also worth noting that the average loan size is the smallest for the French origin group, consistent with the evidence documenting that countries with stronger legal protection have more favorable loan terms such as bigger loan amounts, extended maturities and reduced spreads (Qian and Strahan, 2007; Bae and Goyal, 2009).

Additionally, I observe that the average number of covenants per contract is highest for the French legal group[1], and that the average number of violations is comparable in both the English and French legal origin groups, while this number is lower for Scandinavian origin countries and considerably higher for the German origin. The share of secured loans ranges from 0% in a number of countries such as Thailand and Japan, to a high of 45% in Canada. Average maturity ranges between 11 and 87 months, with the shortest average maturity observable in the French origin group (54 months) and the longest maturities observable in developed countries such as Germany and Sweden, also consistent with the aforementioned studies. Similarly, the log of the Sovereign Risk Rating and Inflation are highest for the French origin group.

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[1]The observation that the average number of covenants per contract is highest where legal enforcement is weakest may raise the concern of sample selection bias. To mitigate this concern, I conduct robustness checks with Propensity Score Matching and the Heckman two-stage approach; the main findings of this paper are not altered by these two tests. For brevity, the results of these checks are not reported in the paper.

Finally, Table 4 presents summary statistics for the capital structure variables used in the analysis, namely net debt issuance as an outcome variable, and leverage, as well as selected Covenant Control Variables and Borrower Risk Characteristics used as controls in the regression analysis. The statistics are reported for the Covenants Sample, grouped by whether the firm is in violation (Violators) or not in violation (Non-Violators) of at least one of the current ratio, net worth, capital expenditures, or EBITDA covenants.

The table shows a sharp decline in net debt issuance both in terms of mean and median for the Violators group. As a matter of fact, following a covenant violation, net debt issuance seems to drop by close to 14%, a decline that is both economically and statistically significant. Investments also exhibit a statistically significant decline of 1.9% following a covenant violation. The difference in the averages of other capital structure determinants is also statistically significant with the exception of asset tangibility. The current ratio and net worth averages are obviously significantly lower for the Violators group consistent with the sample selection procedure. Interest expense on the other hand is higher for the Violators group with strong statistical significance, indicating that creditors tend to increase interest payments following a technical default.

However, consistent with findings by Chava and Roberts (2008), some heterogeneity can be observed in certain firm characteristics affecting capital structure; while the market-to-book ratio and cash flows are significantly lower for the Violators group, the leverage ratio is significantly higher for the same group. The variations in these variables will be controlled for while performing the regression analysis so that the effect of violations on capital structure is properly isolated and not affected by these conflicting firm characteristics.

4. The Effect of Covenant Violations and Legal Enforcement on Financing Decisions

4.1. Empirical Approach

The main empirical strategy of this paper follows the methodology of Chava and Roberts (2008) consisting in a regression discontinuity data design. A regression

discontinuity design is defined such that the probability of receiving treatment varies in a discontinuous fashion as a function of certain underlying variables (Hahn, Todd and Van Der Klaauw, 2001). In this context, the treatment is defined as covenant violations and the control corresponds to non-violations.

In identifying covenant violations, I compare whether the observed values of the current ratio, net worth, capital expenditures, and EBITDA are in compliance with the covenant thresholds specified in the terms of the contract for each firm-year observation. The regression discontinuity design in this case is observable in the fact that the function mapping the distance between the observed value of the accounting variable and the specified covenant threshold is discontinuous (Chava and Roberts, 2008). More specifically, I define the treatment variable, Covenant Violation ($CV_{i,t}$), in the following manner:

$$CV_{i,t} = \begin{cases} 1 & z_{i,t} - z_{i,t}^0 < 0 \\ 0 & \text{otherwise} \end{cases} \tag{1}$$

where i and t refer to firm and year respectively, $z_{i,t}$ is the observed value of the current ratio, net worth, capital expenditures, or EBITDA, and $z_{i,t}^0$ is the covenant threshold specified in the contract. Consequently, I define the base empirical model as follows:

$$\text{Net Debt Issuance}_{i,t} = \alpha_0 + \beta_0 CV_{i,t-1} + \beta_1 JLEI + \beta_2 \left(CV_{i,t-1} \right).\left(JLEI \right) \\ + \beta_3 X_{i,t-1} + \eta_i + \nu_i + \epsilon_{i,t} \tag{2}$$

where Net Debt Issuance$_t$ is defined as the change in total book debt between $t - 1$ and t, scaled by lagged total assets for firm i, η_i is industry fixed effects[2], ν_i is year fixed effects, $\epsilon_{i,t}$ is a random error term, and $X_{i,t-1}$ is a vector of control variable containing Covenant Control Variables, Covenant Interaction Variables, Country Control Variables, and Borrower Risk Characteristics. The main parameter of interest is

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[2]I do not include country nor firm fixed-effects because first, there is hardly any time variation in the key legal and institutional variables used in the model, second, all firms within one country share the same country-level attributes, and finally, as per the sample selection procedure, I have one loan per firm per year in most cases. Therefore, including country or firm fixed-effects would make it rather impossible to identify the country-level effects on net debt issuance (Qian and Strahan, 2007).

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β_2, the coefficient on the interaction term between covenant violation and the legal enforcement in a country. I observe the coefficient β_0 on covenant violation in isolation first to check how it relates to previous literature about the impact of violations on financing policy; then I examine β_2 which illustrates the joint effect of a violation and country-specific determinants. I expect β_0 to be negative as per findings in the literature (Roberts and Sufi, 2009; Nini, Smith, and Sufi, 2009). If β_0 and β_2 are negative, then the decrease in net debt issuance following a covenant violation ($CV_{i,t-1}$ = 1) will be smaller for countries with higher JLEI, therefore implying that better legal enforcement alleviates the negative impact of covenant violations on debt issuing activity, and the opposite is true. The analysis that follows provides evidence on whether the level of legal enforcement in a country mitigates or rather exacerbates the effect of a covenant violation on financing policy.

4.2. Graphical Analysis

As a preliminary exercise, Figure 3 examines the effect of a covenant violation on capital structure graphically. Panels A and B present the medians for net debt issuance and leverage in event time where time 0 on the x-axis indicates the year of violation. Note that, in order to properly isolate the effect of a covenant violation on capital structure variables, I impose that the violation be the first experienced by a certain firm during the sample period. This restriction is lifted however while performing the regression analysis to include all recorded violations.

Panel A shows that, while the flow of debt capital fluctuates in the years prior to a covenant violation and does not really exhibit a clear trend, firms experience a very steep decline in net debt issuance in the year following a covenant violation. As a matter of fact, net debt issuance falls from 3% to -3% in the year immediately after the violation, a sharp drop of 200%. This trend starts to revert though after the first year, and net debt issuance recovers persistently for up to four years after the violation. This recovery is however slow and net debt issuance is significantly lower, four years after the violation, than what it was in the four years leading up to the violation, including the year of the violation itself.

The median book leverage ratio, depicted in Panel B, also drops immediately after a covenant violation, although the decline is not as pronounced as in the case of net debt issuance. Median book leverage falls from 42% to 39%, an overall decline of 8%. Unlike net debt issuance however, the leverage ratio continues to fall in the four years following the violation to a level lower than what it was in the year right before the violation, and even lower than the leverage ratio levels in up to four years preceding the year of the violation. The median leverage ratio is reduced by 17% between the first and the fourth year following the violation compared to a reduction

Panel A: The Effect of a Covenant Violation on Net Debt Issuance

Panel B: The Effect of a Covenant Violation on Leverage
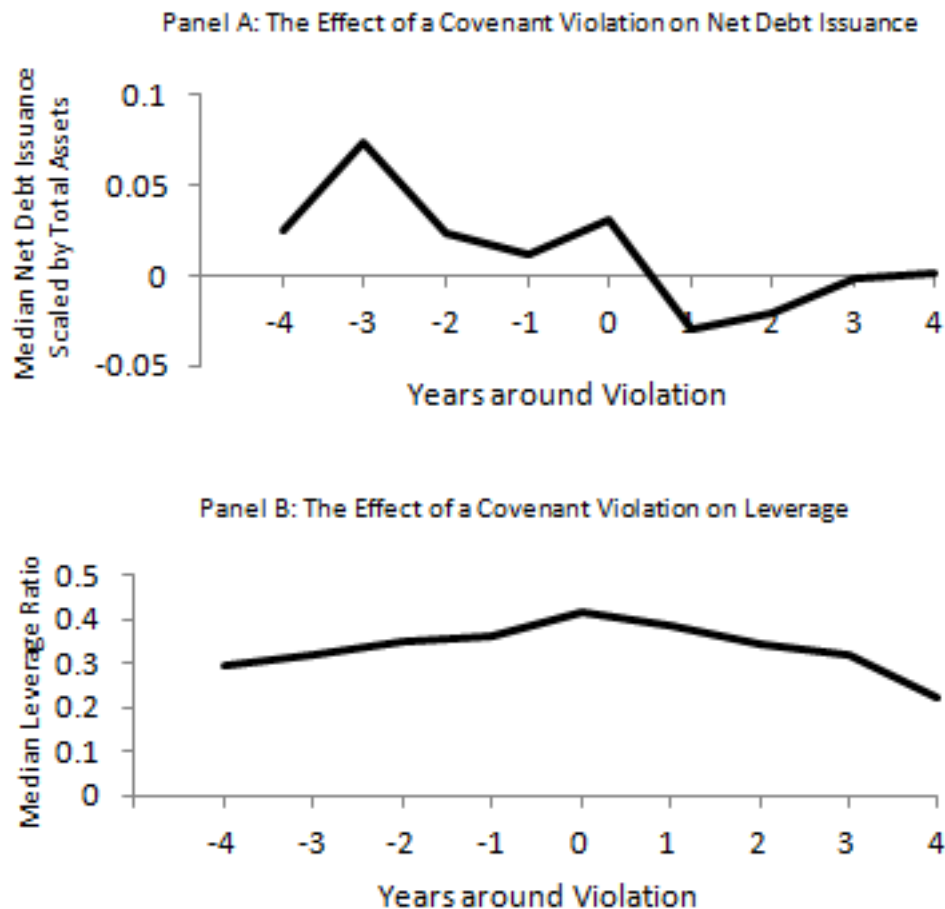
Figure 3. The Effect of a Covenant Violation on Capital Structure.
The figure reports median values for net debt issuance scaled by total assets (Panel A) and leverage (Panel B) before and after a new covenant violation. A new covenant violation is a violation for a firm that is violating a covenant for the first time during the sample period.

of 3% between the year of violation and the year right after the violation.

Overall, the results in Panels A and B suggest that covenant violations do affect capital structure in this sample in a comparable way to what had been found in the literature for different samples. While certain studies suggest that violations are not entirely responsible for changes in leverage ratios which are rather affected by within firm variations (Lemmon, Roberts and Zender, 2008), and that it is unlikely that a highly levered firm will become a low levered firm in relative terms because

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of a violation (Roberts and Sufi, 2009a), the effect that violations have on net debt issuance is quite discernible and significantly large. In what follows, I analyze the changes in net debt issuance following a covenant violation with more scrutiny and extend previous studies by examining whether the quality of legal enforcement in a country affects the changes in net debt issuance observed following a covenant violation.

4.3. Results

Table 5 reports regression results for the Covenants Sample focusing solely on the impact of violations on capital structure, and hence excludes JLEI and the interaction between covenant violation and JLEI. All specifications control for industry and year fixed effects, and include robust standard errors. The main conclusion that can be inferred from the table is that covenant violations have a negative effect on net debt issuance, consistent with the literature. The baseline model results in Specification (1) of Panel A show that a covenant violation results in 2.5% drop in net debt issuance. This effect is significant at the 5% level, and maintains its statistical significance even after removing fixed effects. In Specification (2), I add the contemporaneous values of the Covenant Control Variables, and in specification (3), I add Covenant Interaction Variables. The evidence holds that debt issuing activity decreases after a covenant violation. Adding these controls causes the magnitude of the coefficient on covenant violation to increase by roughly 52% and the adjusted R^2 to increase by 33%. These additional controls also improve the statistical significance of the coefficient on covenant violation which becomes significant at the 1% level compared to a 5% significance level in column (1). In Specification (4), I add Country Controls, namely, Information Sharing, Inflation, GDP Growth, and the log of Sovereign Risk Rating; the results are not altered by this addition. In Model (5), I omit Country Controls and add Borrower Risk Characteristics instead, consisting of Firm Size, Profitability, Asset Tangibility, Market-to-Book Ratio, R&D, R&D Missing, and Income Tax; results once again show negative loadings on the coefficient of covenant violation that are significant at the 1% level. Finally, in Specification(6), I add both Country Controls and Borrower Risk Characteristics to all variables from Specification (3), and I find similar evidence as in Specifications (1) through (5), whereby covenant violations have a negative and significant effect on net debt issuance. In terms of economic significance, the coefficients on covenant violation in all specifications have magnitude ranging between 0.025 and 0.04, indicating that, on average, the occurrence of a covenant violation causes net debt issuance to drop by approximately 3.5 percentage points. The addition of the Contemporaneous Controls, Covenant Interaction Variables, Country Controls, and Borrower Risk

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Characteristics cause the R^2 to increase over the baseline model in Specification (1) indicating that all these additional controls have significant predictive power.

Panel B presents results from the first difference analogs of the specifications in Panel A. In other words, the panel reports estimation results of the change in net debt issuance as it is affected by a covenant violation while controlling for the changes in control variables. The inclusion of this panel is inspired by the graphical analysis in Figure 3 where it is evident that net debt issuance suffers a sharp decline right after a covenant violation, suggesting that a first difference estimation may illustrate the effect of a covenant violation on net debt issuance with more precision. The estimation results reported in Panel B are in line with the results reported in Panel A highlighting a negative effect of a covenant violation on net debt issuance that is both highly economically and statistically significant.

Insert Table 5 Here

Table 6 replicates table 5 but adds the JLEI variable as a proxy for legal enforcement, and the interaction between covenant violation and JLEI as an estimate of the difference in the response of creditors to covenant violations in different countries. Panel A of the table reports the estimation results for net debt issuance. All specifications include fixed industry and year effects, and robust standard errors. The coefficient on covenant violation remains negative and highly significant; the inclusion of JLEI increases the magnitude of the covenant violation coefficient however, emphasizing the negative effect a violation has on net debt issuance. The variations in net debt issuance remain highly explained by the included right-hand side variables, with adjusted R^2 of around 67% on average.

Strikingly, the coefficient on the interaction between covenant violation and JLEI is positive with high statistical significance in all specifications. This result indicates that while a covenant violation causes net debt issuance to decline, the presence of strong legal enforcement can counteract the negative effect of that violation on financing policy and mitigate the resulting drop in net debt issuance. As a matter of fact, while net debt issuance declines by 10.4% in the year following a covenant violation as shown in column (1), the country effect associated with this violation compensates for this decline by 1.1 percentage points, resulting in an overall drop of 9.3%. Very similar results are observable in the remainder of the specifications where the balancing effect of the interaction accounts for approximately 10% of the decline in net debt issuance caused by a covenant violation in all cases.

In Panel B, the results are estimated on first difference analogs of the variables in Panel A. The results reported in this panel are closely comparable to the results

in Panel A; a covenant violation has a negative impact on the change in net debt issuance, an effect that is mitigated by strong legal enforcement in a country. All results are strongly statistically and economically significant and all specifications have high explanatory power.

In summary, covenant violations are observed to have a negative effect on financing policy that is translated through an estimated 13% decline on average in net debt issuance in the year following a technical default in an international setting. This effect is however mitigated by country specific characteristics. I find that in countries with stronger enforcement systems, the negative impact of a covenant violation is alleviated by close to 10%. These findings are consistent with the control allocation theories, whereby covenants play a disciplinary role and a covenant violation entails the transfer of control from borrowers to creditors, who interfere in the decision making of the violating firm and alter its financing policy. However, in countries where laws are properly enforced, creditors' disciplinary role after a violation is not as pronounced, and therefore creditors' impact on financing policy is not as detrimental. In short, covenant violations affect the stock of debt more radically for firms in countries with poor legal enforcement. This result is a novelty with respect to existing literature whereby it identifies a new channel through which creditors respond to the legal environment; Financial covenants are easy terms to write and enforce by creditors in contracts, and once violated, these terms lead creditors to behaving more restrictively toward borrowers in weaker enforcement environments to protect their claims.

Insert Table 6 Here

5. Robustness Tests

5.1. Alternative Enforcement Measures

The results observed in Table 6 show that strong legal enforcement, as measured by JLEI, could alleviate the negative effect that a covenant violation has on capital structure. To test the robustness of these results, in this section I consider six alternative measures of JLEI as they appear in the literature interchangeably to proxy for legal enforcement: the *Rule of Law Index (RLI)* measures the law and order tradition in a country, the *Corruption Index (CI)* reflects the level of bribery of government officials, the *Judicial Efficiency Index (JEI)*, the counterpart of JLEI as measured by the Business International Corporation country-risk rating agency, the *Property Rights Index (PRI)* which assesses the degree of legal protection and

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preservation of private property rights, the *Risk of Expropriation Index (REI)*, reflecting the risk of government seizing private property, and finally, the *Repudiation of Contracts Index (RCI)* reflecting the risk of unexpected contract modification. Lower scores on the last two indexes indicate higher risks, while higher scores on all other indexes reflect superior institutional quality. Detailed definitions and data sources of these indexes are presented in the Appendix.

In Table 7, I replicate specification (6) of Table 6 with the different proxies for legal enforcement. The estimated coefficients on these proxies, the coefficients on covenant violation, and the interaction of the latter two variables, are the only coefficients reported in the table to save space.

Column (1) of Panel A shows the results of including the Rule of Law Index as a proxy for legal enforcement. Concurrently with findings in Table 6, the estimated coefficient on covenant violation is negative and significant, the coefficient on the Rule of Law index is insignificant, while the estimated coefficient on the interaction between these two variables is positive and significant, indicating that the stronger the law and order tradition in a country, the less severely creditors respond to a covenant violation. In column (2), the results show a positive and significant coefficient on the interaction between covenant violation and the Corruption Index. Column (3) uses the Judicial Efficiency Index as measured by the Business International Corporation; the estimated coefficient on the interaction between this index and covenant violation is positive and significant at the 5% level, consistent with previous findings. The same is observed for the Property Rights Index in Column (4). Finally, columns (5) and (6) present results for the Risk of Expropriation and the Risk of Contract Repudiation as inverse measures of legal enforcement. Higher scores on these two indexes indicate lower risks and hence stronger legal enforcement. As with the rest of the proxies, the estimated coefficients on the interaction of each of these two proxies with covenant violation are positive, however only significant for the Repudiation of Contracts Index . The coefficient on covenant violation is negative and highly significant in all specifications, reaffirming previous findings that stronger legal enforcement in a country plays a role in mitigating the adverse effect of a covenant violation on net debt issuance.

Insert Table 7 Here

5.2. Omitted Variables

Despite using an extensive list of variables in the main analysis to control for the effect of covenant violations on net debt issuance in a cross-country setting at

contract, firm, and country level, the concern of omitted variables might still arise. For this purpose, in what follows I control for a new set of variables motivated by Bae and Goyal (2009), Gungoraydinoglu and Öztekin (2011), and Cho et al. (2014). Table 8 adds five additional controls to Specification (6) of Table 6: the *Creditor Rights Index (CRI)*, the *Anti-Director Index (ADI)* to proxy for Shareholder Rights, procedural *Formalism*, which proxies for Bankruptcy Costs, reflects the quality of dispute resolution in courts, the *Anti-Self-Dealing Index (ASDI)*, which proxies for Agency Costs, is the average ex-ante and ex-post private control of self-dealing, where higher scores indicate higher control, and finally, the *Public Enforcement Index (PEI)*, which proxies for Information Asymmetry Costs, reflects public security markets enforcement.

To save space, the Table 8 only reports the estimated coefficient on covenant violation, JLEI, the interaction between these two variables, as well as the coefficient on the additional controls, and the interactions of these controls with covenant violation. Specifications (1) through (5) add the additional indexes one at a time to Specification (6) from table 6, while Specification (6) includes all these additional indexes together. Consistent with Bae and Goyal (2009), who find that the enforcement of laws matters more to creditors than the mere existence of these laws, column (1) reveals that the coefficient on the interaction between covenant violation and JLEI is positive and statistically significant at the 10% level, while the coefficient on the interaction between covenant violation and CRI is insignificant. The rest of the specifications indicate that the alleviating effect of strong legal enforcement on the drop in net debt issuance following a covenant violation continues to hold with the addition of these controls; the coefficient on the interaction between JLEI and violation is positive and statistically significant in all specifications, implying that the addition of these controls does not affect the relationship between legal enforcement and debt issuing activity following a technical default, and therefore reinforce the robustness of the results presented in this paper and the inference that debt issuance is solely affected by the strength of legal enforcement in a country rather than other factors.

Insert Table 8 Here

5.3. Sample Composition

The main analysis was conducted on a sample of 28 countries excluding the United States so that results are not driven by the uneven distribution of observations, seeing as the size of the U.S. subsample is seven times the size of the subsample of all other countries in the sample. In Table 9, I rerun tests using a comprehensive

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sample including both international and U.S. firms to check whether the main findings of the paper still hold. Panel A of Table 9 replicates Panel A of Table 6, Panel B replicates Table 7, while Panel C replicates Table 8. The results consistently show a positive and highly statistically significant coefficient on the interaction between covenant violation and JLEI in Panels A and C, and on the interaction between covenant violation and the different proxies of JLEI in Panel B, indicating that the effect that legal enforcement has on net debt issuance following a covenant violation that is documented throughout the paper is not driven by the uneven distribution of observations across countries.

Insert Table 9 Here

6. Conclusion

This paper examines how incentive conflicts coupled with strong legal enforcement affect financing policy around the world. Following the optimal contracting theory, the allocation of control rights to creditors as a means to mitigate incentive conflicts entails changes in financing policy in the wake of a technical default. Similarly, financial contracts and the supply of debt capital are affected ex-ante by the level of legal enforcement in a country. With better legal enforcement, creditors are able to contain the risk of borrowers because of the assurance that in the event of default they will be able to claim collateralized assets and preserve the value of their claims. This plays an important role in giving creditors incentive to extend more debt and impose more favorable terms in contract ex-ante, knowing that their rights are enforced by the law. In countries where laws are not strongly enforced and are subject to corrupt institutions, creditors resort to cutting credit facilities and imposing very strict contract terms to control borrower risk.

On a sample of 810 loan contracts entered into by 518 firms in 28 countries, I find that financing policy is indeed altered by covenant violations. In the year following the violation, I find that net debt issuance drops sharply by 12.6%. This decline is however compensated for in countries that benefit from strong legal enforcement. More specifically, the stronger the legal enforcement in a country, the less severe the effect of the violation on net debt issuance. Indeed, a one standard deviation increase in JLEI alleviates the drop in net debt issuance by 1.8 percentage points. These results are robust to the inclusion of a number of control variables and other proxies of legal enforcement.

Overall, results suggest that creditors are influenced by the legal and institutional

environment, and structure their contracts in a way that best protects their interest when enforceability is poor. While traditionally the literature has found that creditors tamper with loan amounts, maturities, and spreads, this analysis reveals that creditors also rely on covenants to contain borrower risk, and are more restrictive in enforcing these covenants when the legal environment is weak.

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Appendix: Variable Definitions and Sources

Variable	Description	Source
Panel A. Contract-Level Variables		
Secured	Equals 1 if the financial contract is collateral-backed, 0 otherwise	DealScan
Maximum CapEx	Covenant specifying the maximum capital expenditures amount beyond which no further investments may be undertaken	DealScan
Minimum EBITDA	Covenant imposing a lower bound on earnings	DealScan
Net Worth	Covenant insuring the liquidation value of the firm's assets provides enough coverage in case of default	DealScan
Minimum Fixed Charge	Covenant imposing a lower bound on the ease with which a firm can cover its interest obligations through cash from operating activities	DealScan
Debt Service	Covenant imposing a lower bound on the ease with which a firm can cover its interest obligations through cash from operating activities	DealScan
Interest Coverage	Covenant imposing a lower bound on the ease with which a firm can cover its interest obligations through cash from operating activities	DealScan
Maximum Leverage	Covenant imposing an upper bound on the maximum percentage of debt a firm can have in its capital structure	DealScan
Debt to Cash Flow	Covenant imposing an upper bound on the maximum percentage of debt a firm can have in its capital structure	DealScan
Senior Debt to Cash Flow	Covenant imposing an upper bound on the maximum percentage of debt a firm can have in its capital structure	DealScan
Debt to Equity	Covenant imposing an upper bound on the maximum percentage of debt a firm can have in its capital structure	DealScan
Debt to Net Worth	Covenant imposing an upper bound on the maximum percentage of debt a firm can have in its capital structure	DealScan
Minimum Current Ratio	Covenant imposing a lower bound on the company's ability to meet its short term obligations as reflected by the current ratio	DealScan
Excess Cash Flow Sweep	Covenants indicating the percentage of proceeds obtained through excess cash flows that must be used to repay the loan	DealScan
Asset Sales Sweep	Covenants indicating the percentage of proceeds obtained through asset sales that must be used to repay the loan	DealScan
Debt Issuance Sweep	Covenants indicating the percentage of proceeds obtained through debt issuance that must be used to repay the loan	DealScan
Equity Issuance Sweep	Covenants indicating the percentage of proceeds obtained through equity issuance that must be used to repay the loan.	DealScan
N-Contracts	Number of financial contracts per country	DealScan
N-Loans	Number of loans per country	DealScan
N-Lenders	Median number of lenders per financial contract per country	DealScan
N-Secured	Number of secured financial contracts per country	DealScan
Maturity	Median maturity per financial contract expressed in months per country	DealScan
Loan Size	Median financial contract amount per country, denominated in USD and expressed in millions	DealScan
N-Covenants	Median number of covenants per contract per country	DealScan
N-Violations	Number of financial covenant violations per country	DealScan
Panel B. Firm-Level Variables		
Book Debt	Sum of short term debt and long term debt	Worldscope
Net Debt Issuance	(Book Debt$_t$ - Book Debt$_{t-1}$)/Total Assets$_{t-1}$	Worldscope
Leverage	Ratio of book debt to total assets	Worldscope
Market-to-Book Ratio	Ratio of market value of equity to book value of equity	Worldscope
Current Ratio	Ratio of current assets to current liabilities	Worldscope
Cash Flow	Operating Income (EBITDA) - Interest Expense - Income Taxes - Common Dividends	Worldscope
Asset Tangibility	Ratio of property, plant, and equipment to total assets	Worldscope
Firm Size	Natural logarithm of total assets, denominated in USD	Worldscope
R&D Missing	Takes the value of 1 if research and development expense is not reported, 0 otherwise	Worldscope

(continued)

Variable	Description	Source
Panel C. Country-Level Variables		
Judicial/Legal Effectiveness Index	Measures the level of judicial independence and bribery, the quality of the legal framework, the protection of private property and the effectiveness of both the parliament and the police. The index is scaled to range from 0 to 10	World Bank (2004)
Information Sharing	Equals 1 if a public credit registry operates in a country, 0 otherwise, where public credit registries are defined as databases managed by a government agency, usually the central bank or the superintendent of banks, that collect information on the standing of borrowers in the financial system and make it available to creditors (Djankov et al., 2007)	Djankov et al. (2007)
GDP Growth	Growth in nominal gross domestic product (GDP)	World Development Indicators
Inflation	Annual rate of inflation	World Development Indicators
Sovereign Credit Rating	Rating of government bond default. Ratings are converted into numerical scores, where higher numbers reflect lower ratings.	Standard & Poor's
Rule of Law Index	Reflects the willingness of citizens to accept the established institutions and respect the laws in the resolution of disputes. The index ranges from 0 to 10, with higher scores translating into sound political institutions, a strong judicial system, and clear regulations defining the succession of power (Knack and Keefer, 1995)	LLSV (1998)
Corruption Index	Ranges from 0 to 10, with lower ratings indicating that high government officials, as well as the majority of the lower levels of government, accept illegal payments that are manifested in the form of bribes aimed at tampering with import and export licenses, exchange controls, tax assessments, policy protection, and loans (LLSV, 1999)	LLSV (1999)
Judicial Efficiency Index	Assesses how business, and in particular foreign firms, is affected by the efficiency and integrity of the judicial environment in a certain country. The index ranges from 0 to 10, with higher scores implying superior legal efficiency levels (LLSV, 1998)	LLSV (1998)
Property Rights Index	Assesses the degree of legal protection of private property, the degree to which the government protects and enforces laws that preserve private property rights, and the likelihood of government expropriation of private property (LLSV, 1999). The index ranges from 0 to 10, where higher scores indicate better protection of property rights	The Heritage Foundation
Risk of Expropriation Index	Measures the risk of "outright confiscation" of privately-owned businesses or the threat of "forced nationalization" reflecting in the gradual seizing of private property rights by the government of a certain country (LLSV, 1998). The index ranges from 0 to 10, with lower values indicating higher risk	LLSV (1998)
Repudiation of Contracts Index	Ranges from 0 to 10, where lower scores translate into higher risk of repudiation. The risk of repudiation is defined as the threat of the modification of a contract through either postponement, scaling down or invalidation, as a consequence of budget cuts, government changes, indigenization pressure or change in social priorities (LLSV, 1998)	LLSV (1998)
Creditor Rights Index	Equals the sum of four indicators of secured lenders' rights in bankruptcy. 1 is added if: (1) secured lenders are able to repossess collateral once the petition for reorganization is approved (No automatic stay), (2) secured lenders have priority in the distribution of proceeds, (3) restrictions exist on borrowers' seeking creditors consent for going into reorganization, and (4) management does not continue to run the business during reorganization. The index takes values between 0 and 4, where a higher score reflects stronger creditor rights.	Djankov et al. (2007)
Anti-Self-Dealing Index	Average of ex-ante and ex-post private control of self-dealing. Higher scores indicate better control.	Djankov et al. (2008)
Anti-Director Index	Measured as the sum of six indicators relating to proxy voting by mail, share blocking before a shareholder meeting, cumulative voting, oppressed minority, preemptive rights, and the percentage of share capital required to call an extraordinary shareholder meeting.	Djankov et al. (2007)
Formalism Index	Measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts. The index ranges form 0 to 7, where higher values indicate higher control or intervention in the judicial process (Djankov et al., 2003)	Djankov et al. (2003)
Public Enforcement Index	Measured as the average of the supervisor characteristics index, rule-making power index, investigative power index, orders index, and criminal index.	La Porta et al. (2006)

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Table 1

Creditor Control in Credit Agreements

The table presents descriptive statistics of the characteristics of credit agreements. Statistics are performed in Panel A on 1,103 financial contracts (1,808) loans obtained by matching DealScan loans with data from WorldScope; and in Panel B on 810 financial contracts (1,310 loans), out of the total 1,103 contracts, having a financial covenant restricting the current ratio, net worth, capital expenditures or EBITDA. All contracts were initiated between 1996 and 2011 in 28 countries excluding the United States. *Maximum CapEx*, *Minimum EBITDA* and *Net Worth* covenants are scaled by lagged total assets in order to account for currency differences. *%Contracts* represents the percentage of the whole sample having the corresponding covenant in their credit agreement. *SD*, standard deviation. Variables are defined in the Appendix.

Panel A: DealScan-WorldScope Sample				
Covenant Variables	%Contracts	Mean	Median	*SD*
Contract Amount ($)	–	510,394,932	117,850,000	1,430,207,963
Contract Maturity (Years)	–	4.900	5.000	4.002
Secured	43.97%	–	–	–
Maximum CapEx	4.99%	0.081	0.038	0.173
Minimum EBITDA	1.90%	5.222	0.055	19.293
Minimum Fixed Charge Coverage	5.53%	1.534	1.250	0.706
Minimum Debt Service Coverage	7.34%	1.332	1.200	0.556
Minimum Interest Coverage	59.56%	3.059	3.000	1.445
Minimum Cash Interest	1.09%	1.775	1.500	0.757
Maximum Leverage	7.71%	1.101	0.700	0.906
Maximum Debt to Cash Flow	24.30%	4.262	3.500	3.316
Maximum Senior Debt to Cash Flow	3.08%	4.190	3.500	1.877
Maximum Debt to Equity	6.35%	2.717	1.500	9.725
Maximum Debt to Net Worth	16.86%	1.721	1.500	1.790
Minimum Net Worth	42.07%	1.133	0.018	12.425
Minimum Current Ratio	42.79%	1.037	1.000	0.167
Minimum Net Worth	9.61%	0.364	0.086	0.983
Excess Cash Flow Sweep	9.34%	49.140	50.000	30.880
Asset Sales Sweep	12.96%	89.060	100.000	28.829
Debt Issuance Sweep	10.88%	80.729	100.000	37.218
Equity Issuance Sweep	10.06%	68.990	100.000	37.637

Table 1 - *Continued*

Panel B: Covenants Sample				
Covenant Variables	%Contracts	Mean	Median	*SD*
Contract Amount ($)	–	241,302,110	83,662,915	489,463,807
Contract Maturity (Years)	–	4.781	5.000	3.283
Secured	47.16%	–	–	–
Maximum CapEx	6.79%	0.081	0.038	0.173
Minimum EBITDA	2.59%	5.222	0.055	19.293
Minimum Fixed Charge Coverage	4.20%	1.489	1.250	0.774
Minimum Debt Service Coverage	6.42%	1.220	1.125	0.401
Minimum Interest Coverage	62.35%	3.078	3.000	1.538
Minimum Cash Interest	0.99%	1.644	1.500	0.630
Maximum Leverage	5.56%	1.043	0.800	0.616
Maximum Debt to Cash Flow	13.70%	4.386	3.500	2.533
Maximum Senior Debt to Cash Flow	1.60%	5.343	5.250	2.384
Maximum Debt to Equity	7.04%	1.518	1.500	0.686
Maximum Debt to Net Worth	21.85%	1.719	1.500	1.827
Minimum Net Worth	57.28%	1.133	0.018	12.425
Minimum Current Ratio	58.27%	1.037	1.000	0.167
Minimum Net Worth	13.09%	0.364	0.086	0.983
Excess Cash Flow Sweep	7.53%	50.536	50.000	27.566
Asset Sales Sweep	9.75%	90.200	100.000	28.050
Debt Issuance Sweep	7.90%	78.268	100.000	37.969
Equity Issuance Sweep	7.90%	66.474	75.000	35.284

Table 2

Frequency of Financial Covenant Violations

The table presents the percentage of firms that report a financial covenant violation in their filings at some point between 1996 and 2011. The table surveys a sample of firms for which violation information is reported. The sample consists of 518 firms (2,016 firm-years) of which 134 report violating a covenant in 28 countries excluding the United States. *"By Industry"*, though not an exhaustive list of sample industries, lists the industries with the most recurring violations. M, millions.

	Violator Percentage
Fractions of firm-years reporting a violation	0.182
Fraction of firm-years with a new violation	0.077
Fraction of firms reporting a violation	0.259
Fraction of firms with a leverage ratio greater than 0.05 reporting a violation	0.255
By Industry	
Semiconductors and related devices	0.066
General farms, primarily crops	0.044
Electronic computers	0.033
Pharmaceutical preparations	0.033
Television broadcasting stations	0.033
By Size	
less than $100M	0.120
$100M - $250M	0.156
$250M - $500M	0.120
$500M - $1000M	0.112
$1000M - $2500M	0.189
$2500M - $5000M	0.131
Greater than $5000M	0.172

Table 3

Summary Statistics for Loan-Level and Country-Level Variables

The table reports country-level information on loan characteristics by borrower country, grouped by legal origin (English, French, German, and Scandinavian). The sample consists of 810 financial contracts (1,310 loans) originated between 1996 and 2011 in 28 different countries excluding the United States. *Group Mean* equals the simple average of the group statistics. Variables are defined in the Appendix.

Country	JLEI	N-Contracts	N-Loans	N-Lenders	N-Secured	Maturity	Loan Size	N-Covenants	N-Violations	Sovereign Rating	GDP Growth	Inflation
All	6.51	810	1,310	9	382	60	83.663	3	366	1.61	8.4	3.28
ENGLISH												
Australia	8.9	8	19	8	3	60	364	2.5	0	0.693	3.832	2.847
Bermuda	–	3	5	35	3	60	250	5	0	1.609	4.050	3.383
Canada	8.2	67	108	5	49	48	160	4	37	0.693	2.925	2.944
Hong Kong	8.2	103	133	12	8	42	100	2	33	0.693	4.891	-0.375
India	6	30	48	11	8	63	100	1	6	2.398	7.557	5.932
Ireland	7.8	4	13	12	1	222.5	1,958	6.5	8	2.197	5.606	3.974
Israel	7.3	1	1	1	1	11	1	3	0	1.792	4.467	1.933
Malaysia	7.8	5	9	12	3	70	250	2	8	2.079	5.819	4.031
Singapore	9	29	45	9	6	36	50	2	19	0.693	6.213	0.504
South Africa	7.1	5	9	7	3	48	150	5	3	2.197	3.349	7.786
Thailand	5.3	2	2	16	0	36	69	2.5	1	2.197	4.750	3.453
United Kingdom	9.2	38	70	8	17	60	470	3.5	33	0.693	3.151	2.396
*Group Mean**	*7.709*	*24.583*	*38.500*	*11.333*	*8.500*	*63.042*	*326.874*	*3.250*	*12.333*	*1.495*	*4.718*	*3.234*
FRENCH												
Argentina	1.2	1	2	12	1	60	1,000	6	6	2.773	7.435	9.599
Chile	6.6	2	2	1.5	1	48	207	5.5	0	1.792	3.337	7.248
France	7.6	6	13	33	4	51.5	710	5	9	1.099	1.836	1.674
Indonesia	4	27	37	13	4	36	75	1	48	2.485	4.920	11.259
Italy	4.1	2	5	8	2	71	214	4	0	2.197	1.567	2.159
Mexico	3	3	4	7	1	60	116	4	15	2.303	3.873	6.334
Philippines	1.8	6	7	24	0	60	175	2.5	3	2.485	4.778	5.233
*Group Mean**	*4.043*	*7.667*	*11.333*	*14.417*	*2.000*	*54.417*	*249.464*	*3.667*	*12.500*	*2.162*	*3.964*	*6.215*
GERMAN												
China	4.2	11	13	11	1	36	121	2	9	1.609	9.600	3.786
Germany	8.6	10	25	7	7	86.5	982	7.5	20	0.693	1.514	0.638
Japan	7.6	3	3	1	0	24	17	1	1	1.609	1.414	-1.251
Korea (South)	4.8	2	2	9	0	60	150	1	0	1.946	4.619	3.230
Poland	1.8	1	1	10	0	84	350	3	0	2.079	4.350	3.480
Taiwan	6.5	430	717	8	252	60	58	4	92	1.609	10.000	3.930
*Group Mean**	*5.583*	*89.200*	*149.600*	*7.000*	*51.800*	*62.900*	*311.241*	*3.300*	*22.600*	*1.591*	*5.249*	*2.302*
SCANDINAVIAN												
Finland	9.2	1	1	10	0	60	146	4	0	0.693	4.017	1.632
Norway	8.7	6	6	13	3	66	500	3	5	0.693	2.520	3.604
Sweden	9.3	4	10	20	4	84	1,000	3.5	10	0.693	3.314	1.516
*Group Mean**	*9.067*	*5.000*	*8.000*	*16.500*	*3.500*	*75.000*	*750.000*	*3.250*	*7.500*	*0.693*	*3.284*	*2.250*

Table 4

Impact of Covenant Violations

The table presents summary statistics for a panel of 518 firms, 2,016 firm-years observations, from 1996 to 2011 in 28 countries excluding the United States. Statistics are classified into two groups based on whether the firm-year observation is classified as being in violation (*Violators*) or not in violation (*Non-Violators*) of at least one of the current ratio, net worth, capital expenditures, or EBITDA covenants. Each entry reports the number of observations N, the mean, the median, and the standard deviation SD. *Difference* reports the difference in means between the two groups; *p*-values in parentheses. Variables are defined in the Appendix.

	Violators				Non-Violators				
	N	Mean	Median	SD	N	Mean	Median	SD	Difference
Capital Structure Variables									
Net Debt Issuance / Total Assets	308	-0.106	-0.017	1.322	1,224	0.030	0.016	0.355	(0.000)
Leverage Ratio	313	0.406	0.351	0.297	1,277	0.317	0.306	0.197	(0.000)
Covenant Control Variables									
Current Ratio	313	1.293	1.092	0.760	1,264	1.676	1.476	0.913	(0.000)
Net Worth / Total Asset	313	0.308	0.307	0.201	1,281	0.443	0.433	0.182	(0.000)
Interest Expense / Total Assets	309	0.028	0.018	0.029	1,244	0.015	0.010	0.017	(0.000)
Cash Flow/Total Assets	304	-0.042	-0.021	0.142	1,224	-0.014	-0.004	0.093	(0.000)
Cash / Total Assets	313	0.096	0.078	0.074	1,273	0.133	0.111	0.105	(0.000)
Other Control Variables									
Market-to-Book Ratio	305	15.362	3.022	46.742	1,220	32.372	4.000	160.908	(0.034)
CapEx / Total Assets	310	0.053	0.036	0.057	1,252	0.072	0.047	0.080	(0.000)
EBITDA/Total Assets	309	0.085	0.082	0.110	1,240	0.101	0.095	0.093	(0.004)
Asset Tangibility	312	0.378	0.356	0.211	1,288	0.383	0.366	0.219	(0.378)

Table 5

Covenant Violations and Net Debt Issuance

Fixed effects regressions of net debt issuance on covenant violation indicators and other control variables. The sample consists of 2,016 firm-year observations between 1996 and 2011 in 28 countries excluding the United States. *Contemporaneous Controls* indicates whether the current values of all controls variables are included in the specification. All specifications have fixed industry effects, robust standard errors, and year indicators. Panel A reports results for net debt issuance while Panel B reports results of the first difference analogs of the variables in Panel A. Standard errors are in parentheses. All variables are defined in the Appendix. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.

	Panel A: Net Debt Issuance					
	(1)	(2)	(3)	(4)	(5)	(6)
Covenant Violation$_{t-1}$(CV)	-0.025**	-0.038***	-0.040***	-0.039***	-0.039***	-0.038***
	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)
Leverage$_{t-1}$	-0.363***	-0.660***	-0.669***	-0.678***	-0.676***	-0.681***
	(0.073)	(0.052)	(0.057)	(0.056)	(0.056)	(0.056)
Net Worth$_{t-1}$/Total Assets$_{t-1}$	0.038	0.379***	0.394***	0.397***	0.385***	0.391***
	(0.050)	(0.061)	(0.059)	(0.059)	(0.058)	(0.058)
Interest$_{t-1}$/Total Assets$_{t-1}$	-4.121***	-1.900***	-2.276***	-2.266***	-2.528***	-2.560***
	(0.623)	(0.553)	(0.513)	(0.510)	(0.570)	(0.571)
Current Ratio$_{t-1}$	-0.01	-0.004	-0.004	-0.004	-0.004	-0.005
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Cash Flow$_{t-1}$/Total Assets$_{t-1}$	0.230***	0.073**	0.096**	0.104***	0.055	0.058
	(0.047)	(0.034)	(0.038)	(0.037)	(0.038)	(0.039)
Cash$_{t-1}$/Total Assets$_{t-1}$	-0.01	-0.016	-0.103	-0.107	-0.092	-0.1
	(0.054)	(0.063)	(0.077)	(0.079)	(0.080)	(0.082)
Information Sharing				-0.01		-0.01
				(0.013)		(0.012)
GDP Growth				0.004***		0.003**
				(0.001)		(0.002)
Inflation				-0.001		-0.001
				(0.001)		(0.001)
Log (Sovereign Risk Rating)				0.007		0.005
				(0.011)		(0.011)
Income Tax$_{t-1}$/EBITDA$_{t-1}$					-0.001	-0.001
					(0.003)	(0.003)
R&D$_{t-1}$/Total Assets$_{t-1}$					-0.492**	-0.441**
					(0.202)	(0.202)
R&D Missing$_{t-1}$					-0.005	-0.002
					(0.010)	(0.011)
Firm Size$_{t-1}$					-0.009*	-0.007
					(0.004)	(0.005)
EBITDA$_{t-1}$/Total Assets$_{t-1}$					0.087**	0.093**
					(0.037)	(0.038)
Asset Tangibility$_{t-1}$					0.035	0.023
					(0.034)	(0.032)
Market-to-Book Ratio$_{t-1}$					0.000***	0.000***
					(0.000)	(0.000)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	No	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	No	No	Yes	Yes	Yes	Yes
Number of Observations	1,424	1,422	1,422	1,422	1,422	1,422
R^2	0.523	0.696	0.698	0.701	0.702	0.704

Table 5 - *Continued*

Panel B: Change in Net Debt Issuance						
	(1)	(2)	(3)	(4)	(5)	(6)
Covenant Violation$_{t-1}$(CV)	-0.118**	-0.080**	-0.077*	-0.069*	-0.064*	-0.057*
	(0.049)	(0.038)	(0.039)	(0.039)	(0.038)	(0.038)
Leverage$_{t-1}$	1.480**	1.724***	1.687***	1.695***	1.677***	1.684***
	(0.582)	(0.601)	(0.546)	(0.547)	(0.529)	(0.529)
Net Worth$_{t-1}$/Total Assets$_{t-1}$	-0.463***	-0.571**	-0.485*	-0.482*	-0.36	-0.357
	(0.176)	(0.247)	(0.250)	(0.246)	(0.238)	(0.236)
Interest$_{t-1}$/Total Assets$_{t-1}$	-4.436	-6.353	-8.562	-9.281*	-8.282	-9.14
	(4.048)	(4.132)	(5.404)	(5.465)	(5.616)	(5.647)
Current Ratio$_{t-1}$	0.018	0.038	0.04	0.038	0.035	0.033
	(0.033)	(0.047)	(0.047)	(0.046)	(0.041)	(0.041)
Cash Flow$_{t-1}$/Total Assets$_{t-1}$	-0.521**	-0.556***	-0.357	-0.356	-0.009	0.009
	(0.238)	(0.199)	(0.263)	(0.255)	(0.181)	(0.169)
Cash$_{t-1}$/Total Assets$_{t-1}$	0.19	0.348*	-0.118	-0.133	-0.218	-0.233
	(0.162)	(0.196)	(0.324)	(0.323)	(0.332)	(0.328)
Information Sharing				-0.031		-0.016
				(0.043)		(0.044)
GDP Growth				0.011		0.012*
				(0.007)		(0.007)
Inflation				-0.003		(0.000)
				(0.009)		(0.006)
Log (Sovereign Risk Rating)				-0.073		-0.100*
				(0.048)		(0.053)
Income Tax$_{t-1}$/EBITDA$_{t-1}$					(0.000)	(0.000)
					0.000	0.000
R&D$_{t-1}$/Total Assets$_{t-1}$					1.249	1.308
					(1.855)	(1.888)
R&D Missing$_{t-1}$					0.052	0.057
					(0.032)	(0.036)
Firm Size$_{t-1}$					0.218**	0.227***
					(0.086)	(0.087)
EBITDA$_{t-1}$/Total Assets$_{t-1}$					-0.538**	-0.559**
					(0.255)	(0.249)
Asset Tangibility$_{t-1}$					-0.231	-0.21
					(0.213)	(0.213)
Market-to-Book Ratio$_{t-1}$					0.002	0.002
					(0.002)	(0.002)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	No	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	No	No	Yes	Yes	Yes	Yes
Number of Observations	1,348	1,348	1,348	1,348	1,346	1,346
R^2	0.286	0.308	0.31	0.31	0.323	0.323

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Table 6

Covenant Violations, Judicial Effectiveness, and Net Debt Issuance

Fixed effects regressions of net debt issuance on covenant violation indicators, legal enforcement, and other control variables. The sample consists of 2,016 firm-year observations between 1996 and 2011 in 28 countries excluding the United States. *Contemporaneous Controls* indicates whether the current values of all controls variables are included in the specification. All specifications have fixed industry effects, robust standard errors, and year indicators. Panel A reports results for net debt issuance while Panel B reports results of the first difference analogs of the variables in Panel A. Standard errors are in parentheses. All variables are defined in the Appendix. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.

	Panel A: Net Debt Issuance					
	(1)	(2)	(3)	(4)	(5)	(6)
CV * JLEI	0.011*	0.013***	0.016***	0.013**	0.016***	0.013**
	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)
Covenant Violation$_{t-1}$(CV)	-0.104**	-0.132***	-0.154***	-0.126***	-0.151***	-0.129***
	(0.044)	(0.039)	(0.045)	(0.046)	(0.044)	(0.044)
Judicial/Legal Effectiveness (JLEI)	-0.015**	-0.010**	-0.011**	-0.005	-0.009**	-0.006
	(0.006)	(0.004)	(0.004)	(0.006)	(0.004)	(0.006)
Leverage$_{t-1}$	-0.365***	-0.661***	-0.670***	-0.678***	-0.676***	-0.681***
	(0.073)	(0.052)	(0.057)	(0.056)	(0.056)	(0.056)
Net Worth$_{t-1}$/Total Assets$_{t-1}$	0.038	0.381***	0.400***	0.403***	0.392***	0.396***
	(0.051)	(0.062)	(0.059)	(0.059)	(0.058)	(0.058)
Interest$_{t-1}$/Total Assets$_{t-1}$	-4.140***	-1.902***	-2.313***	-2.278***	-2.580***	-2.586***
	(0.615)	(0.551)	(0.509)	(0.506)	(0.565)	(0.570)
Current Ratio$_{t-1}$	-0.010	-0.005	-0.005	-0.005	-0.005	-0.005
	(0.007)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Cash Flow$_{t-1}$/Total Assets$_{t-1}$	0.227***	0.075**	0.099***	0.106***	0.054	0.057
	(0.048)	(0.034)	(0.038)	(0.037)	(0.038)	(0.039)
Cash$_{t-1}$/Total Assets$_{t-1}$	-0.005	-0.015	-0.113	-0.114	-0.102	-0.106
	(0.054)	(0.063)	(0.078)	(0.079)	(0.081)	(0.083)
Information Sharing				-0.007		-0.006
				(0.012)		(0.012)
GDP Growth				0.003**		0.003*
				(0.002)		(0.002)
Inflation				-0.001		-0.001
				(0.001)		(0.001)
Log (Sovereign Risk Rating)				0.007		0.005
				(0.015)		(0.016)
Income Tax$_{t-1}$/EBITDA$_{t-1}$					-0.001	-0.001
					(0.003)	(0.003)
R&D$_{t-1}$/Total Assets$_{t-1}$					-0.464**	-0.435**
					(0.196)	(0.202)
R&D Missing$_{t-1}$					0.000	0.002
					(0.010)	(0.011)
Firm Size$_{t-1}$					-0.007*	-0.006
					(0.004)	(0.005)
EBITDA$_{t-1}$/Total Assets$_{t-1}$					0.092**	0.097**
					(0.037)	(0.038)
Asset Tangibility$_{t-1}$					0.032	0.025
					(0.032)	(0.032)
Market-to-Book Ratio$_{t-1}$					0.000***	0.000***
					(0.000)	(0.000)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	No	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	No	No	Yes	Yes	Yes	Yes
Number of Observations	1,424	1,422	1,422	1,422	1,422	1,422
R^2	0.525	0.697	0.700	0.702	0.703	0.704

Table 6 - *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: Change in Net Debt Issuance						
CV * JLEI	0.062*	0.062**	0.053**	0.049*	0.049*	0.048*
	(0.036)	(0.031)	(0.027)	(0.029)	(0.027)	(0.028)
Covenant Violation$_{t-1}$(CV)	-0.549**	-0.509**	-0.438**	-0.413**	-0.399**	-0.394*
	(0.272)	(0.230)	(0.196)	(0.208)	(0.198)	(0.208)
Judicial/Legal Effectiveness (JLEI)	-0.01	-0.008	-0.003	-0.019	(0.000)	-0.024
	(0.018)	(0.019)	(0.017)	(0.032)	(0.018)	(0.031)
Leverage$_{t-1}$	1.475**	1.717***	1.685***	1.689***	1.675***	1.679***
	(0.570)	(0.589)	(0.540)	(0.541)	(0.524)	(0.522)
Net Worth$_{t-1}$/Total Assets$_{t-1}$	-0.489***	-0.615**	-0.530**	-0.517**	-0.408*	-0.392*
	(0.171)	(0.240)	(0.244)	(0.240)	(0.230)	(0.228)
Interest$_{t-1}$/Total Assets$_{t-1}$	-5.006	-6.975*	-8.905*	-9.279*	-8.579	-9.066
	(4.108)	(4.174)	(5.348)	(5.404)	(5.525)	(5.570)
Current Ratio$_{t-1}$	0.02	0.042	0.043	0.041	0.038	0.036
	(0.033)	(0.048)	(0.048)	(0.047)	(0.042)	(0.041)
Cash Flow$_{t-1}$/Total Assets$_{t-1}$	-0.549**	-0.582***	-0.375	-0.366	-0.018	0.001
	(0.251)	(0.210)	(0.265)	(0.263)	(0.181)	(0.173)
Cash$_{t-1}$/Total Assets$_{t-1}$	0.202	0.360*	-0.078	-0.092	-0.178	-0.194
	(0.162)	(0.195)	(0.313)	(0.314)	(0.320)	(0.319)
Information Sharing				-0.018		-0.004
				(0.049)		(0.050)
GDP Growth				0.008		0.01
				(0.007)		(0.007)
Inflation				-0.002		0.001
				(0.009)		(0.006)
Log (Sovereign Risk Rating)				-0.072		-0.109
				(0.070)		(0.074)
Income Tax$_{t-1}$/EBITDA$_{t-1}$					(0.000)	(0.000)
					(0.000)	(0.000)
R&D$_{t-1}$/Total Assets$_{t-1}$					1.242	1.273
					(1.844)	(1.875)
R&D Missing$_{t-1}$					0.059*	0.067*
					(0.034)	(0.038)
Firm Size$_{t-1}$					0.209**	0.216**
					(0.086)	(0.086)
EBITDA$_{t-1}$/Total Assets$_{t-1}$					-0.552**	-0.564**
					(0.252)	(0.247)
Asset Tangibility$_{t-1}$					-0.223	-0.224
					(0.219)	(0.216)
Market-to-Book Ratio$_{t-1}$					0.002	0.002
					(0.002)	(0.002)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	No	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	No	No	Yes	Yes	Yes	Yes
Number of Observations	1,348	1,348	1,348	1,348	1,346	1,346
R^2	0.288	0.310	0.312	0.310	0.324	0.323

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Table 7

Robustness Tests - Alternative Proxies for Legal Enforcement

Fixed effects regressions of net debt issuance on covenant violation indicators, alternative measures of legal enforcement, and other control variables. The sample consists of 2,016 firm-year observations between 1996 and 2011 in 28 countries excluding the United States. *Contemporaneous Controls* indicates whether the current values of all controls variables are included in the specification. All specifications have fixed industry effects, robust standard errors, and year indicators. To save space, only the coefficients on covenant violation, the alternative enforcement proxies, and the interactions of covenant violation with these proxies are reported. Standard errors are in parentheses. All variables are defined in the Appendix. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Covenant Violation$_{t-1}$(CV)	-0.131***	-0.104***	-0.120***	-0.105***	-0.164*	-0.194***
	(0.043)	(0.039)	(0.044)	(0.037)	(0.089)	(0.068)
CV * RLI	0.012**					
	(0.005)					
Rule of Law Index (RLI)	-0.007					
	(0.008)					
CV * CI		0.009*				
		(0.005)				
Corruption Index (CI)		0.013*				
		(0.007)				
CV * JEI			0.011**			
			(0.005)			
Judicial Efficiency Index (JEI)			0.013*			
			(0.007)			
CV * PRI				0.009**		
				(0.005)		
Property Rights Index(PRI)				0.003		
				(0.007)		
CV * REI					0.014	
					(0.010)	
Risk of Expropriation Index (REI)					0.000	
					(0.010)	
CV * RCI						0.018**
						(0.008)
Repudiation of Contracts Index (RCI)						-0.020*
						(0.010)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Risk Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,408	1,422	1,408	1,422	1,408	1,408
R^2	0.704	0.705	0.706	0.704	0.703	0.704

Table 8

Robustness Tests - Omitted Variables

Fixed effects regressions of net debt issuance on covenant violation indicators, legal enforcement, other control variables, and additional country characteristics. The sample consists of 2,016 firm-year observations between 1996 and 2011 in 28 countries excluding the United States. *Contemporaneous Controls* indicates whether the current values of all controls variables are included in the specification. All specifications have fixed industry effects, robust standard errors, and year indicators. To save space, only the coefficients on covenant violation, JLEI, additional country indexes, and the interactions of covenant violation with JLEI and these indexes are reported. Standard errors are in parentheses. All variables are defined in the Appendix. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
CV * JLEI	0.012*	0.011*	0.016**	0.016*	0.016*	0.017*
	(0.006)	(0.007)	(0.007)	(0.009)	(0.007)	(0.010)
Covenant Violation$_{t-1}$(CV)	-0.129***	-0.118**	-0.122**	-0.166	-0.141**	-0.183
	(0.044)	(0.046)	(0.060)	(0.116)	(0.050)	(0.128)
Judicial/Legal Effectiveness (JLEI)	-0.002	0.000	-0.011	-0.004	-0.011	-0.012
	(0.006)	(0.007)	(0.009)	(0.006)	(0.008)	(0.011)
CV * CRI	0.004					0.017
	(0.011)					(0.013)
Creditor Rights Index (CRI)	-0.011					-0.028
	(0.007)					(0.023)
CV * ASDI		0.000				-0.003
		(0.061)				(0.086)
Anti-Self-Dealing Index (ASDI)		-0.061				-0.036
		(0.065)				(0.124)
CV* ADI			-0.008			-0.026
			(0.016)			(0.018)
Anti-Director Index (ADI)			0.009			0.042*
			(0.012)			(0.023)
CV * Formalism				0.007		0.018
				(0.021)		(0.023)
Formalism				0.004		-0.01
				(0.010)		(0.016)
CV * PEI					-0.012	0.073
					(0.061)	(0.064)
Public Enforcement Index (PEI)					-0.049	-0.062
					(0.039)	(0.073)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Risk Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	1,422	1,422	1,422	1,422	1,422	1,422
R^2	0.705	0.705	0.704	0.704	0.705	0.705

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Table 9

Robustness Tests - Sample Composition

Fixed effects regressions results for a sample of 14,744 firm-year observations between 1996 and 2011 in 29 countries including the United States. Panel A replicates Table 6, Panel B replicates Table 7, and Panel C replicates Table 8. *Contemporaneous Controls* indicates whether the current values of all controls variables are included in the specification. All specifications have fixed industry effects, robust standard errors, and year indicators. Standard errors are in parentheses. All variables are defined in the Appendix. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels respectively.

Panel A: Covenant Violations, Judicial Effectiveness, and Net Debt Issuance						
	(1)	(2)	(3)	(4)	(5)	(6)
CV * JLEI	0.015**	0.016***	0.015***	0.013**	0.018***	0.013**
	(0.008)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Covenant Violation$_{t-1}$(CV)	-0.143**	-0.143***	-0.136***	-0.116**	-0.160***	-0.119**
	(0.064)	(0.048)	(0.046)	(0.050)	(0.046)	(0.049)
Judicial/Legal Effectiveness (JLEI)	-0.015*	-0.007*	-0.008**	0.000	-0.019***	-0.021***
	(0.009)	(0.004)	(0.004)	(0.007)	(0.005)	(0.008)
Leverage$_{t-1}$	-0.265***	-1.034***	-1.146***	-1.151***	-1.136***	-1.141***
	(0.059)	(0.052)	(0.054)	(0.055)	(0.055)	(0.055)
Net Worth$_{t-1}$/Total Assets$_{t-1}$	0.215***	0.209***	0.056	0.055	0.046	0.043
	(0.070)	(0.043)	(0.049)	(0.049)	(0.049)	(0.049)
Interest$_{t-1}$/Total Assets$_{t-1}$	-2.084***	-0.136	-0.195	-0.178	-0.361	-0.345
	(0.679)	(0.480)	(0.495)	(0.494)	(0.504)	(0.501)
Current Ratio$_{t-1}$	-0.005	-0.005	-0.002	-0.002	-0.002	-0.002
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Cash Flow$_{t-1}$/Total Assets$_{t-1}$	0.072**	0.018	0.065*	0.063*	0.057	0.054
	(0.029)	(0.027)	(0.036)	(0.035)	(0.039)	(0.038)
Cash$_{t-1}$/Total Assets$_{t-1}$	-0.009	0.169**	0.185***	0.185***	0.190***	0.190***
	(0.031)	(0.066)	(0.070)	(0.070)	(0.068)	(0.068)
Information Sharing				-0.002		-0.025**
				(0.010)		(0.011)
GDP Growth				0.002		0.005***
				(0.001)		(0.001)
Inflation				0.002*		0.003***
				(0.001)		(0.001)
Log (Sovereign Risk Rating)				-0.001		-0.051***
				(0.016)		(0.016)
Income Tax$_{t-1}$/EBITDA$_{t-1}$					0.000	0.000
					(0.000)	(0.000)
R&D$_{t-1}$/Total Assets$_{t-1}$					-0.067	-0.061
					(0.076)	(0.079)
R&D Missing$_{t-1}$					0.007	0.006
					(0.008)	(0.008)
Firm Size$_{t-1}$					-0.006***	-0.008***
					(0.002)	(0.002)
EBITDA$_{t-1}$/Total Assets$_{t-1}$					0.052	0.063
					(0.041)	(0.042)
Asset Tangibility$_{t-1}$					-0.004	-0.009
					(0.018)	(0.018)
Market-to-Book Ratio$_{t-1}$					0.000*	0.000*
					0.000	0.000
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	No	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	No	No	Yes	Yes	Yes	Yes
Number of Observations	11,400	11,297	11,297	11,297	11,296	11,296
R^2	0.141	0.373	0.378	0.378	0.379	0.379

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Table 9 - *Continued*

	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: Alternative Proxies for Legal Enforcement						
Covenant Violation$_{t-1}$(CV)	-0.122**	-0.120**	-0.116**	-0.118**	-0.217**	-0.234**
	(0.057)	(0.058)	(0.050)	(0.053)	(0.100)	(0.111)
CV * RLI	0.011*					
	(0.006)					
Rule of Law Index (RLI)	-0.020***					
	(0.007)					
CV * CI		0.013*				
		(0.007)				
Corruption Index (CI)		-0.005				
		(0.008)				
CV * JEI			0.011**			
			(0.005)			
Judicial Efficiency Index (JEI)			-0.01			
			(0.008)			
CV * PRI				0.013**		
				(0.006)		
Property Rights Index (PRI)				-0.009		
				(0.011)		
CV * REI					0.021**	
					(0.010)	
Risk of Expropriation Index (REI)					-0.025***	
					(0.010)	
CV * RCI						0.025**
						(0.012)
Repudiation of Contracts Index (RCI)						-0.028**
						(0.012)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Risk Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	12,111	12,125	12,111	12,125	12,111	12,111
R^2	0.382	0.382	0.382	0.382	0.382	0.382

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Table 9 - *Continued*

	Panel C: Omitted Variables					
	(1)	(2)	(3)	(4)	(5)	(6)
CV * JLEI	0.013**	0.017**	0.016***	0.019***	0.023**	0.030***
	(0.006)	(0.008)	(0.006)	(0.007)	(0.009)	(0.010)
Covenant Violation$_{t-1}$(CV)	-0.110**	-0.084*	-0.139**	-0.246***	-0.128**	-0.265**
	(0.050)	(0.048)	(0.054)	(0.095)	(0.055)	(0.103)
Judicial/Legal Effectiveness (JLEI)	-0.020***	-0.020**	-0.028***	-0.019**	-0.025***	-0.028***
	(0.008)	(0.008)	(0.009)	(0.007)	(0.009)	(0.010)
CV * CRI	-0.005					-0.009
	(0.009)					(0.015)
Creditor Rights Index (CRI)	0.006					-0.022
	(0.006)					(0.019)
CV * ASDI		-0.105				0.017
		(0.068)				(0.109)
Anti-Self-Dealing Index (ASDI)		0.009				-0.008
		(0.048)				(0.108)
CV * ADI			-0.001			0.005
			(0.011)			(0.014)
Anti-Director Index (ADI)			0.024***			0.053***
			(0.008)			(0.016)
CV * Formalism				0.030*		0.024
				(0.017)		(0.019)
Formalism				-0.006		0.002
				(0.010)		(0.016)
CV * Penf					-0.086	-0.09
					(0.057)	(0.072)
Public Enforcement Index (PEI)					0.027	-0.051
					(0.043)	(0.060)
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	Yes	Yes	Yes	Yes	Yes	Yes
Covenant Interaction Variables	Yes	Yes	Yes	Yes	Yes	Yes
Country Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Borrower Risk Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	11,296	11,296	11,296	11,296	11,296	11,296
R^2	0.379	0.379	0.38	0.379	0.379	0.38

Highlights

- Changes in financing policy are investigated following a debt covenant violation.

- Covenant violations are associated with an overall decline in net debt issuance.

- The decline is accentuated for borrowers in countries with weak legal enforcement.

- Strong enforcement alleviates this decline in debt issuance by close to 10

- Firm and country elements affect the relation between debt issuance and violations.

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