

Bond Covenants and Bankruptcy: The Good, the Bad, and the Irrelevant

Sattar Mansi, Yaxuan Qi, and John K. Wald*

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Abstract

Examining the most frequently used bond covenants, we document that seven out of 24 restrictions are associated with higher bankruptcy risk. The use of these covenants can be explained by faulty contract design, greater recovery in bankruptcy, manager-shareholder agency risk, or within-creditor conflicts. Bad covenants are also associated with a higher cost of debt. The results support the notion that certain covenants are placed in debt contracts to entrench managers, or to give power to particular parties in agency conflicts among debtholders. They also help reconcile the mixed evidence on the relation between covenant use and the cost of debt.

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* Sattar Mansi is at the Virginia Tech, smansi@vt.edu; Yaxuan Qi is at City University of Hong Kong, yaxuanqi@cityu.edu.hk; John Wald is at the University of Texas at San Antonio, john.wald@utsa.edu. We thank Natalia Reisel and Palani-Rajan Kadapakkam for comments on earlier drafts.

I. Introduction

The decision whether to include covenants in bond contracts is central to the conflict between shareholders and bondholders (Jensen and Meckling, 1976). Any discussion of how to constrain managers from benefiting stockholders to the detriment of bondholders must address this issue.¹ In their seminal work, Smith and Warner (1978) argue that when contracting is costly, debt covenants provide a tradeoff between the reduction in the agency problems associated with debt and the costs of negotiating and enforcing covenants, as well as the potential loss of financial flexibility that covenants entail. This hypothesis implies that the use of more covenants decreases the probability of default, and therefore debt with more covenants has a lower financing cost. Recent research, however, suggest that the use of some covenants is influenced by factors other than those related to the bondholder-shareholder conflict. Chava, Kumar, and Warga (2010), for example, find that managerial entrenchment and fraud play an important role in the use of bond covenants. Lou and Otto (2015) show that firms with more dispersed debt structure use more covenants in their corporate loans.

We study how the use of individual covenants in bond contracts affects default risk. We focus on publicly traded bonds because, unlike loan agreements, bond covenant violations are non-negotiable and typically lead to bankruptcy.² Using a sample of bond covenants from the Mergent Fixed Income Securities Database covering the period from 1980 to 2014, we find that seven out of 24 covenants are associated with higher default risk. These bad covenants include restrictions on the sale of common equity, the sale of preferred equity, equity transfers, investments, transfers to subsidiaries, net worth, and bond rating decline puts.³ The remaining 17 covenants either increase default risk or have little measurable effect. This raises the following question: If bond covenants are designed to reduce the bondholder-shareholder conflict, as Smith and Warner (1979) suggest, why do firms include covenants that increase the probability of default in their debt contracts? After all, by increasing default risk, these bad covenants are detrimental to the bondholders that they are nominally designed to protect.

¹ Possible issues associated with the bondholder-stockholder conflict include large dividend payouts, claim dilution, risk shifting, underinvestment, and acquisitions that increase leverage and affect debt seniority.

² Dichev and Skinner (2002), in a sample of bank loans, find that covenants are used as trip wires for lenders but are not associated with bankruptcy. Denis and Wang (2014) document that even in the absence of violations, loan covenants are frequently renegotiated and are associated with changes in financial and investment policy.

³ Note that these bad covenants are less frequently used than other covenants; these bad covenants only account for 8% of all covenants used. Appendix B provides sample language from several bond issues for these bad covenants.

Existing theory provides some justification for why some of these covenants would increase default risk. In particular, the bad covenants include three restrictions on the issuance of common or preferred stock. The notion that such restrictions would increase default risk is straightforward – by limiting the potential to increase equity capital, the firm is more likely to default when times are bad.⁴ For the other bad covenants, the positive relation with default is less obvious, but still often consistent with the existing literature. In the case of rating decline puts, Bhanot and Mello (2006) find that these contracts can lead to inefficient incentives and greater risk, depending on how the rating trigger is structured. In particular, Bhanot and Mello show that these triggers can intensify the asset substitution problem while increasing the probability of bankruptcy.

Recently, Gilje (2016) shows that rather than shift to riskier investments, firms that are closer to default are more likely to shift to safer investments. Consistent with this finding, we document that covenants that restrict investments, and therefore preclude shifting to safer investments, are associated with a greater probability of default.⁵ We also find that the maintenance net worth covenant is associated with greater default risk. While this covenant has not been addressed explicitly in the literature, there is related work that considers whether bankruptcy codes that are overly debtor friendly can cause inefficient liquidation (see e.g., Acharya, Sundaram, and John, 2011; Acharya, Amihud, and Litov, 2011). A covenant which forces liquidation if assets fall below a certain level may similarly cause reductions in risk taking or inefficient early liquidation leading to an increase in default risk. The last bad covenant is the restrictions on transfers to affiliates, and this covenant may be associated with an increase in default risk simply because it reduces financial flexibility more than it reduces agency problems.

We provide four hypotheses for the why these bad covenants are included in bond agreements. First, we consider whether the use of some covenants reflects faulty contract design, where firms add a new covenant to a debt contract in an attempt to innovate, but then over time the market learns that the covenant is not value increasing (e.g., Hillion and Vermaelen, 2004). Second, we analyze whether these covenants limit the firm's ability to waste assets in ways which

⁴ Note that in the prospectuses, stock issuance covenants often restrict either the stock of subsidiaries or stock that can be redeemed at the option of the holder, although the particular language used varies between the different indenture agreements.

⁵ Smith and Warner (1979) describe the difficulties in having covenants restricting investments. They write, "investment policy can be very expensive to monitor, since ascertaining that the firm's production/investment policy does not maximize the firm's market value depends on magnitudes which are costly to observe. Solutions to this problem are not obvious." (p. 130)

increase the value of the firm in default. Third, we posit that bad covenants may be due to manager-shareholder agency conflicts such as entrenchment (e.g., Chava, Kumar, and Warga, 2010). Fourth, we investigate whether the use of bad covenants is the result of potential conflicts of interest among the different groups of debtholders (e.g., Colla, Ippolito, and Li, 2013; Lou and Otto, 2015).

We tests these hypotheses empirically, and find some support for all four. We find that some bad covenants, such as rating decline puts, disappear over time, and this pattern is consistent with the faulty contract design hypothesis. We also find that the bad covenants are associated with an increase in recovery rates in default, and this echoes the increase in recovery rates associated with some covenants found by Jankowitsch, Nagler, and Subrahmanyam (2014). Additionally, greater managerial entrenchment, as measured by the EIndex (Bebchuk, Cohen, and Ferrell, 2009) is associated with more restrictions on equity transfers, and this supports the notion that some covenants are added into debt contracts to further entrench managers. We also show that a more diverse portfolio of debt holdings (i.e., a lower specialization of debt types as measured by Colla, Ippolito, and Li, 2013) is associated with significantly more bad bond covenants. Thus, the use of bad covenants can be partly explained by other agency conflicts rather than from maximizing overall firm value.

Lastly, we consider whether these bad covenants are priced differently from other covenants. Given the costly contracting hypothesis, we expect that, all else equal, more covenants will imply a lower probability of default, and therefore a lower yield spread. However, as all risk factors are not observed, and as covenants and initial spreads are simultaneously determined, the simple relation between covenants and spreads is often positive (Bradley and Roberts, 2015).⁶ We find that yield spreads are significantly higher for each bad covenant used (by 5% to 8%, depending on specification), and in contrast, for many specifications, good covenants do not imply higher spreads. We repeat these tests using the issuers' and the underwriters' law firms as instruments (while controlling for the identity of the underwriter), and again find a significant positive relation between bad covenants and spreads, and no relation between good covenants and

⁶ See Miller and Reisel (2012) or Reisel (2014) for studies that examine the pricing of individual covenants using treatment effects models.

spreads. Thus, for bonds, the positive relation between spreads and covenants can be largely explained by considering the subset of covenants which also implies greater default risk.

We contribute to the literature in two important ways. First, while numerous studies have examined the determinants of covenant choice,⁷ to the best of our knowledge, this is the only research that directly considers how covenants affect the probability of firm survival. This analysis adds to the costly contracting hypothesis by showing that most individual covenants reduce bankruptcy risk. This evidence also helps explain why certain issuers are most likely to use covenants and what role these covenants serve in decreasing the cost and increasing the availability of capital (see e.g., Billett, King, and Mauer, 2007). However, we find that certain bad covenants increase the probability of default. These covenants fail to protect creditors from default, and we explain their appearance through either faulty contract design, greater emphasis on recovery in bankruptcy, manager-shareholder problems, or within creditor conflicts (debt specialization). Second, our findings help us reconcile the literature that finds covenants increase the cost of debt financing. We show that only the bad covenants are associated with higher spreads – which is rational given that they are associated with increased default – but other covenants are not associated with higher spreads.

The remainder of the paper is organized as follows. Sections 2 and 3 discuss our data and the method used in the empirical analysis, respectively. Section 4 provides the survival analysis portion of the empirical results. Section 5 considers different explanations for why certain “bad” covenants are placed in debt agreements. Section 6 provides the results on the relation between the use of covenants and the cost of debt financing. Section 7 concludes.

2. Data

A. Data sources

We utilize two main datasets in our analysis: Mergent’s Fixed Income Securities database (FISD) and Compustat’s Industrial Quarterly database (Compustat). The FISD includes issue- and issuer-specific related variables on U.S. corporate bonds. Issue-specific variables include detailed information on bond covenants, bond features, and credit ratings from Moody's, S&P,

⁷ These studies include Malitz (1986); Begley (1994); Nash, Netter, and Poulson (2003); Billet, King, and Mauer (2007); and Chava, Kumar, and Warga (2010).

and Fitch. The Compustat database contains financial information on firm level data. To avoid reverse causation in our analysis, we use firm data from the quarter prior to the bond issue.

We require both FISD and Compustat to have information pertinent to our analysis. Therefore, we exclude bonds without covenant information (i.e. those with “covenant” data flag set to “No”, and “subsequent” data flag set to “No”); unit deals, convertible bonds, and foreign currency bonds; medium-term notes (since these mostly have no covenant information); and bonds issued by government agencies. We also exclude observations with missing financial information. Merging the two datasets provides us with a final sample of 17,380 bond issues (2,709 firms) covering the period from 1980 to 2014.

B. Bankruptcy data and Bond Covenants

The FISD database provides information on bond defaults and bankruptcies. To obtain more comprehensive information on bankruptcy, we augment the FISD bankruptcy data using the SDC bankruptcy database, Moody’s Default and Recovery Database (2014 version), and Capital IQ’s screen search of bankrupt firms up to December 31, 2014. Collectively, we obtain 6,139 bankruptcy filings from 1980 to 2014. We merge the bankruptcy data with our bond sample to identify whether a bond is affected by bankruptcy. We exclude those bankruptcies that are filed before a bond issue or after the bond matures. The Cox survival analysis measures the instantaneous survival probability on any day prior to bankruptcy, prior to bond maturity, or before our sample ends, on December 31, 2014. For bonds whose companies went bankrupt more than once, we only consider up to the first bankruptcy filing. Overall, we identify 1,759 bonds out of 17,380 that are associated with a bankruptcy.⁸

For covenants, we consider whether the corporate bond issue includes any covenants and if so, the number of covenants, and more specific variables about the types of covenants used. For each issue, the FISD reports more than 50 variables on bondholder protective, issuer restrictive, and subsidiary restrictive covenants. Because often there are multiple covenants that restrict the same activity, we group the covenant variables into 24 dummies, which indicate whether a

⁸ Note that bonds, unlike loans (see, e.g., Roberts, 2015), are almost never renegotiated, and bond defaults are virtually always associated with a bankruptcy filing.

specific type of activity is restricted.⁹ Our construction of these covenant dummies is similar to that of Billet, King, and Mauer (2007), who group FISD's covenants into 15 indicators, as well as Qi, Roth and Wald (2011), who group FISD covenants into 22 indicators. The majority of our analysis is performed using these 24 indicators.

We classify the 24 covenant indicators into eight major categories. These include 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. Payment restrictions consist of two covenant dummies: dividend related payments and other restricted payments. Borrowing restrictions include eight dummies that restrict the firm from additional debt activities.¹⁰ Asset and investment restriction covenants include four dummies: limits on asset sales, restrictions on issuer's or subsidiaries' investments, restrictions on asset transfer between the issuer and its subsidiaries, and restrictions on issuers' transaction with its subsidiaries. Stock issuance restrictions consist of three covenants that limit additional common stock issuance, preferred stock issuance, and stock transfers between the issuer and its subsidiaries.

Default-related covenants include cross-acceleration provisions, which allow bondholders to accelerate their debt if any other debt of the issuer has been accelerated due to a default, and a cross default provision. Anti-takeover related covenants include a poison put, which gives bondholders the option to sell back their bonds to the issuer should a change of control occur, and a merger covenant, which restricts the consolidation or merger of the issuer with another entity. The last two covenant categories are profit maintenance, which includes covenants that require the issuer or its subsidiaries to maintain a minimum earnings ratio or net worth, and rating decline put, which includes a put provision in the event of a rating decline and therefore protects bondholders from credit rating changes.

In addition to the 24 covenant indicators, we create an overall covenant index for bondholder protection by summing the indicators for each bond. We further segment the sample into bad

⁹ For example, a dividend payment dummy indicates whether there exists a covenant limiting dividend payments of the issuer or a subsidiary of the issuer. Similarly, a funded debt dummy specifies whether there is a covenant restricting the issuer or a subsidiary of the issuer from issuing additional debt.

¹⁰ Specifically, these restrictions prevent the issuer and/or issuer's subsidiaries from issuing additional debt with a maturity of one 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.

and good covenant indices (with the bad covenants defined as those that are associated with an increase in the probability of default, and the good covenants including all others). The bad covenant index include restrictions on the sale of common equity, the sale of preferred equity, equity transfers, investments, transfers to subsidiaries, net worth, and bond rating decline puts. Table 1 and Appendix A provide a detailed description of how the covenant indicators and indices are constructed.

C. Issue-Specific, Firm-Specific, and Other Variables

We control for issue-specific characteristics in our regression. Specifically, we control for the size of the offering, the maturity, and the relative size of the issue computed as offering amount scaled by outstanding debt (we add one to the denominator so that this variable is not missing if the firm has no outstanding debt). In addition, we use dummies to control for secured bonds, callable, putable, Yankee or Canadian bonds, and bond issued under Rule 144a. In further tests, we consider whether the covenant and bankruptcy characteristics vary with the lead underwriter (e.g., Griffin and Maturana, 2016). In certain specifications, we control for the seven most common lead underwriters (Goldman Sachs, Lehman Brothers, JP Morgan, Merrill Lynch, Morgan Stanley, Salomon Brothers, and Credit Suisse), and we group other underwriters into a separate category.

In our analysis, we also control for state law variables that are related to covenant choice (Qi and Wald, 2008). These include payout restrictions laws described in Wald and Long (2007) and Mansi, Maxwell, and Wald (2009). Our variable for total asset constraint (TA Constraint) equals the minimum asset to debt ratio for a payout to be made, and we collect these state constraints from Lexis/Nexis as in Wald and Long (2007). In states like New York and Texas, this constraint equals 1, in California this constraint equals 1.25, and in Delaware this constraint equals zero. We also include the number of state-level antitakeover laws (AIndex) as in Bebchuk and Cohen (2003).

We further control for firm specific and macroeconomic variables motivated by the existing literature. Firm-specific variables include firm size, leverage, Q ratio, profitability, R&D ratio, capital expenditures, tangibility, and interest coverage. Firm size is measured as the natural log of total assets. Firm leverage is measured as the ratio of total debt (short and long term debt) divided by total assets. The Q ratio is measured as the book value of debt plus the market value

of equity divided by total assets. Firm profitability is measured as the ratio of earnings before interest, taxes, depreciation, and amortization (EBITDA) divided by total assets. Firm research and development expenditure (R&D) ratio is measured as R&D expenditures divided by total assets.¹¹ The capital expenditure ratio is measured as CapX divided by total assets. Tangibility is the firm's property, plant, and equipment (PPE) scaled by total assets. Interest coverage equals the EBITDA divided by the existing interest payments.

Macroeconomic and other variables include quality spread, entrenchment index, debt specialization, and issuers' and underwriters' law firms. We computed quality spread as the difference between BAA and AAA bond yields on date of issuance, obtained from the St. Louis Federal Reserve Bank and is available starting January 1, 1986. The entrenchment index (EIndex) from Riskmetrics is used to proxy for corporate governance. The debt specialization index is calculated using Standard and Poor's Capital IQ data, and is used to proxy for within debtholder conflicts. The expected default frequency (EDF) measure is computed as in Bharath and Shumway (2008). EDF is a measure of the probability that a firm will default over a specified period (typically one year). The components of the EDF include market value of assets, level of the firm's obligations, and asset volatility. We use the issuers' and underwriters' law firms gathered from Thomson's SDC as instrumental variables that are associated with covenant choice but not with debt pricing.¹²

We winsorize our independent variables including leverage, Q ratio, profitability, and deal to prior debt ratio, at the upper and lower 1% to avoid the impact of extreme outliers. Table 1 provides a summary of variable definitions used in the analysis.

D. Summary Statistics

Panel A of Table 2 presents summary statistics on covenant use. Out of the 24 covenants we consider, seven covenants are bad (increase the probability of default) and the remaining 17 are either good (decrease the probability of default) or irrelevant (no relation to the probability of

¹¹ If the firm does not report R&D, we set this term to zero.

¹² The most frequently used borrower's law firms are Skadden, Arps, Slate, Meagher & Flom; Davis, Polk & Wardwell; and Latham & Watkins; although many issuing firms also use their in-house general counsel. For underwriters, the most frequently used firms are Davis, Polk & Wardwell; Simpson, Thacher & Bartlett; and Cravath, Swaine & Moore.

default). Bonds have 3.6 covenants on average, with consolidation or merger restrictions, asset sale restrictions, negative pledge, change in control, and cross acceleration covenants appearing relatively more frequently, and other covenants such as funded debt, senior debt, liens, and rating decline puts appearing less frequently. The covenants that we classify as good (or irrelevant) are more frequently used than bad covenants, with means of 3.3 good and 0.29 bad covenants per bond on average.

Panel B of Table 2 provides firm and deal characteristic. The mean bond issue size is \$351 million and the median deal equals about 16% of the firm's existing debt. The debt in the sample has a mean (median) yield spread of about 222 (155) basis points, with an average maturity of about 8.1 years. On average, about 4% of the sample is secured debt, 73% is callable, and 20% Rule 144a debt. Firms in the sample are large, profitable, has debt specialization of about 0.71, and mean leverage of about 39%.

Panel C of Table 2 presents the number and percentage of bond issues for each industry group in the sample using one digit SIC codes. The majority of the sample consist of bonds issued by firms in the manufacturing (33%), transportation and communications (22%), wholesale and retail trade (9%), services (8%), mining and construction (8%), and finance, insurance, and real estate (16%) industries. The lowest industry representations are in agriculture, forestry, and fishing (0.28%), and public administration (0.28%).

3. Covenants and Bankruptcy Risk

3.1 Cox Proportional Hazard Model

We examine the relation between bankruptcy risk and covenant use. Specifically, we investigate whether the firm went bankrupt subsequent to issuing a bond with a given number of covenants. We consider a survival analysis using a Cox proportional hazard model, described in detail in Cleves et al. (2010).¹³ The overall relation between covenant use and bankruptcy could be positive or negative, depending on whether a given covenant increases or decreases the probability of default. In this analysis, non-bankrupt firms either exit the sample when the debt

¹³ The literature provides a variety of models to forecasts financial distress including accounting-based models such as Altman (1968) and Ohlson (1980) and reduced form models such as Campbell, Hilscher, and Szilagyi (2008). See also Shumway (2001) and He et al. (2010) for applications of survival analysis to firms.

matures or on the last day of our dataset (December 31, 2014). The basic specification for the hazard function is

$$h(t) = h_0(t) \exp(\beta_0 + \beta_1 Cov_ix_i + \beta_2 DealFactors_i + \beta_3 FirmFactors_i + \beta_4 RatingDummies_i + \beta_5 IndustryDummies_i + \beta_6 YearDummies_i + \varepsilon_i) \quad (1)$$

Where *Cov_ix* is the covenant index, *Deal Factors* include issue size, relative size, maturity, optionality, and seniority, and *Firm Factors* include size, leverage, profitability, interest coverage, R&D, capital expenditures, tangibility, and Tobin's Q.

In our specifications, we do not expect reverse causality to be a serious concern since bankruptcy events occur after the bond is issued. Our other survival regressions include controls for the lead underwriter, and consider the effect of either a particular covenant sub-index, an individual type of covenant, or the sum of good and bad covenants separately. For these regressions, as well as for our other analyses, we report robust standard errors adjusted for clustering by firm.

3.2 Survival Analysis

Panels A and B of Table 3 provides a Cox survival analysis on the relation between covenants and the probability that the firm goes into default while the bond is outstanding. We control for firm characteristics from the quarter prior to the issuance, other issuance characteristics, and we include dummies for each rating category (and a separate dummy for unrated), dummies for each two-digit SIC code, and dummies for the issuance year. We follow standard survival model notation and report the coefficients in exponential form. Thus, if a variable has no effect on survival, the estimated coefficient would equal 1.0, and if a variable implied a 50% increase or decrease, that would correspond to coefficients of 1.5 or 0.5, respectively.

Panel A of Table 3 considers separately the different types of covenants. Model 1 reports the survival results for all covenants. Models 2 is similar to Model 1 but the results are for rated firms only. Model 3 reports the results for the stock covenant index (rather than the individual components of this index) for rated firms. The results show that certain covenants, such as the transaction and investment covenants, are associated with an increase in the probability of default, while others, like the asset sale and asset transfer covenants, are associated with a

decrease in the probability of default. The individual effects of certain covenants are not significant, and this is partly due to a relatively small sample size for some covenants. This analysis allows us to separate out those covenants, which are associated with an increase in the probability of default.

We sum the covenants associated with higher default risk into a bad covenant index. Any covenant that has a coefficient greater than 1.0 and a z-statistics with a value greater than 1.0 is included in the bad covenants category. We follow this procedure because variables that have a z-statistics with an absolute value greater than 1.0 are associated with an increase in adjusted R-square (Greene, 2000, p.240), and we want to separate out those covenants that have a measurable positive impact on default from those which have a negative or negligible effect. While the three covenants which make up the stock covenant index do not always have z-statistics greater than 1.0, the combined index does, and given our prior belief that these restrictions are bad for the firm, we include them in the bad covenant category.

This procedure gives us a subset of seven out of the 24 covenants that are associated with a measurable increase in default risk. These include transaction, investment, net worth, rating decline put, and the covenants included in the stock index (stock issuance, preferred stock issuance, and stock transfer). We discuss the reasons for why these bad covenants could lead to an increase default risk below. Most of the other covenants have coefficients less than one and are therefore associated with a decrease in default risk. That said, only a few of these other covenants: consolidation merger covenant, change of control put, and earnings restriction covenant have coefficients that are significantly different from zero. We group the remaining 17 covenants not classified as bad into the good covenant index.

As the relation between individual covenants and bankruptcy is not significant for most individual covenants, we also consider a Wald test for the joint hypothesis that the coefficients on the covenant variables are equal to zero. For Model 1 of Table 3, Panel A, we find that all the bond covenants are jointly significantly different from zero at the 1% level (p-value = 0.004). Moreover, the covenants we classify as bad are jointly significantly different from zero as a group (p-value = 0.003), and the covenants we classify as good are also jointly significantly different from zero as a group (p-value = 0.007). Thus, while some individual covenants appear irrelevant, together the covenants have significant positive and negative effects on the probability of firm survival.

In Panel B of Table 3, Model 1 reports the overall effect of the sum of the bonds' covenants on the probability of default while controlling for firm and security characteristics. Model 2 includes the good and bad covenants indices. Model 3 is similar to Model 2 but also controls for the expected default frequency measure as calculated by Bharath and Shumway (2008). Model 4 adds the lead issuer, with separate controls for the seven most common issuers (e.g., JP Morgan) during this time period. Model 5 is similar to Model 4 but includes rated firms only. The coefficient on the overall covenant index (Model 1) is less than 1.0. An additional covenant implies a decrease in the probability of default of about 2.4%, although this coefficient is not significantly different from 1.0. Thus, the sum of covenants has no significant effect on the probability of default as this sum masks the individual positive and negative effects. That is, adding all types of covenants together dampens the differential impacts of various types of covenants.¹⁴

In Models 2 through 5, both the coefficients on the good and bad covenant indices are highly significant, and in Model 2 an additional good covenant is associated with roughly a 12% decline in the probability of default, whereas each bad covenant is associated with a roughly 40% increase in the probability of default. Corporate bonds issued by Lehman Brothers were more likely to default, albeit with marginal statistical significance. The differences between underwriters may be capturing issuer risk beyond that captured by rating dummies and the quality spread, and adding these underwriter controls does not affect our covenant results.

In terms of other controls, we find that Yankee bonds are significantly more likely to default in some specifications. Firms that have more antitakeover protection from state laws are also less likely to default in some specifications, as are firms with higher profitability, or higher Q values. Conversely, higher leverage and higher capital expenditures are both associated with higher default risk. In untabulated results, we examine the results if we exclude Yankee bonds, rule 144A bonds, or bonds issued by utilities or financial firms. The results for the survival analysis (and our key analyses below) are similar for these subsamples.

3.3 Alternative Specifications

3.3.1 Matched Sample

¹⁴ In unreported regressions, we repeat our tests but exclude those issues that default within a year of issuance, and we find similar results.

One potential concern is that some firm characteristics may affect the use of bad covenants and default risk simultaneously. For example, firms with high expected default risk are more likely to include bad covenants. To alleviate this concern, we next consider whether the results are robust to using a matched sample analysis. For this analysis, we first run a probit regression where the dependent variable is whether the bond issue includes any bad covenants. The independent variables in this first stage include firm and issue characteristics as well as year, industry, and ratings dummies. In the second stage, we consider the matched sample only, taking the most similar bond issue with no bad covenants for each issue with at least one bad covenant. The results for the matched sample in Model 1 of Table 4 are consistent with the findings above; the coefficient on bad covenants is positive and significant while the coefficient on good covenants is negative and significant.

In Model 2 of Table 4 we include the expected default frequency (EDF) to the matching analysis. This slightly reduces the sample size; however the results are otherwise similar. In Model 3 of Table 4 we run a separate match for each rating category. This procedure greatly reduces the sample size as we are unable to estimate the probit on rating categories with only a few bonds that have bad covenants. Nevertheless, the coefficient on bad covenants remains positive and highly significant in this specification. This matching procedure increases our confidence that the positive relation between the use of bad covenants and bankruptcy is not due to other covariates.

3.3.2 Rating Changes

If certain covenants increase firm default risk, they should also be associated with a decrease in credit rating. As a check on the survival analysis, we consider an ordered probit where the dependent variable is the number of net downgrades (computed as total number of downgrades minus the total number of upgrades) by the S&P rating agency while the bond is outstanding. If a covenant helps control agency problems it should be associated with a decrease in the number of downgrades (or an increase in the number of upgrades), while a bad covenant would therefore be associated with an increase in the number of downgrades.

Table 5 presents the estimated coefficients from this ordered probit regression.¹⁵ In Column 1, the estimated coefficient on the overall covenant index is insignificant. In Column 2, when all the different covenants are considered, six out of the seven covenants previously classified as bad have positive coefficients (four out of the other 17 also have insignificant positive coefficients). In Column 3, we aggregate the stock issuance, preferred stock issuance, and stock transfer covenants into the stock covenant index, and find similar results. In Column 4, we group the covenants into good and bad, and find the estimated coefficient on good covenants is negative and significant, whereas the estimated coefficient on bad covenants is positive and significant. Thus, not surprisingly, bad covenants (those associated with a greater probability of default) are, on average, associated with an increase in the number of downgrades. In contrast, other covenants are on average associated with a decrease in the number of downgrades. In Column 5, we repeat this analysis and include lead underwriter. Bonds issued by JP Morgan and Morgan Stanley are less likely to be downgraded, but this does not change the overall results for good and bad covenants.

Overall, this analysis demonstrates that the survival results described above can also be found by examining downgrades, with, as expected, the same covenants that were associated with greater default also being associated with more downgrades.

3.3.3 Firm-Level Analysis

An alternative way to analyze the relation between covenants and bankruptcy risk is to organize the data by firm rather than by issue. Thus, we organize the data so that each observation reflects a particular firm-quarter. The determinants for whether a firm survives then include firm-specific variables from the beginning of the quarter and the bond covenants in force at the beginning of the quarter. In this analysis, we can also include all the covenants on bank loans outstanding at the beginning of the quarter. This specification has certain advantages and disadvantages. In particular, it allows us to consider all covenants that apply to the firm in any public deals at the same time, and it allows us to consider loan covenants.

¹⁵ The sample includes firms with rated bonds only since the dependent variable in our analysis is rating changes.

The primary disadvantage of this procedure is that by measuring all firm characteristics at the quarterly level, changes in these characteristics may capture the effects of the covenants. For example, consider a firm that has a 10-year bond with a covenant restricting the issuance of additional debt. Using the bond-level analysis, we see the relation between the debt issuance covenant and whether the firm goes into default any time in the next 10 years. Using the firm-level analysis, we also measure the impact of the firm's earnings, leverage, asset size, and so on, for every quarter in the intervening 10 years. Thus, this debt issuance covenant may imply that the firm uses lower leverage over the subsequent 10 years, and, with the firm-level analysis, it is the actual leverage level in each quarter that is most likely to capture this effect.

When we examine survival models with this firm-level specification, we find that firm-level variables are highly significant and covenants are never significant. This remains true if we consider individual covenants, subsets of covenants, bond covenants only, or bond and loan covenants. Thus, quarterly firm-level data is not able capture the additional effect of covenants on bankruptcy risk, whereas, as we show, a bond-level analysis captures a number of interesting effects.

4. Why Do Firms Use Bad Covenants?

If covenants are designed to maximize firm value as Smith and Warner (1979) suggest, then adding covenants that increase the probability of default seems nonsensical. Bankruptcy has additional costs associated with it, and thus bad covenants would decrease the value of the firm. By increasing default risk, these covenants become detrimental to the bondholders that they are nominally designed to protect. We provide four explanations for these covenants. We consider whether the use of some covenants reflect faulty contract design (e.g., Hillion and Vermaelen, 2004), where firms add a new covenant to a debt contract in an attempt to innovate, but then over time the market learns that the covenant is not value increasing. We consider whether covenants that increase default also increase the recovery rate in bankruptcy (Jankowitsch et al., 2014). Similar to Chava, Kumar, and Warga (2010), we also examine whether bad covenants reflect manager-shareholder agency problems such as entrenchment. Finally, we investigate whether the use of bad covenants is the result of debt specialization, or the potential conflicts of interest

among the different groups of debtholders as described by Colla, Ippolito, and Li (2013) and Lou and Otto (2015).

To see whether these theories can help explain the use of bad covenants, we use several different analyses. For faulty contract design, we examine the incidence of bad covenants by year. For recovery rate, we consider either the price directly after default or the discounted value of all payments to securities after default. For manager-shareholder or within bondholder conflicts, we use probit analyses where the dependent variable is whether a particular covenant is used, and the independent variable of interest is either the Bebchuk, Cohen, and Farrell (2009) entrenchment index (EIndex) or the Herfindahl-Hirschman index of the types of debt instrument (Debt Specialization). In addition, we run Poisson regressions, where the dependent variable is the count of good or bad covenants, and the independent variable of interest is debt specialization.¹⁶

4.1 Faulty Contract Design

Hillion and Vermaelen (2005) posit that the issuance of privately held floating priced convertibles, a financial innovation used by U.S. firms in the second half of the 1990s, is an example of faulty contract design. They show that the design of these contracts encourages convertible holders to increase their expected returns by shorting and converting. They also show that professional short-sellers can lower the value of the stock by increasing the dilution that results from converting at low stock prices. Their results are most significant for small risky firms, which should benefit the most from this new financing technique.

In the spirit of Hillion and Vermaelen (2005), we posit that certain covenants may be included in debt agreements because of faulty contract design. If so, we would expect that the use of these covenants to decline over time and eventually disappear. Table 6 reports the incidence of bad covenants by year. The table provides the mean number of each type of bad covenant for each year over the sample period 1980-2014. Consistent with bad ideas dying out over time, two types of covenants, stock transfers and rating decline puts, have disappeared over time (only two stock

¹⁶ Assuming a negative binomial, rather than a Poisson distribution, produces nearly identical results.

transfer covenants are used after 2006, and only one rating decline put was included after 2003), and the use of a third covenant, stock issuance, has been significantly reduced after 2011.

The disappearance of the rating decline put could be attributed to the structure of the covenant. Ratings-based triggers are clauses that specify an action when the debt is downgraded to a predetermined level. These include the prepayment of a predetermined proportion of debt via an equity infusion, the prepayment of a predetermined proportion of debt via the sale of assets, and an increase in the coupon rate of debt. Bhanot and Mello (2006) examine the incentive for shareholders to include such triggers, the implications of such triggers for agency conflicts between shareholders and debtholders, and the impact of different types of trigger on the risk profile of the company. They show that the different types of debt triggers produce very different results in moving the firm closer to the value-maximizing policy. They note that for this covenant, it is not just the existence of the debt trigger that matters, but the capital structure effects and the form of financing associated with a specific trigger.¹⁷

Overall, our survival analysis results support Bhanot and Mello's conclusion that these puts are not optimal and not value enhancing. The results also suggest that the stock transfer covenant, which inhibits the issuer from transferring, selling, or disposing of its own common or the common stock of a subsidiary, is not optimal, and its use has died out over time. While the faulty contract design offer some explanation for at least two bad covenants, the justification for the remaining ones that have not disappeared over time require alternative explanations.

4.2 Greater Recovery Rates

We next consider an efficient explanation for the use of bad covenants – one in which they are not so bad after all. Specifically, we analyze the value of the bond one month after default (Recovery Rate at Default), as well as the sum of the cash or settlement value at liquidation or emergence from bankruptcy discounted back to the last date that cash was paid using the bond's effective rate (Ultimate Recovery Rate). Both of these variables are from the Moody's DRD data set.

¹⁷ This type of learning from academic literature parallels the changes in stock return predictability after the publication of related academic articles described by McLean and Pontiff (2016).

Table 7 provides an OLS regression on the Recovery Rate at Default and a Tobit regression on the Ultimate Recovery Rate, as some of these values equal zero. Year, rating, and 2-digit SIC code dummies are included in all regressions, as well as firm and issue characteristics, and standard errors are clustered by firm. In Model 1, the analysis of the Recovery Rate at Default, the coefficient on the good covenant index is negative and significant, while the coefficient on the bad covenant index is positive and significant. Similarly, in Model 2, the analysis of Ultimate Recovery Rate, the coefficient on the good covenant index is negative and marginally significant while the coefficient on bad covenants is positive and significant. For both models, we can reject the hypothesis that the coefficient on good covenants equals the coefficient on bad covenants at the 5% level. Thus, these bad covenants may increase the probability of default, but they have a more positive effect on values in bankruptcy than other covenants. In unreported regressions, we consider the full covenant index of all 24 covenants, and find that it has an insignificant relation to either measure of recovery.

A simple calculation suggests that, on average, the increase in bankruptcy risk associated with an additional bad covenant is more detrimental than the more optimistic 8% gain in value estimated in Model 1 of Table 7. That said, given these results, there may be bond issues where investors would be willing to trade-off the greater risk of default for the larger recovery associated with these bad covenants.

4.3 Manager-Shareholder Agency Problems

Managers may add restrictions on the sale of block holdings to bond contracts in order to avoid the additional monitoring that a controlling block holder may bring. Restrictions on stock issuance, preferred stock issuance, or on similar transactions bring few plausible benefits to bondholders, who are likely to benefit from having more equity in the firm. On the other hand, entrenched managers have incentives to weaken governance by including covenants that forbid the sale of large equity or preferred stock blocks. Chava, Kumar, and Warga (2010) show that managerial entrenchment, notably the length of the CEO's tenure for high leverage firms, and fraud, such as the firm's financial transparency and uncertainty about its investment prospects, has important effects on the use of covenants in corporate bonds. As such, we expect that restrictions on equity issuance, preferred stock issuance, and more broadly on stock transfers,

sales, or dispositions, are more likely to occur in firms that already have a high degree of entrenchment.

We proxy for entrenchment using the index of six corporate governance provisions as in Bebchuk, Cohen, and Farrell (2009). We consider whether the three bad covenants related to equity issuance are more likely to be added when the entrenchment index (EIndex) is higher. We consider probit regressions on whether the debt issue includes a stock, preferred stock, or stock transfer regression, and a Poisson regression on the stock issuance index (equal to the sum of these three restrictions). A higher value of the EIndex is associated with a larger probability of including these provisions, although this relation is only significant for the stock transfer provision and for the index as a whole.

Table 8 provides our results of selected covenants and the entrenchment index.¹⁸ Models 1 through 3 consider the stock issue, preferred stock, and stock transfer covenants in probit regressions. Model 4 examines the stock issuance index, which combines all three covenants. We expect the stock issuance, preferred stock issuance, and stock transfer covenants to limit the firm's ability to issue additional equity. As equity is subordinate to debt in terms of priority claims, these limitations reduce the potential to increase the firm's capital and increase default risk. Overall, the results show that the entrenchment index is positively related to all three covenants as well as the stock issuance index. The stock transfer covenant, however, appears to be the strongest restriction both in terms of having broader language and in terms of a larger relation with the EIndex.¹⁹

In unreported regressions we control for whether the firm's general counsel acts as the legal advisor on the issue (this occurs in 12.4% of the data set). Having internal counsel assisting in drafting of the contract may curtail the tendency for bad covenants to sneak in, either through lack of knowledge or due to conflicts with the interests of the senior management. We therefore consider specifications where the dependent variables are either the overall number of bad

¹⁸ In unreported regressions, we consider whether the entrenchment index explains the use of other covenants and find no evidence that it does.

¹⁹ In unreported regressions, we repeat these tests but include the GIndex of Gompers, Ishii, and Metrick (2003) which includes 24 anti-takeover provisions rather than the EIndex. The GIndex is only available up to 2006, and this reduces our sample size. The results with the GIndex are similar (with slightly greater t-statistics) to those for the EIndex.

covenants or the stock issuance index. In all cases, if the borrowing firm is advised by its internal general counsel, there is a significantly decreased probability of including these bad covenants. Adding the EIndex as an additional control, we find that the coefficient on general counsel remains negative and significant, while the coefficient on EIndex is positive and marginally significant.

4.4 Debt Specialization

As the number of bond classes for debtholders increases, renegotiation before or during bankruptcy becomes more difficult (see e.g., Bolton and Scharfstein, 1996, and Ivashina, Iverson, and Smith 2016). We hypothesize that greater concentration of debt would imply a decrease in within bondholder conflicts. Colla, Ippolito, and Li (2013) consider the effects of debt specialization using a Herfindahl-Herschleifer Index based on seven debt types (i.e., commercial paper, drawn credit lines, term loans, senior and subordinated bonds and notes, and capital leases). Lou and Otto (2015) use the HHI index of debt types as in Colla et al. and show that firm with more dispersed debt structure use more covenants in their bank loan contract. Therefore, we use the HHI index to proxy for the within bondholder conflict. High debt specialization indicates fewer conflicts of interest among different claim debtholders.

Table 9 provides regressions on debt specialization and covenant use. Models 1 through 4 consider whether specialization is a determinant of good covenants, bad covenants, good covenants for rated firms only, and bad covenants for rated firms only, respectively, using Poisson regressions. Models 5 through 7 report regressions on whether a particular bond includes restrictions on stock issuance, investment, and transaction with affiliates, respectively.

The results from Model 1 show that debt specialization is negatively associated with the use of good covenants, albeit with only marginal significance. On the other hand the results from Model 2 show that debt specialization has a strong and significant negative effect (at the 1% level) on bad covenants, and a formal test is able to reject the hypothesis that the coefficients on debt specialization is equal between Models 1 and 2. Models 3 and 4 repeat these analyses for rated bonds only. In Model 3, the relation between debt specialization and the use of good covenants is not significant, but it remains highly significant in Model 4 for bad Covenants. Thus, debt

specialization, or a greater concentration of debt holders, is associated with much less use of bad covenants but with little difference in the use of good covenants.

We next examine the effect of debt specialization on the stock issuance restrictions index using a Poisson regression. In Model 5, we find that greater debt homogeneity significantly decreases the probability of including the sum of the three restrictions on stock issuance. Using probit regressions in Models 6 and 7, we document that debt specialization is not significantly related to investment covenants, but is significantly related to covenants on transactions with affiliates. Restrictions on investment and transactions with affiliates covenants are often included to prevent managerial discretion such as risk shifting behavior.

We also considered the other bad covenants individually and find that debt specialization is not significant in any of those specifications. Note that the other bad covenants are somewhat less frequently used than the reported covenants, and thus the probit regressions for net worth and rating decline put also have fewer observations once perfectly predicted observations are removed. For instance, certain rating categories will not have any of a particular covenant, and thus observations in those categories are perfectly classified and dropped from the regression (e.g., the probit regression for the rating decline put covenant has only 546 observations).

An additional variable which is sometimes used to measure the severity of agency conflicts is the fraction of equity owned by institutions. Chava, Kumar, and Warga (2010) find that institutional ownership is not significantly related to covenant use with the exception of a positive relation to event covenants in one of their specifications. Similarly, in unreported regressions we find that institutional ownership is not significantly related to either good or bad covenant use, and that our other results are unchanged or stronger if this variable is included, although including institutional ownership does somewhat reduce the sample size.

5. Covenant Use and the Cost of Debt

Next, we examine whether good and bad covenants are priced differently in the market place. Specifically, we consider regressions where the dependent variable is the yield spread of the bond at issuance over treasuries, and the independent variables include other issue characteristics, firm characteristics, the quality spread, rating dummies, and industry dummies. In addition, we consider spread specifications with the total covenant index as well as the segmentation of good

and bad covenant indices separately. We test whether the relation between good covenants and spreads is equal to the relation between bad covenants and spreads.

Table 10 provides regressions on the relation between log of yield spread and various covenants. The independent variables include bond and firm issue characteristics from the quarter prior to the issuance date. Model 1 reports the results using the overall covenant index. Model 2 considers the specification when the overall covenant index is segmented by good and bad covenants. Model 3 is similar to Model 2 but considers rated bonds only. Model 4 is also similar to Model 2 but with an additional control for debt specialization.

In Model 5 of Table 10 we instead consider an instrumental variable specification, where the instruments are the most frequently used law firms used by the underwriter and by the borrower. That is, we create 18 dummy variables for the most frequently used law firms by the issuer and an additional dummy if some other law firm was used. We similarly create 21 dummy variables for the most frequently used firms by underwriters, and an additional dummy variable if some other firm was used. In this specification, we also include dummy variables for the most frequently used underwriters, so as to capture the effects of the law firms and not potential differences in the risk associated with issues from different investment banks.²⁰

The results from Model 1 show that the overall covenant index is positively related to the yield spread. An increase of one covenant is associated with a 1.74% increase in yield spreads, and with an average of three covenants per firm this translates to about 5 basis points. This result reflects differences in risk between deals that use more or fewer covenants, and this overall covenant index regression is consistent with prior findings (see e.g., Bradley and Roberts, 2015 and Miller and Reisel, 2012). In additional non-reported testing, we rerun Model 1 while controlling for debt specialization and find that the coefficient on the overall index is much smaller (20 times less) than originally reported. Thus, controlling for within-debtholder conflicts reduces the positive relation between covenants and yield spreads.

When we segment the effects of good and bad covenants (Models 2 through 5), we find that the coefficient on the good covenant index is either insignificantly related to the yield spread (Models 3 through 5), or slightly positive but not economically significant (Model 2). Note that as more risky bonds include more covenants, when we consider the regression with unrated bonds

²⁰ These law firms are jointly significant predictors of good and bad covenant use.

(Model 2), we have a potential omitted variable bias as the unrated dummy may not adequately capture risk. This bias may help explain why the coefficient on the Good Covenants index is slightly larger when unrated bonds are included, and why it becomes insignificant when only rated bonds are considered.²¹

In contrast, the estimated coefficients on the bad covenants index are statistically significant at the 1% level in Models 2 through 4, and significant at the 10% level in Model 5. Additionally, the bad covenants coefficients are much larger in terms of magnitude than the coefficient on the good covenants index. Each additional bad covenant is associated with an increase of 4.2% to 4.9% in spreads in the OLS specifications (Models 2 to 4), and a 19% increase in spreads in the IV specification (Model 5). This large coefficient in Model 5 may be due to a bias in the estimation of instrumental variables with weak instruments in finite samples (see, for instance, Hahn and Hausman, 2003). We can also reject the hypothesis that the coefficients on good and bad Covenants indexes are equal at the 1% level in Models 2 and 3, or at the 5% level in Model 4 for the smaller sample with Debt Specialization (p-value of 0.025). Thus, almost all of the positive relation between yield spreads and covenants is due to bad covenants, which are associated with an increase in default risk. In other words, the relation between bad covenants and bankruptcy is not only reflected in rating declines and increases in agency issues, it also appears to be priced by the market at the time of issuance.

In terms of controls, we find firms with a higher concentration of debt is associated with lower yield spreads, albeit marginally. We also find that firm size, profitability, capital expenditures, and Tobin's Q are inversely related to yield spread, while higher leverage and higher debt issuance are associated with higher yield spreads. Overall, the results reconcile the evidence in the literature on the relation between covenants and the cost of debt. They show that much of the positive relation between spreads and covenants in the bond market can be explained by bad covenants. These covenants should rationally have higher spreads as they imply greater default risk. Yield spreads increase with one additional bad covenant by 5% to 8%, depending on specification. Good covenants, overall, are not associated with significantly higher spreads.

²¹ In unreported regressions, we also control for the expected default frequency measure in the yield spread regressions. Similar to the other results, we find an insignificant coefficient on good covenants and a positive coefficient on the bad covenants variable which is significant at the 1% level; the coefficient on EDF is not significant.

7. Conclusion

We analyze the relation between individual covenant use and firm default and find that certain covenants lead to higher bankruptcy risk. These bad covenants include restrictions on the sale of equity or preferred stock, rating decline puts, restrictions on investments, restrictions on transfers, and net worth covenants. We posit that the use of bad covenants can be partly explained by faulty contract design, greater recovery rates, manager-shareholder agency risk, or within bondholder conflicts. We tests these four hypotheses empirically and we find that some bad covenants, such as rating decline puts, disappear over time, and this pattern is consistent with the faulty contract design hypothesis. On average, we find that these covenants are also associated with greater recovery if a default does occur, thus providing an efficiency rationale for including them in some debt contracts. We also find that greater managerial entrenchment is associated with more restrictions on equity transfers, and this supports the idea that some covenants are added into bond contracts to entrench managers. We further show that a more diverse portfolio of debt holdings is associated with significantly more bad bond covenants.

We further consider whether these bad covenants are priced differently from other covenants. We find that spreads are significantly higher for each bad covenant used. In contrast, for rated bonds, covenants that are not associated with an increase in default risk do not imply higher spreads. We repeat these tests using the issuers' and the underwriters' law firms as instruments, and again find a significant positive relation between bad covenants and yield spreads, and no relation between good covenants and yield spreads. Thus, for bonds, the positive relation between spreads and covenants can be largely explained by considering the subset of covenants which also implies greater default risk. These findings augment the classical view that covenants are efficient mechanisms to increase firm value by restricting the expropriation of bondholder value. They also paint a more complex picture, where at least some covenants are put in place to further entrench managers, or to give greater power to particular parties in agency conflicts between bondholders.

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Table 1
Variable Definitions

Variable	Description	Source
<i>Issue/Macro Characteristics</i>		
Yield Spread	The difference between the issue's offering yield and the yield of the benchmark treasury issue	FISD
Deal Size	The par value of debt initially issued (in millions of \$)	FISD
Relative Size	Ratio of offering amount to total debt before the issue	Compustat/FISD
Maturity (in years)	The difference between offering date and the maturity date	FISD
Puttable	Dummy that equals one if the issue has a put option	FISD
Callable	Dummy that equals one if the issue has a call option	FISD
Secured	Dummy that equals one if certain assets have been pledged as security for the issue	FISD
Yankee	Dummy that equals one if the issuer is a foreign corporation (including Canadian companies)	FISD
Quality Spread	BAA rates minus AAA rates using seasoned Moody's bonds on the day of issuance	St. Louis Fed
Rule 144A	Dummy that equals one if private placement issue exempt from registration under SEC 144A	FISD
Recovery Rate at Default	Market value of default debt, as a percentage of par, one month after default	Moody's DRD
Ultimate Recovery rate	Sum value of settlements received for each default instrument, taken at emergence or liquidation, divided by total principal defaulted amount of the class, discounted back from emergence or liquidation date to last date cash paid using default instrument's effective rate.	Moody's DRD
<i>Firm Characteristics</i>		
Firm Size	Log of total assets (in millions of \$)	Compustat
Leverage	The sum of long and short term debt divided by total assets	Compustat
Market-to-Book	Market capitalization of stock plus total debt divided by total assets	Compustat
Profitability	Earnings before interest, taxes, depreciation, and amortization scaled by total assets	Compustat
R&D	Research and development expense. Missing R&D values are set to zero	Compustat
Tangibility	Property, Plant, and Equipment divided by total assets	Compustat
Capital Expenditure	Capital expenditures divided by total assets	Compustat
Interest Coverage	EBITDA divided by interest expense	Compustat
TA Constraint	State total asset constraint is the minimum asset-to-debt ratio required for a distribution to shareholders given the firm's state of incorporation	Manual Collection
Entrenchment Index	An index measuring the degree of management entrenchment as in Bebchuk, Cohen, and Ferrell (2009). A high value of the index indicates a poor corporate governance.	ISS
Debt Specialization	A Herfindahl-Hirschman index of the types of debt instrument (see, Colla, Ippolito, LI, 2013). A low value of the index suggests more diversified debt structure.	Capital IQ
Expected Default Frequency (EDF)	The expected default frequency (EDF) measure is computed as in Bharath and Shumway (2008). EDF is a measure of the probability that a firm will default over a specified period (typically	Compustat and CRSP

one year). The components of the EDF include the current market value of the firm (market value of assets), the level of the firm's obligations (default point), and the vulnerability of the market value to large changes (asset volatility).

$$EDF = N \left[- \left(\frac{\ln((E + F) / F) + (r_{i,t-1} - 0.5\sigma_v^2)}{\sigma_v} \right) \right]$$

where N is cumulative standard normal distribution, E is market value of equity, F is face value of debt, calculated as short-term debt+0.5*long-term debt, $r_{i,t-1}$ is the annual stock return of

firm i in year $t-1$, $\sigma_v = \frac{E}{E + F} \sigma_E + \frac{F}{E + F} (0.05 + 0.25\sigma_E)$ and σ_E is the standard deviation of monthly stock return in past year.

Covenant Variables (Complete Definitions of all covenants are provided in Appendix A)

Good Covenant	Covenants associated with a decrease in the probability of bankruptcy	FISD
Bad Covenants	Covenants associated with an increase in the probability of bankruptcy.	FISD
Payment Index	Summation of dividend payment and other payment dummies (see Appendix A)	FISD
Asset Index	Summation of transaction, investment, asset sales and asset transfer dummies (see Appendix)	FISD
Borrowing Index	Summation of funded debt, subordinated debt, senior debt, secured debt, indebtedness, leaseback, liens, and guarantee dummies (see Appendix)	FISD
Stock Index	Summation of common stock, preferred stock, and other stock dummies (see Appendix A)	FISD
Default Index	Summation of cross acceleration and cross default dummies (see Appendix A)	FISD
Antitakeover Index	Summation of poison put and antitakeover M&A dummies (see Appendix A)	FISD
Profit Index	Summation of earnings and net worth dummies (see Appendix A)	FISD
Rating Decline Index	Index based on the rating decline trigger put dummy (see Appendix A)	FISD

Note: This table provides variables definitions for issue characteristics, firm characteristics, and covenants variables. Covenant details are provided in Appendix A.

Table 2
Summary Statistics

Panel A: Covenants (n=17,380)

	Mean	Median	Std. Dev.	Minimum	Maximum
Covenant Index	3.620	3	3.630	0	18
Good Covenants	3.334	3	3.111	0	12
Bad Covenants	0.286	0	0.753	0	6
<i>Covenant Sub-Indices</i>					
Payment Index	0.247	0	0.631	0	2
Borrowing Index	1.001	0	1.185	0	5
Asset Index	0.720	1	0.711	0	4
Stock Index	0.125	0	0.416	0	3
Default Index	0.489	0	0.579	0	2
Antitakeover Index	0.909	1	0.804	0	2
Profit Index	0.121	0	0.338	0	2
Rating Decline Index	0.008	0	0.092	0	1
<i>Covenant/FISD Dummies</i>					
Dividend Payment	0.123	0	0.329	0	1
Restricted Payment	0.124	0	0.330	0	1
Funded Debt	0.013	0	0.114	0	1
Subordinated Debt	0.024	0	0.152	0	1
Senior Debt	0.004	0	0.067	0	1
Negative Pledge	0.403	0	0.491	0	1
Indebtedness	0.156	0	0.363	0	1
Leaseback	0.300	0	0.458	0	1
Liens	0.040	0	0.196	0	1
Guarantee	0.061	0	0.239	0	1
Asset Sale	0.580	1	0.494	0	1
Asset Transfer	0.003	0	0.054	0	1
Transaction	0.124	0	0.330	0	1
Investment	0.013	0	0.112	0	1
Stock Issuance	0.043	0	0.202	0	1
Preferred Stock	0.061	0	0.239	0	1
Stock Transfer	0.021	0	0.144	0	1
Cross Acceleration	0.439	0	0.496	0	1
Cross Default	0.050	0	0.218	0	1
Consolidation Merger	0.581	1	0.493	0	1
Change of Control	0.327	0	0.469	0	1
Earnings	0.105	0	0.307	0	1
Net Worth	0.016	0	0.124	0	1
Rating Decline Put	0.008	0	0.092	0	1

Note: This panel provides descriptive statistics for our covenants variables used in the analyses. The data set is comprised of 9,849 firm-year observations on 1,601 firms over the period 1986 to 2014. Variables definitions are provided in Table 1 and in Appendix A.

Panel B: Firm and Deal Characteristics

	Mean	Median	Std. Dev.	Minimum	Maximum	Count
Yield Spread (basis points)	221.694	155.000	175.583	11	759	7,657
Bankrupt	0.101	0.000	0.302	0	1	17,380
Issue Size	12.073	12.429	1.610	0	16.524	17,380
Relative Size	1.655	0.162	11.094	0	130.000	17,380
Maturity	8.053	8.188	0.793	3.584	10.506	17,380
Secured	0.045	0	0.208	0	1.000	17,380
Callable	0.727	1	0.446	0	1.000	17,380
Putable	0.065	0	0.246	0	1.000	17,380
Yankee	0.003	0	0.052	0	1.000	17,380
Rule 144A	0.199	0	0.399	0	1.000	17,380
TA Constraint	0.313	0	0.467	0	1.250	17,380
Antitakeover Index	1.724	1.000	1.503	0	5.000	17,380
Firm Size	8.674	8.654	2.083	0.998	13.989	17,380
Leverage	38.837	35.111	21.557	0	97.742	17,380
Profitability	1.927	1.954	2.302	-7.985	8.514	17,380
Tangibility	34.475	29.853	27.349	0	91.385	17,380
Interest Coverage	9.446	4.788	17.217	-10.569	117.945	17,380
R&D	0.339	0.000	0.978	0	5.564	17,380
Capital Expenditures	4.247	2.207	5.608	0	30.082	17,380
Tobin's Q	1.289	1.000	0.888	0.129	5.916	17,380
Quality Spread	0.986	0.900	0.430	0.500	3.500	7,657
Debt Specialization	0.708	0.706	0.214	0.210	1	6,718
Entrenchment Index	2.406	2.000	1.426	0	6	10,841
Recover Rate at Default	36.951	28.000	28.217	0.010	122.630	708
Ultimate Recovery Rate	42.397	36.370	35.515	0.000	169.780	767
Goldman Sachs	0.148	0	0.355	0	1	17,380
Lehman Brothers	0.074	0	0.262	0	1	17,380
JP Morgan	0.189	0	0.391	0	1	17,380
Merrill Lynch	0.173	0	0.378	0	1	17,380
Morgan Stanley	0.106	0	0.308	0	1	17,380
Salomon Brothers	0.067	0	0.250	0	1	17,380
Credit Suisse	0.089	0	0.284	0	1	17,380
Other Investment Banks	0.354	0	0.478	0	1	17,380

Note: This panel provides descriptive statistics for our firm and deal variables used in the analyses. The data set is comprised of 9,849 firm-year observations on 1,601 firms over the period 1986 to 2014. Variables definitions are provided in Table 1.

Panel C: Firm and Deal Characteristics for Issues with and without Bad Covenants

	<u>Full Sample</u>			<u>Issues without Bad Covenants</u>			<u>Issues with Bad Covenants</u>			Diff.
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	
Issue Size	12.073	12.429	1.610	12.037	12.429	1.708	12.276	12.255	0.843	-0.239 ^a
Relative Size	1.655	0.162	11.094	1.728	0.134	11.637	1.246	0.362	7.323	0.482 ^a
Maturity	8.053	8.188	0.793	8.051	8.202	0.847	8.063	8.162	0.358	-0.012
Secured	0.045	0.000	0.208	0.039	0.000	0.193	0.082	0.000	0.274	-0.043 ^a
Callable	0.727	1.000	0.446	0.696	1.000	0.460	0.901	1.000	0.299	-0.205 ^a
Putable	0.065	0.000	0.246	0.074	0.000	0.261	0.015	0.000	0.121	0.059 ^a
Yankee	0.003	0.000	0.052	0.003	0.000	0.051	0.003	0.000	0.055	0.000
Rule 144A	0.199	0.000	0.399	0.230	0.000	0.421	0.023	0.000	0.149	0.207 ^a
Firm Size	8.674	8.654	2.083	8.908	8.904	2.082	7.359	7.341	1.528	1.549 ^a
Leverage	38.837	35.111	21.557	37.458	33.353	21.246	46.586	44.636	21.652	-9.128 ^a
Profitability	1.927	1.954	2.302	1.985	1.968	2.299	1.601	1.730	2.292	0.384 ^a
Tangibility	34.475	29.853	27.349	33.731	28.393	27.283	38.656	36.484	27.348	-4.925 ^a
Interest Coverage	9.446	4.788	17.217	10.177	5.244	18.043	5.335	3.164	10.625	4.842 ^a
R&D	0.339	0.000	0.978	0.377	0.000	1.026	0.129	0.000	0.606	0.248 ^a
Capital Exp.	4.247	2.207	5.608	4.049	2.159	5.293	5.355	2.545	7.021	-1.306 ^a
Tobin's Q	1.289	1.000	0.888	1.304	0.996	0.912	1.205	1.023	0.733	0.099 ^a
S&P Rating	12.546	13.000	3.936	13.336	14.000	3.779	9.231	9.000	2.644	4.105 ^a
Debt Specialization	0.708	0.706	0.214	0.721	0.726	0.212	0.637	0.579	0.213	0.084 ^a
Entrenchment Index	2.455	2.000	1.407	2.433	2.000	1.404	2.635	3.000	1.418	-0.202 ^a
Yield Spread	169.250	112.500	180.012	164.836	110.000	175.325	206.179	150.000	211.784	-41.343 ^a
Goldman Sachs	0.148	0.000	0.355	0.158	0.000	0.365	0.091	0.000	0.288	0.067 ^a
Lehman Brothers	0.074	0.000	0.262	0.075	0.000	0.263	0.072	0.000	0.258	0.003
JP Morgan	0.189	0.000	0.391	0.196	0.000	0.397	0.147	0.000	0.354	0.049 ^a
Merrill Lynch	0.173	0.000	0.378	0.181	0.000	0.385	0.126	0.000	0.332	0.055 ^a
Morgan Stanley	0.106	0.000	0.308	0.111	0.000	0.314	0.075	0.000	0.264	0.036 ^a
Salomon Brothers	0.067	0.000	0.250	0.066	0.000	0.248	0.074	0.000	0.262	-0.008
Credit Suisse	0.089	0.000	0.284	0.083	0.000	0.276	0.119	0.000	0.324	-0.036 ^a
Other Invest. Banks	0.354	0.000	0.478	0.340	0.000	0.474	0.432	0.000	0.495	-0.092 ^a

Note: This panel provides descriptive statistics for some of the firm and deal variables used in the analyses separated out for the full sample, for bonds without bad covenants, and for bonds with bad covenants. The differences are denoted with an ^a if they are significant at the 1% level. Those without a subscript are not significant at the 10% level. Statistical differences are calculated using t-tests with unequal variances assumed for continuous variables, and for chi-square tests for the discrete variables.

Panel C: Industry Distribution

SIC Code	Title of Industries	Obs.	%
0	Agriculture, forestry, and fishing	48	0.28
1	Mining and Construction	1,449	8.34
2	Manufacturing (Food-Petroleum)	2,931	16.86
3	Manufacturing (Plastics/Electronics)	2,742	15.78
4	Transportation and Communication	3,882	22.34
5	Wholesale Trade and Retail Trade	1,642	9.45
6	Finance, Insurance, and Real Estate	2,790	16.05
7	Services (Hotels-Recreation)	1,351	7.77
8	Services (Health-Private Household)	497	2.86
9	Public Administration	48	0.28
Total		17,380	100

Note: This panel provides the number and percentage of bond issues for each industry group in the sample using one digit SIC codes.

Table 3
Survival Analysis

Panel A: All Individual Covenants

	All Individual Covenants	All Individual Covenants Rated Only	Stock Index Rated Only
	(1)	(2)	(3)
Asset Sale Covenant	0.672 (-1.10)	0.810 (-0.62)	0.808 (-0.62)
Asset Transfer Covenant	0.419 (-1.62)	0.440 (-1.49)	0.431 (-1.52)
Transaction Covenant	1.543 (1.62)	1.809 ^b (1.97)	1.819 ^b (1.98)
Investment Covenant	1.582 ^b (2.53)	1.512 ^b (2.12)	1.502 ^b (2.11)
Stock Issuance Covenant	1.024 (0.16)	1.064 (0.39)	
Preferred Stock Covenant	1.121 (0.73)	1.247 (1.34)	
Stock Transfer Covenant	1.132 (0.69)	1.241 (1.13)	
Stock Covenant Index			1.174 (1.57)
Dividend Payment Covenant	1.171 (0.74)	1.148 (0.53)	1.146 (0.52)
Restricted Payment Covenant	0.756 (-0.97)	0.718 (-1.00)	0.716 (-1.00)
Funded Debt Covenant	0.659 (-0.89)	0.593 (-1.00)	0.594 (-1.00)
Subordinated Debt Covenant	0.839 (-1.09)	0.858 (-0.93)	0.859 (-0.92)
Senior Debt Covenant	0.713 (-1.29)	0.895 (-0.41)	0.893 (-0.42)
Negative Pledge Covenant	0.823 (-0.89)	0.835 (-0.77)	0.834 (-0.77)
Indebt Covenant	1.086 (0.38)	1.059 (0.23)	1.061 (0.24)
Leaseback Covenant	0.996 (-0.02)	1.040 (0.21)	1.039 (0.20)
Liens Covenant	0.674 ^c (-1.84)	0.669 ^c (-1.83)	0.671 ^c (-1.83)
Guarantee Covenant	0.989 (-0.08)	0.939 (-0.41)	0.924 (-0.52)
Cross Acceleration Covenant	1.064 (0.48)	0.982 (-0.12)	0.981 (-0.13)
Cross Default Covenant	0.954 (-0.16)	0.968 (-0.10)	0.978 (-0.07)
Consolidation Merger Covenant	0.741 (-0.86)	0.553 ^c (-1.88)	0.555 ^c (-1.87)

	1.002	0.899	0.901
Change Control Put Provisions	(0.02)	(-0.70)	(-0.68)
	0.710	0.730	0.727
Earnings Covenant	(-1.14)	(-0.92)	(-0.94)
	1.907 ^b	1.695 ^c	1.698 ^c
Net Worth Covenant	(2.46)	(1.76)	(1.77)
	1.369	1.409	1.396
Rating Decline Put Covenant	(1.23)	(1.26)	(1.22)
	0.924	0.898	0.897
Issue size	(-0.91)	(-1.36)	(-1.37)
	1.007 ^c	1.010 ^c	1.010 ^c
Relative size	(1.92)	(1.85)	(1.84)
	0.786 ^c	0.784	0.785
Log(Maturity)	(-1.87)	(-1.57)	(-1.56)
	1.128	1.060	1.062
Secured	(0.75)	(0.33)	(0.34)
	0.972	0.986	0.986
Callable	(-0.21)	(-0.09)	(-0.09)
	1.076	0.981	0.977
Putable	(0.40)	(-0.09)	(-0.11)
	2.648	5.339 ^b	5.312 ^b
Yankee	(1.03)	(2.09)	(2.09)
	0.697 ^b	0.630 ^b	0.629 ^b
Rule 144a	(-2.09)	(-2.00)	(-2.01)
	0.937	0.812 ^b	0.813 ^b
Antitakeover Index	(-0.82)	(-2.52)	(-2.52)
	0.800	1.100	1.097
TA Constraint	(-0.79)	(0.37)	(0.36)
	0.973	1.116	1.118
Firm Size	(-0.36)	(1.56)	(1.59)
	1.018 ^a	1.016 ^a	1.016 ^a
Leverage	(5.35)	(3.66)	(3.66)
	0.892 ^a	0.918 ^a	0.918 ^a
ROA	(-5.04)	(-3.11)	(-3.11)
	0.999	1.002	1.002
Tangibility	(-0.35)	(0.46)	(0.44)
	1.000	1.004	1.004
Interest Coverage	(0.02)	(0.70)	(0.69)
	0.844 ^b	0.848	0.846
R&D	(-2.12)	(-1.30)	(-1.31)
	1.024 ^a	1.018 ^b	1.018 ^c
Capital Expenditures	(3.05)	(1.97)	(1.96)
	0.846 ^b	0.761 ^b	0.760 ^a
Tobin's Q	(-2.12)	(-2.57)	(-2.58)
Observations	17,380	15,243	15,243

Panel B: Overall Covenant Index, Good Covenants, and Bad Covenants

	Overall Covenant Index	Overall Sub- Indices	Expected Default Frequency	Lead Underwriter	Lead Underwriter Rated Only
	(1)	(2)	(3)	(4)	(5)
Covenant Index	0.976 (-1.53)				
Good Covenants		0.875 ^a (-3.89)	0.887 ^a (-3.240)	0.875 ^a (-3.98)	0.853 ^a (-4.20)
Bad Covenants		1.399 ^a (4.41)	1.358 ^a (4.070)	1.399 ^a (4.33)	1.485 ^a (4.86)
Expected Default Frequency			1.935 ^a (4.080)		
Issue size	0.904 (-0.96)	0.921 (-0.82)	0.878 (-1.500)	0.938 (-0.76)	0.916 (-1.16)
Relative size	1.008 ^b (2.07)	1.007 ^c (1.83)	1.013 ^a (2.880)	1.007 ^c (1.78)	1.009 ^c (1.68)
Log(Maturity)	0.744 ^b (-2.33)	0.753 ^b (-2.23)	0.792 ^c (-1.870)	0.766 ^b (-2.00)	0.769 ^c (-1.68)
Secured	1.180 (1.01)	1.115 (0.66)	0.894 (-0.620)	1.111 (0.64)	1.028 (0.15)
Callable	1.010 (0.06)	1.001 (0.00)	1.083 (0.520)	0.994 (-0.04)	1.001 (0.00)
Putable	1.023 (0.12)	1.061 (0.32)	1.043 (0.200)	1.048 (0.24)	0.899 (-0.48)
Yankee	2.555 (1.09)	2.727 (1.10)	7.064 ^a (2.760)	2.488 (0.92)	5.547 ^b (2.05)
Rule 144a	0.892 (-0.80)	0.730 ^c (-1.95)	0.748 (-1.610)	0.732 ^b (-2.01)	0.695 ^c (-1.85)
Antitakeover Index	0.940 (-0.79)	0.938 (-0.80)	0.936 (-0.860)	0.940 (-0.78)	0.819 ^b (-2.41)
TA Constraint	0.811 (-0.75)	0.803 (-0.78)	0.870 (-0.540)	0.779 (-0.89)	1.060 (0.22)
Firm Size	0.973 (-0.34)	0.970 (-0.38)	0.980 (-0.280)	0.961 (-0.53)	1.112 (1.53)
Leverage	1.019 ^a (5.56)	1.018 ^a (5.38)	1.019 ^a (5.440)	1.018 ^a (5.76)	1.015 ^a (3.89)
Profitability	0.887 ^a (-5.01)	0.890 ^a (-4.97)	0.899 ^a (-4.670)	0.890 ^a (-4.84)	0.915 ^a (-3.11)
Tangibility	0.998 (-0.46)	0.999 (-0.34)	0.996 (-1.130)	0.999 (-0.30)	1.002 (0.57)
Interest Coverage	1.000 (-0.01)	1.000 (0.04)	0.995 (-1.050)	1.001 (0.20)	1.004 (0.84)
R&D	0.829 ^b (-2.25)	0.838 ^b (-2.15)	0.854 ^c (-1.890)	0.846 ^b (-2.08)	0.850 (-1.29)
Capital Expenditures	1.028 ^a (3.51)	1.025 ^a (3.20)	1.029 ^a (3.750)	1.027 ^a (3.31)	1.023 ^b (2.42)
Tobin's Q	0.841 ^b (-2.16)	0.846 ^b (-2.07)	0.897 (-1.410)	0.839 ^b (-2.17)	0.745 ^a (-2.70)
Goldman Sachs				0.862 (-0.77)	0.845 (-0.83)

				1.679 ^b	1.585 ^c
Lehman Brothers				(2.14)	(1.80)
JP Morgan				0.762	0.731
				(-1.25)	(-1.44)
Merrill Lynch				0.795	0.779
				(-1.02)	(-1.09)
Morgan Stanley				0.852	0.711
				(-0.69)	(-1.36)
Salomon Brothers				1.246	1.226
				(1.22)	(1.08)
Credit Suisse				0.898	0.861
				(-0.52)	(-0.70)
Other Invest. Banks				0.930	0.909
				(-0.41)	(-0.51)
Observations	17,380	17,380	16,482	17,380	15,243

Note: This table provides estimated coefficients from a Cox survival analysis in two panels. The dependent variable is the survival time for a bond issue, to the day that the firm files for bankruptcy, measured until the bond matures or the last date of the sample (December 31, 2014). The independent variables include the bond's covenants, measured in a total index (the Covenant Index), sub-indices, or individually. All coefficients are reported in exponentiated form, whereby a coefficient of 1.0 implies no effect. Note that t-statistics refer to the raw estimate, thus an exponentiated coefficient less than 1.0 has a negative t-statistic. The Bad Covenant variable is the sum of all covenants that are associated with an increase in the probability of default and have t-statistics greater than 1.0. The Good Covenant variable is the sum of all other covenants. Firm characteristics are measured in the quarter prior to the bond issue. Variable definitions are provided in Table 1. In Panel A, Model 1 controls for each type of covenant, Model 2 replaces restrictions on stock and preferred stock issuance with the covenant stock index, and Model 3 repeats specification in Model 2 but only examining rated bonds. In Panel B, Model 1 is the base case including the sum of all covenants, Model 2 includes Good and Bad Covenant variables, Model 3 is the specification in Model 2 but includes controls for lead underwriter, and Model 4 is the specification in Model 3 with only rated bonds. All regressions include dummy variables to control for 2-digit SIC industry codes, year dummies, and dummy variables for each S&P rating.

Table 4
Matched Sample Analysis

	<u>Good vs Bad Covenant Indices</u>		
	Matched Sample	Matched with EDF	Matched and with same Rating
	(1)	(2)	(3)
Good Covenants	0.921 ^a (-2.77)	0.941 ^c (-1.750)	1.020 (0.35)
Bad Covenants	1.354 ^a (3.69)	1.303 ^a (2.930)	1.562 ^a (2.78)
Observations	2,722	2,464	640

This Table provides the second stage Cox survival analysis from a matched sample, where the first stage regression is whether any bad covenants are included in the issue. In Model 1 of Panel C the match includes the independent variables used previously. In Model 2 we also include a match on the EDF. In Model 3, the matched firm has the same rating, and the other matched variables are the firm and issue characteristics. Standard errors are calculated with clustering by firm in all regressions. The notation a, b, and c refer to significance at the 1%, 5%, and 10% levels, respectively.

Table 5
Ordered Probit on the Number of Net Downgrades

	Base Case	All Covenants	Stock Index	Good & Bad Covenants	Good & Bad Covenants & Lead Underwriter
	(1)	(2)	(3)	(4)	(5)
Covenant Index	-0.001 (-0.17)				
Good Covenants				-0.027 ^b (-2.10)	-0.026 ^b (-2.01)
Bad Covenants				0.096 ^a (2.80)	0.091 ^a (2.67)
Asset Sale Covenant		0.120 (0.68)	0.121 (0.69)		
Asset Transfer Covenant		-0.021 (-0.09)	-0.013 (-0.05)		
Transaction Covenant		0.508 ^a (3.30)	0.505 ^a (3.26)		
Investment Covenant		0.147 (1.01)	0.148 (1.01)		
Stock Issuance Covenant		0.074 (0.93)			
Preferred Stock Covenant		-0.088 (-1.09)			
Stock Transfer Covenant		0.120 (1.04)			
Stock Covenant Index			0.039 (0.78)		
Dividend Payment Covenant		-0.072 (-0.68)	-0.084 (-0.78)		
Restricted Payment Covenant		-0.101 (-0.62)	-0.119 (-0.72)		
Funded Debt Covenant		-0.021 (-0.19)	-0.025 (-0.22)		
Subordinated Debt Covenant		-0.105 (-1.12)	-0.104 (-1.12)		
Senior Debt Covenant		-0.403 (-1.41)	-0.435 (-1.50)		
Negative Pledge Covenant		0.073 (1.42)	0.075 (1.46)		
Indebt Covenant		-0.191 ^a (-2.59)	-0.195 ^a (-2.63)		
Leaseback Covenant		-0.012 (-0.24)	-0.016 (-0.30)		
Liens Covenant		0.008 (0.10)	0.002 (0.02)		
Guarantee Covenant		-0.091 (-1.27)	-0.091 (-1.28)		

		-0.114 ^b	-0.111 ^b		
Cross Acceleration Covenant		(-2.49)	(-2.43)		
Cross Default Covenant		-0.006	-0.001		
		(-0.11)	(-0.02)		
Cons. Merger Covenant		-0.150	-0.149		
		(-0.87)	(-0.87)		
Change Control Put Prov.		0.040	0.041		
		(0.83)	(0.86)		
Earnings Covenant		-0.085	-0.090		
		(-1.42)	(-1.51)		
Net Worth Covenant		0.213	0.198		
		(1.34)	(1.26)		
Rating Decline Put Covenant		0.019	0.014		
		(0.10)	(0.07)		
Issue size	-0.008	-0.008	-0.008	-0.005	-0.003
	(-0.36)	(-0.39)	(-0.38)	(-0.23)	(-0.15)
Relative size	0.003 ^c	0.003	0.003	0.003	0.002
	(1.74)	(1.59)	(1.59)	(1.63)	(1.61)
Log(Maturity)	0.095 ^a	0.089 ^a	0.089 ^a	0.095 ^a	0.094 ^a
	(3.77)	(3.56)	(3.59)	(3.79)	(3.79)
Secured	-0.154	-0.147	-0.148	-0.160	-0.169
	(-1.46)	(-1.39)	(-1.40)	(-1.50)	(-1.58)
Callable	-0.044	-0.030	-0.031	-0.041	-0.041
	(-0.83)	(-0.57)	(-0.60)	(-0.79)	(-0.80)
Putable	-0.038	-0.020	-0.026	-0.039	-0.047
	(-0.30)	(-0.16)	(-0.21)	(-0.31)	(-0.38)
Yankee	0.606 ^a	0.654 ^a	0.665 ^a	0.621 ^a	0.639 ^a
	(2.67)	(3.25)	(3.25)	(2.84)	(3.08)
Rule 144a	0.081	0.044	0.047	0.011	0.016
	(1.21)	(0.58)	(0.61)	(0.16)	(0.23)
Antitakeover Index	-0.018	-0.021	-0.022	-0.019	-0.021
	(-0.76)	(-0.91)	(-0.94)	(-0.81)	(-0.90)
TA Constraint	-0.065	-0.057	-0.055	-0.064	-0.059
	(-0.82)	(-0.72)	(-0.69)	(-0.80)	(-0.73)
Firm Size	-0.119 ^a	-0.124 ^a	-0.124 ^a	-0.119 ^a	-0.119 ^a
	(-5.03)	(-5.27)	(-5.27)	(-5.07)	(-4.99)
Leverage	0.004 ^a	0.004 ^a	0.004 ^a	0.004 ^a	0.004 ^a
	(2.72)	(2.66)	(2.66)	(2.63)	(2.66)
Profitability	-0.043 ^a	-0.042 ^a	-0.042 ^a	-0.042 ^a	-0.041 ^a
	(-4.09)	(-4.03)	(-4.05)	(-3.99)	(-3.96)
Tangibility	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.52)	(-0.60)	(-0.63)	(-0.55)	(-0.53)
Interest Coverage	0.001	0.001	0.001	0.001	0.001
	(1.16)	(1.16)	(1.14)	(1.09)	(1.09)
R&D	0.016	0.016	0.016	0.018	0.019
	(0.57)	(0.55)	(0.54)	(0.61)	(0.65)
Capital Expenditures	0.018 ^a	0.018 ^a	0.018 ^a	0.018 ^a	0.018 ^a
	(3.68)	(3.63)	(3.67)	(3.59)	(3.61)
Tobin's Q	-0.134 ^a	-0.138 ^a	-0.136 ^a	-0.132 ^a	-0.136 ^a
	(-4.65)	(-4.83)	(-4.76)	(-4.62)	(-4.73)

					0.044 (0.84)
Goldman Sachs					-0.117 (-1.43)
Lehman Brothers					-0.084 ^b (-2.07)
JP Morgan					-0.060 (-1.29)
Merrill Lynch					-0.092 ^c (-1.86)
Morgan Stanley					0.049 (0.58)
Salomon Brothers					-0.013 (-0.22)
Credit Suisse					-0.036 (-0.70)
Other Invest. Banks					
Observations	7,412	7,412	7,412	7,412	7,412

Note: This table provides estimated coefficients from an ordered probit analysis where the dependent variable is the net number of downgrades during the security's life. The independent variables include the bond's covenants. See Table 1 for full variable definitions. The Bad Covenant variable is the sum of all covenants that are associated with an increase in the probability of default and have t-statistics greater than 1.0. The Good Covenant variable is the sum of the other covenants. Firm characteristics are measured in the quarter prior to the bond issue. Regression (1) is the base case including the sum of all covenants, Regression (2) includes a control for each type of covenant, Regression (3) replaces the covenants which restrict stock and preferred stock issuance with the stock covenant index, Regression (4) includes Good and Bad Covenant variables, and Regression (5) repeats Regression (4) but also includes controls for lead underwriter. All regressions include dummy variables to control for 2-digit SIC industry codes, dummies for issuance year, and dummy variables for the initial rating. Standard errors are calculated with clustering by firm. a, b, and c refer to significance at the 1%, 5%, and 10% levels, respectively.

Table 6
Incidence of Bad Covenants by Year

Year	Count	Transaction	Investment	Stock Issuance	Preferred Stock Issuance	Stock Transfer	Net Worth	Rating Decline Put
1980	120	0.000	0.000	0.000	0.000	0.008	0.000	0.000
1981	183	0.000	0.000	0.005	0.000	0.011	0.000	0.000
1982	253	0.000	0.000	0.000	0.000	0.004	0.000	0.000
1983	301	0.000	0.000	0.003	0.000	0.003	0.000	0.000
1984	309	0.000	0.000	0.000	0.000	0.006	0.000	0.000
1985	555	0.025	0.009	0.022	0.005	0.036	0.059	0.005
1986	873	0.009	0.007	0.003	0.001	0.008	0.045	0.005
1987	753	0.009	0.008	0.008	0.005	0.015	0.058	0.005
1988	509	0.039	0.006	0.000	0.016	0.006	0.061	0.004
1989	590	0.031	0.008	0.003	0.012	0.005	0.029	0.015
1990	605	0.023	0.007	0.005	0.002	0.028	0.003	0.030
1991	704	0.045	0.021	0.010	0.011	0.060	0.009	0.018
1992	1142	0.093	0.040	0.033	0.029	0.067	0.016	0.019
1993	1549	0.119	0.036	0.052	0.052	0.054	0.014	0.021
1994	782	0.118	0.033	0.042	0.041	0.056	0.018	0.018
1995	923	0.126	0.031	0.064	0.044	0.062	0.017	0.018
1996	930	0.170	0.029	0.061	0.073	0.078	0.014	0.016
1997	1220	0.202	0.030	0.085	0.093	0.039	0.018	0.015
1998	1661	0.190	0.019	0.084	0.084	0.049	0.016	0.003
1999	1171	0.196	0.012	0.091	0.085	0.085	0.009	0.009
2000	905	0.112	0.009	0.064	0.034	0.091	0.009	0.004
2001	1228	0.107	0.012	0.055	0.059	0.051	0.011	0.011
2002	1130	0.127	0.008	0.079	0.057	0.082	0.003	0.018
2003	1668	0.098	0.007	0.046	0.055	0.011	0.005	0.004
2004	1450	0.135	0.003	0.082	0.063	0.001	0.014	0.000
2005	1161	0.119	0.009	0.090	0.053	0.002	0.021	0.001
2006	1179	0.074	0.003	0.055	0.036	0.002	0.008	0.000
2007	1585	0.059	0.000	0.046	0.033	0.000	0.008	0.000
2008	1078	0.033	0.001	0.020	0.019	0.000	0.003	0.000
2009	1067	0.068	0.022	0.034	0.020	0.002	0.002	0.000
2010	1037	0.118	0.020	0.010	0.062	0.000	0.006	0.000
2011	1008	0.130	0.000	0.010	0.075	0.000	0.028	0.000
2012	1305	0.079	0.005	0.003	0.034	0.000	0.033	0.000
2013	1455	0.070	0.001	0.002	0.034	0.000	0.027	0.000
2014	886	0.062	0.006	0.001	0.038	0.000	0.021	0.000

Note: This table lists the fraction of bond issues with a particular Bad Covenant in each year, where Bad Covenants are defined as those that increase the probability of default and have t-statistics greater than 1.0 in Panel B of Table 3.

Table 7
Recovery Values

	Recovery Rate at Default (OLS)	Ultimate Recovery Rate (Tobit)
	(1)	(2)
Good Covenants	-2.895 ^a (-3.220)	-1.608 ^c (-1.650)
Bad Covenants	8.183 ^a (3.500)	4.871 ^b (2.210)
Issue size	-3.008 ^c (-1.660)	-4.173 ^c (-1.810)
Relative size	-0.001 (-0.010)	0.485 ^b (2.380)
Log(Maturity)	-4.364 (-1.550)	-0.722 (-0.210)
Secured	20.826 ^a (3.210)	23.527 ^a (4.310)
Callable	-8.096 ^b (-2.110)	-9.426 ^a (-2.610)
Putable	-2.727 (-0.840)	-8.456 (-1.000)
Yankee	7.644 (0.940)	-
Rule 144a	-3.307 (-0.650)	-3.882 (-0.690)
Antitakeover Index	1.128 (0.250)	-3.238 (-0.620)
TA Constraint	-1.487 (-0.890)	-2.773 (-1.330)
Firm Size	-0.850 (-0.580)	6.046 ^a (3.250)
Leverage	0.032 (0.300)	-0.025 (-0.210)
Profitability	-0.092 (-0.160)	1.436 ^c (1.820)
Tangibility	-0.031 (-0.330)	0.237 ^b (2.190)
Interest Coverage	-0.145 (-1.560)	-0.558 ^c (-1.770)
R&D	-2.465 (-1.290)	3.745 (1.570)
Capital Expenditures	-4.682 ^b (-2.520)	-0.208 (-0.080)
Tobin's Q	-2.895 ^a (-3.220)	-1.608 ^c (-1.650)
Adjusted R ² /Pseudo R ²	708	767
Observations	0.406	0.068

Notes: Column 1 is an OLS regression on the price a month after default, column 2 is a tobit regression on the ultimate recovery value (45 observations equal to 0). In both cases, we can reject the hypothesis that the coefficient on goodcov equals the coefficient on badcov at the 5% level. Year dummies, rating dummies, and two-digit SIC code dummies included in all regressions. Standard errors are robust with clustering by firm.

Table 8
Selected Covenants and Entrenchment Index

	Stock Issue	Preferred Stock	Stock Transfer	Stock Issuance Index
	(1)	(2)	(3)	(4)
EIndex	0.029 (0.74)	0.036 (0.99)	0.145 ^a (2.66)	0.111 ^c (1.95)
Issue size	0.074 (1.64)	0.065 (1.21)	0.102 ^c (1.78)	0.166 ^b (2.05)
Relative size	-0.009 ^c (-1.65)	-0.001 (-0.16)	-0.034 (-0.95)	-0.004 (-0.64)
Log(Maturity)	0.097 (1.50)	0.018 (0.27)	0.121 (1.62)	0.183 ^b (2.31)
Secured	-0.341 (-1.48)	0.019 (0.09)	-0.235 (-0.74)	-0.148 (-0.73)
Callable	0.301 ^b (2.44)	0.817 ^a (6.04)	-0.097 (-0.80)	0.438 ^a (2.81)
Putable	-1.596 ^a (-4.89)	-1.350 ^a (-5.31)	-0.767 (-1.61)	-2.641 ^a (-6.22)
Rule 144a	-1.590 ^a (-9.94)	-2.005 ^a (-10.58)	-1.074 ^a (-4.91)	-2.954 ^a (-9.92)
TA Constraint	0.062 (0.40)	-0.451 ^a (-2.87)	0.307 (1.62)	-0.235 (-1.36)
Antitakeover Index	0.067 (1.52)	0.090 ^b (2.13)	-0.041 (-0.74)	0.095 ^b (2.03)
Firm Size	-0.280 ^a (-5.96)	-0.212 ^a (-3.97)	-0.170 ^a (-2.61)	-0.355 ^a (-5.22)
Leverage	-0.001 (-0.26)	0.003 (0.91)	-0.002 (-0.39)	0.004 (0.82)
Profitability	-0.038 ^c (-1.73)	-0.014 (-0.70)	-0.079 ^b (-2.56)	-0.063 ^a (-2.58)
Tangibility	0.001 (0.51)	0.006 ^a (2.74)	0.002 (0.96)	0.002 (0.88)
Interest Coverage	0.003 (0.81)	0.000 (0.00)	-0.003 (-0.54)	0.000 (0.01)
R&D	-0.062 (-0.82)	-0.113 (-1.49)	0.027 (0.24)	-0.159 (-1.17)
Tobin's Q	-0.120 (-1.52)	-0.100 (-1.49)	-0.122 (-1.22)	-0.226 ^b (-2.35)
Observations	8,912	8,510	5,047	10,841

Note: This table provides Probit Regressions on whether a particular bond includes restrictions on stock issuance, on preferred stock issuance, or on stock transfers, and a Poisson Regression on the sum of these stock restriction covenants. The firm characteristics are from the quarter prior to issuance. The primary independent variable of interest, Entrenchment Index, is defined as in Bebchuk, Cohen, and Ferrell (2009) as the sum of whether the firm has a staggered board, limits to shareholder bylaw amendments, poison pill, golden parachute, and supermajority requirements for mergers and charter amendments. Note that the sample sizes are smaller in these regressions because the Entrenchment Index is not available for all firms, and also because some of these covenants are not used in certain years. All regressions include dummy variables to control for 1-digit SIC code, rating, and issuance year. Standard errors are calculated with clustering by firm. The notation a, b, and c refer to significance at the 1%, 5%, and 10% levels, respectively.

Table 9
Regressions on Bond Structure and Covenant Use

	Good Covenants	Bad Covenants	Good Covenants Rated Only	Bad Covenants Rated Only	Stock Index	Investment	Transactions
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Debt Specialization	-0.084 ^c (-1.86)	-0.708 ^a (-4.46)	-0.070 (-1.48)	-0.697 ^a (-4.27)	-0.853 ^a (-3.63)	-0.377 (-1.10)	-1.049 ^a (-4.45)
Issue size	0.049 ^a (2.61)	0.274 ^a (4.57)	0.048 ^b (2.47)	0.305 ^a (4.99)	0.240 ^a (3.00)	0.186 (1.57)	0.500 ^a (5.45)
Relative size	0.000 (-0.27)	0.000 (-0.03)	-0.001 (-0.89)	-0.002 (-0.47)	-0.002 (-0.46)	-0.008 ^c (-1.70)	-0.006 (-1.19)
Log (Maturity)	-0.018 (-1.49)	-0.040 (-0.48)	-0.012 (-0.95)	0.037 (0.44)	-0.036 (-0.33)	-0.024 (-0.17)	-0.138 (-1.43)
Secured	-0.206 ^a (-2.96)	0.124 (1.38)	-0.237 ^a (-3.27)	0.079 (0.86)	0.180 (1.52)	0.290 (1.22)	0.082 (0.59)
Callable	0.475 ^a (11.18)	1.879 ^a (6.14)	0.485 ^a (9.48)	1.676 ^a (5.40)	1.422 ^a (3.76)	0.442 ^c (1.67)	1.938 ^a (7.61)
Putable	-0.482 ^a (-14.06)	-2.872 ^a (-8.07)	-0.544 ^a (-12.96)	-2.767 ^a (-7.39)	-3.958 ^a (-5.42)	-0.426 (-1.28)	-2.589 ^a (-8.11)
Rule 144a	-2.724 ^a (-27.36)	-4.005 ^a (-10.32)	-2.963 ^a (-22.33)	-4.020 ^a (-9.99)	-3.826 ^a (-8.51)	-1.556 ^a (-4.03)	-3.254 ^a (-14.73)
TA Constraint	-0.077 ^c (-1.79)	-0.323 ^b (-2.53)	-0.069 (-1.58)	-0.254 ^b (-2.10)	-0.308 (-1.60)	-0.216 (-0.99)	-0.443 ^a (-2.83)
Antitakeover Index	0.011 (0.84)	0.086 ^a (2.58)	0.007 (0.56)	0.077 ^b (2.38)	0.092 ^c (1.82)	0.140 ^b (2.11)	0.066 (1.37)
Firm Size	-0.051 ^a (-3.68)	-0.309 ^a (-7.13)	-0.055 ^a (-3.70)	-0.334 ^a (-7.71)	-0.315 ^a (-5.06)	-0.159 ^c (-1.73)	-0.505 ^a (-8.48)
Leverage	0.001 (0.94)	0.002 (1.13)	0.001 (1.16)	0.002 (1.11)	0.000 (0.14)	0.005 (1.03)	0.003 (0.92)
Profitability	0.014 ^a (2.83)	-0.002 (-0.16)	0.016 ^a (2.86)	-0.009 (-0.65)	-0.045 ^b (-2.16)	0.012 (0.36)	0.000 (0.01)
Tangibility	0.000 (-0.35)	-0.001 (-0.39)	0.000 (-0.57)	-0.001 (-0.82)	0.000 (0.24)	-0.002 (-0.68)	0.003 (1.36)

Interest Coverage	0.001 ^b (2.08)	0.004 (0.95)	0.001 ^c (1.96)	0.006 (1.30)	0.010 ^b (2.25)	0.006 (1.05)	0.007 ^c (1.83)
R&D	-0.031 ^b (-2.51)	-0.296 ^a (-3.73)	-0.034 ^b (-2.12)	-0.191 ^b (-2.39)	-0.318 ^a (-3.11)	0.059 (0.76)	-0.332 ^a (-4.31)
Tobin's Q	-0.014 (-0.97)	-0.188 ^a (-2.84)	-0.017 (-0.94)	-0.137 ^b (-2.05)	-0.147 ^c (-1.73)	-0.039 (-0.49)	-0.226 ^b (-2.35)
Observations	6,718	6,718	5,973	5,973	6,718	2,856	4,857

Note: This table provides Poisson regressions (Model 1 through 5) on the number of Good and Bad Covenants included in a bond issue, and Probit Regressions (Models 6 and 7) on whether a particular bond includes restrictions on stock transfer, preferred stock issuance, stock issuance, or transactions with affiliates. Firm characteristics are from the quarter prior to issuance. The primary independent variable of interest is Debt Specialization as in Colla, Ippolito, and Li (2013). All regressions include dummy variables to issuance year, and rating. Columns (1) and (2) also include 2-digit SIC dummy variables while the other columns include 1-digit SIC dummy variables. Standard errors are calculated with clustering by firm. The notation a, b, and c refer to significance at the 1%, 5%, and 10% levels, respectively.

Table 10
Covenants Indices and Yield Spread Analysis

	Overall Covenant Index	Good & Bad Covenants	Good & Bad Covenants Rated Only	Good & Bad Covenants With Debt Specialization	IV Using Law Firms
	(1)	(2)	(3)	(4)	(5)
Covenant Index	0.017 ^a (5.50)				
Good Covenants		0.011 ^b (2.35)	0.005 (1.31)	0.001 (0.255)	0.012 (0.410)
Bad Covenants		0.048 ^a (4.30)	0.042 ^a (3.91)	0.049 ^a (2.803)	0.193 ^c (1.900)
Debt Specialization				-0.075 ^c (-1.729)	
Issue size	0.070 ^a (6.80)	0.070 ^a (6.85)	0.051 ^a (4.20)	0.090 ^a (5.755)	0.079 ^a (3.290)
Relative size	0.002 ^b (1.97)	0.002 ^c (1.89)	0.001 (1.02)	0.002 ^b (2.340)	0.000 (0.230)
Log(Maturity)	0.175 ^a (14.52)	0.175 ^a (14.56)	0.171 ^a (17.81)	0.150 ^a (10.483)	0.182 ^a (15.870)
Secured	-0.096 ^b (-2.39)	-0.101 ^b (-2.50)	-0.135 ^a (-3.28)	-0.178 ^a (-4.564)	-0.168 ^a (-3.500)
Callable	0.089 ^a (5.50)	0.089 ^a (5.54)	0.111 ^a (6.85)	0.048 (1.185)	0.099 ^a (3.220)
Putable	-0.433 ^a (-11.83)	-0.435 ^a (-11.86)	-0.424 ^a (-12.21)	0.044 (0.515)	-0.158 (-0.660)
Yankee	0.233 ^b (2.01)	0.235 ^b (2.02)	0.164 (1.64)	0.147 ^c (1.928)	0.254 (0.160)
Rule 144a	0.233 ^a (7.42)	0.217 ^a (6.49)	0.155 ^a (5.83)	0.121 ^a (2.949)	0.415 ^b (2.100)
Antitakeover Index	0.005 (0.58)	0.005 (0.54)	-0.004 (-0.40)	0.000 (0.013)	-0.005 (-0.480)
TA Constraint	-0.037 (-1.28)	-0.037 (-1.27)	0.004 (0.15)	-0.017 (-0.415)	0.018 (0.420)
Firm Size	-0.103 ^a (-11.20)	-0.103 ^a (-11.24)	-0.070 ^a (-8.11)	-0.098 ^a (-8.953)	-0.094 ^a (-4.990)
Leverage	0.003 ^a (4.07)	0.003 ^a (4.04)	0.002 ^a (3.62)	0.001 (1.544)	0.000 (0.090)
Profitability	-0.025 ^a (-5.73)	-0.025 ^a (-5.66)	-0.016 ^a (-4.79)	-0.017 ^a (-3.117)	-0.018 ^a (-3.260)
Tangibility	-0.001 (-1.33)	-0.001 (-1.40)	-0.001 (-1.53)	-0.001 (-1.305)	0.001 (1.200)
Interest coverage	-0.001 (-1.19)	-0.001 (-1.18)	0.000 (-0.16)	-0.001 (-1.620)	0.000 (-0.320)
R&D	-0.006 (-0.68)	-0.006 (-0.65)	-0.002 (-0.23)	0.009 (0.486)	0.002 (0.190)
Capital expenditures	-0.002 ^c (-1.69)	-0.002 ^c (-1.75)	-0.003 ^b (-2.34)	-0.003 ^c (-1.856)	-0.006 ^a (-3.020)

Tobin's Q	-0.078 ^a (-8.05)	-0.078 ^a (-8.09)	-0.067 ^a (-8.20)	-0.069 ^a (-4.286)	-0.060 ^a (-3.420)
Quality Spread	0.545 ^a (34.11)	0.546 ^a (34.13)	0.543 ^a (33.96)	0.525 ^a (29.005)	0.581 ^a (24.810)
Rating Dummies	Yes	Yes	Yes	Yes	Yes
p-value for test that Good Covenants = Bad Covenants		0.009	0.006	0.025	0.111
Adjusted R ²	0.841	0.841	0.854	0.830	0.748
Observations	7,657	7,657	7,521	3,438	3,637

Note: The dependent variable in the regressions reported in this table is the log of the yield spread over treasury bonds at issuance. All regressions are OLS with standard errors clustered by issuing firm. Regression (1) includes the overall covenant index, Regression (2) includes the Good Covenants and Bad Covenants variables (as defined from Regression (4) in Table 3). Regressions (3) is the same as regression (2) but only for rated bonds, and Regression (4) is similar but also includes the Debt Specialization as a control variable. All regressions include issuance year dummies, 2-digit SIC industry dummies, and rating dummy variables. The notation a, b, and c refer to significance at the 1%, 5%, and 10% levels, respectively.

Appendix A
Covenant Definitions

Covenant Sub-Index	Covenant Dummy Variables	FISD Covenants Dummy Variables	Definition of covenants
Payment Index	Dividend Payment	Dividends Related Payments, OR	Flag indicating that payments made to shareholders or other entities may be limited to a certain percentage of net income or some other ratio
		Subsidiary 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 which can be paid to the parent. This provision protects the debtholder against a parent from draining assets from its subsidiaries.
	Other Payment	Restricted Payments	Restricts issuer's freedom to make payment (other than dividend related payments) to shareholders and others
Asset Index	Transaction	Transaction Affiliates	Issuer is restricted in certain business dealings with its subsidiaries
	Investment	Investments, OR	Restricts issuer's investment policy to prevent risky investments
		Subsidiary Investments Unrestricted	Restricts subsidiaries' investment
	Asset Sales	Asset Sale Clause, OR	Covenant requiring the issuer to use net proceeds from the sale of certain assets to redeem the bonds at par of at a premium. This covenant does not limit the issuers right to sell assets
		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 proceeds to the repurchase of debt through a tender offer or call.
Asset Transfer	Subsidiary 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.	
Borrowing Index	Funded Debt	Subsidiary Funded Debt	Restricts issuer's subsidiaries from issuing additional funded debt (debt with an initial maturity of longer than one year)
		Funded Debt	Restricts issuer from issuing additional funded debt. Funded debt is an debt with an initial maturity of one year or longer
	Subordinated Debt	Subordinated Debt Issuance	Restricts issuance of junior or subordinated debt
	Senior debt	Senior Debt Issuance	Restricts issuer to the amount of senior debt is may issuer in the future
	Secured debt	Negative Pledge Covenant	The issuer cannot issue secured debt unless it secures the current issue on a pari passu (equal amount) basis

	Indebtedness	Indebtedness, OR	Restricts user from incurring additional debt with limits on absolute dollar amount of debt outstanding or percentage total capital
		Subsidiary Indebtedness, OR	Restricts the total indebtedness of the subsidiaries
		Leverage Test, OR	Restricts total-indebtedness of the issuer
		Subsidiary Leverage Test	Limits subsidiaries' leverage
	Leaseback	Sales Leaseback, OR	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.
		Subsidiary Sales Leaseback	Restricts subsidiaries from selling then leasing back assets that provide security for the debtholder. 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	Liens, OR	In the case of default, the bondholders have the legal right to sell mortgaged property to satisfy their unpaid obligations
		Subsidiary Liens	Restricts subsidiaries from acquiring liens on their property
Guarantee	Subsidiary Guarantee	Subsidiary is restricted from issuing guarantees for the payment of interest and/or principal of certain debt obligations	
Stock Index	Common stock	Stock Issuance, OR	Restricts issuer from issuing additional common stocks
		Subsidiary Stock Issuance	Restricts issuer from issuing additional common stock in restricted subsidiaries. Restricted subsidiaries are those which are considered to be consolidated for financial test purposes.
	Preferred stock	Subsidiary Preferred Stock Issuance	Restricts subsidiaries' ability to issue preferred stock
	Other stock	Stock transfer sale	Restricts the issuer from transferring, selling, or disposing of its own common or the common stock of a subsidiary
Default Index	Cross Acceleration	Cross Acceleration	A bondholder protective covenant that allows the holder to accelerate their debt, if any other debt of the organization has been accelerated due to an event of default
	Cross 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
Antitakeover Index	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 reduce the value of the company
	Antitakeover M&A	Consolidation Merger	Indicates that a consolidation or merger of the issuer with another entity is restricted
Profit Index	Earnings	Fixed charge coverage, OR	Issuer is required to have a ratio of earnings available for fixed charges, of at least a minimum specified level.
		Subsidiary fixed charge coverage, OR	Subsidiaries are required to maintain a minimum ratio of net income to fixed charges
		Net earnings test issuance	To issue additional debt the issuer must have achieved or maintained certain profitability levels. This test is a variations of the (more common) fixed coverage tests
	Net Worth	Maintenance net worth, OR	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 Index	Rating Decline	Rating Decline Trigger Put	A decline in the credit rating of the issuer (or issue) triggers a bond holder put provision

Appendix B Examples of Bad Covenants

Below are examples of covenants that are associated with an increase in the probability of bankruptcy.

1. Stock Issuance Restriction

Example A: B&G Foods Issuance from 1/11/10:

<https://www.sec.gov/Archives/edgar/data/1049296/000104746910000081/a2196019z424b5.htm>

Incurrence of Indebtedness and Issuance of Preferred Stock

B&G Foods will not, and will not permit any of its Restricted Subsidiaries to, directly or indirectly, create, incur, issue, assume, guarantee or otherwise become directly or indirectly liable, contingently or otherwise, with respect to (collectively, "incur") any Indebtedness (including Acquired Debt), and B&G Foods will not issue any Disqualified Stock and will not permit any of its Restricted Subsidiaries to issue any shares of preferred stock; *provided, however*, that B&G Foods may incur Indebtedness (including Acquired Debt) or issue Disqualified Stock, and the Guarantors may incur Indebtedness (including Acquired Debt) or issue preferred stock, if the Fixed Charge Coverage Ratio for B&G Foods' most recently ended four full fiscal quarters for which internal financial statements are available immediately preceding the date on which such additional Indebtedness is incurred or such Disqualified Stock or such preferred stock is issued, as the case may be, would have been at least 2.0 to 1.0, determined on a pro forma basis (including a pro forma application of the net proceeds therefrom), as if the additional Indebtedness had been incurred or the Disqualified Stock or the preferred stock had been issued, as the case may be, at the beginning of such four-quarter period.

Example B: Wachovia Corp. Issuance from 2/03/04,

<https://www.sec.gov/Archives/edgar/data/36995/000119312504015159/d424b5.htm>:

Restriction on Sale or Issuance of Voting Stock of Major Subsidiary Banks

The indentures each contain Wachovia's covenant that it will not, and will not permit any subsidiary to, sell, assign, transfer, grant a security interest in, or otherwise dispose of, any shares of voting stock, or any securities convertible into shares of voting stock, of any "Major Subsidiary Bank" (as defined below) or any subsidiary owning, directly or indirectly, any shares of voting stock of any Major Subsidiary Bank and that it will not permit any Major Subsidiary Bank or any subsidiary owning, directly or indirectly, any shares of voting stock of a Major Subsidiary Bank to issue any shares of its voting stock or any securities convertible into shares of its voting stock, except for sales, assignments, transfers or other dispositions which

- are for the purpose of qualifying a person to serve as a director
- are for fair market value, as determined by Wachovia's board, and, after giving effect to such dispositions and to any potential dilution, Wachovia will own not less than 80% of the shares of voting stock of such Major Subsidiary Bank or any such subsidiary owning any shares of voting stock of such Major Subsidiary Bank
- are made
 - in compliance with court or regulatory authority order or
 - in compliance with a condition imposed by any such court or authority permitting Wachovia's acquisition of any other bank or entity or
 - in compliance with an undertaking made to such authority in connection with such an acquisition; provided, in the case of the two preceding bullet-points, the assets of the bank

or entity being acquired and its consolidated subsidiaries equal or exceed 75% of the assets of such Major Subsidiary Bank or such subsidiary owning, directly or indirectly, any shares of voting stock of a Major Subsidiary Bank and its respective consolidated subsidiaries on the date of acquisition or

- o to Wachovia or any wholly-owned subsidiary.

Example C: Used in Hanesbrands Inc., exchange offer 6.375% Senior Notes due 2020 filing from January 7, 2011 (cusip: 410345AG7; CIK: 642666). The following sentences are extracted from the prospectus available at:

<https://www.sec.gov/Archives/edgar/data/846626/000095012311001154/g25447b3e424b3.htm>

Limitation on the Issuance and Sale of Capital Stock of Restricted Subsidiaries

The Company will not sell, and will not permit any Restricted Subsidiary, directly or indirectly, to issue or sell, any shares of Capital Stock of a Restricted Subsidiary (including options, warrants or other rights to purchase shares of such Capital Stock) except:

- (1) to the Company or a Wholly Owned Restricted Subsidiary;
- (2) issuances of director's qualifying shares or sales to foreign nationals or other persons of shares of Capital Stock of foreign Restricted Subsidiaries, in each case, to the extent required by applicable law;
- (3) if, immediately after giving effect to such issuance or sale, such Restricted Subsidiary would no longer constitute a Restricted Subsidiary and any Investment in such Person remaining after giving effect to such issuance or sale would have been permitted to be made under the "Limitation on Restricted Payments" covenant if made on the date of such issuance or sale; or
- (4) sales of Capital Stock (other than Disqualified Stock) (including options, warrants or other rights to purchase shares of such Capital Stock) of a Restricted Subsidiary; *provided* that the Company or such Restricted Subsidiary either (a) applies the Net Cash Proceeds of any such sale in accordance with the "Limitation on Asset Sales" covenant or (b) to the extent such sale is of preferred stock, such sale is permitted under the "Limitation on Indebtedness" covenant.

2. Preferred Stock Restrictions

Used in Acadia Healthcare Company, Inc (Nasdaq:ACHC) Senior Note issued on August 20 2014 (Cusip: 00404AAG4; FISD_Issue_id: 617757). The following sentences are extracted from indenture dated as of July 1, 2014 in 8-K(Ex-4.1). <https://www.sec.gov/Archives/edgar/data/1520697/000119312514258367/d751084dex41.htm>

Section 4.09. Incurrence of Indebtedness and Issuance of Preferred Stock.

(a) The Company will not, and will not permit any of its Restricted Subsidiaries to, directly or indirectly, create, incur, issue, assume, guarantee or otherwise become directly or indirectly liable, contingently or otherwise, with respect to (collectively, "incur") any Indebtedness (including Acquired Debt), and the Company will not issue any Disqualified Stock and will not permit any of its Restricted Subsidiaries to issue any shares of Preferred Stock; provided, however, that the Company may incur Indebtedness (including Acquired Debt) or issue Disqualified Stock, and any Guarantor may incur Indebtedness (including Acquired Debt) or issue Preferred Stock, if the Fixed Charge Coverage Ratio for the Company's most recently ended four full fiscal quarters for which internal financial statements are available immediately preceding the date on which such additional Indebtedness is incurred or such Disqualified Stock or such Preferred Stock is issued, as the case may be, would have been at least 2.0 to 1.0, determined on a pro forma basis (including a pro forma application of the net proceeds therefrom), as if the additional

Indebtedness had been incurred or the Disqualified Stock or the Preferred Stock had been issued, as the case may be, at the beginning of such four-quarter period.

3. Limitation on Stock Sale, Transfer, and Disposition

Used in The Navigators Group, Inc. issues of April 11, 2006, see:

<https://www.sec.gov/Archives/edgar/data/793547/000104746906004993/a2169360z424b5.htm>

Restrictions on Certain Dispositions

The supplemental indenture also provides that we will not, and will not permit any of our subsidiaries to, issue, sell, assign, transfer or otherwise dispose of, directly or indirectly, any of the common stock of our significant subsidiaries (except to us or to one or more of our other subsidiaries or for the purpose of qualifying directors), unless

- the issuance, sale, assignment, transfer or other disposition is required to comply with the order of a court or regulatory authority of competent jurisdiction, other than an order issued at our request or at the request of one of our subsidiaries; or
- the entire common stock that we or our subsidiaries own is disposed of in a single transaction or in a series of related transactions for consideration consisting of cash or other property that is at least equal to the fair value of such common stock; or
- after giving effect to the issuance, sale, assignment, transfer or other disposition, we and our subsidiaries would own directly or indirectly at least 80% of the issued and outstanding common stock of such significant subsidiary and such issuance, sale, assignment, transfer or other disposition is made for consideration consisting of cash or other property which is at least equal to the fair value of such common stock.

The term "fair value," when used with respect to common stock, means the fair value thereof as determined in good faith by our board of directors.

4. Transaction with affiliates

Used in Acadia Healthcare Company, Inc (Nasdaq:ACHC) Senior Note issued on August 20 2014 (Cusip: 00404AAG4; FISD_Issue_id: 617757). The following sentences are extracted from indenture dated as of July 1, 2014 in 8-K(Ex-4.1). <https://www.sec.gov/Archives/edgar/data/1520697/000119312514258367/d751084dex41.htm>

Section 4.11. Transactions with Affiliates.

(a) The Company will not, and will not permit any of its Restricted Subsidiaries to, make any payment to or sell, lease, transfer or otherwise dispose of any of its properties or assets to, or purchase any property or assets from, or enter into or make or amend any transaction, contract, agreement, understanding, loan, advance or guarantee with, or for the benefit of, any Affiliate of the Company (each, an "Affiliate Transaction") involving aggregate payments or consideration in excess of \$1.0 million, unless:

- (1) the Affiliate Transaction is on terms that are not materially less favorable to the Company, taken as a whole, or the relevant Restricted Subsidiary than those that would have been obtained in a comparable transaction by the Company or such Restricted Subsidiary with an unrelated Person;
- (2) with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate consideration in excess of \$10.0 million, the Company delivers to the Trustee a resolution

- of the Board of Directors of the Company set forth in an Officers' Certificate certifying that such Affiliate Transaction complies with clause (1) of this Section 4.11(a); and
- (3) with respect to any Affiliate Transaction or series of related Affiliate Transactions involving aggregate consideration in excess of \$30.0 million, the Company delivers to the Trustee an opinion as to the fairness to the Company or such Restricted Subsidiary of such Affiliate Transaction from an Independent Financial Advisor.

5. Investment

Example A: Used in Navistar International Corporate (NYSE:NAV) Senior Unsecured Note issued on October 22 2009 (Cusip: 63934EAM0; FISD_Issue_id: 506790). The following sentences are extracted from indenture dated as of October 28, 2009 in 8-K(Ex-4.1).

<https://www.sec.gov/Archives/edgar/data/808450/000119312509216261/dex41.htm>

Section 3.11. [Reserved].

(a) The Company will not, and will not cause or permit any of its Restricted Subsidiaries to directly or indirectly:

(iii) make any Investment (other than a Permitted Investment);

"Permitted Investments" means:

- (1) Investments in Cash Equivalents;
- (2) guarantees of Indebtedness otherwise permitted under Section 3.10 (other than clause (y) thereof);
- (3) any Investment by the Company or any Restricted Subsidiary in or relating to a Securitization Subsidiary that, in the good faith determination of the Company, are necessary or advisable to effect any Qualified Securitization Transaction or any repurchase obligation in connection therewith;
- (4) deposits, including interest-bearing deposits, maintained in the ordinary course of business in banks;
- (5) any acquisition of the Capital Stock of any Person and any Investment in another Person if as a result of such Investment such other Person is merged with or consolidated into, or transfers or conveys all or substantially all of its assets to, the Company or a Restricted Subsidiary of the Company; *provided*, that after giving effect to any such acquisition or Investment such Person shall become a Restricted Subsidiary of the Company or another Restricted Subsidiary of the Company;
- (6) trade receivables and prepaid expenses, in each case arising in the ordinary course of business; *provided*, that such receivables and prepaid expenses would be recorded as assets of such Person in accordance with GAAP;
- (7) endorsements for collection or deposit in the ordinary course of business by such Person of bank drafts and similar negotiable instruments of such other Person received as payment for ordinary course of business trade receivables;
- (8) any swap, hedging or other derivative obligation with an unaffiliated Person otherwise permitted by this Indenture (including, without limitation, any Currency Agreement, Commodity Agreement and any Interest Rate Protection Agreement otherwise permitted by this Indenture);
- (9) Investments received as consideration for an Asset Disposition in compliance with Section 3.13 herein;
- (10) Investments acquired in exchange for the issuance of Capital Stock (other than Disqualified Capital Stock) of the Company or acquired with the Net Cash Proceeds received by the Company after the Issue Date from the issuance and sale of Capital Stock (other than Disqualified Capital Stock) of the Company; provided that such Net Cash Proceeds are used to make such Investment within 60 days of the receipt thereof and the amount of all such Net Cash Proceeds will be excluded from clause (3)(B) of Section 3.12(a);

(11) loans and advances to employees made in the ordinary course of business in an aggregate amount not to exceed \$10.0 million at any one time outstanding;

(12) Investments outstanding on the Issue Date;

(13) Investments in the Company or a Restricted Subsidiary;

(14) Investments in securities of trade creditors, suppliers or customers received pursuant to any plan of reorganization, restructuring, workout or similar arrangement of such trade creditor, supplier or customer or upon the compromise of any debt created in the ordinary course of business owing to the Company or a Subsidiary, whether through litigation, arbitration or otherwise;

(15) Investments in any Person after the Issue Date having an aggregate fair market value (measured on the date each Investment was made without giving effect to subsequent changes in value), when taken together with all other Investments made pursuant to this clause (15) that are at that time outstanding (after giving effect to any net cash proceeds received from any sale, transfer or other disposition) not to exceed \$75.0 million;

(16) Investments in Navistar Financial Corporation, having an aggregate fair market value (measured on the date each Investment was made without giving effect to subsequent changes in value), when taken together with all other Investments made pursuant to this clause (16) that are at that time outstanding not to exceed \$100.0 million;

(17) Investments made pursuant to the Support Agreement or Master Intercompany Agreements;

(18) extensions of loans, trade credit and advances to, and guarantees in favor of customers and suppliers and lease, utility and similar deposits to the extent made in the ordinary course of business; and

(19) Investments consisting of the licensing or contribution of intellectual property pursuant to joint marketing arrangement with other Persons.

Example B: Used in Tenet Healthcare Corp (NYSE:THC) Senior Subordinated Notes issued on January 27, 1997(Cusip: 88033GAG5; FISD_Issue_id: 49121). The following sentences are extracted from indenture dated as of January 15, 1997 in 10-K(Ex-4(M)).

<https://www.sec.gov/Archives/edgar/data/70318/0000912057-97-029143.txt>

SECTION 3.14. LINE OF BUSINESS.

The Company shall not, and shall not permit any of its Subsidiaries to, engage in any material extent in any business other than the ownership, operation and management of Hospitals and Related Businesses.

6. Net worth

Used in Toll Brothers Inc (NYSE:TOL) Senior subordinated Notes issued on January 19, 2001 (Cusip: 889478AC7; FISD_Issue_id: 115562). The following sentences are extracted from indenture dated as of January 19, 2001 in 8-K(Ex-4).

<https://www.sec.gov/Archives/edgar/data/794170/000095011601000084/0000950116-01-000084-0003.txt>

Section 4.06. Maintenance of Consolidated Net Worth.

If the Consolidated Net Worth of the Guarantor and its Subsidiaries at the end of any two consecutive fiscal quarters is less than \$55,000,000, then the Guarantor shall cause the Company to offer to repurchase (the "Offer") on the last day of the fiscal quarter next following such second fiscal quarter, or, if such second fiscal quarter ends on the last day of the Guarantor's fiscal year, 120 days following the last day of such second fiscal quarter (the "Purchase Date") \$7,500,000 aggregate principal amount of Securities (or such lesser amount as may be outstanding at the time, such amount being referred to as the "Offer Amount") at

a purchase price equal to their principal amount plus accrued and unpaid interest to the Purchase Date. The Company may credit against its obligation to offer to repurchase Securities on a Purchase Date the principal amount of (i) Securities acquired by the Company and surrendered for cancellation otherwise than pursuant to an Offer and (ii) Securities redeemed or called for redemption, in each case at least 60 days before the Purchase Date. In no event shall the failure to meet the minimum Consolidated Net Worth stated above at the end of any fiscal quarter be counted toward the making of more than one Offer.

7. Rating decline put trigger

Used in Tenet Healthcare Corp (NYSE:THC) Senior Subordinated Notes issued on January 27, 1997(Cusip: 88033GAG5; FISS_Issue_id: 49121). The following sentences are extracted from indenture dated as of August 27, 1997 in 10-K(Ex-4(M)). <https://www.sec.gov/Archives/edgar/data/70318/0000912057-97-029143.txt>

Upon the occurrence of a Change of Control Triggering Event, each Holder of Securities shall have the right to require the Company to repurchase all or any part (equal to \$1,000 or an integral multiple thereof) of such Holder's Securities pursuant to the offer described below (the "CHANGE OF CONTROL OFFER") at an offer price in cash equal to 101% of the aggregate principal amount thereof plus accrued and unpaid interest, if any, thereon to the date of purchase (the "CHANGE OF CONTROL PAYMENT") on a date that is not more than 90 days after the occurrence of such Change of Control Triggering Event (the "CHANGE OF CONTROL PAYMENT DATE").

"CHANGE OF CONTROL TRIGGERING EVENT" means the occurrence of both a Change of Control and a Rating Decline "RATING DECLINE" means the occurrence on or within 90 days after the date of the first public notice of the occurrence of a Change of Control or of the intention by the Company to effect a Change of Control (which period shall be extended so long as the rating of the Securities is under publicly announced consideration for possible downgrade by any of the Rating Agencies) of: (a) in the event the Securities are rated by either Moody's or S&P on the Rating Date as Investment Grade, a decrease in the rating of the Securities by both Rating Agencies to a rating that is below Investment Grade, or (b) in the event the Securities are rated below Investment Grade by both Rating Agencies on the Rating Date, a decrease in the rating of the Securities by either Rating Agency by one or more gradations (including gradations within Rating Categories as well as between Rating Categories).