Debt Covenants, Bankruptcy Risk, and Issuance Costs ♣

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Abstract

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JEL Classification: G10, G12, G32

Keywords: bond covenants, bankruptcy risk, issuance costs

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Abstract

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1. Introduction

In their seminal paper on financial contracting, Smith and Warner (1979) suggest that covenants in debt contracts play a pivotal role in reducing the agency problems between firms and creditors. They develop the costly contracting hypothesis, which argues 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.[1] This suggests that there is an optimal set of covenants that maximizes the value of the firm.[2]

In this paper, we expand on the costly contracting hypothesis by considering the impact of covenants on bankruptcy risk. Since covenants are costly to implement, firms with more severe shareholder-bondholder agency conflicts are more likely to use them in their debt contracts. This suggests two potential relations between the use of covenants and the probability of bankruptcy. First, firms that are more likely to go bankrupt face more severe shareholder-bondholder agency conflicts. Hence, riskier firms, i.e., those with a higher probability of bankruptcy, are more likely to incorporate covenants in their debt contracts. Second, firms with effective covenants are less likely to go bankrupt as these covenants force management to avoid actions which increase bankruptcy risk. In order to disentangle the two relations between covenants and bankruptcy, we examine what types of firms are likely to include more covenants in their debt contracts. Consistent with the notion that riskier firms are more likely to incorporate additional covenants, we find that variables which proxy for firm risk are positively related to the use of covenants.

Our study on the determinants of covenant use differs from previous studies in that we consider the possibility of a herding effect. Following Welch (1992), Bikhchandani, Hirschleifer, Welch (1992), and Nofsinger and Sias (1999), we posit that the use of covenants may be consistent with informational cascades or herding. We test the degree to which the use of

[1] A large body of literature shows that covenant use is determined by the tradeoff between reduced financing costs and loss of operation flexibility (see e.g., Malitz, 1986; Begley and Feltham, 1999; Nash, Netter, and Poulsen, 2003; Billett, King, and Mauer, 2007; Qi and Wald, 2008; and Chava, Kumar, and Warga, 2009).

[2] A related literature examines the relation between debt covenants and accounting choice. This "debt-covenant hypothesis" suggest that as firms get closer to violating their debt covenants, they are more likely to choose accounting procedures that reduces the probability of technical default (DeFond and Jiambalvo, 1994; Sweeney, 1994; Beatty and Weber, 2003). Dichev and Skinner (2002), in a sample of private lending agreements, find that covenants are used as trip wires for lenders but are not associated with bankruptcy. However, 94% of the defaults in our sample, which is made of non-bank debt, were due to bankruptcy and only one was due to a covenant violation.

covenants in recent bond issues explains the features of a given contract. Consistent with herding, we find that when recent bond issues in the market incorporate a particular type of covenant, the likelihood of these covenants being used again increases.

Using measures of firm risk, our herding measures, and other control variables, we calculate the predicted number of covenants in a given debt contract. We conjecture that the predicated number of covenants reflects the riskiness of the firm and would therefore be positively related to the probability of bankruptcy. Whereas the overall use of covenants is not significantly related to the probability of bankruptcy, the predicted value of covenants has a significant positive relation to bankruptcy. Thus, firms that we predict would use more covenants are riskier even though firms that actually use covenants are no more likely to go bankrupt.

Moreover, the actual number of covenants used after correcting for the predicted covenant is negatively related to the probability of bankruptcy. This evidence is consistent with the idea that most covenants help reduce bankruptcy risk by reducing agency costs for riskier firms.[3] However, we find two interesting exceptions to this general pattern: firms that have covenants restricting stock issuance and firms with rating decline puts have a higher likelihood of bankruptcy. This finding is consistent with restrictions on stock issuance hindering some firms from raising equity in bad times and increasing the firm's risk of bankruptcy. The finding that rating decline puts imply a higher probability of bankruptcy confirms the theoretical implications of Bhanot and Mello (2006), who argue that these covenants also do not serve the interests of bondholders because they can worsen the asset substitution problem and increase bankruptcy risk.

We also examine the impact of covenants on issuance costs. Prior studies primarily emphasize the costs associated with covenants from reduced financial and/or operational flexibility.[4] We extend this analysis by considering some of the direct sources of covenant costs, which is the fee charged by the investment bank for placing the bond issue. According to the costly contracting hypothesis, bonds with more covenants have greater negotiation costs, and

[3] An alternative line of research instead attempts to measure the reduction in agency problems by looking at the impact of covenants on bond spreads, see e.g., Bradley and Roberts (2004), and Reisel (2007). Our approach of examining bankruptcy outcomes rather than spread has some advantages. In particular, spreads and covenants are determined around the issue period, thus it is difficult to disentangle the causation between them. In contrast, bankruptcy occurs after issuance, thus endogeneity is less of a problem.

[4] For analyses of the loss of financial flexibility associated with covenant use, see Nash, Netter, and Poulsen (2003), Chava and Roberts (2008) and Roberts and Sufi (2009).

this would imply greater issuance fees. Consistent with this hypothesis, we find that issuance costs are, on average, about 5% higher with each additional covenant in the bond agreement after controlling for other factors.

We examine three alternative explanations as to why bonds with more covenants cost more. We test whether issuance costs are larger because of greater legal and administrative costs, greater sales costs (i.e., whether more complex issues are more difficult to sell), or whether issues with more covenants imply more risk for the underwriting investment bank. First, if issuance costs are higher for bonds which include more covenants because of legal and administrative fees, we would expect issuance cost to increase with all types of covenants. However, we find this is not the case; instead issuance costs increase greatly when the issue includes restrictions on payouts and increase to a lesser extent when the issue includes antitakeover covenants. Many other types of covenants are not associated with any additional issuance costs, and this suggests that legal and administrative costs are not a major concern for the increased cost of issuing bonds with covenants.

Second, we examine the relation between the various portions of issuance costs and covenant usage. Specifically, we segment the total issuance costs into selling concessions and management and underwriting fees. If these separate costs reflect the charges faced by the investment bank, we expect the selling concession to reflect the sales effort.[5] While sales commissions increase significantly with the use of covenants; they do not increase as much as the management and underwriter fees. Thus, this increase in sales commissions does not explain most of the positive relation between covenant use and issuance costs.

Third, bonds with more covenants may be costly for investment banks because they are riskier to issue. Consistent with this notion, the covenant-issue cost relation disappears if we control for every bond rating individually. We also examine whether issuer risk translates into greater liability for underwriters.[6] We search for direct evidence of legal liability related to debt covenants for investment banks by examining the Stanford Securities Class action database for lawsuits related to debt issues. We find relatively few such lawsuits against investment banks

[5] That is, this argument assumes limited cross-subsidization between different parts of the issuance process.

[6] Since Section 11 of the Securities Act of 1933 mandates several and joint liabilities for the parties involved in the IPO, all defendants of a lawsuit are jointly responsible for the damage payments. In the case that the IPO firm does not have sufficient funds to meet all the damage payments, the plaintiffs can recover the rest from the other parties, including the underwriter.

and none that appeared to be directly related to covenants.[7,8] Overall, we argue that neither the legal and administrative fees nor the sales effort can fully explain the positive relation between the use of covenants and issuance cost. Rather, the covenant-issue cost relation appears to be driven by riskier issues creating additional risk for underwriters.

We contribute to the literature in two important ways. We add to the costly contracting hypothesis by showing that covenants can reduce bankruptcy risk. This evidence 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) and thus increasing the firm's value. However, we find two interesting exceptions to this general relation: stock issuance restrictions and rating decline puts, both of which appear to increase bankruptcy risk. Thus, these two types of covenants appear to fail in protecting creditors, and, given our findings, their existence is somewhat puzzling (although rating decline puts appear to have fallen out of common use as the full implications of these covenants became better known). On the cost side, we find that covenants are associated with increases in issuance costs; however, instead of negotiation costs, some of this appears to reflect additional risk to the underwriter. Thus, any institutional changes which would reduce risk for the issuer may have the added benefit of reducing the cost of including bond covenants. These findings confirm and expand upon both the benefits and costs of covenants first elucidated in Smith and Warner's costly contracting hypothesis.

The remainder of the paper is organized as follows. Section 2 provides a review of the literature on covenant use and highlights our main hypotheses. Section 3 provides data sources, variable measurement, and univariate statistics. Section 4 discusses our empirical findings on the benefits and costs of covenant use. Section 5 concludes.

2. Hypotheses

[7] Several papers consider investment bank liability in equity initial public offerings (see e.g., Beatty and Welch, 1996; Lowry and Shu, 2002). Kim, Palia, and Saunders (2010) also document a positive relation between firm risk and equity issuance costs.

[8] However, the payouts in the lawsuit by the investment banks who issued Global Crossing bonds were on the order of $345 million, thus even though successful lawsuits against investment banks are few, their legal liability can be substantial. This lack of data can also be interpreted as akin to the Peso problem, where the expected losses from a rare event are sufficient to wipe away many smaller gains.

Covenants are written into debt contracts to mitigate bondholder-shareholder conflicts, thereby reducing financing costs of debt and increasing overall firm value (Smith and Warner, 1979). The existing literature emphasizes how the use of covenants is determined by the tradeoff between a loss of operational flexibility and a reduction in financing costs combined with an increase in debt capacity. This literature suggests that firms with more bondholder-stockholder agency conflicts are more likely to adopt restrictive covenants and that those with a need for greater operational flexibility will adopt fewer covenants (Nash, Netter, and Poulsen, 2003; Chava and Roberts, 2008; and Roberts and Sufi, 2009). Firms which use more covenants should then be able to borrow more (Billett, King, and Mauer, 2007) and have lower financing costs (Bradley and Roberts, 2004; and Reisel, 2007). In this paper, we extend the tradeoff analysis of using covenants by considering two additional aspects of the costs and benefits related to covenants, specifically the benefit in reduced bankruptcy risk and the increase in bond issuance fees.

2.1 Debt Covenants and Bankruptcy Risk

The existing research does not directly examine the potential impact of covenants on the reduction of bankruptcy risk, although this relation is implicit in studies that consider the impact of covenants on debt capacity or interest costs. There exist two relations between the use of covenants and the probability of bankruptcy. Since covenants are costly to negotiate and enforce, firms with relatively greater agency costs are more likely include them in their debt contracts. Also, because the shareholder-bondholder conflict is most severe when firms face greater default risk, those with a high probability of bankruptcy are more likely to incorporate additional covenants in their debt contracts. This implies a positive relation between the use of covenants and the probability of bankruptcy. However, this positive relation is driven by the riskiness of firms and it does not indicate that covenants increase bankruptcy risk. Instead, the use of effective covenants should reduce the firm's probability of bankruptcy as covenants force management to undertake actions which reduce bankruptcy risk.[9] Therefore, we expect the overall relation between covenants and bankruptcy could be positive or negative, depending on

[9] For example, covenants restricting payouts would increase the funds available for debt, restrictions on additional borrowing would decrease the likelihood of missing debt payments, and restrictions on investments would prevent management from taking on overly risky projects.

which of these effects dominates. Our empirical study is designed to disentangle these two opposing effects. This leads to our first hypothesis:

H1: While riskier firms use more covenants, the use of effective covenants decreases bankruptcy risk.

Note that not all covenants may be effective in reducing creditors' risks. For instance, Bhanot and Mello (2006) suggest that rating decline puts are not beneficial to creditors because they can increase the likelihood of asset substitution, and thus we do not expect the use of rating decline puts to lead to lower bankruptcy probabilities. Similarly, stock issuance restrictions could limit the firm from recapitalizing in times of distress, and thus we hypothesize the restriction could lead to more bankruptcies.[10] Thus, we examine the overall use of covenants as well as the use of individual types of covenants.

2.1 Debt Covenants and Issuance Costs

We then turn to the cost side of covenant use. Whereas the existing literature documents the costs of covenants in terms of reductions in financial flexibility, we focus on the costs related to bond issuance. Similar to the market for equities, issues in the bond market include underwriting fees, typically referred to as the gross spread, collected by the issuing investment banks. Prior work on bond underwriting fees examines how average gross spreads declined after commercial banks were allowed to compete for bond underwriting in 1987 (Gande, Puri, and Saunders, 1999). Fang (2005) finds that high-reputation bond underwriters charge higher spreads but obtain lower yields, while Livingston and Miller (2000) find that high-reputation underwriters charge lower spreads. Yasuda (2005, 2007) studies how bank relationships impact underwriting fees in the U.S. and Japanese markets, respectively. In this paper, we document the relation between the use of covenants and issuance costs, and examine a few potential explanations for this positive covenant-issuance cost relation. This leads to our second hypothesis:

[10] We examine some prospectuses for additional details about stock issuance restrictions and find that these covenants mostly restrict stock issuances that would create an equity holder with a controlling interest. Thus, these stock issuance restrictions may affect only some types of recapitalizations.

H2: There is a positive relation between a bond's covenants and the underwriting fees charged for issuing the security.

We find strong evidence supporting this hypothesis, and we examine potential explanations for the positive relation between underwriting fees and bond covenants. Specifically, we consider whether this relation is driven by the costs of writing the contract such as negotiation and administrative fee. We also examine whether the relation between covenants and issuance costs is due to the difficulty of selling a more complicated security. Lastly, we consider whether the bonds with covenants are riskier to issue for the underwriter, and thus the additional costs are compensation for this risk.

3. Empirical Methods

In order to examine the relation between bankruptcy risk and covenant use, we start by examining whether the firm went bankrupt subsequent to issuing a bond with a set number of covenants. We consider both a probit analysis and a survival analysis using a Cox proportional hazard model.[11] The overall relation between covenants and bankruptcy could be positive or negative, depending on which of the effects discussed above dominates (i.e., that riskier firms use more covenants, but that covenants can reduce the probability of bankruptcy). In order to disentangle these two relations, we estimate the predicted number of covenants used as a function of firm characteristics. We are interested in separating the predictable portion of covenant use, which would be closely related to firm risk, from actual covenant use. We consider herding and state law variables as well as firm characteristics and year dummies to estimate predicted covenant use. Following Welch (1992, 2000) and Nofsinger and Sias (1999), we hypothesize that herding may occur in the use of covenants. Thus, if many firms are issuing a particular type or group of covenants, this may increase the likelihood of that covenant being used. We employ a lagged index of the number of covenants used in the prior three months as

[11] 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. The Cox proportional hazard model is described in detail in Cleves et al. (2010).

one predictor for the covenant index.[12] We also use the state laws which restrict payout as these laws have previously been shown to have a relation with covenant use (see, Qi and Wald, 2008). We include other firm and issue controls.

As the number of covenants is a count variable, we use a Poisson regression to estimate predicted covenants. That is

$$\begin{aligned} Covenant\ Index_i = f(&\beta_0 + \beta_1 Prior\ Covenant\ Index + \beta_2 State\ Laws_i \\ &+ \beta_3 Firm\ Characteristics_i + \beta_4 Deal\ Factors_i \\ &+ \beta_5 Year\ Dummies_i + \beta_6 Industry\ Dummies_i + \varepsilon_i) \end{aligned} \quad (1)$$

where $Covenant\ Index$ is number of covenants used in a specific bond issue.

The fitted value from equation (1) is the *predicted covenants.* We consider both the impact of the predicted covenants and the actual use of covenants in our regressions. In practice, we use the actual minus fitted covenants to measure this *non-predicted covenant* use (using actual minus fitted is equivalent to using actual covenants after controlling for predicted covenants). We expect that the actual use of covenants is negatively related to the probability of bankruptcy after controlling for the predicted covenant use. We use a probit regression to examine this effect. That is

$$\begin{aligned} \Pr\,(Bankrucy_i) = \Phi(&\beta_0 + \beta_1 Predicted\ Covenant_i + \beta_2 Actual\ Covenants_i \\ &+ \beta_3 Firm\ Factors_i + \beta_4 Deal\ Factors_i \\ &+ \beta_5 Year\ Dummies_i + \beta_6 Industry\ Dummies_i + \varepsilon_i) \end{aligned} \quad (2)$$

where $\Phi(.)$ is normal cumulative distribution function. We also use a Cox semi-parametric specification of the hazard function for our survival analysis. For the survival analysis, non-bankrupt firms either exit the sample when the debt matures or on the last day of our data set, in February 2009.[13] The basic specification for the hazard function is

[12] In unreported regressions, we consider the use of lagged individual covenants on the likelihood that the particular covenant is used, and in almost all cases the evidence is consistent with herding. This herding behavior is consistent with information cascades among lawyers, as well as with particular covenants being used to address perceived problems in the market at a given point in time.

[13] One minor issue is whether bankruptcy after the debt matures should be affected by the bond's covenants. For the survival analysis, we only consider up to the maturity date, but in practice the results are similar regardless of which assumption we make.

$$h(t) = h_0(t)exp(\beta_0 + \beta_1 Predicted\ Covenant_i + \beta_2 Actual\ Covenants_i + \beta_3 Firm\ Factors_i + \beta_4 Deal\ Factors_i + \beta_5 Year\ Dummies_i + \beta_6 Industry\ Dummies_i + \varepsilon_i) \quad (3)$$

As the bankruptcy events occur after the bond is issued, endogeneity is not a serious concern in this specification. For a similar use of actual and predicted variables, see Comment and Schwert's (1995) analysis of antitakeover measures.

For the issuance cost portion of the analysis, we run OLS regression of issuance cost on covenants and other controls. That is

$$Issuance\ Cost_i = \beta_0 + \beta_1 Covenant\ Index_i + \beta_3 Firm\ Factors_i + \beta_4 Deal\ Factors_i + \beta_5 Year\ Dummies_i + \beta_6 Industry\ Dummies_i + \varepsilon_i \quad (4)$$

where we measure issuance costs using the gross spread. We also examine whether some covenants impact various components of issuance. The issuance costs can be divided into the sales concession, which we hypothesize is related to sales effort, and underwriting and management fees, which are more related to the riskiness of underwriters. We then consider whether the relation between covenants and issuance costs is primarily due to one of these pieces of the total issuance costs.

4. Data and Variable Measurements

4.1 Data Sources

We utilize two main databases in our analysis of the relation between bond covenants, bankruptcy risk, and issuance costs: Mergent's Fixed Income Securities database (FISD) and Compustat Industrial Annual database. The FISD includes issue- and issuer-specific related variables on all corporate bonds issued in the U.S. maturing in 1990 or later. Issue-specific variables include detailed information on bond covenants, deal size, call, put, and sinking fund schedules, call frequency codes, floating rate formulas, current rates and coupon schedules,

credit ratings from Moody's, S&P, and Fitch, convertible debt information. The FISD also provides information on the underwriting fees, and details about defaults on the bond issue. FISD issuer information includes industry classification codes, ticker and exchange listings, and the incidence of bankruptcy.

We extract our initial sample of corporate bond issues with covenant information and deal characteristics (such as offering date, maturity, use of covenants, gross spread, and underwriter information) from the FISD. We exclude (i) all bonds where covenant information for a particular issue is not provided in the database (i.e., those with "subsequent" data flag set to "no"), (ii) Yankee bonds, Canadian bonds, unit deals, convertible bonds, foreign currency bonds, and medium notes, (iii) a small number of bonds in the database which are issued prior to 1985, and (iv) bonds whose face value was not equal to 1,000 as, in some cases, the gross spreads for these bonds appeared to be miscoded. This provides us with an initial sample of 20,686 bond issues from 4,726 firms.

We then collect firm-level data from the Compustat Industrial Annual database. To avoid reverse causation in our analysis, we use firm data from the year prior to the bond issue. Merging the databases and requiring that all variables present yields a data set of 7,487 firm-year observations on 1,428 firms in our bankruptcy analysis, and 4,727 firm-year observations on 965 firms for our gross spread analysis, covering the years from 1987 to 2009. Table 1 provides description of the variable definitions used in the analysis and their data sources.

3.2 Measuring Issue Characteristics

We incorporate a number of deal characteristics in our analysis. These include gross spread, number and identity of lead underwriters, deal size, and ratio of deal size to prior debt. Gross spread, which is comprised of selling concessions plus underwriting and management fees, is equal to the difference between the price that the underwriter pays for the securities and the investors' price. Selling concessions represent the portion of gross spread that the underwriter paid to other securities dealers in the offering syndicate for reselling the issue, and reallowance represents the potion of selling concession that an underwriter forgoes if the issue is sold by another securities firm which is not a member of the underwriting syndicate. When using gross spread, selling concession, or reallowance in our analyses, we consider the log of these variables

normalized by the funds raised per issue in order to correct for the high skewness in the data.[14] Deal size is the natural log of the size of the deal (reported in $ millions). The deal to prior debt ratio is computed as the size of the deal scaled by the size of the previously outstanding debt. There are a small number of issues (less than 1% of the sample) where the previously outstanding debt is zero, and the results are unchanged regardless of how we adjust for these issues.[15]

We also include a number of other issue characteristics with the caveat that they are likely to be endogenously determined with the covenants in the deal. These include whether the deal is a private placement exempt from registration under SEC Rule 144a, log of the issue's maturity, whether the deal is putable, callable, or secured, and dummy variables for whether the issue is rated investment or noninvestment grade (based on Moody's, S&P, and Fitch ratings in that order). All other bonds are considered unrated, which are neither investment nor non-investment grade.

3.3 Corporate Bond Covenants

We consider whether the issue includes any bond covenants, the number of covenants, and more specific variables about types of covenants. For each bond 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 22 dummies, which indicate whether a specific type of activity is restricted. Our construction of these covenant dummies is similar to that of Billett, King, and Mauer (2007), who group FISD's covenants into 15 indicators.[16] The additional seven covenant dummies we consider are covenants on liens, restrictions on issuing guarantees, restrictions on transactions with affiliates, preferred stock issuance restrictions, stock transfers restrictions, and covenants requiring minimum earnings and net worth.

[14] That is, for a $1,000 face value bond, our variable of interest is defined as:

Log percent gross spread = Log (dollar gross spread/(price*10)).

An analysis using levels rather than logs yields similar results.

[15] We examine the robustness of our results by adding one to the prior debt (so that the denominator is non-zero), and also setting the deal/prior debt ratio equal to the mean and adding a debt IPO dummy. These procedures do not change our results.

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

We also classify the 22 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 triggers 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.[17] Asset and investment restriction covenants limit asset sales, restrict the issuer in certain business dealings with its subsidiaries, and restrict subsidiaries' investments. 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 protect the firm's bondholders by triggering default should default occur in any of the firm's other debt. 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 of the issuer 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 trigger, which includes a put provision in the event of a rating decline and therefore protects bondholders from credit rating changes. We create indices for each category by summing the covenant dummy variables within each category. A higher index score indicates stronger creditor protection for a specific type of activity and vice versa. For each category, we also create a dummy variable indicating whether there are any covenants related to this type of restriction.

In addition to the 22 covenant indicators and the eight covenant categories, we also create an overall covenant index of bondholder protection by summing the 22 covenant indicators for each bond. We define a covenant dummy that equals one if any covenants are used in the particular issue. Appendices A and B provide detailed classifications and frequencies for all covenant variables as well a description of how the covenant indices are constructed.

[17] 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.

3.4 Control Variables

The remaining variables are firm specific controls motivated by the existing literature. These include firm size, leverage, market-to-book ratio, profitability, R&D ratio, firm age, idiosyncratic volatility, and institutional holdings. Firm size, a proxy for takeover deterrent and economies of scale, is measured as the natural log of total assets. Firm leverage, a proxy for financial health, is measured as the ratio of total debt (short and long term debt) divided by total assets. Market-to-book ratio, a proxy for growth opportunities, is measured as the book value of debt plus the market value of equity divided by total assets. Firm profitability, a measure of current performance, is measured as the ratio of earnings before interest, taxes, depreciation, and amortization divided by total assets. Firm research and development expenditure (R&D) ratio is measured as R&D expenditures divided by total assets.[18] Firm age is measured as the natural log of the number of years since the company began trading on the exchange.[19] Idiosyncratic volatility, a proxy for firm risk, is computed as the standard deviation of stock returns over the prior period. Institutional ownership, a proxy for monitoring, is computed as the ratio of common stock held by institutions divided by the number of shares outstanding. We winsorize our independent variables including leverage, market-to-book, profitability, and the deal to prior debt ratio, at the upper and lower 0.5% to avoid the impact of extreme outliers.

We include one-digit SIC industry dummy variables in all our regressions. The rationale for using one-digit rather than two-digit industry dummies is that some of our regressions are estimated using probit regressions and including too many dummy variables in the estimation causes some of these independent variables to become perfect indicators. As these perfect indicators and the corresponding observations are dropped, this in turn reduces the sample size and estimation accuracy.

In our analysis of covenant use, we also control for state law variables that are known to influence the firm's debt. These include payout restrictions laws described in Wald and Long (2007) and Mansi, Maxwell, and Wald (2009). Our variable for total asset constraint equals the minimum asset to debt ratio for a payout to be made, and we collect these state constraints from

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

[19] Due to the limited availability of this variable, we compute firm age only for 7,899 issue observations, whereas the total assets variable is available for 11,624 observations. Our findings are robust to the inclusion and exclusion of firm age.

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.

3.5 Univariate Statistics

Panel A of Table 2 presents summary statistics (mean, median, and standard deviation) for the variables used in the analysis segmented by issue characteristics, firm characteristics, state laws, and debt covenants. In terms of issue characteristics, deal sizes generally tend to be large with mean, median, and standard deviation values of about $327, $200, and $390 million, respectively. The median deal in the sample has gross spread per $1,000 dollar par issue of $6.5, with one lead underwriter and two underwriters in total. As a percentage of the dollar issue, gross spread accounts for 0.92% of the money raised on average. Debt issues equal, on average, 80% of prior debt, although the median issue to prior debt ratio is only 14%. About 19.6% of deals in the FISD data are issued under Rule 144A, i.e., these bonds are sold to a limited number of qualified institutional investors. The average maturity for the bonds in the sample is about 11.4 years, 69% of bonds are callable, 2.3% are putable, and 11.6 % are secured bonds. About 43% of the bonds are issued with an investment grade bond rating, 31% of the bonds are non-investment grade, and the remaining 26% are reported without bond rating. Further, 6.1% of the bonds have a default after issuance, and 5.4% go through bankruptcy.

[Insert Panel A of Table 2 about here]

In terms of firm characteristics, firms in the sample have mean, median, and standard deviation values of $38.9 billion, $5.1 billion, and $144 billion, respectively. The median leverage (short- plus long-term debt) ratio is 36% with a standard deviation of 24%, which suggest that a large portion of the sample consists of firms that have large liabilities in their capital structure. Firms, on average, are profitable with mean profitability ratios of 12%, have market-to-book ratios of 1.2, R&D ratios of 0.7%, monthly idiosyncratic volatility of issuer's stocks of 2.2%, and tend to be older with median age of 21 years. Institutions, on average, own a large portion of the firm's stock with holdings greater than 60%. In terms of state law variables, 67% of the firms in the sample, on average, have a total asset constraint of greater than or equal to 1.0. About 77% of the deals in the issue include at least one covenant and deals include about 5 covenants on

average. Restrictions on borrowing are a particularly common feature in many deals, although many covenants are frequently used.

Panel B describes the industry distribution of the sample using the standard Security Industry Classification (SIC) codes. Industries include: agriculture, forestry, and fishing, mining and construction, manufacturing (food-petroleum and plastics-electronics), transportation and communications excluding utilities, wholesale and retail trade, finance, insurance, real estate, services, and public administration. The data suggests that a large portion of the sample is split evenly among manufacturing (25.8%; 13.7% food-petroleum firms and 12.2% plastics electronics firms), and transportation and communication (27.6%), followed by finance, insurance, and real estate (23%), services (9.8%), wholesale and retail trade (7.9%; 7.54% hotel and recreation firms and 2.26% health industry and private households), mining and construction (5.8%), and agriculture and forestry (0.08%).

[Insert Panel B of Table 2 about here]

Panel C presents correlations of selected variables for our sample. Included are issue default, issue bankruptcy, covenant index, payment index, percentage gross spread, firm size, and leverage. The covenant index is positively and significantly related to issue default, issuer bankruptcy, gross spread, leverage, and high yield dummy, and negatively related to firm size. Issue default and bankruptcy are also positively related to the payment index, gross spread, and firm leverage. Bonds with non-investment grade ratings, high leverage firms, and small firms with lower total assets are more likely go to default and bankruptcy. Because of confounding effects, we evaluate these variables in a multivariate framework below.

[Insert Panel C of Table 2 about here]

Panel D presents the frequency of the lead underwriters in the deals. The number of lead underwriters decreases monotonically with the number of observations. About 65%, 20%, and 10% of the deals utilize one, two, or three lead underwriters, respectively. A small number of deals (about 5%) are underwritten with more than three lead underwriters. Panel E examines

the frequency of lead underwriters segmented by investment bank.[20] Since the distribution among the top seven issuers is relatively flat, we focus on the top seven investment banks with the caveat that there have been mergers and exists from this industry, particularly in the past few years. JP Morgan is the most frequent underwriter with about 16% market share followed by Goldman Sachs and Merrill Lynch with market shares of about 14% each, and the remaining four investment banks have about 11% market share. The non-top seven lead investment banks account for less than 12% of the market share.

[Insert Panels D & E of Table 2 about here]

Panel F provides analysis of the clustering in the gross spread variable. Per $1,000 par, the most common gross spread is $6.5 per bond, followed by $8.75, $6, $6.25, $3.5, and $4.5. These amounts appear in 17.9%, 14.8%, 6.6%, 5.6%, 4.8%, and 4.2% of the issues, respectively. While this clustering appears in the gross spread, it is not visible in the percentage spread. In other words, corporate bond issues are most often priced just under par, and thus the $6.5 gross spread equals just over 0.65% of the funds raised. However, as the exact issuance prices are not clustered, the percentage spread does not exhibit the same clustering as the gross spread.

The gross spread can be broken down into the selling concession, and underwriting and management fees. The selling concession also typically includes the reallowance, equal to the amount that the underwriter foregoes if the issue is sold to another securities firm which is not a member of the syndicate. Both the selling concession and reallowance are highly clustered. The most frequently used selling concession equals $4 per issue (for 24.4% of the sample), and the next most frequently used concession equals $5 per issue (for 7.9% of the sample). The reallowance is even more highly clustered, with 65.5% at $2.5 per issue. Thus, these components, particularly the reallowance, are more standardized across deals. Although not reported, the ratio of the selling concession to gross spread has a mean and median of about 0.6, whereas the reallowance to gross spread ratio has a mean of 0.37 and a median of 0.38.

[20] In order to categorize the investment banks, we use the first seven characters of FISD's legal name field. Thus, while there are a number of different variants on each name, we combine these into one based on the starting seven letters. For instance, Goldman Sachs uses three different legal names, Goldman Sachs & Company, Goldman Sachs Group Incorporated, and Goldman Sachs International. Hand-checking the data suggests that this is an adequate rule for capturing the issuer's identity, although it glosses over some of the name changes due to mergers and other factors in the industry. Note further that as some deals have multiple lead underwriters (and this field is missing on some issues), the number of underwriters does not equal the number of deals.

[Insert Panel F of Table 2 about here]

Figure 1 presents the degree of clustering in the gross spread over our sample period. While we find some evidence of clustering in spreads, the average amount of clustering (18% of issues have gross spread equal to 6.50) in the bond market is much less than that found in the equity market (Chen and Ritter (2000) find that over 90% of equity IPOs have issuance spreads of 7% in the late 1990s). We find a modest increase in clustering at the end of our time period, and this is consistent with consolidation in the market leading to an increase in market power.

[Insert Figure 1 about here]

5. Empirical Analysis

5.1 Evidence on the Relation between Covenants and Bankruptcy

We provide a probit regression and a Cox proportional hazard model of whether the issuer goes into bankruptcy while the issue is outstanding as described in Section 3 above.[21] We compute firm clustered errors as in Petersen (2009). Our primary variables of interest are the covenant index, which measures the number of covenants used, and the various sub-indices for different types of covenants. Our control variables include firm factors prior to the debt issue, such as firm size, market-to-book ratio, profitability, R&D, and firm age. Deal factors include deal size as a fraction of prior debt, whether the deal is issued under Rule 144A, debt maturity, whether the deal is investment grade or high-yield (unrated deals are also included), and whether the deal is putable, callable, or secured. Dummy variables for issuance year and one-digit industry code are included in all specifications.[22]

Table 3 provides our probit and hazard function results. Model 1 considers the effect of number of covenants used (i.e., covenant index) on the probability of bankruptcy. Model 2 is similar to Model 1 but decomposes the covenant index into various types of covenant sub-

[21] An alternative would be to examine whether the issue goes into default, which could include a covenant default; however, from the point of view of the payout to debt holders, we believe the bankruptcy issue is more interesting. Empirically, for our sample, these variables are highly correlated, thus the results with using default rather than bankruptcy are quite similar.

[22] In unreported specifications, we also consider dummies for each rating, and we consider excluding unrated firms. These changes have a negligible impact on the results.

indices (payment, borrowing, asset, stock, default, antitakeover, profit, and rating decline put). Model 3 is similar to Model 2 but adds individual variables related to stock issuance covenants (stock issuance, subsidiary stock issuance, subsidiary preferred stock issuance, and stock transfer sale disposition).[23] Model 4 is similar to Model 1 but adds controls for other characteristics of the issue, such as the identity of the issuer or the number of underwriters. Model 5 is the hazard function specification using the same independent variables as in Model 1. The survival duration is the time span from bond issue date to bankruptcy filing date for those firms that go bankrupt. We assume that firm which do not go bankrupt exit the sample either when the debt matures or on the last day of our sample period, which is in February 2009.

The overall relation between covenant usage and bankruptcy is positive but insignificant in Models 1, 4, and 5. In Model 2, while most sub-indices are not significantly related to bankruptcy, two important exceptions exist: restrictions on stock issuance and rating decline puts are both significantly and positively related to whether a future bankruptcy occurs. This finding is consistent with the notion that these two types of covenants actually act against the best interests of bondholders. The result on rating decline puts also agrees with the theoretical predictions in Bhanot and Mello (2006), who show that rating decline puts force the firm away from an optimal leverage policy and increase the incentives for asset substitution. The result on restrictions on stock is also relatively intuitive. Firms may seek additional equity capital if they face default risk, and these restrictions eliminate this possibility, thus increasing the probability of default.

[Insert Table 3 about here]

Model 3 breaks down the stock restriction covenant index into its components to see whether some types of covenants are more closely related to bankruptcy. The results indicate that the stock issuance component is positive and significant at the 1% level, while the other components of this index (restrictions on subsidiary stock, preferred stock, and stock transfers) have positive but insignificant coefficients. Controlling for whether other characteristics of the issue, such as the identity of the issuer or the number of underwriters impact our findings in Model 4, we find that bonds issued by Lehman Brothers are more likely to go bankrupt, while

[23] Stock transfer sales covenants restrict the issuer from transferring, selling, or disposing of it or its subsidiaries' common stock.

bonds issued by JP Morgan are less likely to go bankrupt, and that the number of underwriters and lead underwriters are not related to bankruptcy. However, adding these variables does not impact the covenant/bankruptcy relations described above.

In Model 5 we provide the estimated coefficients from a Cox proportional hazard model. Here the estimate on the covenant index is positive and significant at the 10% level, suggesting a higher likelihood of bankruptcy for issues with more total covenants. Overall, the estimated coefficients from the survival analysis match the probit analysis closely. In unreported regressions, we run hazard models for all the specifications considered in the probit analyses and find similar results. To provide a graphical view of the survival functions, we provide the Kaplan-Meier curve of the transformed survival probability on analysis time, bifurcated by investment grade and non-investment grade firms (unrated firms are excluded) in Figure 2. As expected, better rated firms survive longer on average, and the two curves are roughly parallel.

[Insert Figure 2 about here]

In terms of other control variables, the results are largely consistent with expectations. Higher leverage and a larger increase in debt are positively related to future bankruptcy. Larger, investment grade, callable, and Rule 144A issues are associated with lower bankruptcy outcomes. Higher firm market-to-book ratios, greater profitability, and firm age are also associated with lower bankruptcy probabilities.

We next turn to which firms are more likely to include covenants. Table 4 presents our Poisson regressions on the overall use of covenants. The evidence in Model 1 strongly supports herding as a possible explanation in the use of covenants as the lagged covenant index is highly significant. Model 2 is similar to Model 1 but uses the payment index rather than the overall covenant index and finds similar results. Model 3 excludes stock restrictions and rating decline puts (as these are already positively related to bankruptcy), as well as other bond features (such as maturity and whether the issue is callable) as they may be endogenously determined, and again we find similar results. Model 4 includes individual bond characteristics, and we again find evidence consistent with herding. Model 5 adds institutional ownership and the historical idiosyncratic volatility as in Campbell and Taksler (2003) as additional control variables. These variables decrease our sample size, but do not change the overall results. Model 6 includes

dummies for year and for each possible firm rating. Even with controls for year dummies, the lagged covenant index is a significant determinant of covenant use. We use the fitted value from this last specification in our next analysis: determining the impact of fitted and actual covenant use on firm bankruptcy. Overall, this analysis shows that measures of risk are positively related to covenant use; firms with greater leverage, non-investment grade firms, and firms with higher idiosyncratic volatility use more covenants.

[Insert Table 4 about here]

We next consider whether the fitted values from the regressions in Table 4 are related to whether the issue goes bankrupt. If our hypothesis that riskier firm adopt more covenants is correct, then the firms which are most likely to use covenants will go bankrupt more often and thus have shorter survival times. We expect to see that predicted covenant use is significant positively related to future bankruptcy probability. Meanwhile, if covenants restrict the management behavior in a way which reduces the bankruptcy risk, we expect to see that the actual covenant variable is negatively related to bankruptcy probability. As our other results show that stock issuance restrictions and rating decline puts do not perform in creditors' interests, we consider these two classes of covenants separately. In order to produce consistent standard errors, we bootstrap the two-stage process with clustering by firm.[24] We also winsorize the fitted and actual values of covenants, and unlike our other results, the degree of winsorization of these variables impacts the significance of the estimated coefficients.[25] The reported results winsorize the actual and fitted covenant values at 10% and the significance on the actual minus fitted variable is sensitive to the level of winsorization (but not on the fitted covenant variable). This coefficient becomes marginally significant (insignificant) with lower (no) winsorization.

[Insert Table 5 about here]

[24] A related issue is that the distribution of the estimated betas may be non-normal, and thus a hypothesis test based on the bootstrapped standard errors may not be appropriate. We therefore examine the bias-adjusted standard errors as described by Efron and Tibshirani (1993). We report whether the 95% confidence interval implies rejection of the null using an asterix in Table 5, and as the bootstrapped observations are skewed, this does not always coincide with the t-test statistics.

[25] For some discussion on how winsorization can provide a robust regression technique, see Wilcox (2005), page 450.

The results of the probit and hazard function analysis are provided in Panel A of Table 5. In estimating the fitted covenant index and the actual minus fitted covenant index, we exclude the stock issuance restriction and rating decline put because theory suggests that these two restrictions may increase the probability of bankruptcy. Consistent with hypothesis 1, we find a significant negative coefficient on the actual minus fitted covenant index after correcting for predicted covenant use. This result holds in both the probit and the survival analyses. Thus, while covenants are positively associated with issuer risk, we find evidence that the use of effective covenants decreases the probability of bankruptcy. Also, consistent with our expectations, the fitted value of covenants, which reflects greater risk, is positively associated with bankruptcy in these analyses (at the 1% level).

In Panel B of Table 5, we consider the fitted and actual minus fitted values of the individual types of indices. As the number of independent variables is large, we do not include year and rating dummies in these regressions. Consistent with stock issuance restrictions working against bondholders interests, the actual use of these covenants implies a higher likelihood of bankruptcy in the survival model. The actual (and fitted) values of rating decline puts also imply a higher probability of bankruptcy in the probit regression. In terms of the beneficial covenants, we find some evidence that asset restriction covenants reduce bankruptcy, as the coefficient on the actual use of these covenants is significantly negative in the probit specification. However, as some of these covenants are not that common and the number of bankruptcies in our data set is small, this analysis has limited ability to discern the marginal impact on bankruptcy outcomes of each type of covenant.

Figure 3 graphs the Kaplan-Meier curve of the transformed survival probability on analysis time, bifurcated by whether the firm uses more or fewer covenants than predicted. These fitted values are adjusted for differences in the predicted number of covenants used, and for stock restriction and rating decline put covenants. Consistent with the results in Table 5, the use of more covenants than predicted is associated with longer survival, although the difference between these survival functions is small compared to the survival functions based on rating in Figure 2.

[Insert Figure 3 about here]

5.2 Evidence on the Relation between Covenants and Issuance Costs

Covenants may be related to issuance costs because of a variety of reasons. First, covenants increase actual underwriting costs (i.e., more lawyers, greater negotiation time, etc.). Second, covenants may increase costs because more complicated deals are more difficult to sell to clients. Third, if firms which issue covenants are more likely to go bankrupt, this may also make them riskier for issuers. A worst case scenario for the issuer would be if the firm defaulted while some of the bonds were still held by the underwriter. An equally bad scenario would exist if the issuer face legal liability, possibly because of insufficient due diligence. A less severe outcome is a default that nevertheless reduces the reputation of the issuer. If any of these scenarios are possible, and if they are more likely for issues which include covenants, then additional covenants may be related to issuance costs because of risk. We next examine the relation between issuance spread and various firm and deal characteristics.

Table 6 provides the results from OLS and fixed effects regressions for the log of the gross spread on the use of covenants while controlling for various firm and deal characteristics. Model 1 considers the effect of number of covenants used (i.e., covenant index). Model 2 is similar to Model 1 but utilizes rating dummies and excludes unrated companies. Model 3 decomposes the covenant index into sub-indices (payment, borrowing, asset, stock, default, antitakeover, profit, and rating decline put). Model 4 is similar to Model 3 but considers individual variables related to payout restriction covenants (dividend related payments, restricted payments, and subsidiary dividend related payments). Model 5 is similar to Model 1 but adds controls for number of lead underwriters, number of underwriters, and investment bank dummies. Model 6 is similar to Model 1 but control for idiosyncratic volatility and institutional ownership. Model 7 is similar to Model 1 but employs a fixed effects specification.

In Models 1, 5, 6, and 7 where the overall covenant index is used, the coefficient on the covenant index variable is positive and significant at the 1% level. The coefficients range from over 3% to 5%, which implies about 3%-5% greater issuance cost for every additional covenant included in the deal. The exception is Model 2 where the coefficient on overall covenant index is insignificant after controlling for rating dummies and excluding unrated bonds. These results suggest that covenants are related to issuance cost because they may increase the riskiness of

the deal to the underwriter. In addition, the result indicates that the use of covenants proxies closely for ratings. In Model 3, the results suggest that almost all the relation between covenants and issuance costs is driven by the payment index, asset index, and antitakeover index with the payment index having the largest coefficient. An additional payment covenant implies a staggering 40% increase in issuance costs on average. The antitakeover index is also significantly related to issuance costs, although the coefficient implies only a 7% increase in additional issuance costs associated with an antitakeover covenant. We also find a negative and marginally significant coefficient on asset restrictions. Model 4 further separates the components of the payment index. The results with individual payout restrictions suggest that deals with dividend related payments have a 40% higher issuance cost, deals with general restrictions on payments have 61% higher issuance costs, and deals with subsidiary dividend related payment covenants have 21% higher issuance costs. Thus, the use of these types of payment covenants is associated with large increases in the costs charged by issuers.

[Insert Table 6 about here]

If the relation between covenants and issuance costs is driven by legal costs, one might expect that different covenants would have similar impacts on issuance fees. Instead, those covenants which may be most closely related to firm risk, such as payment restrictions and to a lesser degree antitakeover restrictions, have positive significant coefficients. Many other types of covenants have no significant relation with issuance costs. This evidence is not consistent with the argument that an administrative and legal fee drives this relation. Instead, since payment restrictions and antitakeover restrictions are related to firm risk, this supports the notion that the relation between covenants and issuance cost is driven by underwriter risk.

Model 5 tests whether our results are driven by particular underwriters, who may include additional covenants and charge more. However, we do not find evidence than any of the top seven underwriters charged more or less than other underwriters on average after controlling for deal and issuer characteristics. Moreover, the number of lead underwriters or total underwriters does not impact issuance costs. Model 6, which include controls for idiosyncratic volatility and institutional ownership, reports evidence that riskier firms have significantly

higher issuance costs, and firms with higher institutional ownership have lower issuance costs. However, the covenant index remains significant in this specification.

Lastly, in Model 7 we repeat our regressions using a fixed-effect estimator. Fixed effects can only be estimated for firms that have multiple bond issues, and this procedure reduces our sample size by over 50%. However, the coefficient on covenant index in Model 7 remains positive and significant with a 3.4% increase in issuance costs for each additional covenant. In unreported regressions, we also utilize fixed effects for the individual covenants, and we again find that an increase in the use of payout covenants is most strongly associated with an increase in issuance costs.

Next, we consider the relation between selling concessions, reallowance, and management fees with the use of covenants. Note that the total issuance fee includes management fees and selling concessions, some portion of which traditionally goes to the actual sales person who places the bonds. A portion of that selling concession is the reallowance, which is the amount given to non-underwriters who place the bonds. If bonds with additional covenants have higher fees because they are harder to sell, we expect a positive relation between selling concessions and covenant use.

[Insert Table 7 about here]

Table 7 provides regression results for the log of selling concessions, reallowance, and management fees and the use of covenants while controlling for various firm and deal characteristics. Model 1 reports the results of a regression of the selling concession on the covenant index and control variables. Bonds with more covenants have greater selling costs with the estimated coefficient implying a 1.6% greater selling concession with each additional covenant. Model 2 includes the various covenant sub-indices (payment index, borrowing index, asset index, stock index, default index, antitakeover index, profit index, and rating decline puts). We find positive and significant coefficients on the payout and antitakeover indices as well as the rating decline put variable; however, again the magnitude of this relation is smaller than that for the overall gross spread. Models 3 and 4 report the results of regressions of the reallowance on the covenant index and on control variables. The reallowance is not significantly related to covenant use, though the coefficients on the asset index, stock index,

antitakeover index, and rating decline put variable are significant, albeit only at the 5% and 10% significant levels. Models 5 and 6 report regression results on the relation between the management and underwriting fees (total gross spread less the selling concession) and the use of covenants. We find a positive and significant relation (8.6%) between the management and underwriting fees and the use of covenants with similar results on the sub-indices as in Models 2 and 4. Again, these regressions affirm our prior results that the majority of the relation between covenants and issuance costs is due to their impact on management fees, not because they impact sales compensation. Thus, if we expect the sales concession to reflect the actual costs of selling the bonds, the fact that bonds with more covenants or with certain types of covenants are harder to sell only explains a small portion of the covenant issuance cost relation. The majority of the relation between covenants and issuance costs is in the management fee, and this is consistent with the notion that the use of covenants reflects an increase in risk for underwriters.

To further examine whether the riskiness of issuers is the driving force in the covenant-issue cost relation, we search for evidence on whether legal liability related to debt covenants affects the underwriting fee of investment banks (see also Beatty and Welch, 1996). We search the Stanford Securities Class action database for lawsuits related to debt issues. Among the 2,743 lawsuits filed from 1996 through 2008, we identify only 233 lawsuits related to debt issues. Only 25 debt related lawsuits are related to our sample of firms with covenant information. Given this very small sample, we do not find evidence of a direct link between covenants and issuer liability. While investment banks had little exposure overall, the Global Crossing suit, where investment banks paid roughly $345 million to settle claims, suggests that legal liability, while rare, could be a significant determinant of issuance fees.

5. Conclusion

We examine the relation between the use of covenants and the probability of bankruptcy. We posit that firms which face severe shareholder-bondholder agency conflicts are more likely to incorporate covenants in their debt contracts. However, firms with effective covenants are less likely to go bankrupt as these covenants force management to avoid actions which increase

bankruptcy risk. In this paper, we attempt to disentangle these two relations between covenants and probability of bankruptcy.

Using measures of firm risk and of herding in the use of covenants, we find that most covenants help reduce bankruptcy risk by reducing agency costs for riskier firms. Two exceptions to this general pattern exist: firms that have covenants restricting stock issuance and firms with rating decline puts have a higher likelihood of bankruptcy and shorter survival times. The finding on stock issuance restrictions is consistent with the idea that these covenants hinder firms from raising equity in bad times and thereby increase the firm's risk of bankruptcy. The results on rating decline puts suggest that these covenants also do not serve the best interests of bondholders as predicted by the model of Bhanot and Mello (2006). Thus these two types of covenants appear to fail in protecting creditors. A possible issue for further research is why these covenants are ever incorporated into debt agreements.[26]

Examining the overall cost of covenants, we find that issuance costs are, on average, about 5% higher with each additional covenant in bond indentures. We examine three alternative explanations as to why covenants in debt contracts cost more. We test whether issuance costs are larger because of greater legal and administrative costs, greater sales costs, or whether issues with more covenants imply more risk for the underwriting investment bank. We find some evidence that bonds with more covenants are more expensive to market, but this does not explain most of the relation between covenants and fees. Instead, our results suggest that the covenant-issuance cost relation is driven by riskier issues creating additional risk for underwriters.

This study extends the classical analysis of the tradeoffs to covenant use. Well-functioning covenants can decrease bankruptcy risk and thus provide the firm access to more and cheaper debt capital. However, covenants are associated with a number of costs to the firm, and these include a significant increase in issuance cost. These findings both confirm and expand upon both the benefits and costs of covenants first elucidated in Smith and Warner's costly contracting hypothesis.

[26] In related research, Hillion and Vermaelen (2004) consider the use of floating-priced convertibles and find some evidence that their use is consistent with faulty contract design and with last-resort financing.

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Table 1
Variable Definitions

Variable	Source	Description
Issue Characteristics		
Gross Spread (as % of issue)	FISD	Log gross spread as a fraction of the total value of the debt issue
Gross Spread ($ per issue)	FISD	The difference between the price that the issuer receives for its securities and the price that investors pay for them. This spread equals the selling concession plus the underwriting and management fee
Selling Concession (% of issue)	FISD	The portion of the gross spread paid to other securities dealers in the offering syndicate for reselling the issue for the underwriter
Reallowance (as % of issue)	FISD	The portion of the selling concession that an underwriter foregoes if the issue is sold to another securities firm, which is not a member of the underwriting syndicate
Number of Lead Underwriters	FISD	Number of lead underwriters related to a specific issue
Number of Underwriters	FISD	Number of underwriters related to a specific issue
Deal Size (in millions of $)	FISD	The par value of debt initially issued
Maturity (in years)	FISD	The difference between of offering date and the maturity date.
Investment Grade	FISD	Dummy variable equals one if the bond rating is equal or above BBB (Baa)
HighYield	FISD	Dummy variable equals one if the bond rating is below BBB (Baa)
Putable	FISD	Dummy variable equals one if the issue has a put option
Callable	FISD	Dummy variable equals one if the issue has a call option
Secured	FISD	Dummy variable equals one if certain assets have been pledged as security for the issue
Issue Default	FISD	Dummy variable equals one if the bond is in default of the terms of this issue after the issue
Rule 144A	FISD	Dummy variable equals one if the issue is a private placement exempt from registration under SEC Rule 144A
Firm Characteristics		
Issuer Bankruptcy filing date	FISD	The date when issuer files for bankruptcy
Issuer Bankruptcy	FISD	Dummy variable equals one if the issuer file for bankruptcy after the issue
Firm Size	Compustat	Log of total assets (in millions)
Leverage	Compustat	Sum of long and short term debt divided by total assets.
Deal/Prior Debt		Ratio of offering amount to total debt before the issue
Market-to-book	Compustat	Market capitalization of stock plus total debt divided by total assets
Profitability	Compustat	Earnings before interest, taxes, depreciation, and amortization scaled by total assets

R&D	Compustat	Research and development expense. Missing R&D values are set to zero.
Firm Age	CRSP	Log of one plus firm age
Institutional Ownership	Thomson	Ratio of common stock held by institutions divided by number of shares outstanding
Idiosyncratic Volatility	CRSP	The standard deviation of stock returns over the prior period
State Laws		
Lagged covenant index	FISD	For each bond issue, we calculate the average number of covenants used in bonds issued by the same issuer's in previous year
TA Constraint	Manual Collection	State total asset constraint is the minimum asset-to-debt ratio required for a distribution to shareholders given the firm's state of incorporation
Antitakeover Index	RiskMetrics	Antitakeover Index gives the number of antitakeover statutes given the firm's state of incorporation as in Bebchuk and Cohen (2003) plus one if Antigreenmail laws are in effect (if the firm is incorporated in Pennsylvania or Ohio which have the recapture or disgorgement statute after 1990)

Note: this table provides variables definitions for issue characteristics, firm characteristics, and state laws. Covenant details are provided in Appendices A and B.

Table 2
Summary Statistics

Panel A. Descriptive Statistics

Name	Mean	Median	Standard Deviation
Issue Characteristics			
Gross Spread ($ per issue)	8.855	6.500	10.674
Gross Spread (as % of issue)	0.917	0.651	1.112
Selling Concession (as % of issue)	0.422	0.400	0.357
Reallowance (as % of issue)	0.224	0.250	0.129
Number of Lead Underwriters	1.559	1.000	0.929
Number of Underwriters	2.833	2.000	2.058
Deal Size (in millions of $)	327.024	200.000	390.940
Maturity (in years)	11.416	9.860	9.427
Investment Grade	0.428	0.000	0.495
Highyield	0.305	0.000	0.460
Putable	0.023	0.000	0.150
Callable	0.690	1.000	0.463
Secured	0.116	0.000	0.321
Rule 144A	0.196	0.000	0.397
Firm Characteristics			
Total Assets (in millions of $)	38,887.73	5,135.37	143,718.4
Leverage	0.401	0.357	0.240
Deal/Prior Debt	0.801	0.142	4.327
Market-to-book	1.202	0.995	0.835
Profitability	0.120	0.115	0.075
R&D	0.007	0.000	0.022
Firm Age	26.495	21.000	21.357
Issuer Default	0.061	0.000	0.239
Issuer Bankruptcy	0.054	0.000	0.223
Institutional Holdings	0.618	0.603	0.308
Idiosyncratic Volatility	0.022	0.019	0.013
State Laws			
TA Constraint	0.672	1.000	0.474
Covenants			
Any Covenant	0.765	1.000	0.424
Total Covenant Index	5.182	4.000	4.918
Payment Index	0.489	0.000	0.854
Borrowing Index	1.822	1.000	1.894
Asset Index	1.082	1.000	1.081
Stock Index	0.277	0.000	0.621
Default Index	0.498	0.000	0.503
Antitakeover Index	0.915	1.000	0.740
Profit Index	0.087	0.000	0.327
Rating Decline Put	0.013	0.000	0.112

Note: This panel provides descriptive statistics for our variables used in the analyses. The data set is comprised of 7,487 firm-year observations on 1,428 firms over the period 1987 to 2009. Variables definitions are provided in table 1.

Panel B: Industry Data

SIC Code	Title of Industries	Observations	(%)	Cumulative (%)
0	Agriculture and Forestry	15	0.08	0.08
1	Mining and Construction	1,152	5.83	5.9
2	Manufacturing (Food-Petroleum)	2,702	13.66	19.57
3	Manufacturing (Plastics/Electronics)	2,404	12.16	31.72
4	Transportation and Communication	5,463	27.63	59.35
5	Wholesale Trade and Retail Trade	1,556	7.87	67.22
6	Finance, Insurance, and Real Estate	4,545	22.98	90.2
7	Services (Hotels-Recreation)	1,491	7.54	97.74
8	Services (Health-Private Household)	447	2.26	100
Total Issues		19,775	100	

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

Panel C: Selected Correlations

	Issue Default	Issue Bankrupt	Covenant Index	Payment Index	Gross Spread	Firm Size	HighYield
Issue Bankrupt	0.934						
	(0.00)						
Covenant Index	0.247	0.240					
	(0.00)	*(0.00)*					
Payment Index	0.249	0.234	0.855				
	(0.00)	*(0.52)*	*(0.00)*				
Gross Spread	0.215	0.173	0.443	0.513			
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*			
Firm Size	-0.173	-0.53	-0.348	-0.442	-0.459		
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*		
HighYield	0.112	0.116	0.323	0.452	0.428	-0.454	
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	
Leverage	0.101	0.096	0.137	0.228	0.017	-0.117	0.237
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.16)*	*(0.00)*	*(0.00)*

Note: This panel provides data on correlations between selected variables with p-values in parentheses. Variables include: dummy variable equals one if the issue is in default of the terms of this issue (Issue Default), dummy variable equals one if the issuer file for bankruptcy after the issue (Issue Bankrupt), number of covenants used in bonds issued by the same issuer's in previous year (Covenant Index), index consisting of dividend related payments and other restricted payments (Payment Index), log gross spread as a fraction of the total value of the debt issue (Gross Spread), log of total assets (Firm Size), a dummy variable equals one if the bond rating is below BBB (HighYield), and sum of long and short term debt divided by total assets (Leverage).

Panel D: Number of Lead Underwriters

Lead Underwriters	Observations	Percentage
1	12,403	65.31
2	3,858	20.31
3	1,840	9.69
4	593	3.12
5	221	1.16
6	56	0.29
7	13	0.07
8	6	0.03
9	1	0.01
Total	18,991	100

Note: This panel presents the number of lead underwriters in bond issues.

Panel E: Corporate Bond Underwriters Market Share

Issuer	Number	Percentage
Credit Suisse	2,096	11.01%
Goldman Sachs	2,673	14.04%
JP Morgan	3,010	15.81%
Lehman Brothers	2,067	10.85%
Merrill Lynch	2,639	13.86%
Morgan Stanley	2,152	11.30%
Salomon Brothers	2,093	10.99%
Non-Top Seven	2,314	12.15%
Total	19,044	100.00%

Note: This panel reports the number of deals where the given investment bank served as a lead underwriter. Note that some deals have more than one lead underwriter.

Panel F: Most Frequent Gross Spreads, Selling Concessions, and Reallowance

Frequent Gross Spreads			Frequent Selling Concessions			Frequent Reallowance		
Gross Spread	Number of Observation	(%)	Selling Concessions	Number of Observation	(%)	Reallowance	Number of Observation	(%)
6.50	2,091	17.91	4.00	2,716	24.44	2.50	7,128	65.54
8.75	1,726	14.78	5.00	1,984	17.85	1.25	1,177	10.82
6.00	773	6.62	3.50	915	8.23	0.00	581	5.34
6.25	657	5.63	2.50	840	7.56	2.00	447	4.11
3.50	556	4.76	3.75	782	7.04	1.00	348	3.2-
4.50	494	4.23	3.00	721	6.49	1.50	273	2.51
Other	5,378	46.07	Other	3,156	28.39	Other	921	8.48
Total	11,675	100	Total	11,114	100	Total	10,875	100

Note: This panel provides the clustering effect of gross spread, selling concessions, and reallowance. Variables include: dollars per security equal to the gross spread (Frequent Selling Concession) and dollars per security equal to the gross spread (Frequent Reallowance).

Table 3
Probit and Survival Analyses on Whether the Issuer goes into Bankruptcy

	Probit Analysis				Cox Survival Analysis
	Covenant Index	Covenant Sub-Indices	Individual Stock Restriction Covenants	Bank Dummies	Covenant Index
	(1)	(2)	(3)	(4)	(5)
Covenant Index	0.027			0.028	0.057[a]
	(1.620)			(1.607)	(1.743)
Deal/Prior Debt	0.030[c]	0.028[c]	0.028[c]	0.023[c]	0.046[c]
	(4.221)	(3.780)	(3.706)	(3.343)	(3.510)
Deal Size	-0.175[b]	-0.170[b]	-0.168[b]	-0.118[a]	-0.334[b]
	(-2.290)	(-2.352)	(-2.327)	(-1.815)	(-2.140)
Firm Size	0.053	0.053	0.050	0.028	0.099
	(1.059)	(1.077)	(1.026)	(0.572)	(0.911)
Leverage	0.930[c]	0.891[c]	0.904[c]	0.806[c]	1.715[c]
	(3.072)	(2.913)	(2.922)	(2.994)	(3.259)
Market-to-book	-0.146[a]	-0.142[a]	-0.144[a]	-0.131[a]	-0.255[a]
	(-1.923)	(-1.886)	(-1.941)	(-1.714)	(-1.693)
Profitability	-3.027[c]	-2.981[c]	-2.981[c]	-3.201[c]	-5.730[c]
	(-3.632)	(-3.715)	(-3.644)	(-3.503)	(-3.998)
R&D	-0.971	-0.881	-0.887	-5.372	-1.923
	(-0.472)	(-0.429)	(-0.436)	(-1.322)	(-0.505)
Firm Age	-0.144[b]	-0.143[b]	-0.145[b]	-0.127[b]	-0.260[b]
	(-2.496)	(-2.488)	(-2.506)	(-2.136)	(-2.402)
Rule 144A	-0.670[b]	-0.836[b]	-0.845[b]	-0.724[b]	-1.279[b]
	(-2.406)	(-2.475)	(-2.487)	(-2.451)	(-1.997)
Maturity	0.199[c]	0.194[b]	0.196[b]	0.191[b]	-0.146
	(2.604)	(2.508)	(2.545)	(2.271)	(-0.899)
Investment Grade	-0.450[c]	-0.419[c]	-0.420[c]	-0.470[c]	-0.865[c]
	(-3.800)	(-3.338)	(-3.348)	(-3.809)	(-3.170)
High Yield	0.013	-0.022	-0.029	-0.011	0.124
	(0.128)	(-0.201)	(-0.263)	(-0.099)	(0.612)
Putable	-0.145	-0.141	-0.142	-0.131	-0.252
	(-0.553)	(-0.567)	(-0.569)	(-0.474)	(-0.386)

Callable	-0.247[a]	-0.219[a]	-0.220[a]	-0.246[a]	-0.629[b]
	(-1.948)	(-1.764)	(-1.758)	(-1.853)	(-2.514)
Secured	0.221	0.209	0.202	0.276	0.360
	(1.069)	(1.003)	(0.970)	(1.251)	(0.902)
Payment Index		0.129	0.135		
		(1.071)	(1.144)		
Borrowing Index		-0.032	-0.032		
		(-0.769)	(-0.748)		
Asset Index		0.112	0.121		
		(1.331)	(1.441)		
Stock Index		0.141[b]			
		(1.986)			
Default Index		0.031	0.027		
		(0.194)	(0.166)		
Antitakeover Index		-0.229	-0.236		
		(-1.073)	(-1.104)		
Profit Index		-0.081	-0.083		
		(-0.547)	(-0.563)		
Rating Decline Put		0.652[c]	0.647[c]		
		(2.910)	(2.866)		
Stock Issuance			0.348[b]		
			(2.199)		
Subs. Stock Issuance			0.041		
			(0.341)		
Subs. Preferred Stock Iss.			0.116		
			(0.892)		
Stock Transfer Sale Disp.			0.186		
			(1.195)		
Number Lead Underwriters				-0.116	
				(-1.464)	
Number of Underwriters				-0.008	
				(-0.328)	
Goldman Sachs				0.073	
				(0.457)	
Lehman Brothers				0.456[c]	
				(2.959)	
JPMorgan				-0.305[b]	

				(-2.010)	
Merrill Lynch				0.119	
				(0.944)	
Morgan Stanley				0.142	
				(0.666)	
Salomon Brothers				-0.141	
				(-1.087)	
Credit Suisse				0.039	
				(0.264)	
Firm-Year Obs.	7,487	7,487	7,487	7,235	7,578
Firm Observations	1,428	1,428	1,428	1,381	1,439

Note: This table reports the estimates of Probit regressions of whether the issue goes into bankruptcy and of a Cox survival analysis. The data covers the period from 1987 to 2009. Model 1 considers the effect of number of covenants used (i.e., covenant index) on bankruptcy. Model 2 studies the use of various types of covenants (i.e., covenant sub-indices) on bankruptcy. Model 3 examines the individual covenants. Model 4 controls for underwriters. Model 5 is a Cox survival analysis with the same independent variables as used in Model 1. Independent variables include: ratio of offering amount to total debt before the issue (Deal/Prior Debt), log of the par value of debt initially issued (Deal Size), log of total assets (Firm Size), sum of long and short term debt divided by total assets (Leverage), market capitalization of stock plus total debt divided by total assets (Market-to-Book), earnings before interest, taxes, depreciation, and amortization scaled by total assets (Profitability), research and development expenses divided by total assets (R&D), log of 1 plus firms age, defined as the current date minus the first day the stock traded on the exchange (Firm Age), dummy variable equals one if the deal is a private placement exempt from registration under SEC Rule 144A (Rule 144A), log of the difference between of offering date and the maturity date (Maturity), dummy variable equals one if the bond rating is equal or above BBB rating (Investment Grade), dummy variable equals one if the bond rating is below BBB rating (HighYield), dummy variable equals one if the issue has a put option (Putable), dummy variable equals one if the issue has a call option (Callable), and dummy variable equals one if certain assets have been pledged as security for the issue (Secured). Covenant details are provided in Appendices A and B. All models are corrected using firm clustered errors as in Petersen (2009). The notations [c], [b], [a] denote statistical significance at the 1%, 5%, and 10%, respectively.

Table 4
Poisson Regressions on the Number of Covenants Used

	Overall Covenant Index	Payment Index	Covenant Index without Stock Restriction and Rating Decline Implies Put			
			Without Other Bond Characteristics	With Bond Characteristics	With Inst-Own and Volatility	With Year and Rating Dummies
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged Covenant/payment Index	0.061[c]	0.262[b]	0.109[c]	0.062[c]	0.054[c]	0.018[b]
	(10.23)	(2.322)	(14.586)	(10.668)	(8.143)	(2.283)
TA Constraint	-0.086[b]	-0.182	-0.043	-0.091[b]	-0.052	-0.014
	(-2.15)	(-1.644)	(-1.022)	(-2.320)	(-1.391)	(-0.393)
AIndex	0.035[c]	0.041	0.020	0.034[c]	0.020[a]	0.004
	(2.94)	(1.269)	(1.588)	(2.945)	(1.766)	(0.390)
Deal/Prior Debt	-0.001	-0.003	-0.001	-0.001	-0.001	-0.002
	(-0.36)	(-0.752)	(-0.369)	(-0.707)	(-0.221)	(-1.373)
Deal Size	0.129[c]	0.244[c]	0.101[c]	0.123[c]	0.124[c]	0.097[c]
	(9.20)	(5.905)	(7.067)	(8.990)	(7.155)	(7.211)
Firm Size	-0.129[c]	-0.336[c]	-0.108[c]	-0.124[c]	-0.137[c]	-0.128[c]
	(-15.07)	(-12.297)	(-11.485)	(-14.317)	(-12.519)	(-14.263)
Leverage	0.230[c]	0.685[c]	0.253[c]	0.240[c]	0.310[c]	0.217[c]
	(4.06)	(5.396)	(4.516)	(4.609)	(5.332)	(3.944)
Market-to-book	-0.019	-0.225[c]	-0.012	-0.018	-0.035[b]	-0.024[a]
	(-1.32)	(-5.396)	(-0.849)	(-1.302)	(-1.970)	(-1.874)
Profitability	-0.649[c]	-0.791[b]	-0.590[c]	-0.572[c]	-0.622[c]	-0.523[c]
	(-3.64)	(-2.318)	(-3.699)	(-3.372)	(-2.945)	(-3.294)
R&D	-0.232	-0.934	0.115	-0.146	0.178	0.045
	(-0.63)	(-0.865)	(0.331)	(-0.424)	(0.447)	(0.148)
Ln(Firm Age)	-0.043[c]	-0.047[a]	-0.036[c]	-0.041[c]	-0.045[c]	-0.037[c]
	(-3.70)	(-1.826)	(-2.779)	(-3.679)	(-3.694)	(-3.353)
Rule 144A	-2.612[c]	-2.913[c]		-2.620[c]	-2.584[c]	-2.654[c]
	(-16.22)	(-12.666)		(-16.400)	(-13.645)	(-16.600)
Log(Maturity)	-0.057[c]	-0.325[c]		-0.059[c]	-0.040[c]	-0.029[c]
	(-5.08)	(-5.907)		(-5.299)	(-2.844)	(-2.719)

Investment Grade	-0.498[c]	-2.539[c]	-0.212[c]	-0.128[c]	-0.140[c]	-0.454[c]
	(-18.05)	(-11.032)	(-8.258)	(-5.363)	(-4.978)	(-2.744)
Highyield	-0.354[c]	0.642[c]	0.018	0.322[c]	0.288[c]	-0.205[a]
	(-10.50)	(8.949)	(0.595)	(10.237)	(8.283)	(-1.859)
Putable	-0.136[c]	-0.292		-0.119[b]	-0.079	-0.043
	(-2.67)	(-1.052)		(-2.378)	(-1.606)	(-0.990)
Callable	0.181[c]	0.848[c]		0.188[c]	0.137[c]	0.150[c]
	(7.62)	(5.850)		(8.294)	(5.811)	(5.957)
Secured	-0.013	0.000		-0.014	-0.014	-0.044
	(-0.30)	(0.004)		(-0.336)	(-0.358)	(-1.071)
Inst-Own					2.609[c]	
					(3.064)	
Idiosyncratic Volatility					0.184[c]	
					(4.585)	
Firm-Year Obs.	7,319	7,319	7,320	7,319	4,941	7,319
Firm Observations	1,324	1,324	1,325	1,324	1,087	1,324

Note: This table presents the Poisson regression of use of covenants. The data covers the period from 1987 to 2009. Independent variables include: average number of covenants used in bonds issued in previous year by same issuer (Lagged Covenants Index), minimum asset-to-debt ratio required for a distribution to shareholders given the firm's state of incorporation, or state law's total asset constraint (TA constraint), number of antitakeover statutes given the firm's state of incorporation as in Bebchuk and Cohen (2003) plus one if antigreenmail laws are in effect (if the firm is incorporated in Pennsylvania or Ohio which have the recapture or disgorgement statute after 1990) (AIndex), ratio of offering amount to total debt before the issue (Deal/Prior Debt), log of the par value of debt initially issued (Deal Size), log of total assets (Firm Size), sum of long and short term debt divided by total assets (Leverage), market capitalization of stock plus total debt divided by total assets (Market-to-Book), earnings before interest, taxes, depreciation, and amortization scaled by total assets (Profitability), research and development expenses divided by total assets (R&D), log of 1 plus firms age, defined as the current date minus the first day the stock traded on the exchange (Firm Age), dummy variable equals one if the deal is a private placement exempt from registration under SEC Rule 144A (Rule 144A), log of the difference between of offering date and the maturity date (Maturity), dummy variable equals one if the bond rating is equal or above BBB rating (Investment Grade), dummy variable equals one if the bond rating is below BBB rating (HighYield), dummy variable equals one if the issue has a put option (Putable), dummy variable equals one if the issue has a call option (Callable), dummy variable equals one if certain assets have been pledged as security for the issue (Secured), ratio of common stock held by institutions divided by number of shares outstanding (Inst-Own), and standard deviation of stock returns over the prior period (Idiosyncratic Volatility). All models are corrected using firm clustered errors as in Petersen (2009). The notations [c], [b], [a] denote statistical significance at the 1%, 5%, and 10%, respectively.

Table 5
Probit and Survival Analysis on whether an Issue Goes into Bankruptcy
Panel A: Overall Covenant Index

	Probit Regression	Cox Survival Analysis
	(1)	(2)
Actual Minus Fitted Covenant Index	-0.139[b*]	-0.192[b*]
without Stock Index and Rating Decline Put	(-2.437)	(-2.068)
Fitted Covenant Index	0.227[c*]	0.498[c*]
without Stock Index and Rating Decline Put	(2.641)	(4.904)
Stock Index	0.189[b*]	0.258[b*]
	(2.493)	(1.986)
Rating Decline Put	0.711[c*]	0.750[a]
	(2.644)	(1.776)
Firm and Issue Characteristics	Yes	Yes
Industry Dummies	Yes	Yes
Year Dummies	Yes	No
Rating Dummies	Yes	Yes
Firm-Year Obs.	6,740	7,319
Firm Observations	1,312	1,324

Panel B: Predicted and Actual Sub-Indices

	Probit Regression	Cox Survival Analysis
	(1)	(2)
Actual Minus Fitted Payment Index	0.410	0.895
	(0.960)	(0.899)
Fitted Payment Index	0.367	0.692
	(0.553)	(0.470)
Actual Minus Fitted Borrowing Index	-0.022	-0.040
	(-0.248)	(-0.205)
Fitted Borrowing Index	-0.160	-0.374
	(-0.523)	(-0.738)
Actual Minus Fitted Asset Index	-0.484[a]*	-0.565
	(-1.942)	(-1.275)
Fitted Asset Index	0.859	1.520
	(1.317)	(1.025)
Actual Minus Fitted Stock Index	0.425	0.992[b]*
	(1.509)	(2.172)
Fitted Stock Index	-0.606	-2.973[a]*
	(-0.645)	(-1.674)
Actual Minus Fitted Default Index	-0.145	-0.011
	(-0.499)	(-0.018)
Fitted Default Index	-0.080	0.712
	(-0.180)	(0.895)
Actual Minus Fitted Antitakeover Index	-0.234	-0.369
	(-0.626)	(-0.617)
Fitted Antitakeover Index	-0.574	-1.723
	(-0.660)	(-0.966)
Actual Minus Fitted Profitability Index	-0.305	0.148
	(-0.140)	(0.016)
Fitted Default Index	0.633	8.654
	(0.129)	(0.552)
Actual Minus Fitted Rating Decline Put	14.560*	27.356
	(1.334)	(0.899)
Fitted Rating Decline Put	25.022[a]*	84.918[a]*
	(1.889)	(1.932)
Firm and Issue Characteristics	Yes	Yes
Industry Dummies	Yes	Yes
Year Dummies	No	No
Rating Dummies	No	No
Firm-Year Obs.	4,879	6,018
Firm Observations	991	1,041

Note: This table presents a probit regression and a survival analysis of whether an issue goes into bankruptcy. The data covers the period from 1987 to 2009. Fitted Covenant Index is fitted value from the regression presented in Model 1 of Table 4. Fitted Covenant index without stock and rating decline is the fitted value of the regression in Model 3 of Table 4; Actual-Fitted Covenant without stock and rating is the residual of regression in Model 6 of Table 4. Standard errors are calculated using bootstrap to account for the earlier estimation of the number of covenants. The bootstrap includes clustering by firm. Other independent variables include: covenant stock index (Stock Index), a dummy variable if there is a decline in the credit rating of the issuer (or issue) which triggers a bondholder put provision (Rating decline Put), and the other firm and issue characteristics described in prior regressions. The notations [c], [b], [a] denote statistical significance at the 1%, 5%, and 10%, respectively. An * denotes that the bias-adjusted confidence interval implies significant at the 5% level.

Table 6
Gross Spread and the Use of Covenants

	OLS Specification						Fixed Effects
	Number of Covenants	With Rating Dummies, Excluding Unrated	Covenant Sub-indices	Individual Payout Restriction Covenants	Bank Dummies	Inst-Own and Idiosyncratic Volatility	Number of Covenants (FE)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Covenant Index	0.049[c]	0.007			0.049[c]	0.052[c]	0.034[c]
	(10.42)	(1.25)			(10.46)	(9.13)	(4.38)
Deal/Prior Debt	0.011[c]	0.007[b]	0.007[b]	0.007[b]	0.011[c]	0.016[c]	0.008[b]
	(3.06)	(1.99)	(2.55)	(2.55)	(3.05)	(2.67)	(2.12)
Deal Size	-0.217[c]	-0.251[c]	-0.210[c]	-0.211[c]	-0.217[c]	-0.229[c]	-0.089[a]
	(-3.66)	(-4.11)	(-3.73)	(-3.75)	(-4.02)	(-3.93)	(-1.66)
Firm Size	-0.018	0.045[a]	-0.013	-0.013	-0.022	0.004	-0.079[c]
	(-0.80)	(1.87)	(-0.56)	(-0.59)	(-1.00)	(0.16)	(-2.64)
Leverage	0.374[c]	0.121	0.276[c]	0.268[c]	0.388[c]	0.302[c]	0.441[c]
	(4.03)	(1.22)	(3.15)	(3.05)	(4.70)	(3.45)	(3.87)
Market-to-book	-0.029[b]	-0.004	-0.025[a]	-0.025[a]	-0.030[b]	-0.034[b]	-0.058[a]
	(-2.13)	(-0.26)	(-1.88)	(-1.90)	(-2.14)	(-2.42)	(-1.88)
Profitability	-0.110	0.524[b]	-0.024	-0.057	-0.083	0.081	-0.509[a]
	(-0.54)	(2.34)	(-0.12)	(-0.29)	(-0.41)	(0.35)	(-1.65)
R&D	0.453	0.139	0.324	0.329	0.526	-0.057	0.840
	(1.09)	(0.32)	(0.86)	(0.88)	(1.31)	(-0.12)	(0.77)
Firm Age	-0.028[b]	-0.008	-0.033[c]	-0.034[c]	-0.026[b]	-0.013	-0.083[a]
	(-2.39)	(-0.65)	(-2.89)	(-2.94)	(-2.33)	(-1.10)	(-1.93)
Rule 144A	0.411[c]	0.205[a]	0.364[c]	0.358[c]	0.403[c]	0.410[c]	0.291
	(3.57)	(1.87)	(3.23)	(3.20)	(3.53)	(3.28)	(1.30)
Maturity	0.332[c]	0.375[c]	0.346[c]	0.346[c]	0.337[c]	0.321[c]	0.380[c]
	(20.12)	(21.82)	(22.06)	(22.07)	(20.79)	(17.03)	(20.49)
Investment Grade	-0.120[c]		-0.086[c]	-0.082[b]	-0.119[c]	-0.134[c]	-0.057[b]
	(-3.51)		(-2.66)	(-2.52)	(-3.60)	(-2.76)	(-2.40)
High Yield	0.358[c]		0.236[c]	0.226[c]	0.355[c]	0.303[c]	0.178[c]
	(5.92)		(4.50)	(4.45)	(5.94)	(4.18)	(2.97)
Putable	-0.402[c]	-0.534[c]	-0.415[c]	-0.420[c]	-0.407[c]	-0.397[c]	-0.295[c]
	(-6.46)	(-11.12)	(-6.31)	(-6.37)	(-6.38)	(-7.18)	(-3.92)

Callable	0.172[c]	0.081[c]	0.138[c]	0.137[c]	0.177[c]	0.144[c]	0.102[c]
	(5.81)	(3.19)	(4.68)	(4.63)	(6.19)	(4.78)	(3.78)
Secured	-0.170[b]	-0.093	-0.326[c]	-0.336[c]	-0.181[b]	-0.145	-0.071
	(2.10)	(-1.07)	(-3.33)	(-3.46)	(-2.25)	(-1.46)	(-0.54)
Payment Index			0.402[c]				
			(10.48)				
Borrowing Index			0.002	0.000			
			(0.17)	(-0.04)			
Asset Index			-0.062[a]	-0.063[b]			
			(-1.92)	(-1.96)			
Stock Index			-0.016	-0.016			
			(-0.79)	(-0.74)			
Default Index			0.016	0.014			
			(0.85)	(0.73)			
Antitakeover Index			0.076[b]	0.070[b]			
			(2.30)	(2.07)			
Profit Index			-0.034	-0.036			
			(-0.52)	(-0.56)			
Rating Decline Put			0.026	0.005			
			(0.35)	(0.07)			
Div. Related Payments				0.401[c]			
				(5.79)			
Restricted Payments				0.614[c]			
				(7.56)			
Sub. Div. Related Payments				0.209[c]			
				(2.92)			
No. Lead Underwriters					0.012		
					(0.90)		
No. Underwriters					-0.004		
					(-0.43)		
Goldman Sachs					-0.020		
					(-0.76)		
Lehman Brothers					0.054		
					(1.02)		
JPMorgan					0.033		
					(0.89)		
Merrill Lynch					-0.010		

					(-0.43)		
Morgan Stanley					-0.040		
					(-1.35)		
Salomon Brothers					-0.016		
					(-0.64)		
Credit Suisse					0.005		
					(0.18)		
Inst-Own						-0.139[c]	
						(-2.59)	
Idiosyncratic Volatility						9.210[c]	
						(5.93)	
R-Squared	0.572	0.654	0.609	0.611	0.581	0.566	0.440
Firm-Year Obs.	4,727	3,370	4,727	4,727	4,703	3,243	2,760
Firm Observations	965	812	965	965	961	792	960

Note: This table reports the estimates of OLS regressions of log of gross spread in percentage with the exception of the last model which reports fixed effects regression. The data covers the period from 1987 to 2009. Independent variables include: ratio of offering amount to total debt before the issue (Deal/Prior Debt), log of the par value of debt initially issued (Deal Size), log of total assets (Firm Size), sum of long and short term debt divided by total assets (Leverage), market capitalization of stock plus total debt divided by total assets (Market-to-Book), earnings before interest, taxes, depreciation, and amortization scaled by total assets (Profitability), research and development expenses divided by total assets (R&D), log of 1 plus firms age, defined as the current date minus the first day the stock traded on the exchange (Firm Age), dummy variable equals one if the deal is a private placement exempt from registration under SEC Rule 144A (Rule 144A), log of the difference between of offering date and the maturity date (Maturity), dummy variable equals one if the bond rating is equal or above BBB rating (Investment Grade), dummy variable equals one if the bond rating is below BBB rating (HighYield), dummy variable equals one if the issue has a put option (Putable), dummy variable equals one if the issue has a call option (Callable), and dummy variable equals one if certain assets have been pledged as security for the issue (Secured). Covenant details are provided in Appendices A and B. All models are corrected using firm clustered errors as in Petersen (2009). The notations [c], [b], [a] denote statistical significance at the 1%, 5%, and 10%, respectively.

Table 7
Selling Concessions, Reallowance, and Management Fees and the Use of Covenants

	Selling Concession Fees		Reallowance Fees		Management and Underwriting Fees	
	Number of Covenants	Covenant Sub-indices	Number of Covenants	Covenant Sub-indices	Number of Covenants	Covenant Sub-indices
	(1)	(2)	(3)	(4)	(5)	(6)
Covenant Index	0.016[c]		-0.004		0.086[c]	
	(2.71)		(-0.79)		(13.46)	
Deal/Prior Debt	0.002	0.001	-0.001	0.000	0.010[b]	0.005[a]
	(0.79)	(0.46)	(-0.28)	(-0.15)	(2.52)	(1.75)
Deal Size	-0.221[c]	-0.220[c]	-0.084[c]	-0.084[c]	-0.110[b]	-0.110[b]
	(-3.43)	(-3.46)	(-4.31)	(-4.42)	(-2.27)	(-2.38)
Firm Size	-0.004	0.004	-0.037[c]	-0.033[c]	-0.070[c]	-0.060[c]
	(-0.17)	(0.15)	(-4.11)	(-3.82)	(-3.10)	(-2.75)
Leverage	0.190[b]	0.139[a]	0.084	0.073	0.402[c]	0.274[c]
	(2.28)	(1.72)	(1.27)	(1.12)	(4.96)	(3.34)
Market-to-book	-0.009	-0.008	-0.011	-0.011	-0.039[a]	-0.030
	(-0.61)	(-0.58)	(-0.81)	(-0.85)	(-1.67)	(-1.39)
Profitability	0.143	0.198	0.072	0.067	-0.527[a]	-0.375
	(0.74)	(1.06)	(0.33)	(0.31)	(-1.96)	(-1.46)
R&D	0.163	0.074	0.175	0.124	0.808	0.650
	(0.47)	(0.22)	(0.56)	(0.39)	(1.53)	(1.39)
Firm Age	-0.015	-0.017	-0.004	-0.004	-0.035[b]	-0.041[c]
	(-1.24)	(-1.43)	(-0.34)	(-0.35)	(-2.47)	(-3.02)
Rule 144A	0.159	0.134	-0.129	-0.103	0.452[b]	0.252[a]
	(0.69)	(0.58)	(-0.89)	(-0.70)	(2.40)	(1.69)
Maturity	0.321[c]	0.329[c]	0.225[c]	0.226[c]	0.371[c]	0.389[c]
	(22.43)	(23.73)	(15.70)	(15.92)	(18.08)	(20.34)
Investment Grade	-0.049[a]	-0.038	0.003	-0.003	-0.170[c]	-0.115[c]
	(-1.79)	(-1.37)	(0.15)	(-0.12)	(-5.65)	(-4.09)
High Yield	0.104[a]	0.069	0.040	0.056	0.495[c]	0.325[c]
	(1.88)	(1.25)	(0.82)	(1.13)	(7.45)	(5.48)
Putable	-0.395[c]	-0.397[c]	-0.303[c]	-0.302[c]	-0.427[c]	-0.439[c]
	(-5.25)	(-5.23)	(-7.12)	(-7.08)	(-6.023)	(-5.84)
Callable	0.108[c]	0.090[c]	0.102[c]	0.100[c]	0.213[c]	0.161[c]

	(4.32)	(3.61)	(4.79)	(4.81)	(7.60)	(6.28)
Secured	-0.233[c]	-0.312[c]	-0.172[c]	-0.161[b]	-0.107	-0.317[c]
	(-3.15)	(-3.54)	(-2.62)	(-2.36)	(-1.23)	(-3.02)
Payment Index		0.180[c]		-0.013		0.550[c]
		(4.83)		(-0.48)		(14.37)
Borrowing Index		0.002		0.007		0.007
		(0.26)		(0.85)		(0.54)
Asset Index		-0.094[c]		-0.052[a]		0.023
		(-2.71)		(-1.80)		(0.62)
Stock Index		-0.039[a]		-0.039[a]		0.013
		(-1.69)		(-1.78)		(0.55)
Default Index		0.031[a]		0.015		0.026
		(1.72)		(0.90)		(1.23)
Antitakeover Index		0.094[c]		0.056[a]		0.080[b]
		(2.96)		(1.92)		(2.04)
Profit Index		-0.020		0.014		-0.015
		(-0.28)		(0.28)		(-0.16)
Rating Decline Put		-0.155[b]		-0.118[b]		0.058
		(-2.37)		(-2.00)		(0.59)
R-Squared	0.416	0. 429	0.310	0.315	0.617	0.665
Firm-Year Obs.	4,421	4,421	4,290	4,290	4,419	4,419
Firm Observations	894	894	884	884	908	908

Note: This table provides regressions for selling concessions, reallowance, and gross spread. The data covers the period from 1987 to 2009. Independent variables include: ratio of offering amount to total debt before the issue (Deal/Prior Debt), log of the par value of debt initially issued (Deal Size), log of total assets (Firm Size), sum of long and short term debt divided by total assets (Leverage), market capitalization of stock plus total debt divided by total assets (Market-to-Book), earnings before interest, taxes, depreciation, and amortization scaled by total assets (Profitability), research and development expenses divided by total assets (R&D), log of 1 plus firms age, defined as the current date minus the first day the stock traded on the exchange (Firm Age), dummy variable equals one if the deal is a private placement exempt from registration under SEC Rule 144A (Rule 144A), log of the difference between of offering date and the maturity date (Maturity), dummy variable equals one if the bond rating is equal or above BBB rating (Investment Grade), dummy variable equals one if the bond rating is below BBB rating (HighYield), dummy variable equals one if the issue has a put option (Putable), dummy variable equals one if the issue has a call option (Callable), and dummy variable equals one if certain assets have been pledged as security for the issue (Secured). Covenant details are provided in Appendices A and B. All models are corrected using firm clustered errors as in Petersen (2009). The notations [c], [b], [a] denote statistical significance at the 1%, 5%, and 10%, respectively.

Figure 1: Gross Spread Clustering by Year

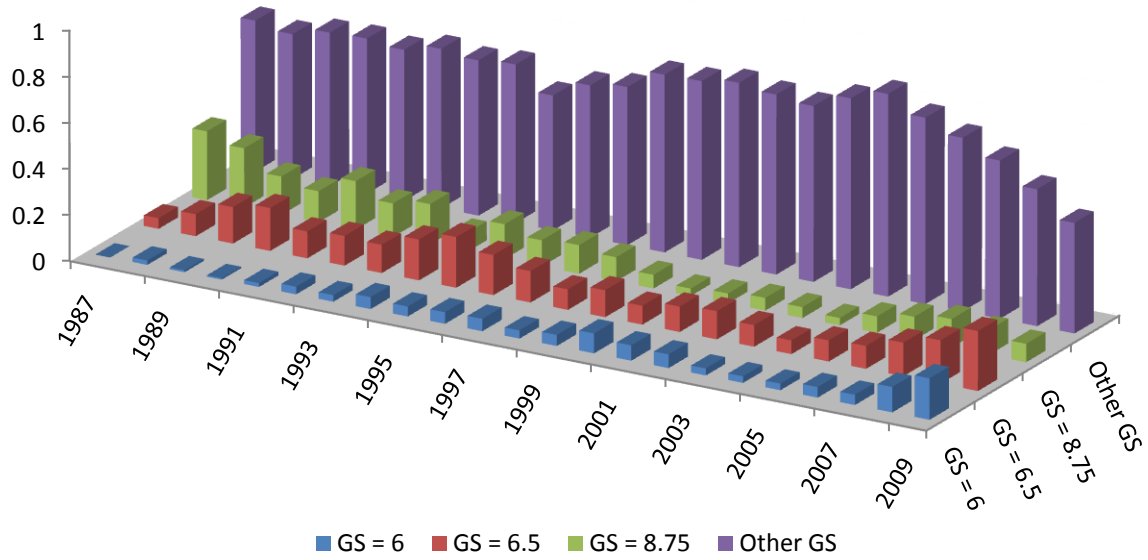


Figure 2: Survivial Probablity for Firms with Investment/Non-investment Grade

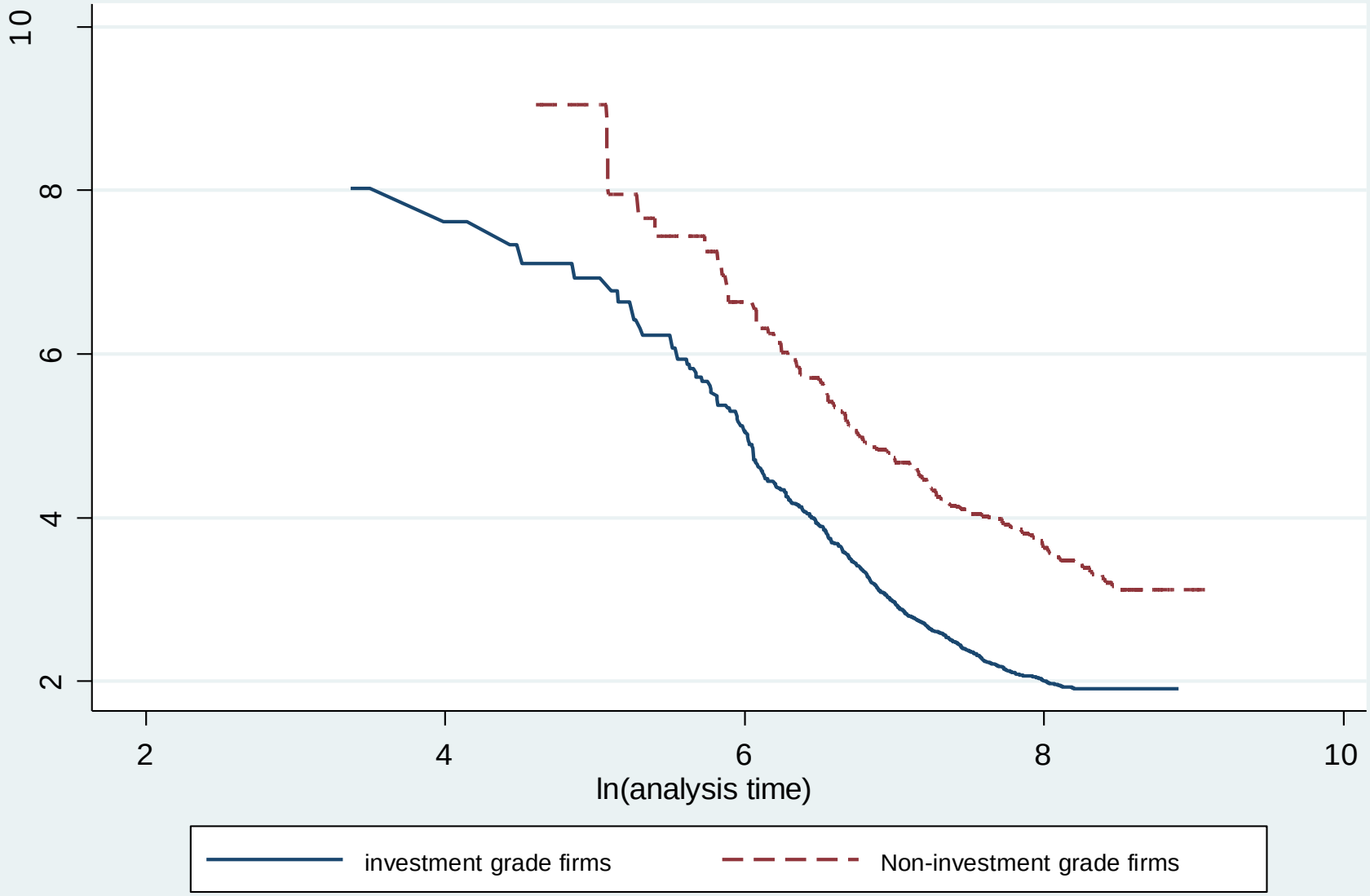
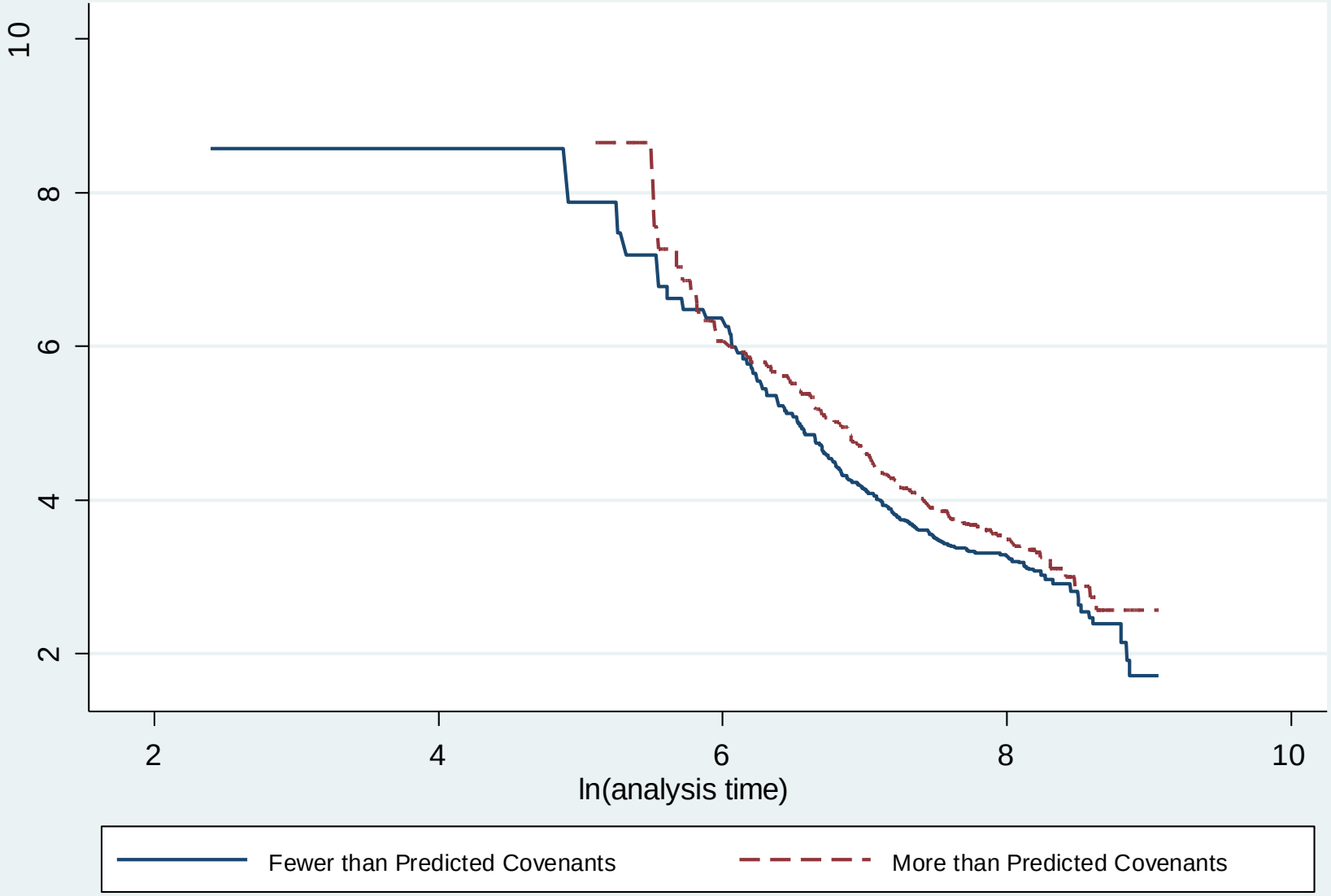


Figure 3: Survival Probability for Firms with More/Fewer than Predicted Covenants



Appendix A
Frequency of Covenant Usage in the Sample

Covenants	Frequency	Covenants	Frequency
Payment Index		**Stock Issuance Index**	
Dividends related payments	0.072	Stock issuance	0.019
Restricted payments	0.217	Subsidiary stock issuance	0.095
Subsidiary dividends related payments	0.201	Subsidiary preferred stock issuance	0.102
Borrowing Index		Stock transfer sale disp.	0.060
Funded debt	0.011	**Default Restrictions Index**	
Subsidiary funded debt	0.014	Cross acceleration	0.450
Subordinated debt issuance	0.046	Cross default	0.047
Senior debt issuance	0.010	**Antitakeover Index**	
Negative pledge covenant	0.493	Change control triggers put	0.249
Indebtedness	0.252	Consolidation merger	0.664
Subsidiary indebtedness	0.251	**Profit/net-worth Restrictions Index**	
Leverage test	0.001	Fixed charge coverage	0.014
Subsidiary leverage test	0.001	Subsidiary fixed charge coverage	0.012
Sales leaseback	0.274	Net earnings test	0.031
Subsidiary sales leaseback	0.250	Maintenance net worth	0.018
Liens	0.067	Declining net worth	0.012
Subsidiary liens	0.052	**Rating Decline Index**	
Subsidiary guarantee	0.096	Rating decline triggers put	0.013
Asset Restriction Index		**Miscellaneous**	
Transaction affiliates	0.216	Covenant defeasance without tax consequences	0.465
Investments	0.019	Legal defeasance	0.079
Subsidiary investments unrestricted	0.019	Defeasance without tax consequences	0.509
Asset sale clause	0.157	After acquired property clause	0.030
Sale assets	0.661	Economic covenant defeasance	0.033
Sale Transfer assets unrestricted	0.005	Borrowing restricted	0.002
		Subsidiary redesignation	0.062

Appendix B.
Construction of Covenant Index and Sub-covenant Indices

Group	FISD covenants	FISD definition of covenants	Classification
Payment	Dividends related payments	Flag indicating that payments made to shareholders or other entities may be limited to a certain percentage of net income or some other ratio	Dividend payment
	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 bondholder against a parent from draining assets from its subsidiaries.	
	Restricted payments	Restricts issuer's freedom to make payment (other than dividend related payments) to shareholders and others	Other payment
Borrowing	Subsidiary funded debt	Restricts issuer's subsidiaries from issuing additional funded debt (debt with an initial maturity of longer than one year)	Funded debt
	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 issuance	Restricts issuance of junior or subordinated debt	Subordinated debt
	Senior debt issuance	Restricts issuer to the amount of senior debt is may issuer in the future	Senior debt
	Negative pledge covenant	The issuer cannot issue secured debt unless it secures the current issue on a pari passu basis	Secured debt
	Indebtedness	Restricts user from incurring additional debt with limits on absolute dollar amount of debt outstanding or percentage total capital	Indebtedness
	Subsidiary indebtedness	Restricts the total indebtedness of the subsidiaries	
	Leverage test	Restricts total-indebtedness of the issuer	
	Subsidiary leverage test	Limits subsidiaries' leverage	
	Sales leaseback	Restricts issuer to the type or amount of property used in a sale leaseback transaction and may restrict its use of the proceeds of the sale. A sale leaseback transaction is a method of raising capital in which an organization sells some specific assets to an entity that simultaneously leases the asset back to the organization for a fixed term and agreed upon rate.	Leaseback

	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	In the case of default, the bondholders have the legal right to sell mortgaged property to satisfy their unpaid obligations	Liens
	Subsidiary liens	Restricts subsidiaries from acquiring liens on their property	
	Subsidiary guarantee	Subsidiary is restricted from issuing guarantees for the payment of interest and/or principal of certain debt obligations	Guarantee
Asset	Transaction affiliates	Issuer is restricted in certain business dealings with its subsidiaries	Transaction
	Investments	Restricts issuer's investment policy to prevent risky investments	Investment
	Subsidiary investments unrestricted	Restricts subsidiaries' investment	
	Asset sale clause	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	Asset sales
	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.	
	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.	
Stock	Stock issuance	Restricts issuer from issuing additional common stock	Common stock
	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.	
	Subsidiary preferred stock issuance	Restricts subsidiaries' ability to issue preferred stock	Preferred stock
	Stock transfer sale	Restricts the issuer from transferring, selling, or disposing of its own common or the common stock of a subsidiary	Other stock
Default	Cross acceleration	A bondholder protective covenant that allows the holder to accelerate their debt, if any other debt of the organization has be accelerated due to an event of default	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	
Anti-takeover	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	Poison put
	Consolidation merger	Indicates that a consolidation or merger of the issuer with another entity is restricted	Merger
Profit	Fixed charge coverage	Issuer is required to have a ratio of earnings available for fixed charges, of at least a minimum specified level.	Earnings
	Subsidiary fixed charge coverage	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	
	Maintenance net worth	Issuer must maintain a minimum specified net worth	Net worth
	Declining net worth	If issuer's net worth (as defined) falls below minimum level, certain bond provisions are triggered	
Rating decline	Rating decline trigger put	A decline in the credit rating of the issuer (or issue) triggers a bond holder put provision	Rating decline
Miscellaneous	Covenant defeasance without tax consequences	Gives the issuer the right to defease indenture covenants without tax consequences for bondholders. If exercised, this would free the issuer from covenants set forth in the indenture or prospectus, but leaves them liable for the remaining debt. The issuer must also set forth an opinion of counsel that states bondholders will not recognize income for federal tax purposes as a results of defeasance.	
	Legal defeasance	Gives the issuer the right to defease the monetary portion of the security. Legal defeasance occurs when the issuer places in an escrow account an amount of money of U.S. government securities sufficient to match the remaining interest and principle payment of the current issue. If exercised, this removes the debt from the issuer's balance sheet, but leaves the borrower still liable for covenants set forth under the	

		indenture. This type of defeasance may have tax consequence for bondholders	
	Defeasance without tax consequences	Gives the issuer the right to defease the monetary portion of the security. This type of defeasance occurs when the issuer places in an escrow account an amount of money or U.S. government securities sufficient to match the remaining interest and principle payment of the current issue. If exercised, this removes the debt from the issuer's balance sheet, but leaves the borrower still liable for covenants set forth under the indenture. This issuer must also set forth opinion of counsel that states bondholders will not recognize income for federal tax purposes as a result of the defeasance.	
	After acquired property clause	Property acquired after the sale of current debt issues will be included in the current issuer's mortgage. Normally found in utility issuers with blanket mortgages.	
	Economic covenant defeasance	Gives the issuer the right to defease indenture covenants. If exercised, this would free the issuer from covenants set forth in the indenture or prospectus, but leaves them liable for the remaining debt. This type of defeasance may have tax consequences for bondholders	
	Subsidiary borrowing restricted	Indicates subsidiaries are restricted from borrowing except from parent	
	Subsidiary redesignation	Indicates if restricted subsidiaries may be reclassified as an unrestricted subsidiaries. Restricted subsidiaries are those which are considered to be consolidated for financial test purposes.	