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How legal environments affect the use of bond covenants

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Abstract
We examine how country-level legal and institutional investor protection shapes contractual creditor protection. We examine debt covenant information from foreign corporate bonds issued in the US from more than 50 countries between 1991 and 2007. We find that bonds of firms incorporated in countries with stronger creditor rights use fewer covenants. This finding suggests that creditor protection substitutes for covenants in reducing the agency cost of debt. In contrast, bonds of firms with stronger shareholder rights or firms with stronger firm-level corporate governance use more covenants. These findings support the notion that firms with stronger shareholder control may face an increase in the shareholder–bondholder conflict and therefore prefer to use more covenants. However, greater shareholder rights are not associated with the use of more covenant restrictions on equity issuance, as firms with greater minority shareholder protection are unlikely to suffer such equity dilution.
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INTRODUCTION

The nexus of contracts theory (Jensen & Meckling, 1976; Myers, 1977; Smith & Warner, 1979) suggests that firms' stakeholders contract to maximize firm value while reducing agency costs. Smith and Warner (1979) detail how restrictive covenants can mitigate agency conflicts between shareholders and bondholders. Management and shareholders are willing to adopt restrictive covenants in debt contracts to prevent firms from taking actions that expropriate creditors. Although including covenants reduces operational flexibility, it can maximize firm value by increasing debt capacity and reducing debt-financing costs. The number and types of covenants depends on the degree of agency conflicts, and on the costs and benefits of including restrictive covenants.[1]

In this paper we study whether and how country-level legal and institutional investor protection affects the use of bond covenants. This study is motivated by the recent law and finance literature, which argues that cross-country differences in legal and institutional investor protection play an important role in determining a firm's corporate governance, cost of external financing, and firm value. One line of research focuses on creditor protection in bankruptcy laws. These studies show that stronger legal creditor protection reduces the cost of debt, and increases debt capacity,

maturity, and ownership concentration (see, e.g., Bae & Goyal, 2009; Djankov, McLiesh, & Shleifer, 2007; Esty & Megginson, 2003; Qian & Strahan, 2007). Another line of research emphasizes legal shareholder rights and finds that cross-country differences in shareholder rights affect firm corporate governance, ownership concentration, cost of equity, and firm value (see, e.g., Doidge, Karolyi, & Stulz, 2007; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000, 2002).[2,3] In this paper we posit that creditor and shareholder legal protections shape the property rights of the firm's stakeholders, and this impacts on agency conflicts within the firm and hence on the optimal use of bond covenants.

Our first hypothesis is that the level of legal creditor protection is negatively related to the use of bond covenants. Smith and Warner's (1979) costly contracting hypothesis suggests that covenants are included only if their benefits (the reduced agency cost) exceed their costs (transaction costs and the loss of operational flexibility). If well-functioning laws and regulations that protect creditors from expropriation are present, the gain from including additional debt covenants may be smaller. We therefore hypothesize that stronger country-level creditor protection laws lead firms to include fewer covenants in their debt contracts, as creditor protection in laws can partly substitute for covenants in reducing stockholder–bondholder agency conflicts.

It is important to note that legal creditor rights and restrictive covenants provide protection to creditors from different perspectives. While greater creditor protection laws provide creditors with improved recovery in bankruptcy, covenants provide restrictions on firm behavior prior to default.[4] Additionally, as Smith and Warner (1979) point out, even if a legal restriction exists, bondholders may still benefit from adding a similar restriction in the debt contract if the covenant violation is easier to enforce.

Our second hypothesis is that stronger legal shareholder protection causes firms to use more restrictive covenants in debt contracts. While legal shareholder rights are designed to provide protection for minority shareholders, and thus mitigate agency conflicts between shareholders and management, it is important to take into account the three-way interaction among bondholders, shareholders, and managers. Strong shareholder protection is not necessarily good news for bondholders. If stronger shareholder rights align management's interests more closely with shareholders' interests, managers may be more likely to take advantage of opportunities to shift wealth from creditors to shareholders. Conversely, entrenched management is not necessarily bad news for bondholders. If managers are not closely aligned with shareholders, managers are more likely to "enjoy the quiet life", as Bertrand and Mullainathan (2003) show. This quiet life can be a boon for bondholders, even though it decreases shareholder value. Theoretical models demonstrating such three-way interactions include John and John (1993), which examines the impact of managerial compensation on bond spreads. Additionally, John, Saunders, and Senbet (2000) consider the optimal compensation structure that reduces expropriation of wealth from FDIC insurance by bank shareholders.

A number of more empirical papers also examine the potential three-way agency problems between shareholders, managers, and creditors. Chava, Kumar, and Warga (2010) point out that, counter to shareholders' preferences, entrenched management may be aligned with bondholders in resisting change of control through takeovers.[5] Begley and Feltham (1999) find a positive relation between the use of covenants and both the CEO's equity ownership and the ratio of equity to cash compensation. A growing literature examines the impact of shareholder control on the cost of debt. Klock, Mansi, and Maxwell (2005), Cremers, Nair, and Wei (2007), and Chava, Livdan, and Purnanandam (2009) find that less takeover protection is associated with a higher cost of debt, and that this lower takeover protection is typically associated with stronger governance and reduced managerial entrenchment. In an international analysis, Aslan and Kumar (2009) study the ownership structure of syndicated loans and find that the concentration of shareholder rights is positively associated with the cost of debt.

In addition, we study whether other legal and institutional investor protections affect the use of covenants. The level of enforcement is critical to how investor protection legislation affects the outcome of firms' bankruptcy processes and, more generally, the degree to which private contracts are honored (see, e.g., Djankov, Hart, McLiesh, & Shleifer, 2008a; La Porta, Lopez-de-Silanes, & Shleifer, 2006). We expect that a legal environment that enforces contractual terms more strongly would make debt covenants more valuable. Such an environment would marginally raise the value of covenants, and would therefore increase the

frequency of covenant usage. Djankov, McLiesh, and Shleifer (2007) show that debtor information sharing is positively associated with the development of a country's credit market. We expect that information sharing would also ameliorate the agency risk of bondholders and reduce the use of covenants.

To test our hypotheses, we use a sample of bonds issued in the US by foreign firms (Yankee bonds) from more than 50 countries. Yankee bonds are issued in the US and are therefore subject to US securities laws; however, creditors of Yankee bonds are still affected by home-country institutions.[6] Thus comparing Yankee bonds from different countries allows for a cleaner test of the impact of issuing country institutions on the use of covenants, as this analysis mitigates potential problems related to differences in investor attributes and market liquidity.

We begin our analysis by considering the overall covenant protection as measured by a dummy variable for whether the debt contract contains any covenants, and a covenant index equal to the number of covenants included in the debt contract. We then study the use of various types of covenants classified by what type of protection they provide, and the use of individual covenants, that is, dummy variables indicating whether a specific restriction is included. Our main measure of country-level creditor protection is a creditor rights index (Djankov et al., 2007; La Porta et al., 1998), and our main measure of shareholder protection is the revised anti-director index (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008b).[7]

We find that creditor rights are negatively related to overall covenant protection and to the use of individual covenants. Specifically, a one unit increase in creditor rights is associated with a reduction of 23% to 38% in the number of protective covenants (depending on specification). The impact of creditor rights is more pronounced on covenants related to bondholder–shareholder agency conflicts such as payment and borrowing restrictions. This negative relation between creditor protection and the use of covenants strongly supports our first hypothesis that country-level protection laws substitute for firm-level contracting protection.

We also find that greater shareholder rights are associated with the use of significantly more covenants. Specifically, a one unit increase in shareholder rights is associated with a 21% to 33% increase in bond covenants (depending on specification). When we examine the impact of shareholder rights on the use of individual covenants, we find that shareholder rights are positively associated with covenants that reduce bondholders' expropriation risks, such as restrictions on dividend payments, additional debt borrowing, asset and investment restrictions, and covenants related to default. These findings support our second hypothesis that stronger shareholder rights exacerbate agency conflicts between shareholders and bondholders, and in turn induce the use of more covenants in debt contracts. Interestingly, we find that legal shareholder rights are negatively related to covenants restricting stock issuance. This finding is also consistent with the costly contracting hypothesis: stronger shareholder rights prevent the dilution associated with stock issuance, and thus managers and bondholders have fewer reasons to include such protections in debt contracts.

To further examine our second hypothesis, that stronger shareholder rights can exacerbate agency conflicts between shareholders and bondholders and thus induce more covenant use, we collect firm-level governance data for our sample of international firms from Institutional Shareholder Services (ISS). We document that, after controlling for country-level investor protection, stronger firm-level corporate governance is positively correlated with the use of several types of restrictive covenants. This result is consistent with our finding that aligning the firm's actions more closely with shareholders' interests increases the shareholder–bondholder conflict. This finding is also consistent with the recent literature which documents that firms with stronger governance face a higher cost of debt (Chava et al., 2009; Cremers et al., 2007; Klock et al., 2005).

Additionally, we consider how other institutional factors impact on the use of covenants. We find that firms incorporated in countries with stronger legal enforcement use more covenants. This finding is consistent with the notion that strong legal enforcement makes the marginal value of a covenant greater relative to its cost. We also find that the existence of debtor information sharing is negatively related to the use of covenants, suggesting that greater information sharing helps reducing expropriation risk for bondholders, and hence substitutes for the use of covenants.

Our paper contributes to the study of international business by showing how cross-country differences in laws and institutions affect contractual

arrangements of corporate stakeholders. In particular, our study extends the literature on corporate bond covenants by demonstrating that legal investor protection plays an important role in shaping the use of covenants. Consistent with agency theory and the costly contracting hypothesis, the impact of laws and institutions on covenant use depends on how the legal environment affects the agency risk faced by bondholders. Specifically, laws that protect creditors from expropriation substitute for private-party contracting and result in fewer covenants. However, laws or institutions that make the firm more responsive to stockholders potentially exacerbate agency conflicts between bondholders and stockholders, and are therefore associated with the use of more restrictive bond covenants.

Relatively little prior research has addressed international bond contracting. Anderson (1999) studies a sample of Brazilian bond contracts, and shows how they are designed to mitigate particular institutional problems including high inflation risk and weak national institutions. Miller and Reisel (2010) is a concurrent study examining Yankee bond covenants.

DATA

We compile legal and institutional variables, country-level characteristics, firm-level, and bond-level data from various sources. Variable descriptions are provided in Appendix A and covenant features are detailed in Appendix B. In this section we describe our sample, and the variables we use in our empirical analysis.

Sample

Our analysis is based on a sample of corporate bonds issued in the US by borrowers incorporated in more than 50 countries from 1991 to 2007. We obtain bond data from Mergent's Fixed Investment Securities Database (FISD), which provides detailed information on bonds at the time of issuance, including bond covenants. We collect data for corporate bonds issued in the US market by foreign firms (Yankee bonds). Convertible bonds as well as bonds issued by foreign governments, agencies, and quasi-government issuers are excluded. We exclude all bonds for which FISD does not provide covenant information. The initial sample includes 1884 bond issues from 68 countries. We delete bonds for which information on the issuer's country is missing, and drop bonds issued before 1991. The resulting sample consists of 1351 bonds issued by 639 firms from 57 countries.

Bond Covenants

Our dependent variables are whether the bond issue includes any covenants, the overall number of covenants, the types of covenants used, and the individual covenant used. FISD reports more than 50 variables on bondholder protective, issuer restrictive, and subsidiary restrictive covenants. Typically, there are multiple covenants per bond that restrict the same or similar activities. Therefore we group covenant variables reported by FISD into 22 covenant dummies that indicate whether a specific type of activity is restricted. For example, a *dividend payment dummy* indicates the presence of covenants limiting dividend payments of the issuer or a subsidiary of the issuer. Our construction of these 22 covenant dummies is similar to Billett, King, and Mauer (2007) in which they group FISD's covenants into 15 indicators.[8]

We further classify the 22 covenant dummies into eight major covenant categories: payment restrictions, borrowing restrictions, asset and investment restrictions, stock issuance restrictions, default-related covenants, anti-takeover-related covenants, profit maintenance covenants, and rating trigger covenants. We create covenant indices for each category equal to the number of restrictive covenants within each group.

The first category is *payment restrictions*, which includes two covenant dummies, dividend-related payments, and other restricted payments. The second category is *borrowing restrictions*, which includes eight covenant dummy variables that restrict the firm's use of additional debt. Specifically, these restrictions prevent the issuer and/or issuer's subsidiaries from issuing additional debt with a maturity of 1 year or longer, restrict the issuer from issuing additional subordinate, senior, or secured debt, and limit total leverage. Moreover, these borrowing-related covenants place restrictions on asset sale-and-leaseback transactions, on the acquisition of liens on property, and on the issuance of guarantees.

The third covenant category is *asset and investment restrictions*, which limits asset sales, restricts the issuer in certain business dealings with its subsidiaries, and restricts subsidiaries' investments. The fourth category, *stock issuance restrictions*, contains three covenants which limit additional common stock issuance, preferred stock issuance, and stock transfers between the issuer and its

subsidiaries. *Default-related covenants* protect bondholders by triggering default in their bond contract should default occur in any other debt of the firm. Two covenants constitute the *anti-takeover-related covenants* category. A poison put covenant gives bondholders the option to sell back their bonds to the issuer should a change of control of the issuer occur. A merger covenant indicates that a consolidation or merger of the issuer with another entity is restricted. Finally, the last two categories are *profit maintenance covenants* and *rating trigger covenants*. Profit maintenance covenants require the issuer or its subsidiaries to maintain a minimum earnings ratio or net worth. A rating trigger covenant protects bondholders from credit rating changes by providing a put provision in the event of a rating decline. Since in our sample the profit maintenance and rating trigger covenants are used in less than 2% of bond issues, we do not consider them explicitly in our empirical analysis.

In addition to the measures of individual covenants (22 covenant dummies) and covenant categories, we also create an *overall* covenant index of bondholder protection by adding the 22 covenant dummies for each bond. Finally, we define a covenant measure that equals 1 if any covenants are used, and 0 otherwise. Detailed classifications and descriptions of all covenant variables are provided in Appendix B.

Country-level Creditor and Shareholder Protection

We measure the country-level effectiveness of creditor protection with an index of aggregate creditor rights following La Porta et al. (1998) and Djankov et al. (2007). This index is compiled for each year from 1978 to 2003.[9] Starting from a score of zero, the creditor rights index is increased by one as each of the following requirements is met:

(1) there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization;
(2) secured creditors are able to seize their collateral after the reorganization petition is approved, that is, there is no automatic stay or asset freeze;
(3) secured creditors are paid from the proceeds of liquidating a bankrupt firm before other creditors, such as the government or workers; and
(4) management does not retain administration of its property pending the resolution of the reorganization.

The creditor rights index ranges from zero to four and a higher score corresponds to stronger creditor rights.

We use the revised anti-director index from Djankov et al. (2008b) as our main measure of the effectiveness of shareholder protection provided by a country's commercial code and corporate laws. Starting with a score of zero, the shareholder rights index is incremented by one as each of the following requirements is met:

(1) shareholders are allowed to mail their proxy vote to the firm;
(2) firms cannot require that shareholders deposit their shares prior to a general shareholders meeting, thus preventing them from selling those shares for a number of days;
(3) shareholders are allowed to cast all their votes for one candidate standing for election to the board of directors (cumulative voting), or laws allow a mechanism of proportional representation on the board by which minority interests may name a proportional number of directors to the board;
(4) minority shareholders can launch a judicial venue to challenge the decisions of management or step out of the company by requiring the company to purchase their shares when they object to certain fundamental changes, such as mergers, asset disposition, and changes in the articles of incorporation;
(5) shareholders are granted the first opportunity to buy new issues of stock, and this right can be waived by shareholders only; and
(6) the minimum percentage of ownership share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than 10%.

To address Spamann's (2010) concern that the original anti-director index is not accurate, we use Spamann's anti-director index as a robustness check. To assess how country-level laws impact on contractual covenant protection, we use the creditor rights index collected from bankruptcy laws and the anti-director index collected from commercial codes or corporate laws as our main measures. Djankov et al. (2008b) create an anti-self-dealing index, which focuses on private enforcement mechanisms such as disclosure, approval, and litigation. They argue that this legal control system provides better legal protection for minority shareholders than the anti-director index. For robustness

we use their anti-self-dealing index as an alternative measure of shareholder rights.

In addition to providing investor protection, the enforcement of these laws can also affect the use of covenants. We therefore consider enforcement measured with a public enforcement index from La Porta et al. (2006), which proxies for the quality of public enforcement of securities laws in a country. We also take into account the level of bankruptcy law enforcement by including in our analysis a measure of bankruptcy law effectiveness compiled by the World Economic Forum's *Global Competitiveness Report* (2005).[10]

Djankov et al. (2007) study private credit markets in 129 countries and argue that information-sharing institutions substitute for creditor protection laws in the development of credit markets. We therefore include a dummy for public information-sharing institutions, which indicates whether a public credit registry operates in the country. In addition, we control for the general legal environment by including rule of law (see Kaufmann, Kraay, & Mastruzzi, 2008), which measures the law and order tradition of a country. In unreported tests we use property rights to control for the general legal environment. As the impact of property rights is very similar to that of the rule of law (these two variables have a 0.91 correlation), we include only rule of law in our specification. We control for legal origin variables as a further robustness check.

Control Variables

We control for firm characteristics, bond characteristics, and other country factors. We obtain firm-level controls from Worldscope. In particular, we construct firm-level controls that measure firm size (log total assets), return on assets or ROA (net income divided by total assets), and leverage (total debt divided by total assets). As the literature argues that a firm's growth opportunities affect the use of covenants (see, e.g., Billett et al., 2007), we use two variables to capture growth opportunities: R&D expense (total R&D expenses divided by total assets), and market-to-book ratio (defined as the market value of equity plus the book value of debt divided by total assets). The data are obtained at the end of the year prior to the bond issue. We also include year and one-digit SIC industry dummies in all regressions.[11]

Our bond-level controls include dummy variables capturing whether the bond issue is a private placement exempt from registration under SEC Rule 144a, and whether it is secured, callable, or putable.[12] Barnea, Haugen, and Senbet (1980), among others, suggest that these embedded bond features play a role in resolving agency problems of debt. We also control for the offering amount and maturity. We use S&P and Moody's bond ratings to create a dummy variable, high-yield, which equals 1 if the bond rating is below BBB or Baa. While firm-level characteristics and bond-level controls are endogenously determined with bond covenants, in practice our results are unaffected by whether we include these variables in the analysis. We interpret regressions with bond-level controls as conditional correlations, and present regressions both with and without these characteristics below.

The country-level controls include log GDP per capita, inflation, and sovereign rating. We measure the overall country risk with Standard & Poor's sovereign debt ratings, which are translated into comprehensive credit ratings with values ranging from 22 (AAA with positive outlook) to 0 (C with negative outlook), following Gande and Parsley (2007).

We are able to match about 72% of the bond issues with firm-level data from Worldscope. Our sample size is further reduced because of missing or incomplete firm-level information. After merging with firm-level variables, our sample has 858 bonds issued by 397 firms from 41 countries.

Firm-level Governance and Cross-listing

Klock et al. (2005), Cremers et al. (2007), and Chava et al. (2009) find that firms with stronger firm-level corporate governance are charged higher rates in the credit market. Therefore, if strong corporate governance increases the agency cost of debt, we expect that firms with strong corporate governance should include more restrictive covenants to reduce these agency costs. We use firm-level corporate governance information from the global CGQ database provided by ISS. ISS's global CGQ database contains corporate governance data for more than 1700 non-US companies, dating back to 2003.[13] We use the average of the firms' corporate governance index from 2003 and 2007 as our measure of governance. Merging with the ISS data further reduces our sample to 391 bonds issued by 162 firms from 20 countries. While this smaller sample is composed of larger firms, the dispersion in our key variables – the creditor rights and shareholder rights indices – is still high across all our analyses.

The literature shows that cross-listing in countries with strong investor protection laws reduces the

impact of the home country's legal institutions (see, e.g., Coffee, 1999; Stulz, 1999). If this bonding hypothesis also applies to credit markets, the impact of creditor rights and shareholder rights on the use of covenants should be lower for firms that are cross-listed in a strong legal regime such as the US. We therefore examine whether cross-listing affects the relation between the home country's legal institutions and the use of covenants. The cross-listing dummy equals 1 if a firm's shares are cross-listed in the US, either through an ADR program or direct exchange listing, and 0 otherwise. We test the impact of cross-listing as well as various interactions between the cross-listing dummy and our key legal variables on covenant use.

EMPIRICAL RESULTS

Summary Statistics

Figure 1 provides three graphical views of the average frequency with which any covenants are used, and the average number of covenants for different years. The frequency with which covenants

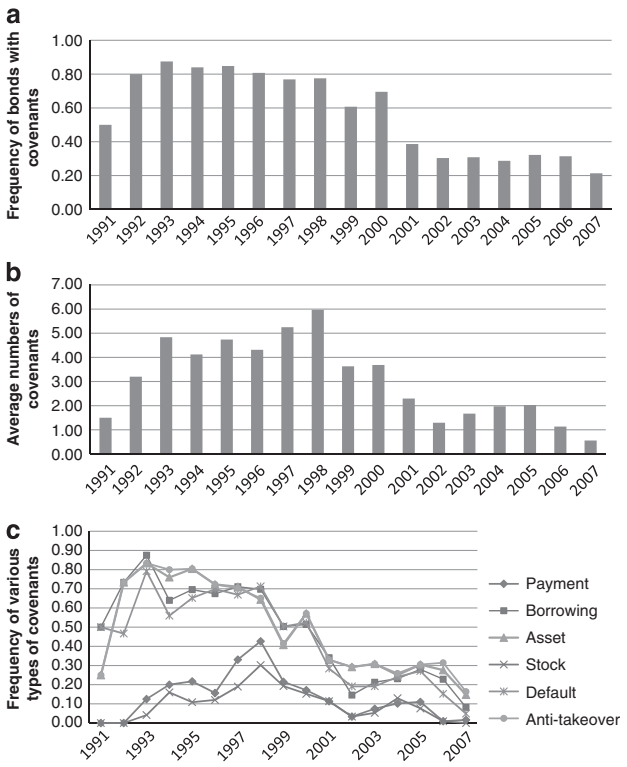

Figure 1 The use of covenants in bond contracts over time: (a) frequency of bonds with covenants; (b) average number of covenants (i.e., the covenant index; see Appendix B); (c) frequency of various types of covenants.

are used first rises in the early 1990s, to approximately 85% in 1993, and then plummets around 2001 or 2002. Just over 20% of Yankee bond issues in our 2007 sample use any covenants. The number of covenants also increases in the early 1990s to an average of approximately six in 1998, and then declines afterwards. Figure 1c presents the frequency of different types of covenants. All types of covenants in Yankee bonds appear to follow a similar trend over time. In further tests, we examine the characteristics of Yankee bonds issued before and after 2000. Bonds in the later sample tend to be larger and have shorter maturities. The later sample also has more bonds issued under Rule 144a, fewer high-yield bonds, and more bonds with call options. These changes in bond characteristics may be due to changes in market conditions (e.g., collapse of the tech bubble, Enron, and 9/11). The decrease in covenant usage after 2000 thus appears to be driven largely by changes in the characteristics of issuers; less risky firms appear to have issued debt after 2000, and these less risky bond contracts used fewer covenants. In unreported tests we also find that our results on creditor and shareholder rights for the pre- and post-2000 subsamples are broadly similar to our full-sample results.

In Table 1 we report descriptive statistics for our covenant variables. Just 53% of bonds in the sample include some covenants. The average number of covenants used is 3.12, with a maximum number of 15. Among the eight covenant categories, the most frequently used types of restrictions are anti-takeover restrictions (46.3%), asset and investment restrictions (45.7%), borrowing restrictions (43.4%), and default-related restrictions (41.8%). Payment restrictions occur 16.2% of the time, and the frequency of stock issuance restrictions is 12.3%. Profit-maintenance and rating-related covenants are rarely used, with frequencies of 1.3% and 0.7%, respectively. Panel B of Table 1 presents the correlation coefficient of various types of covenant indices. Consistent with other papers (see, e.g., Qi & Wald, 2008), a debt contract that includes one type of covenant is more likely to include other types of covenants.

Table 2 lists means for average frequency of bonds with covenants, the average number of covenants used, and selected institutional and country-level variables by country and legal origins. For instance, for firms listed in countries with English legal origin, 60.5% of 410 bonds include covenants. In contrast, only 28.6% of the 63 bonds from socialist

Table 1 Types of covenants

Covenants	*Mean*	*s.d.*	*Max*
Panel A Summary statistics			
All restrictive covenants			
Covenant dummy	53.00%	0.50	1
Covenant index	3.12	4.00	15
Payment restrictions			
Payment dummy	16.21%	0.37	1
Payment index	0.30	0.70	2
Dividend payment	14.73%	0.35	1
Other payment	15.47%	0.36	1
Borrowing restrictions			
Borrowing dummy	43.38%	0.50	1
Borrowing index	0.94	1.26	5
Funded debt	0.15%	0.04	1
Subordinate debt	0.81%	0.09	1
Senior debt	0.15%	0.04	1
Secured debt	39.90%	0.49	1
Indebtedness	18.58%	0.39	1
Leaseback	23.83%	0.43	1
Liens	2.37%	0.15	1
Guarantees	7.99%	0.27	1
Asset restrictions			
Asset dummy	45.74%	0.50	1
Asset index	0.18	0.53	3
Transactions	16.21%	0.37	1
Investments	2.07%	0.14	1
Asset sales	45.45%	0.50	1
Stock issuance restrictions			
Stock dummy	12.29%	0.33	1
Stock index	0.64	0.79	3
Common stock	8.59%	0.28	1
Preferred stock	3.85%	0.19	1
Other stock	5.77%	0.23	1
Default restrictions			
Default dummy	41.75%	0.49	1
Default index	0.42	0.49	2
Cross default	41.75%	0.49	1
Anti-takeover restrictions			
Anti-takeover dummy	46.34%	0.50	1
Anti-takeover index	0.62	0.74	2
Poison put	17.02%	0.38	1
Merger	45.15%	0.50	1
Profit/net-worth restrictions			
Profit dummy	1.26%	0.11	1
Profit index	0.01	0.11	1
Earnings	0.07%	0.03	1
Net worth			
Rating decline restrictions			
Rating trigger dummy	0.67%	0.08	1
Rating trigger index	0.01	0.08	1
Rating decline	0.67%	0.08	1

Table 1 *Continued*

	Payment	*Borrowing*	*Asset*	*Stock*	*Default*	*Anti-takeover*	*Profit*
Panel B Correlations of the sub-indices of various types of covenants							
Payment	1.00						
Borrowing	**0.76**	1.00					
Asset	**0.75**	**0.84**	1.00				
Stock	**0.75**	**0.63**	**0.57**	1.00			
Default	**0.47**	**0.72**	**0.68**	**0.37**	1.00		
Anti-takeover	**0.71**	**0.85**	**0.92**	**0.56**	**0.69**	1.00	
Profit	0.06	0.06	0.04	0.06	0.02	**0.08**	1.00
Rating trigger	0.09	**0.13**	**0.10**	**0.09**	**0.14**	**0.10**	−0.01

This table presents summary statistics for covenants included in bonds issued in the US by foreign firms (Yankee bonds). Panel A presents summary statistics, and Panel B reports correlations. The data are from the Fixed Investment Securities Database (FISD), and the sample period is 1991–2007. FISD reports more than 50 variables on bondholder-protective, issuer-restrictive, and subsidiary-restrictive covenants. Typically, there are multiple covenants per bond that restrict the same or similar activities. Therefore we group FISD covenant variables into 22 covenant dummies that indicate whether a specific type of activity is restricted. For example, the measure *dividend payment* indicates the presence of covenants limiting dividend payments of the issuer or a subsidiary of the issuer. The variables *covenant dummy* and *covenant index* measure whether the bond contains any covenants, and the number of covenants included in bond contracts, respectively. Further, we group the 22 covenant dummies into eight major covenant categories, and create covenant dummies and covenant indices for each of these groups. Appendix B provides detailed covenant classifications. Correlation coefficients in bold are significant at the 1% level.

legal origin countries use any covenants. We control for legal origin and other country-level and firm-level factors in the analysis below. The three countries with the highest frequencies of bond issues are the UK (199 issues), Mexico (124 issues), and Brazil (113 issues). In unreported tests we find that our results are robust to removing these countries from the sample.

Panel A of Table 3 provides summary statistics on the variables used in the analysis, and Panel B of Table 3 provides correlations between institutional variables and overall measures of covenant use. Our covenant index is negatively correlated with both the creditor rights and the shareholder rights indices. Covenant use is also negatively related to firm size, and this reflects the greater use of covenants by lower-rated firms, which are typically smaller (not reported). We use multivariate regressions to more accurately discern the effects of institutional and firm characteristics on covenant use.

Creditor rights have a positive correlation of 0.37 with the shareholder rights index.[14] Creditor rights also have relatively high positive correlations with measures of public enforcement, effectiveness of bankruptcy law, rule of law, and property rights, and negative correlations with public information sharing and ownership concentration. In particular, the correlation between creditor rights and property rights is 0.59, and the correlation between creditor rights and ownership concentration is −0.62, and we are therefore careful to consider regressions both with and without these additional institutional variables, as multicollinearity could be an issue. Note that the strong negative relation between property rights (or creditor rights) and ownership concentration is consistent with Li, Moshirian, Pham, and Zein (2006), who document that institutional shareholding patterns across countries are determined by macroeconomic corporate governance factors such as shareholder protection and law enforcement.

Legal Institutions and the Overall Use of Covenants

Table 4 presents our first multivariate probit regressions of whether the debt issue includes any protective covenants on creditor and shareholder protection measures. Column 1 shows results including our two institutional variables only, the creditor rights and shareholder rights indices; column 2 includes firm and country characteristics; column 3 adds security characteristics; and columns 4 and 5 include other legal/institutional variables. Overall these regressions show weak evidence of substitution between the creditor rights index and bond covenants; however, as the analysis below shows, this is due largely to the imprecision of this particular dependent variable. We consider the total number of covenants, and specific classes or individual covenants, in the analysis below.

This initial analysis suggests that issues subject to greater shareholder rights are more likely to include

Table 2 Covenants and investor protection

Country	*Number of bonds*	*Bonds with covenants (%)*	*Covenant index*	*Creditor rights index*	*Shareholder rights index*	*Public enforcement*	*Sovereign rating*	*GDP/capita in US$*
English origin								
Australia	61	42.6	2.1	3.0	4	0.90	20.1	20,178
Canada	21	61.9	5.3	1.0	4	0.86	20.1	22,340
Hong Kong	34	52.9	3.4	4.0	5	0.88	17.0	25,502
India	13	61.5	2.0	2.0	5	0.72	11.4	458
Ireland	9	66.7	4.3	1.0	5	0.27	20.4	25,695
Israel	4	50.0	6.0	3.0	4	0.75	15.3	19,711
Jamaica	4	0.0	0.0	2.0	4	na	7.0	3150
Malaysia	15	40.0	2.0	3.0	5	0.84	16.1	4188
New Zealand	3	100.0	4.0	4.0	4	0.40	19.7	13,169
Saudi Arabia	1	0.0	0.0	3.0	na	na	16.0	8669
Singapore	35	62.9	4.9	3.0	5	0.88	21.0	22,298
South Africa	3	0.0	0.0	3.0	5	0.29	12.7	3370
Thailand	8	50.0	2.9	2.5	4	0.67	14.6	2198
United Kingdom	199	70.4	3.8	4.0	5	0.67	21.0	24,330
Total	410	60.5	3.5	3.4	4.75	0.74	19.6	21,113
French origin								
Argentina	33	63.6	5.1	1.0	2	0.50	9.1	7735
Belgium	2	0.0	0.0	2.0	3	0.19	20.0	22,116
Brazil	113	53.1	2.9	1.0	5	0.52	8.9	3467
Chile	48	50.0	2.4	2.0	4	0.54	15.4	5099
Colombia	8	25.0	1.4	0.0	3	0.52	11.4	2289
Dominican Republic	2	0.0	0.0	2.0	na	na	8.0	2755
Ecuador	1	100.0	12.0	0.0	2	0.44	na	1361
Egypt	6	16.7	1.2	2.0	3	0.33	11.2	1574
El Salvador	1	0.0	0.0	3.0	2	na	11.0	2204
France	49	63.3	4.4	0.0	3.5	0.80	21.0	22,413
Greece	7	57.1	4.3	1.0	2	0.35	15.7	11,456
Guatemala	1	0.0	0.0	1.0	na	na	9.0	1803
Indonesia	18	50.0	4.2	2.4	4	0.56	9.5	823
Italy	20	60.0	2.2	2.0	2	0.38	17.8	18,953
Jordan	1	0.0	0.0	1.0	1	0.54	10.0	1774
Kuwait	1	0.0	0.0	3.0	na	na	16.0	17,498
Lebanon	2	0.0	0.0	4.0	na	na	6.5	4767
Mexico	124	62.9	5.0	0.0	3	0.25	11.4	5619
Netherlands	76	55.3	3.7	3.0	2.5	0.38	21.0	22,561
Panama	2	100.0	3.5	4.0	2	na	10.5	4238
Philippines	15	66.7	5.3	1.0	4	0.81	10.7	937
Portugal	2	100.0	3.0	1.0	2.5	0.50	18.5	9677

Spain	66	54.6	1.9	2.0	5	0.38	20.3	14,687
Turkey	6	16.7	0.3	2.0	3	0.56	8.2	3156
Venezuela	18	83.3	0.9	3.0	1	0.48	7.4	5325
Total	622	56.4	3.5	1.3	3.52	0.45	14.1	9828
German origin								
Austria	2	0.0	0.0	3.0	2.5	0.19	21.0	24,604
Germany	70	27.1	1.1	3.0	3.5	0.25	21.0	22,763
Japan	29	44.8	1.3	1.8	4.5	0.00	19.9	37,360
Korea, Republic	63	42.9	1.9	3.0	4.5	0.29	16.1	11,102
Switzerland	24	16.7	0.8	1.0	3	0.21	21.0	33,325
Taiwan	1	0.0	0.0	2.0	3	0.44	17.0	15,647
Total	189	33.3	1.3	2.6	3.91	0.22	19.2	22,439
Socialist origin								
China	10	60.0	3.8	2.0	1	na	13.7	937
Czech Republic	3	33.3	1.7	3.0	4	na	15.7	5366
Kazakhstan	15	6.7	0.5	2.1	4	na	11.6	1833
Poland	9	77.8	7.2	1.0	2	na	13.3	4051
Russian Federation	25	12.0	0.6	1.9	4	na	10.6	2225
Ukraine	1	0.0	0.0	2.0	3	na	7.0	824
Total	63	28.6	2.1	1.9	3.22	na	11.9	2316
Scandinavian origin								
Denmark	4	0.0	0.0	3.0	4	0.27	20.5	29,577
Finland	5	40.0	2.0	1.0	3.5	0.35	20.0	22,619
Norway	30	66.7	3.4	2.0	3.5	0.40	21.0	37,020
Sweden	26	46.2	4.5	1.2	3.5	0.44	20.3	25,423
Total	65	52.3	3.5	1.7	3.53	0.40	20.6	30,815

This table presents data on the use of covenants, the number of covenants used (i.e., the covenant index), and country-level investor protection across countries and legal origins. The covenants data and bond information are from FISD. The sample period is 1991–2007. All variables are described in Appendix A.

Table 3 Summary statistics

Variables	*Mean*	*s.d.*	*Min*	*Max*	*Obs.*
Panel A Summary statistics					
Key institutional variables					
Creditor rights index	2.16	1.31	0.00	4.00	1349
Shareholder rights index	3.94	1.04	1.00	5.00	1342
Alternative measure of key variables					
Spamann anti-director index	3.93	0.91	2.00	5.00	1254
Anti-self-dealing index	0.51	0.29	0.08	1.00	1342
Other institutional variables					
Public enforcement index	0.51	0.23	0.00	0.90	1272
Enforceability of contract	6.70	1.54	4.29	8.94	1270
Efficiency of bankruptcy	67.37	27.68	6.60	96.10	1336
Log (Days of contract enforcement)	5.42	0.78	3.87	7.29	1349
Public information sharing	0.35	0.48	0.00	1.00	1351
Effectiveness of bankruptcy law	5.40	1.04	2.70	6.60	1330
Rule of law	0.87	0.99	−1.09	1.99	1349
Property rights	72.83	19.68	30.00	90.00	1270
Ownership concentration	0.42	0.15	0.18	0.67	1272
Country characteristics					
Sovereign rating	16.69	4.89	0.00	21.00	1346
Log (GDP/capita)	9.29	1.01	5.93	10.62	1349
Inflation	9.76	101.83	−6.18	2239.13	1349
Firm characteristics					
Log (Total asset)	16.78	2.06	8.30	21.37	1026
ROA	4.62	7.62	−23.53	45.00	971
R&D/Total asset	0.00	0.01	0.00	0.09	1351
PPE/Total asset	0.35	0.28	0.00	0.92	1015
Market-to-book ratio	2.12	4.00	0.15	33.90	923
Leverage	0.35	0.18	0.01	0.92	1021
Corporate governance index	65.56	22.83	2.80	97.72	441
Dividend (dummy)	0.55	0.50	0.00	1.00	1351
Cross-listing (dummy)	0.18	0.38	0.00	1.00	1351
Bond characteristics					
Log (Issue size)	12.63	0.92	0.00	15.20	1351
Log (Maturity)	7.98	0.67	5.24	10.51	1336
Rule144a issue	0.45	0.50	0.00	1.00	1351
Callable bond	0.43	0.50	0.00	1.00	1351
Putable bond	0.04	0.19	0.00	1.00	1350
Secured bond	0.04	0.20	0.00	1.00	1351
High-yield bond	0.35	0.48	0.00	1.00	1351

Table 3 *Continued*

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Panel B Correlations of institutional variables and overall measures of covenant use															
Covenant dummy	1	1.00													
Covenant index	2	**0.73**	1.00												
Creditor right index	3	0.03	**−0.08**	1.00											
Shareholder rights index	4	0.01	−0.04	**0.37**	1.00										
Spamann anti-director index	5	−0.05	**−0.11**	**0.22**	**0.62**	1.00									
Anti-self-dealing index	6	**0.07**	0.03	**0.68**	**0.59**	**0.24**	1.00								
Public enforcement index	7	**0.09**	**0.09**	**0.32**	**0.38**	**0.28**	**0.66**	1.00							
Enforceability of contract	8	−0.01	−0.02	**0.60**	**0.22**	**0.20**	**0.45**	**0.16**	1.00						
Efficiency of bankruptcy	9	**0.08**	**0.08**	**0.44**	**0.17**	**−0.1**	**0.44**	0.04	**0.66**	1.00					
Log (days of contract enforcement)	10	0.03	0.05	**−0.25**	0.00	**−0.31**	−0.04	**0.08**	−0.48	**−0.58**	1.00				
Public information sharing	11	−0.07	**−0.11**	**−0.22**	**−0.09**	**0.32**	**−0.30**	−0.07	**−0.38**	**−0.65**	**0.25**	1.00			
Effectiveness of bankruptcy law	12	0.03	0.02	**0.56**	**0.28**	**0.25**	**0.52**	**0.29**	**0.93**	**0.68**	**−0.51**	**−0.35**	1.00		
Rule of law	13	0.03	−0.01	**0.55**	**0.24**	**0.36**	**0.46**	**0.22**	**0.90**	**0.71**	**−0.6**	**−0.22**	**0.91**	1.00	
Property rights	14	**0.09**	0.04	**0.59**	**0.23**	**0.27**	**0.48**	**0.21**	**0.81**	**0.67**	**−0.53**	**−0.24**	**0.84**	**0.91**	1.00
Ownership concentration	15	−0.04	0.04	**−0.62**	**−0.36**	**−0.33**	**−0.58**	**−0.24**	**−0.68**	**−0.59**	**0.44**	**0.41**	**−0.67**	**−0.70**	**−0.69**

Panel A shows summary statistics; Panel B reports correlations of institutional variables and overall measures of covenant use. All variables are described in Appendix A. The sample period is 1991–2007. Correlation coefficients in bold are significant at the 1% level.

covenants, as the coefficient on the shareholder rights index is positive and significant in all the regressions. The marginal effect of the shareholder rights index is reported as Mfx (Shareholder rights index), suggesting that a one-unit improvement in shareholder rights increases the probability of including covenants by 4.7% to 13.9% depending on the specification.

While the previous table reports results of whether bonds include any type of covenants, Table 5 provides estimates from Poisson regressions, where the dependent variable is the number of protective covenants, that is, our overall covenant index. Using a count of the number of covenants implicitly places equal value on each type of covenant, although certain covenants are more important than others. However, this procedure does provide us with a measure of the intensity of overall covenant restrictions on the firm, and we consider individual covenant use in greater detail below.[15] The columns in Table 5 provide regressions with just the key institutional variables, with firm and country characteristics, with other issue characteristics, and lastly with additional legal/institutional variables. Here, we find strong support for the hypothesis that country-level creditor rights substitute for covenants in bond contracts. The coefficient on creditor rights is significant in all six regressions at the 1% level. Moreover, we find support for the notion that more shareholder-friendly firms are more subject to bondholder–shareholder agency problems, and thus creditors of these firms require more covenants. Specifically, the coefficient on the shareholder rights index is positive and significant in all the regressions, although the significance is marginal in the first three regressions.

Marginal effects of creditor rights and shareholder rights indices for each regression are reported in the rows titled Mfx (Creditor rights) and Mfx (Shareholder rights index), respectively. These numbers suggest that creditor rights and shareholder rights indices are economically important in determining the use of covenants. A one unit improvement in the creditor rights index reduces the number of covenants used by 22.9% to 43.5% (depending on specification). A one unit increase in the shareholder rights index causes a 20.6% to 33.3% increase in the number of covenants used.

Consistent with agency theory and previous papers (Begley & Feltham, 1999; Billett et al., 2007; Malitz, 1986; Nash, Netter, & Poulsen,

Table 4 Legal institutions and the use of covenants

	Covenant dummy				
	1	*2*	*3*	*4*	*5*
Creditor rights index	0.025	−0.089	−0.045	−0.152*	−0.087
	(0.55)	(−1.52)	(−0.58)	(−1.86)	(−0.83)
Shareholder rights index	0.118*	0.243***	0.367***	0.330***	0.357***
	(1.92)	(3.22)	(3.97)	(3.34)	(3.44)
Public enforcement index				1.412***	1.630***
				(3.73)	(3.76)
Public information sharing				−0.509***	−0.449**
				(−2.69)	(−2.20)
Effectiveness of bankruptcy law					0.087
					(0.41)
Rule of law					−1.193***
					(−3.03)
Log (Total asset)		0.110***	0.034	0.161**	0.170***
		(2.71)	(0.58)	(2.54)	(2.69)
ROA		0.002	−0.003	−0.001	0.000
		(0.22)	(−0.35)	(−0.11)	(−0.013)
R&D/Total asset		−0.115	1.232	5.563	5.933
		(−0.022)	(0.25)	(1.09)	(1.11)
PPE/Total asset		0.027	0.346	0.375	0.261
		(0.081)	(0.89)	(0.95)	(0.64)
Market-to-book ratio		0.022	0.035	0.029	0.033
		(1.15)	(1.54)	(1.24)	(1.43)
Leverage		−0.393	−0.317	0.29	0.377
		(−1.00)	(−0.67)	(0.60)	(0.76)
Sovereign rating		0.009	−0.015	−0.047	0.086
		(0.30)	(−0.38)	(−1.16)	(1.36)
Log (GDP/capita)		0.047	−0.051	−0.028	0.131
		(0.39)	(−0.29)	(−0.16)	(0.64)
Inflation		−0.001	−0.023	−0.021	−0.026
		(−0.090)	(−1.50)	(−1.31)	(−1.55)
Log (Issue size)			0.416***	0.365***	0.319***
			(3.67)	(3.18)	(2.71)
Log (Maturity)			0.079	0.063	0.086
			(0.64)	(0.52)	(0.75)
Rule 144a issue			−2.048***	−2.171***	−2.222***
			(−10.6)	(−11.3)	(−11.2)
Callable bond			0.531***	0.541***	0.553***
			(3.03)	(2.90)	(2.91)
Putable bond			0.397	0.482	0.381
			(1.11)	(1.19)	(0.96)
Secured bond			0.549	0.788**	0.930***
			(1.50)	(2.28)	(2.60)
High-yield bond			0.432**	0.376**	0.338*
			(2.30)	(2.02)	(1.80)
Mfx (Credit rights index)	1.00%	−3.50%	−1.70%	−5.80%	−2.60%
Mfx (Shareholder rights index)	4.70%	9.40%	14.00%	12.60%	13.40%
Observations	1303	849	821	805	785
Number of firms	639	395	382	370	364
Log likelihood	−705.5	−444.1	−290.9	−270.8	−262.7

This table provides probit regression estimates of whether any protective covenants are used on creditor rights and shareholder rights. All variables are described in Appendix A, and the sample period is 1991–2007. All regressions include year and one-digit industry dummy variables. Standard errors are robust and corrected for clustering by firm; the associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Mfx (Creditor rights index) and Mfx (Shareholder rights index) measure marginal effects of a one-unit change of either index on the probability of including any covenants in bond contracts.

Table 5 Legal institutions and the number of bond covenants

	Covenant index (number of protective covenants)				
	1	*3*	*4*	*5*	*6*
Creditor rights index	−0.097***	−0.167***	−0.117***	−0.150***	−0.125***
	(−2.84)	(−3.70)	(−3.03)	(−3.92)	(−3.15)
Shareholder rights index	0.087*	0.104*	0.164***	0.136***	0.143***
	(1.68)	(1.90)	(3.76)	(2.88)	(2.73)
Public enforcement index				0.741***	0.872***
				(3.76)	(4.06)
Public information sharing				−0.194**	−0.133
				(−2.42)	(−1.64)
Effectiveness of bankruptcy law					0.199*
					(1.75)
Rule of law					−0.67***
					(−4.26)
Log (Total asset)		−0.094***	−0.033	0.014	0.013
		(−3.23)	(−1.04)	(0.50)	(0.49)
ROA		0.007	0.004	0.005	0.006
		(0.94)	(0.99)	(1.13)	(1.22)
R&D/Total asset		0.768	2.461	3.859**	3.855*
		(0.25)	(1.22)	(2.00)	(1.77)
PPE/Total asset		0.322	0.423**	0.424***	0.392**
		(1.34)	(2.63)	(2.69)	(2.46)
Market-to-book ratio		−0.007	−0.004	−0.009	−0.005
		(−0.71)	(−0.64)	(−1.27)	(−0.62)
Leverage		0.449*	0.26	0.507**	0.558***
		(1.71)	(1.32)	(2.59)	(2.80)
Sovereign rating		0.034	0.043***	0.02	0.084***
		(1.49)	(2.66)	(1.13)	(3.83)
Log (GDP/capita)		−0.037	−0.117*	−0.072	0.044
		(−0.43)	(−1.80)	(−0.99)	(0.49)
Inflation		0.006	0.000	0.003	−0.001
		(0.62)	(0.01)	(0.44)	(0.10)
Log (issue size)			0.038	0.034	−0.001
			(0.81)	(0.72)	(0.03)
Log (maturity)			0.023	0.02	0.055
			(0.42)	(0.40)	(1.19)
Rule 144a issue			−1.246***	−1.256***	−1.245***
			(−7.75)	(−8.10)	(−8.16)
Callable bond			0.338***	0.322***	0.298***
			(4.42)	(4.60)	(4.26)
Putable bond			0.193	0.215	0.217
			(1.33)	(1.58)	(1.48)
Secured bond			0.076	0.137	0.062
			(0.49)	(0.84)	(0.35)
High-yield bond			0.703***	0.609***	0.551***
			(6.30)	(5.25)	(4.47)
Mfx (Credit rights index)	−22.86%	−38.34%	−23.39%	−29.46%	−24.33%
Mfx (Shareholder rights index)	20.60%	23.76%	32.64%	26.63%	27.85%
Observations	1303	857	843	827	827
Number of firms	639	397	388	376	376
Log likelihood	−3553.7	−2124.6	−1692.3	−1626.5	−1603.6

This table provides Poisson regression estimates of the covenants index (the number of protective covenants) on creditor rights and shareholder rights. All variables are described in Appendix A, and the sample period is 1991–2007. All regressions include year and one-digit industry dummy variables. Standard errors are robust and corrected for clustering by firm; the associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Mfx (Creditor rights index) and Mfx (Shareholder rights index) measure marginal effects of a one-unit change of either index on the number of covenants in bond contracts.

2003), firms that may have greater agency problems are more likely to include additional protective covenants. In particular, we find that small firms (low total asset), growth firms (high R&D expense relative to total asset), and high-leverage firms include more protective covenants in their bond contracts. Firms with more fixed assets (high PPE value relative to total asset) are also more likely to use covenants. Private placement bonds use significantly fewer covenants, while callable bonds include significantly more covenants.[16] Consistent with agency theory and prior results, high-yield bonds include significantly more covenants.[17]

We examine other institutional variables with care, because these variables are highly correlated with creditor and shareholder rights, as shown in Table 3, and thus multicollinearity may be an issue. We find public enforcement is positively related to the covenant index, suggesting that strong public enforcement laws encourage the use of more restrictive covenants. Thus, as one might expect, if covenants are easier to enforce, they are more valuable and therefore more likely to be used.[18] Effectiveness of bankruptcy law is also associated with more debt covenants, and this is consistent with greater value for covenants with improved bankruptcy procedures. That is, with more restrictive covenants, creditors are able to force violating firms into bankruptcy, and this leads to a better outcome if the bankruptcy process is efficient. In unreported regressions we also consider the enforceability of contracts, efficiency of bankruptcy outcomes, and days of bankruptcy enforcement (see Djankov et al., 2008a). These legal enforcement variables generally show that stronger enforcement encourages the use of covenants. We also find that public information sharing is significantly negatively related to the use of covenants, suggesting that information sharing by institutions serves as a substitute for debt covenants in mitigating moral hazard. We find that a strong rule of law is associated with reductions in the use of covenants.

Legal Institutions and the Use of Specific Types of Covenants

Table 6 provides Poisson regressions on covenant indices of various types, where the covenants are categorized into payment restrictions, borrowing restrictions, asset restrictions, stock restrictions, default-related, and anti-takeover related covenants (see Table 1 for further details). We do not study the profit maintenance and rating decline covenant indices, because these two types of covenants are rarely used. In all cases, creditor rights are significantly negatively related to the use of each of these types of covenants. The shareholder rights index is significantly positively related to several types of covenants: specifically, to borrowing, asset, default, and anti-takeover restrictions. In unreported regressions we run probit regressions on dummy variables for each type of covenant, and we also check whether the results are affected by excluding other institutional variables, bond-level controls, or country-level controls; we find similar results.

We next compare the marginal effects of creditor rights and shareholder rights indices in determining the use of each type of covenant. Our first hypothesis addresses the substitution of creditor rights for restrictive covenants, and as creditor rights deal largely with bankruptcy procedures, these rights might prove more effective substitutes for those covenants most related to bankruptcy. Consistent with this notion, the impact of creditor rights on default-related covenants (cross-acceleration and cross-default) is relatively high, although the largest economic impact is on borrowing covenants. The impact of creditor rights is relatively smaller on payment covenants, suggesting a smaller economic substitution, and economically negligible on stock-related covenants, which may provide little protection for bondholders.

The economic impact of shareholder rights is particularly high on asset substitution and default related covenants, which suggests that asset substitution or subsidiary default are two of the most prominent ways in which empowered shareholders may expropriate creditors. It is interesting to note that shareholder rights are negatively, although not significantly, related to the use of stock issuance restriction covenants: thus empowered shareholders may already prefer less stock dilution.

In terms of the marginal effects of creditor rights relative to shareholder rights, we find that both types of rights have similar magnitudes. The marginal impact of creditor rights is larger for borrowing and payment indices, and the marginal impact of shareholder rights is larger for asset, default, and anti-takeover indices.

Legal Institutions and the Use of Individual Covenants

Table 7 presents probit regressions for each of the 16 most commonly used individual covenants. We

Table 6 Institutional investor protection and the use of various types of covenants

	Subcategory covenant indices					
	Payment	*Borrowing*	*Asset*	*Stock*	*Default*	*Anti-takeover*
	1	*2*	*3*	*4*	*5*	*6*
Creditor rights index	−0.26***	−0.138***	−0.075*	−0.327***	−0.146***	−0.075**
	(−3.15)	(−3.18)	(−1.67)	(−2.70)	(−3.05)	(−1.84)
Shareholder rights index	0.205	0.097*	0.169**	−0.276	0.264***	0.100*
	(1.53)	(1.77)	(2.58)	(1.22)	(4.01)	(1.84)
Public enforcement index	1.479**	0.724***	1.082***	1.646*	0.577**	0.987***
	(2.31)	(3.20)	(4.34)	(1.71)	(2.41)	(4.25)
Public information sharing	−0.504*	−0.059	−0.07	−0.087	−0.106	−0.258***
	(−1.92)	(−0.62)	(−0.69)	(−0.29)	(−1.04)	(−2.69)
Effectiveness of bankruptcy law	−0.411	0.234	0.131	2.156***	0.142	0.081
	(1.25)	(1.61)	(0.96)	(3.66)	(1.01)	(0.68)
Rule of law	−0.863**	−0.583***	−0.597***	−2.373***	−0.439**	−0.687***
	(−2.02)	(−3.38)	(−3.49)	(−3.80)	(−2.46)	(−4.48)
Firm-level variables	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes
Bond variables	Yes	Yes	Yes	Yes	Yes	Yes
Mfx (Credit rights index)	−0.96%	−6.96%	−3.55%	−0.32%	−4.15%	−3.46%
Mfx (Shareholder rights index)	0.75%	4.89%	8.04%	−0.27%	7.51%	4.65%
Observations	827	827	827	827	827	827
Number of firms	376	376	376	376	376	376
Log likelihood	−279.2	−769.3	−690.7	−176.9	−534.7	−674.8

This table provides Poisson regression estimates of the subcategory covenants indices (the number of covenants related to a specific type of protection) on creditor rights and shareholder rights. Covenant classifications are reported in Appendix B, all other variables are described in Appendix A, and the sample period is 1991–2007. Covenants used in at least 5% of bond issues are considered only. All regressions include year and one-digit industry dummy variables. Standard errors are robust and corrected for clustering by firm; the associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Mfx (Creditor rights index) and Mfx (Shareholder rights index) measure marginal effects of a one-unit change of either index on the dependent variable.

study only those covenants used in at least 5% of bond issues (as shown in Table 1). Consistent with our prior results, firms with higher creditor rights are less likely to include most types of covenants, while firms with strong shareholder rights are more likely to use most types of covenants.

The individual covenant regressions provide a more detailed picture of how the creditor and shareholder rights indices impact on covenant use. Columns 1 and 2 study the two types of payment restrictive covenants. In contrast to the results reported in Table 6, we find that both creditor rights and shareholders rights significantly impact the use of payment restriction covenants. As for the borrowing restriction covenants (columns 3–8), both creditor rights and shareholder rights are significantly related to three of the six borrowing restrictions.

Columns 9 and 10 of Table 7 report the regression results for the two stock issuance covenants. Consistent with the findings in Table 6, we find that the shareholder rights index is significantly negatively related to subsidiary stock issuance restrictions. Minority shareholders want to avoid issuing new stock that dilutes existing shareholders. Therefore stronger shareholder rights protection is negatively related to covenants restricting stock issuance. However, the marginal effect of shareholder rights on the use of stock issuance covenants is economically small.

We find that creditor rights are significantly negatively related to restrictions on the issuer's transactions with subsidiaries and covenants on asset sales (columns 11 and 12). The shareholders rights index, however, is significantly positively related to restrictions on the issuer's transactions with subsidiaries and to restrictions on asset sales (columns 11 and 12). Consistent with Table 6, shareholder rights have a greater economic impact than creditor rights for these variables.

Kahan and Klausner (1993) discuss how change of control put provisions, that is, poison puts, provide more entrenchment of managers than creditor

Table 7 Institutional protection and the use of individual bond covenants

	Payment restrictions		*Borrowing restrictions*					
	Subsidiary dividends related payments restriction	*Issuer restricted payments restriction*	*Negative pledge covenant*	*Issuer indebtedness restriction*	*Subsidiary indebtedness restriction*	*Issuer asset sale and leaseback restriction*	*Subsidiary asset sale & leaseback restriction*	*Subsidiary guarantee restriction*
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Creditor rights index	−0.490***	−0.469***	−0.14	−0.441***	−0.540***	−0.154	−0.118	−0.350**
	(−3.58)	(−3.49)	(−1.47)	(−3.87)	(−3.92)	(−1.53)	(−1.19)	(−2.54)
Shareholder rights index	0.446***	0.389**	0.176*	0.377**	0.542***	0.03	0.022	0.007
	(2.61)	(2.47)	(1.71)	(2.50)	(3.31)	(0.25)	(0.18)	(0.035)
Other institutional variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mfx (Credit rights index)	−0.34%	−0.39%	−5.19%	−0.44%	−0.15%	−2.30%	−1.78%	−0.05%
Mfx (Shareholder rights index)	0.31%	0.33%	6.55%	0.38%	0.15%	0.45%	0.33%	0.00%
Observations	816	816	826	816	816	826	826	788
Number of firms	368	368	375	368	368	375	375	362
Log likelihood	−99.72	−104.6	−259.8	−115.5	−99.14	−227.3	−242.1	−74.41

	Stock restrictions		*Asset restrictions*			*Anti-takeover restrictions*		*Default restrictions*
	Subsidiary stock issuance restriction	*Issuer stock transfer & sale restriction*	*Issuer transaction w/affiliates restriction*	*Asset sale clause covenant*	*Issuer asset sale restriction*	*Change of control put provisions*	*Issuer consolidation merger restriction*	*Cross-default acceleration covenant*
	9	*10*	*11*	*12*	*13*	*14*	*15*	*16*
Creditor rights index	−0.636***	−0.500***	−0.345***	−0.507***	−0.028	−0.463***	−0.011	−0.103
	(−4.19)	(−2.75)	(−3.17)	(−3.52)	(−0.30)	(−3.83)	(−0.12)	(−1.21)
Shareholder rights index	−0.550*	0.11	0.511***	−0.078	0.213**	0.084	0.207**	0.403***
	(−1.82)	(0.52)	(3.44)	(−0.45)	(2.15)	(0.59)	(2.12)	(3.86)
Other institutional variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mfx (Credit rights index)	0.00%	−0.01%	−0.52%	−0.14%	−1.11%	−0.64%	−0.43%	−3.70%
Mfx (Shareholder rights index)	0.00%	0.00%	0.77%	−0.02%	8.47%	0.12%	8.27%	14.49%
Observations	775	827	816	754	812	816	812	826
Number of firms	357	376	368	350	371	368	371	375
Log likelihood	−79.17	−67.88	−128.7	−87.94	−301.9	−119.7	−296.4	−315.8

This table shows how institutional investor protection affects the use of individual bond covenants. The table reports probit regression estimates of individual covenant dummies on creditor rights and shareholder rights. Covenant classifications are reported in Appendix B, all other variables are described in Appendix A, and the sample period is 1991 to 2007. Covenants used in at least 5% of bond issues are considered only. All regressions include year and one-digit industry dummy variables. Standard errors are robust and corrected for clustering by firm; the associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Mfx (Creditor rights index) and Mfx (Shareholder rights index) measure marginal effects of a one-unit change of either index on the dependent variable.

protection. Firms with stronger shareholder rights may therefore avoid this particular type of covenant, as this entrenchment may harm stockholders. Unlike the significant positive coefficients on shareholder rights for most other covenants, the coefficient on shareholder rights is not significant for poison puts, and this is consistent with poison put covenants having a negative impact on shareholders (column 14). The coefficient on shareholder rights for the more general consolidation/merger restriction is positive and significant (column 15), although Kahan and Klausner (1993) suggest that this restriction has relatively little economic impact.

Economically, the most significant impact of creditor rights is on negative pledge covenants (i.e., restrictions on the issuance of secured debt; column 3), asset sale restrictions and leaseback restrictions by the issuer and subsidiary (columns 6 and 7), asset sale restrictions (column 13), and cross-default acceleration covenants (column 16). Recall that two components of the creditor rights index address when secured creditors are able to seize their collateral, and whether the firm's management retains control over property during a reorganization. By addressing the timely disposition of assets to creditors, these aspects of the creditor rights index appear to provide more effective substitutes for covenants related to default and asset placement.

The shareholder rights index has a larger economic impact on the use of negative pledge covenants (column 3), asset sales restrictions (column 13), consolidation/merger restrictions (column 15), and cross-default acceleration covenants (column 16). Thus asset sales, takeover, and subsidiary defaults may be particular avenues through which shareholders with greater power would be able to expropriate value from bondholders.[19]

Firm-level Corporate Governance

We suggest that greater shareholder rights laws are positively related to the use of bond contracts, because they imply a more active management, which increases the potential for stockholder–bondholder conflicts. This implies that firm-level improvements in governance (that is, closer alignment of stockholders' and managers' interests) also implies an increase in stockholder–bondholder conflicts and therefore greater covenant use. In Table 8 we therefore add controls for firm-level corporate governance. Although including firm-level governance reduces our sample to 391 observations, the sample still has 162 firms from 20 countries. Because of the smaller sample, we exclude other institutional variables and bond characteristics from these regressions.

After controlling for firm-level governance, the coefficients on creditor rights and shareholder rights are similar to those from our previous regressions. Interestingly, firm-level corporate governance is positively related to the use of most types of covenants. This echoes our main finding that stronger shareholder rights increase the stockholder–bondholder conflict, and therefore increase the use of covenants. This finding is also consistent with Klock et al. (2005) and Chava et al. (2009), who find that firms that are more open to the corporate control market are punished in credit markets. The results in Table 8 also suggest that, economically, country-level shareholder rights laws are more important than firm-level governance in shaping the use of covenants. This result is consistent with Doidge, Karolyi, and Stulz (2007), who find that country-level protection matters more than firm-level characteristics.

ROBUSTNESS TESTS

We consider a number of additional tests to ensure the robustness of our findings. Specifically, we examine the robustness of our results to alternative measures of shareholder rights and creditor rights, to the inclusion of legal origin variables, and to various subsamples.[20]

Specifically, we consider the anti-self-dealing index as an alternative to the shareholder rights index. The anti-self-dealing index is positively related to most types of covenants, although it is statistically insignificant. Consistent with our finding in Table 5, the anti-self-dealing index is significantly positively related to the use of default covenants, and negatively related to the use of stock issuance covenants.

We also control for legal origin dummies as well as creditor rights and shareholder rights. The results show that firms from English origin countries (the benchmark) are more likely to include covenants than those from other legal origins. German and Scandinavian origin firms use significantly fewer covenants than English origin firms, whereas French and socialist origin firms are not statistically different from English origin firms.

Since our creditor and shareholder rights are country-level variables, unknown country-level factors could cause the errors to be correlated

Table 8 Firm-level corporate governance

	Covenant index (number of covenants)						
	Total	*Payment*	*Borrowing*	*Asset*	*Stock*	*Default*	*Anti-takeover*
	1	*2*	*3*	*4*	*5*	*6*	*7*
Creditor rights index	−0.188**	−0.145	−0.168**	−0.099	−0.735	−0.115	−0.087
	(−2.48)	(−0.46)	(−2.09)	(−1.21)	(−1.29)	(−1.32)	(−0.83)
Shareholder rights index	0.179**	2.833***	−0.001	0.187**	−0.059	0.306**	0.252**
	(2.25)	(5.97)	(−0.00)	(1.97)	(−0.06)	(2.39)	(2.66)
Corporate governance index	0.011**	0.018	0.015***	0.009**	0.001	0.006	0.005
	(2.51)	(0.58)	(3.13)	(1.98)	(0.04)	(0.94)	(0.83)
Other institutional variables	No	No	No	No	No	No	No
Firm-level variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bond variables	No	No	No	No	No	No	No
Mfx (Credit rights index)	−32.82%	0.00%	−6.01%	−4.82%	0.00%	−3.05%	−4.10%
Mfx (Shareholder rights index)	31.14%	0.02%	−0.02%	9.08%	0.00%	8.09%	11.88%
Mfx (Firm-level governance)	0.02%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%
Observations	391	388	391	391	391	391	388
Number of firms	162	160	162	162	162	162	160
Log likelihood	−739.6	−55.4	−318.6	−326.3	−45.44	−246.3	−315.5

This table provides Poisson regression estimates of various covenant indices on creditor rights and shareholder rights, controlling for firm-level corporate governance. Column 1 uses the overall covenant index, and columns 2 to 7 report numbers for various sub-indices of covenants. Covenant classifications are reported in Appendix B, all other variables are described in Appendix A, and the sample period is 1991 to 2007. Covenants used in at least 5% of bond issues are considered only. All regressions include year and one-digit industry dummy variables. Standard errors are robust and corrected for clustering by firm; the associated t-statistics are reported in parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively. Mfx (Creditor rights index), Mfx (Shareholder rights index), and Mfx (Firm-level governance) measure marginal effects of a one-unit change of either index on the dependent variable.

among bonds issued from the same country. We therefore redo our estimation using a sample with only one bond from each firm, and we correct the standard errors for clustering by country. This method allows us to correct for potential correlation among bonds within a country while avoiding the correlation of bonds from the same firm; our results are robust to using this approach. We also estimate standard errors with clustering by both firms and years, and again this procedure yields similar results.

Additionally, we use Spamann's anti-director index as a further robustness check, and we find it provides similar results as our shareholder rights index. We also consider a nonlinear effect of creditor rights or shareholder rights on the use of covenants, by adding quadratic terms for these variables in our baseline specification. While we find weak evidence of a nonlinear effect, the inclusion of quadratic terms does not change our main findings. Furthermore, we control for whether the firm already has covenants in existing debt, and this does not affect our results. In further tests we orthogonalize creditor rights and shareholder rights (see Golub & Van Loan, 1996), and this has little impact on our overall results. Thus our results are not driven by multicollinearity between these variables.

Further, we exclude bonds from any country with a high frequency of bond issues (i.e., UK, Mexico, and Brazil) to check whether our results are driven by one particular country. We drop bonds issued after 2003, since our creditor rights index is time-varying up to 2003, and we assumed that it is unchanged after that. We drop bonds issued by financial companies, because these companies usually use fewer covenants. We also check the robustness of our results to excluding private placement bonds. Our results are not changed when using these subsamples.

In further unreported regressions we study whether cross-listing in the US stock market (i.e., either via an ADR or through direct listing on US stock exchanges) reduces the impact of the home country's legal institutions by bonding firms to a stronger US legal regime. We include a cross-listing dummy and an interaction between the cross-listing dummy and both creditor rights and

shareholder rights indices in our baseline specification. However, we find no evidence to support the bonding hypothesis for creditors.[21]

CONCLUSIONS

We use a sample of bonds issued by foreign firms in the US to study how cross-country differences in statutory investor protection affect the use of bond covenants. These covenants are used to mitigate the agency costs arising from conflicts between shareholders and bondholders. Our findings suggest that laws protecting creditors and shareholders significantly impact on the number and types of restrictive debt covenants. Specifically, stronger home-country creditor protection laws substitute for covenants in Yankee bonds. This finding shows how creditor protection reduces the cost of debt (Bae & Goyal, 2009; Qian & Strahan, 2007), while creating more opportunities for higher leverage (Djankov et al., 2007).

Additionally, we find that the shareholder rights index and a firm-level governance measure are both positively associated with the use of most covenants. This is consistent with better alignment of stockholder–manager interests increasing the likelihood of stockholder–bondholder conflicts. This result corroborates the view that there exists a lower cost of debt for US firms with worse governance found by Klock et al. (2005), Cremers et al. (2007), and Chava et al. (2009). However, greater shareholder rights are not associated with the use of more restrictions on equity issuance, as firms with greater minority equity protection are unlikely to suffer such equity dilution. We believe future research could further investigate how institutions are related to the agency problems between shareholders, bondholders, and managers.

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NOTES

[1]For further discussion, see Malitz (1986), Begley and Feltham (1999), Nash, Netter, and Poulsen (2003), Billett, King, and Mauer (2007), Qi and Wald (2008), and Chava, Kumar, and Warga (2010).

[2]In this paper we use the terms "shareholder protection", "shareholder rights", and "minority shareholder protection" interchangeably.

[3]Related research uses country-level data to study how differences in laws and institutions affect financial market development and economy growth (see, e.g., Djankov et al., 2007, 2008a; Durnev, Errunza, & Molchanov, 2009; La Porta et al., 1998).

[4]As creditor protection laws are related to bankruptcy outcomes, we expect these laws to have only a modest impact on the firm's operational flexibility.

[5]Chava et al. (2010) argue that entrenched management can both aggravate and ameliorate bondholder risk.

[6]For instance, Miller and Puthenpurackal (2002) show that home-country creditor protection impacts on yield spreads for Yankee bonds.

[7]We also separate these indices into their subscores and consider alternative measures of creditor and shareholder protection, including a firm-level governance index, as proposed by the existing literature.

[8]The additional seven covenant dummies we consider are covenants on liens, restrictions on issuing guarantees, restrictions on transactions with affiliates, preferred stock issuance restrictions, stock transfers restrictions, and covenants requiring minimum earnings, and net worth.

[9]As creditor rights rarely change, we set index values for the years 2004–2006 to those observed in 2003. Our results are unaffected when we drop the years for which we do not have creditor rights information from the analysis.

[10]For robustness, we consider measures of bankruptcy efficiency developed by Djankov et al. (2008a). Specifically, we use a measure of how efficiently the bankruptcy of a hotel would be handled, and a variable measuring the number of days to resolve a payment dispute through courts. The results with these measures are similar.

[11]Using two-digit industry dummies reduces the sample size, because some of the industry dummies are perfect classifiers; our results hold with two-digit dummies and the smaller sample.

[12]In the total sample of 1351 bonds, 57 bonds are secured, 48 bonds are putable, 581 bonds are callable, and 603 bonds are issued under SEC Rule 144a.

[13]See Doidge, Karolyi, and Stulz (2007) for a discussion of ISS's corporate governance index.

[14]For robustness, we consider orthogonalized measures of creditor rights and shareholder rights, and using these measures does not affect our conclusions.

[15]We use a Poisson regression, as our dependent variable is a count. In robustness tests we also use a negative binomial regression and find similar results.

[16]Using Dealscan data, Bradley and Roberts (2004) find that privately placed loans include more covenants. However, our finding that privately placed bonds use fewer covenants holds for both domestic and Yankee issues.

[17]In unreported regressions we add a dummy variable for whether the bond is senior or junior debt. The coefficient on this variable is not significant, and our results do not change with this additional variable.

[18]An alternative explanation for the positive coefficient on public enforcement is that stronger legal enforcement increases the rights of shareholders, and thus increases the agency conflict between bondholders and shareholders, and that this in turn leads to greater covenant use. However, this hypothesis would suggest a negative coefficient on stock issuance covenants, similar to that on shareholder rights. Instead our results show that public enforcement is positively associated with all types of covenants.

[19]In unreported regressions we break down the creditor rights and shareholder rights indices into their components, and examine the impact of each element on the overall use of covenants. When all the elements of the creditor rights index are included in the same analysis, the only component that is significant is whether secured creditors are paid first, and thus this protection appears to be of primary importance. When the components of the shareholder rights index are considered together, only preemptive rights have a significant impact on the overall use of covenants. Without preemptive rights, majority shareholders can expropriate minority shareholders by offering shares to related parties (or to themselves) at below-market prices. Thus the analysis suggests that the preemptive rights index component most reduces entrenchment by a controlling group, and therefore has the largest impact on the shareholder–bondholder agency conflict.

[20]These regressions are available from the authors upon request.

[21]We also study whether dividend payments can substitute for creditor rights in reducing the agency cost of debt (see Brockman and Unlu, 2008). We find no evidence that dividend payments reduce the agency problems mitigated by covenants. Note that paying dividends has several impacts on these contracting problems. Dividend payments can be associated with a reduction in information asymmetry or closer monitoring of management. Alternatively, dividend payments can also reflect a greater willingness to expropriate wealth from bondholders; after all, there are covenants specifically restricting such payments. Thus the insignificant impact of dividends on covenant use may reflect these mixed effects.

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APPENDIX A

See Table A1.

Table A1 Definition of variables

Variables	*Description*
A. Country-level institutions	
Legal origin	Identifies the legal origin of the company law or commercial code of each country (English, French, Socialist, German, and Scandinavian). Source: La Porta et al. (1998).
Creditor rights index	An index aggregating creditor rights. A score of 1 is assigned when each of the following rights of secured lenders are defined in laws and regulations: (1) there are restrictions, such as creditor consent or minimum dividends, for a debtor to file for reorganization; (2) secured creditors are able to seize their collateral after the reorganization petition is approved, i.e., there is no automatic stay or asset freeze; (3) secured creditors are paid first out of the proceeds of liquidating a bankrupt firm, as opposed to other creditors such as government or workers; and (4) management does not retain administration of its property pending the resolution of the reorganization. This index ranges from 0 (weak creditor rights) to 4 (strong creditor rights) and is constructed for every year from 1978 to 2003. The index is time-varying and index values for the years 2004 to 2006 are set equal to the index values of the year 2003. Sources: Bankruptcy and reorganization laws, Djankov et al. (2007), and La Porta et al. (1998).
Shareholder rights index	Revised anti-director rights index. This index of anti-director rights is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) shareholders have preemptive rights that can only be waived by a shareholders meeting; and (6) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median); This index ranges from 0 to 6. Source: Djankov et al. (2008b).
Spamann anti-director index	An index of anti-director rights is formed by adding 1 when: (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median); or (6) shareholders have preemptive rights that can only be waived by a shareholders' meeting. This index ranges from 0 to 5. Source: Spamann (2010).
Anti-self-dealing index	An index of anti-self-dealing is formed by taking the average of *ex ante* and ex post private control of self-dealing indices. The index of *ex ante* control of self-dealing transactions is an average of approval by disinterested shareholders and *ex ante* disclosure. The index of ex post control of self-dealing transactions is an average of disclosures in periodic filings and ease of proving wrongdoing. Source: Djankov et al. (2008b).
Public enforcement index	An index that measures the quality of public enforcement of securities laws. The index equals the arithmetic mean of (1) supervisor characteristics index, (2) rule-making power index, (3) investigative powers index, (4) orders index, and (5) criminal index. Higher index values indicate greater enforcement. Source: La Porta et al. (2006).
Enforceability of contracts	The relative degree to which contractual agreements are honored and complications presented by language and mentality differences. Scale of 0 to 10, with higher scores indicating higher enforceability. Source: Business Environmental Risk Intelligence. Exact definition in Knack and Keefer (1995).

Table A1 *Continued*

Variables	*Description*
Efficiency of bankruptcy	The relative efficiency in the outcome of a bankruptcy case. The estimated present value of the terminal value of the firm after bankruptcy costs in the case of Mirage hotel in Djankov et al. (2008a). Source: Djankov et al. (2008a).
Days of contract enforcement	The number of days to resolve a payment dispute through courts. The data are based on the methodology in Djankov et al. (2008a), but describe the number of calendar days to enforce a contract of unpaid debt worth 50% of the country's GDP per capita. The variable is constructed as of January 2003. Source: Djankov et al. (2008a).
Public information sharing	The variable equals 1 if a public credit registry operates in the country, and 0 otherwise. A public registry is defined as a database owned by public authorities (usually the central bank or banking supervisory authority) that collects information on the standing of borrowers in the financial system, and makes it available to financial institutions. The variable is constructed as of January for every year from 1978 to 2003. Source: Djankov et al. (2007).
Effectiveness of bankruptcy law	Assessment of the effectiveness of bankruptcy law. Low scores indicate that creditor protection laws are nonexistent or poorly enforced; high scores indicate that creditor protection laws are well defined and strictly enforced. This index ranges from 0 to 7. Source: WEF's Global Competitiveness Report (2005).
Rule of law	The variable measures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Average of index between 1996 and 2007. Higher scores indicate greater tradition of rule of law. Source: Kaufmann et al. (2008); see also http://www.govindicators.org.
Property rights	Index of property rights. Source: http://www.heritage.org.
Ownership concentration	Average percentage of common shares not owned by the top three shareholders in the ten largest non-financial, privately owned domestic firms in a given country. A firm is considered privately owned if the state is not a known shareholder in it. Source: La Porta et al. (2006).
B. Bond-level variables	
Offering size	Amount borrowed in million US dollars.
Maturity	Number of days until the bond's maturity.
Rule 144a issue	Variable equals 1 if the bond is a private placement exempt from registration under SEC Rule 144a, and 0 otherwise.
Call	Variable equals 1 if the bond is callable, and 0 otherwise.
Put	Variable equals 1 if the bond is putable, and 0 otherwise.
Secured	Variable equals 1 if the bond is secured, and 0 otherwise.
High-yield	Variable equals 1 if the bond rating is less than Baa or BBB, and 0 otherwise.
C. Firm-level variables	
Firm size	Total assets in US dollars.
ROA	Return on assets, defined as net income divided by total assets.
R&D/firm size	Expenses for research and development divided by total assets.
PPE/firm size	Property, plant, and equipment to total assets.
Market-to-book ratio	Market-to-book value, defined as the market capitalization of stock plus total debt divided by total assets.
Leverage	Financial leverage, defined as the sum of long- and short-term debt divided by total assets.
Corporate governance index	Average corporate governance score of a firm from 2003 to 2007. Source: ISS.
Cross-listing	Variable equals 1 if the firm's shares are cross-listed in the US, via an ADR program or through direct exchange listing, at the time of the bond issue, and 0 otherwise. Sources: Bank of New York, Citigroup, JP Morgan, and CRSP.
Dividend	Variable equals 1 if a firm pays dividends, and 0 otherwise.

Table A1 *Continued*

Variables	*Description*
D. Other variables	
Sovereign rating	We code Standard & Poor's sovereign credit ratings into Comprehensive Credit Rating (CCR) following Gande and Parsley (2007). Source: Standard & Poor's.
GDP/capita	Real GDP per capita in US dollars (basis: year 2000). Source: World Bank.
Inflation	Inflation measured as the change of the GDP deflator. Source: World Bank.

APPENDIX B

See Table B1.

Table B1 Classification of covenants

Covenant indices	*Covenant dummies*	*Corresponding variable in FISD*	*Definition (FISD)*
Payment	Dividend payment	Isu_dividends_related_payments	Flag indicating that payments made to shareholders or other entities may be limited to a certain percentage of net income or some other ratio.
		Sub_dividends_related_payments	Limits the subsidiaries' payment of dividends to a certain percentage of net income or some other ratio. For captive finance subsidiaries, this provision limits the amount of dividends that can be paid to the parent. This provision protects the debt holder against a parent from draining assets from its subsidiaries.
	Other payment	Isu_restricted_payments	Restricts issuer's freedom to make payment (other than dividend related payments) to shareholders and others.
Borrowing	Funded debt	Sub_funded_debt	Restricts issuer's subsidiaries from issuing additional funded debt (debt with an initial maturity of longer than one year).
		Isu_funded_debt	Restricts issuer from issuing additional funded debt. Funded debt is debt with an initial maturity of one year or longer.
	Subordinated debt	Isu_subordinated_debt_issuance	Restricts issuance of junior or subordinated debt.
	Senior debt	Isu_senior_debt_issuance	Restricts issuer to the amount of senior debt it may issue in the future.
	Secured debt	Negative_pledge_covenant	The issuer cannot issue secured debt unless it secures the current issue on a *pari passu* basis.
	Indebtedness	Isu_indebtedness	Restricts user from incurring additional debt with limits on absolute dollar amount of debt outstanding or percentage total capital.
		Sub_indebtedness	Restricts the total indebtedness of the subsidiaries.
		Isu_leverage_test	Restricts total indebtedness of the issuer.
		Sub_leverage_test	Limits subsidiaries' leverage.
	Leaseback	Isu_leaseback	Restricts issuer to the type or amount of property used in a sale leaseback transaction, and may restrict its use of the proceeds of the sale. A sale leaseback transaction is a method of raising capital in which an organization sells some specific assets to an entity that simultaneously leases the asset back to the organization for a fixed term and agreed-upon rate.

Table B1 *Continued*

Covenant indices	*Covenant dummies*	*Corresponding variable in FISD*	*Definition (FISD)*
		Sub_sales_leaseback	Restricts subsidiaries from selling then leasing back assets that provide security for debtholders. This provision usually requires that assets or cash equal to the property sold and leased back be applied to the retirement of the debt in question, or used to acquire another property to increase the debtholders' security.
	Liens	Sub_liens	Restricts subsidiaries from acquiring liens on their property.
		Isu_liens	In the case of default, the bondholders have the legal right to sell mortgaged property to satisfy their unpaid obligations.
	Guarantee	Subsidiary_guarantee	Subsidiary is restricted from issuing guarantees for the payment of interest and/or principal of certain debt obligations.
Asset	Asset sales	Asset_sale_clause	Covenant requiring the issuer to use net proceeds from the sale of certain assets to redeem the bonds at par or at a premium. This covenant does not limit the issuer's right to sell assets.
		Isu_sale_assets	Restriction on the ability of an issuer to sell assets or restrictions on the issuer's use of the proceeds from the sale of assets. Such restrictions may require the issuer to apply some or all of the sales proceed to the repurchase of debt through a tender offer or call.
		Sub_sale_assets_unrestricted	Issuer must use proceeds from sale of subsidiaries' assets (either certain asset sales or all asset sales over some threshold) to reduce debt.
	Transaction	Isu_transaction_affiliates	Issuer is restricted in certain business dealings with its subsidiaries.
	Investment	Isu_investments	Restricts issuer's investment policy to prevent risky investments.
		Sub_investments_unrestricted	Restricts subsidiaries' investment.
Stock	Common stock	Isu_stock_issuance_issuer	Restricts issuer from issuing additional common stocks.
		Sub_stock_issuance	Restricts issuer from issuing additional common stock in restricted subsidiaries. Restricted subsidiaries are those that are considered to be consolidated for financial test purposes.
	Preferred stock	Sub_preferred_stock_issuance	Restricts subsidiaries' ability to issue preferred stock.
	Other stock	Isu_stock_transfer_sale	Restricts the issuer from transferring, selling, or disposing of its own common or the common stock of a subsidiary.
Default	Default	cross_acceleration	A bondholder protective covenant that allows the holder to accelerate their debt, if any other debt of the organization has to be accelerated owing to an event of default.
		cross_default	A bondholder protective covenant that will activate an event of default in their issue, if an event of default has occurred under any other debt of the company.

Table B1 *Continued*

Covenant indices	*Covenant dummies*	*Corresponding variable in FISD*	*Definition (FISD)*
Anti-takeover	Poison put	change_control_put_provisions	Upon a change of control in the issuer, bondholders have the option of selling the issue back to the issuer (poison put). Other conditions may limit the bondholder's ability to exercise the put option. Poison puts are often used when a company fears an unwanted takeover by ensuring that a successful hostile takeover bid will trigger an event that substantially reduces the value of the company.
	Merger	isu_consolidation_merger	Indicates that a consolidation or merger of the issuer with another entity is restricted.
Profit	Earnings	isu_fixed_charge_coverage	Issuer is required to have a ratio of earnings available for fixed charges, of at least a minimum specified level.
		sub_fixed_charge_coverage	Subsidiaries are required to maintain a minimum ratio of net income to fixed charges.
		isu_net_earnings_test_issuance	To issue additional debt the issuer must have achieved or maintained certain profitability levels. This test is a variation of the (more common) fixed coverage tests.
	Net worth	isu_maintenance_net_worth	Issuer must maintain a minimum specified net worth.
		declining_net_worth	If issuer's net worth (as defined) falls below minimum level, certain bond provisions are triggered.
Rating decline	Rating decline	rating_decline_trigger_put	A decline in the credit rating of the issuer (or issue) triggers a bond holder put provision.

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