



ELSEVIER

Journal of Corporate Finance 9 (2003) 201–232

Journal of
CORPORATE
FINANCE

www.elsevier.com/locate/econbase

Determinants of contractual relations between shareholders and bondholders: investment opportunities and restrictive covenants

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Accepted 1 July 2001

Abstract

We evaluate the costs and benefits of restrictive covenants in bonds issued in 1989 and 1996. Our results indicate that firms with growth opportunities are more likely to seek to preserve flexibility in future financing activities by not including dividend or debt issuance restrictions in their bond contracts. We do not find, however, that the use of other restrictive covenants is significantly lower for firms with high investment opportunities. Instead, the use of these other covenants is primarily driven by the issuing firm's likelihood of financial distress. Our results emphasize that contractual relations between firms and bondholders reflect the specific needs of the contracting parties.

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JEL classification: G24; G31

Keywords: Contracts; Covenants; Bond financing; Investment opportunities; Investment banking

1. Introduction

Using the “nexus of contracts” approach, we analyze the many variations in bond issuers' use of restrictive covenants. We focus on understanding how the firm's investment opportunities affect its design of financial contracts. When selecting covenants to include in a debt indenture, a firm must generally choose between maintaining flexibility and

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reducing potential agency problems. Our study investigates this tradeoff by examining a large, current sample of bond contracts and testing for the influence of investment opportunities on the firm's choice of financial contract.

We find that, for high-growth firms, the desire to maintain flexibility in financing dominates the need to reduce agency costs of debt. Specifically, our results suggest that high-growth firms are more likely to contract with bondholders in a manner that preserves the flexibility of the firm with respect to the payment of dividends and the issuance of debt. We do not find, however, that the use of other restrictive covenants, such as negative pledge clauses, merger restrictions, event-risk covenants ("poison puts"), or limitations on sale/leaseback agreements or asset sales, is significantly lower for firms with high investment opportunities. Instead, the use of these covenants is primarily driven by the issuing firm's likelihood of financial distress. We suggest that high investment opportunity firms are unwilling to give up flexibility with respect to cash payouts and additional financing due to the greater uncertainty about their future operations. Overall, our results indicate that bond contracts are not "boilerplate" documents, but rather that they are negotiated to incorporate specific covenants that are appropriate for the conditions and requirements of the issuers and investors.

Our research adds to the empirical literature on how firms design contracts to control the conflicts among stakeholders. We specifically focus on the interactions between bondholders and shareholders and their relation to corporate investment opportunities. In addition, our sample is more inclusive and current than previous studies. Our sample consists of 763 bond contracts (496 with Compustat data available) issued in 1989 and 1996 for which we collected data on the specific covenants from the original prospectuses. These detailed data allow better analysis of bond covenants than data from traditional sources such as the Moody's Bond Guides. Moreover, unlike many covenant studies, our sample includes both junk and investment-grade bonds. This is a crucial distinction of our data since the effect of financial distress costs cannot be ascertained without examining the differences between bonds of financially strong firms (typically issuers of junk bonds). Therefore, our sample provides a broader, more current view of the contracting environment.

The remainder of the paper is organized as follows. Section 2 evaluates the benefits and costs of restrictive covenants. We explicitly focus on growth opportunities and the value of flexibility. Section 3 describes our data, proxies, and testable hypotheses. Section 4 presents our results, and Section 5 provides a summary and conclusion.

2. Benefits and costs of restrictive covenants

We investigate how firms design debt contracts to minimize potential conflicts between bondholders and stockholders and thereby increase firm value. [Smith and Warner \(1979\)](#) refer to this premise as the "costly contracting hypothesis." Under the costly contracting hypothesis, restrictive covenants can be incorporated to prevent stockholders from taking actions that reduce firm value. However, covenants themselves also imply some cost in that they reduce flexibility by restricting the firm's investment and financing opportunities. Under the costly contracting hypothesis, an issuing firm compares the benefits and costs of

each contractual feature and determines a value-maximizing set of terms in its bond contracts.

2.1. Benefits of restrictive covenants

Debt covenants primarily add value by reducing potential conflicts between bondholders and stockholders. Stockholders in levered firms have incentives to undertake actions that transfer wealth from bondholders to stockholders. Debtholders anticipate these conflicts of interest and incorporate the costs into their demand for financial assets. The following section briefly describes these agency problems and identifies how financial covenants may add value by mitigating these conflicts of interest.

2.1.1. Underinvestment

Myers (1977) identifies a potential underinvestment problem for levered, high-growth firms. Because growth opportunities have the characteristic of being “real options” to shareholders and their managers, the future value of these opportunities is subject to more managerial discretion than the value of assets in place. Firms with higher growth or investment opportunities are likely in the future to be faced with another investment decision. Even in the presence of a positive net-present-value (NPV) project, if a manager determines that the gains from the project may be split between bondholders and stockholders such that stockholders do not earn a normal return, the project may not be undertaken.

Myers (1977) and others suggest several means to minimize the underinvestment problem, including the use of dividend covenants. Under the costly contracting hypothesis and following Myers’ analysis, we would expect to observe dividend covenants to minimize underinvestment problems in those firms with more growth opportunities. Limiting dividends effectively forces the firm to invest since a binding dividend covenant prohibits the distribution of free cash to shareholders. Additionally, bond indentures may contain covenants specifying a firm’s maximum amount of total debt. Since, as Myers (1977) shows, levered firms are more apt to forego positive NPV projects, covenants limiting debt may help resolve this conflict of interest. Thus, financial covenants can help reduce the underinvestment problem.

2.1.2. Asset substitution

After issuing bonds, stockholders may expropriate wealth from debtholders by switching from safer to riskier investments. Equity can be considered a European-type call option that allows the holder to buy the firm from bondholders at an exercise price equal to the face amount of the debt. This call option becomes more valuable as the variance of the firm’s cash flows increases. By choosing high-risk projects and increasing the variance of firm value, stockholders extract value from bondholders.

Covenants that constrain the borrowing firm’s production and investment policy add value by reducing the likelihood of asset substitution. Specific covenants to mitigate asset substitution include restrictions on mergers and restrictions on asset sales, limits on the holding of financial assets, and pledges to remain in particular lines of business. Each of

these covenants provides obstacles to management's attempts to undertake riskier projects after issuing the bonds.

2.1.3. Claim dilution

If markets price bonds under the assumption that no additional debt will be issued, the firm will reduce bondholder wealth by issuing more debt of equal or higher priority. Specifically, by adding creditors of equal or greater priority, claim dilution results in a demotion of the existing bondholder to a lower position in the stakeholder pecking order. Bondholder wealth also diminishes if the new debt increases the firm's probability of default. Masulis (1980) notes that, when a firm takes on additional fixed claims, the previously existing debtholders bear greater risk, but still receive the interest payments they negotiated prior to the issuance of the new debt.

Several covenants protect the bondholder against this type of wealth expropriation. For example, a primary function of the debt restriction and the negative pledge clause is to ensure that no other creditor will receive a more senior claim. Limitations on leases and sale–leaseback agreements (which represent claims senior to many forms of debt) also frequently serve to mitigate claim dilution. Fama and Miller (1972) label all of these types of covenants as “me-first” rules because they promise that other claimants will not supercede the bondholder's position.

Event risk is an extreme example of claim dilution that results from large debt-financed transactions that alter the structure of corporate control. Several papers consider the role of bond covenants in the changed corporate control environment of the 1980s that introduced “event risk” for bondholders. Asquith and Wizman (1990) find that bondholders in leveraged buyouts suffer losses averaging 2.5%, with those losses concentrated in bonds with the weakest covenant protection. Lehn and Poulsen (1991) argue that certain bond covenants evolved to protect bondholders from event risk explicitly and find that these covenants are concentrated in those firms most subject to event risk. Bae et al. (1997) find similar results, reporting that the inclusion of event risk covenants is related to the firm's agency costs of debt and to its potential for takeover.

2.1.4. Effect of financial distress on agency problems of debt

Conflicts between bondholders and stockholders are concentrated in those situations where it is uncertain that bondholders will receive promised payments from the firm. Bodie and Taggart (1978) show that underinvestment will intensify during periods of financial distress because more of a new investment's value accrues to bondholders when default appears likely. Additionally, Smith et al. (1989) recognize that as a firm's value declines (as would be expected during times of financial distress), its “economic leverage” increases. This further aggravates the underinvestment problem since greater amounts of leverage imply that bondholders stand to reap a disproportionate share of the benefits from marginal investment. An additional consideration is that shareholders do not bear the full cost of risky investments. Since firms can usually postpone bankruptcy for a limited time, managers may be tempted to gamble with the organization's remaining wealth. Bondholders anticipate these potential conflicts and recognize the costs when they price the firm's debt. These considerations suggest that restrictive covenants are more likely to be included in bonds the closer the firm is to financial distress.

2.2. Costs of restrictive covenants

While covenants provide benefits by reducing stockholder/bondholder conflicts, they also impose costs on the issuing firm. A major cost of covenants is a restriction on managerial flexibility. In certain situations, the loss of flexibility may outweigh the benefit from reduced agency conflicts. This cost/benefit tradeoff is fundamental to [Smith and Warner's \(1979\)](#) contention that firms search for an optimal contractual structure. [Begley \(1994\)](#) offers empirical evidence that firms base their covenant choice on the perceived benefits and costs of the contractual features involved. She suggests that the magnitude of the costs of lost flexibility will depend upon whether the restricted activity plays an important role in maximizing firm value. Specifically, she notes that a firm's growth opportunities and potential for financial distress critically impact the value of flexibility to a bond issuer.

2.2.1. Relation between growth options and cost of reduced flexibility

The inclusion of restrictive covenants may constrain shareholders from taking actions in response to future growth opportunities that are, in fact, wealth-increasing for the firm. Given that companies with growth opportunities presumably have more options embedded in their investment decisions, it is arguable that these same firms will value flexibility more highly than firms with fewer options. Therefore, due to the greater cost of reduced flexibility, high-growth firms may be less likely to include restrictive covenants.

Several studies suggest a negative relation between growth opportunities and the use of financial covenants. [Begley \(1994\)](#) notes that the loss of flexibility caused by a financing restriction may be prohibitively expensive to a growth firm. Since the value of a growth firm depends on its ability to invest in high-quality projects, a financing restriction may be especially damaging if it precludes a firm from acquiring the cash needed to undertake these investments. [Kahan and Yermack \(1998\)](#), in their study of straight and convertible bond issuers, find that firms with more investment opportunities are less likely to include restrictive covenants. Kahan and Yermack conclude that high-growth firms prefer to use bonds with conversion options rather than with restrictive covenants to control agency costs since convertible debt allows for greater managerial flexibility. Similarly, [Anderson \(1999\)](#) studies firms issuing debt in the volatile Brazilian market. His results suggest that issuers recognize the cost of restrictive covenants and protect their flexibility by using non-covenant contractual features. [Gilson and Warner \(1998\)](#) find that when firms refinance bank debt with junk bonds, the junk bonds are less restrictive than the bank debt. They suggest that firms with the need for additional flexibility benefit the most from reducing the restrictions in their debt. Our study extends the analysis of these papers by providing further evidence that growth firms seek to preserve flexibility by avoiding the use of extensive financial covenants. With our substantially larger and less restrictive sample, we are able to provide much stronger results with respect to flexibility in bond contracts.

2.2.2. Relation between financial distress and cost of reduced flexibility

Flexibility should also be important to firms facing financial distress. For example, [McDaniel \(1986\)](#) notes that limiting restrictions on financing opportunities gives the firm greater flexibility to implement a plan for survival. Furthermore, [Begley \(1994\)](#) contends

that a leverage limitation may prove especially costly to a firm facing financial distress that may need to maintain a “cushion” of excess borrowing capacity to remain solvent. [Gilson and Warner \(1998\)](#) analyze the contractual differences between junk bonds and bank debt. In a sample of junk bonds where the funds were used to pay down bank debt, they found that the terms of the junk bonds are less restrictive than bank borrowings they replaced. Since junk debt implies a higher probability of default, the issuers of junk bonds appear to preserve financial flexibility by using fewer restrictive covenants than in their previous bank borrowings. [Anderson \(1999\)](#) finds that firms from a volatile economic environment seek to maintain flexibility by avoiding covenants. This also suggests a negative relation between a firm’s potential for financial distress and its willingness to incorporate restrictive covenants. Therefore, to preserve financial flexibility, firms closer to bankruptcy may be less likely to include restrictive covenants. We also test for this relation in our empirical analysis. We do not find support for the premise that firms in financial distress are able to negotiate more flexible covenants.

2.3. Alternative contractual methods of mitigating agency problems

To organizations possessing extensive growth options or facing financial distress, the costs of covenants (such as the loss of flexibility) may be greater than the benefits. These firms may seek other means of reducing agency conflicts through financial contracts. The following sections describe the benefits and related costs of contractual features that offer alternatives to standard covenants.

2.3.1. Call option

Like financial covenants, the call option helps to mitigate the agency costs of debt. [Bodie and Taggart \(1978\)](#) show that the shareholder’s ability to call and subsequently reissue debt corrects managers’ investment incentives. When a firm with callable debt encounters a positive NPV project, it will first exercise its call privilege to retire the debt. After making the investment, the firm issues new debt. The terms of the new debt will fully reflect the value of the recent investment, and the shareholders acquire the entire benefits of the incremental project. Therefore, attaching a call option to risky debt may be the most efficient means for some firms to reduce the underinvestment problem. For example, if a high-growth firm finds the dividend covenant prohibitively costly, it may choose to address the underinvestment problem by issuing callable debt. [Anderson \(1999\)](#) argues that firms in emerging markets may substitute call options for specific covenants.

2.3.2. Convertibility option

[Anderson \(1999\)](#), [Mayers \(1998\)](#) and [Kahan and Yermack \(1998\)](#) contend that the convertibility option may also substitute for restrictive covenants and allows firms to maintain their flexibility. [Jensen and Meckling \(1976\)](#) argue that this conversion opportunity would reduce managers’ incentives to engage in activities such as asset substitution or underinvestment that transfer wealth from bondholders to stockholders. Since convertible holders can recapture any potential value transfer, managers would be less likely to attempt actions designed to expropriate bondholder wealth.

2.3.3. Secured debt

The use of secured bonds provides the issuer with a means to mitigate agency costs of debt that, for some firms, may be less expensive than using other contractual features such as restrictive covenants. For example, Scott (1977), Leeth and Scott (1989), and Opler and Titman (1993) note that the issuer can reduce the claim dilution and underinvestment problems by securing the debt with claims to tangible assets. Furthermore, Leeth and Scott (1989) argue that the use of secured debt lowers potential foreclosure costs by providing the bondholder clear rights to specific assets upon default. Accordingly, firms facing greater possibilities of financial distress will be likely to consider issuing secured debt. The security provision provides the benefit of reduced agency costs without imposing the cost of lost flexibility that would come with traditional covenants.

2.3.4. Maturity of debt

A firm may also attempt to mitigate agency costs of debt through its choice of maturity of its bonds. Like the call option, shortening the maturity of a security reduces the underinvestment problem. This occurs because the longer maturity of a bond provides a greater period for profitable investments to arise and subsequently be rejected by managers acting in shareholders' interests. Accordingly, choosing shorter maturities lessens the underinvestment problem.

Shortening the maturity of bonds also lessens the asset substitution problem. When firms engage in asset substitution, stockholders expropriate wealth from bondholders because the higher variance of the riskier project increases the value of the shareholder's "option" to purchase the firm from the bondholder. Issuing shorter term debt reduces the incentives for managers to follow this strategy because the value of a shorter term option is not as sensitive to a change in the variance of the underlying asset's returns.

Barclay and Smith (1995a,b) study the relation between growth opportunities and the maturity of debt contracts. They find that firms with more growth opportunities have debt with shorter maturities to preserve the firm's flexibility. Guedes and Opler (1996) find results consistent with Barclay and Smith (1995a,b).

2.3.5. Debt priority

The seniority of bonds also affects the agency costs of debt. Fama and Miller (1972) define senior debt as bonds containing priority arrangements between claimholders that protect against wealth transfers ("me-first" rules). These provisions obviously address the claim-dilution problem. Furthermore, Berkovitch and Kim (1990) contend that firms may reduce underinvestment by retaining the option to issue additional senior debt. Since senior debt provides a lower-cost source of funding, firms should be more likely to undertake the value-increasing, risk-reducing projects they might otherwise have foregone. Berkovitch and Kim conclude that designing contracts with some flexibility regarding "me-first" rules should partially alleviate underinvestment. Barclay and Smith (1995a,b) also examine the factors that affect the firm's choice of debt priority. They expect firms with more growth opportunities to have higher priority debt because it helps to limit wealth transfers from bondholders to shareholders from either underinvestment or asset substitution. Barclay and Smith note that firms with growth opportunities might prefer to issue low-priority debt to maintain flexibility, but such offerings would "attract little

investor interest and low prices.” They find that high-growth firms are more likely to use higher priority capitalized leases than low-growth firms.

2.3.6. Avoiding the use of debt

In addition to preserving flexibility by avoiding covenants, a high-growth firm may simply choose not to issue debt. Several empirical studies illustrate the importance of investment opportunities in determining the amount of a firm’s total debt. [Bradley et al. \(1984\)](#) and [Titman and Wessels \(1988\)](#) find a negative relation between proxies for growth and leverage. [Smith and Watts \(1992\)](#) and [Gaver and Gaver \(1993\)](#) also find that firms with more growth opportunities have lower leverage. [Barclay et al. \(1995\)](#) find that the most important systematic determinant of leverage is the extent of the firm’s investment opportunities.

2.3.7. Recapitulation

The costly contracting hypothesis implies that issuers select terms for their financial contracts that add the most value for the firm. Bond covenants are one of several alternative contractual features that issuers may choose to include in debt indentures. Covenants provide benefits by mitigating certain agency problems of debt including underinvestment, asset substitution, and claim dilution, but also impose costs by reducing managerial flexibility. In addition, firms may substitute other bond features, such as callability, convertibility, or maturity, to help control agency problems.

3. Research outline

In this research, we look for further evidence of efficient contracting by studying the use of specific restrictive covenants as a function of the investment opportunities and financial distress costs of a firm. We use our sample of 763 bond contracts (496 with Compustat data available) issued in 1989 and 1996 to find evidence of the costly contracting hypothesis, i.e., that firms design bond contracts to minimize the agency costs of debt while at the same time minimizing the costs of reduced flexibility to the issuers. This sample is more inclusive and current than previous studies. [Kalay \(1982\)](#), [Malitz \(1986\)](#), and [Begley \(1994\)](#) focus on bonds issued in the 1960s and 1970s; [Malitz \(1994\)](#) focuses on senior, unsecured issues; [Kahan and Yermack \(1998\)](#) look primarily at junk bonds and convertible bonds; [Gompers and Lerner \(1996\)](#) and [Gilson and Warner \(1998\)](#) study private contracting, and most of the event-risk (poison put) papers study that specific contractual feature. Due to the various restrictions used by the authors, in every other study, the number of issues per year is substantially smaller than in our work. The later papers, especially Kahan and Yermack, do consider the importance of flexibility in contract design, but our much broader sample provides stronger results than they find.

We examine registration statements that firms filed with the Securities and Exchange Commission when issuing public bonds in 1989 and 1996. Our sample includes 365 bonds issued in 1989 by 259 firms and 398 bonds issued by 241 firms in 1996. Our sample originates with all bonds issued by U.S. corporations with principal value of at least US\$20 million as reported by Securities Data. For the 1989 sample, we obtain registration

statements for each bond from the Securities and Exchange Commission or from Disclosure. For the 1996 sample, we collect the registration statements from EDGAR, the electronic datasource of the SEC. The SEC required that all filings be submitted electronically for EDGAR use as of May 1996. We are missing registration statements from some firms that issued bonds before May 1996 or that issued bonds as part of a previously registered shelf issuance. Nevertheless, our sample of more than 700 bond contracts, covering two different time periods, provides substantial information about the nature of bond contracting. We compile a database detailing the use of restrictive covenants in each bond issue by reading each bond's prospectus. Other widely available databases, such as the Moody's Industrial Manuals, do not provide as much detail (see Asquith and Wizman, 1990).¹

Our categorization of restrictive covenants is from the American Bar Foundation's *Commentaries on Model Debenture Indenture Provisions* (1971). In 1965, the American Bar Foundation published the Model Debenture Indenture Provisions to

eliminate the drudgery heretofore involved in the preparation of the boiler-plate indenture provisions, thus permitting more time to be devoted to the vastly more important negotiable features peculiar to each particular transaction. (ABF, 1971, p. ix)

The 1971 *Commentaries* provides a complete description and explanation of the Model Debenture Indenture with specific attention to what it calls negotiated covenants. We are particularly interested in these "vastly more important" negotiated covenants.

In addition to the contractual details of each bond, we also measure firm characteristics such as growth options and the probability of financial distress. The following sections describe our proxies for these attributes and identify our hypotheses regarding their effect on choice of financial covenants.

3.1. Measurement of growth opportunities

Since we test whether firms with greater growth opportunities are more likely to preserve financial flexibility, the measurement of growth opportunities is a crucial step in our analysis. Accordingly, we gauge a firm's growth options with several proxies. In our first measure of growth opportunities, we follow recent work, such as Adam and Goyal (2000), Barclay et al. (1995), Jung et al. (1996), and use the ratio of the market value to the book value of the firm. This ratio is equal to the book value of assets minus the book value of equity plus the market value of equity divided by the book value of assets.² Because growth options should be recognized by the market, but may not be necessarily reflected in book values, higher values of this ratio should indicate larger amounts of growth

¹ We collect extensive detail on the exact features of each covenant for the 1989 sample. Though we do not use the more extensive data in this analysis, we do include the descriptive data in an appendix available upon request and refer to it throughout the text to provide a better understanding of the variation in covenants.

² Other versions of a market-to-book ratio are commonly used (e.g., market-to-book equity, *P/E*). However, Adam and Goyal (2000) present evidence that the market-to-book assets ratio that we use as our primary measure of growth opportunities is the most informative proxy for the firm's investment opportunity set.

opportunities. Additionally, Gaver and Gaver (1993) and Chung and Charoenwong (1991) measure growth opportunities with the ratio of R&D expense to assets. Similarly, Gilson (1997), Skinner (1993), and Chung and Charoenwong (1991) use the ratio of R&D expense to sales. Since greater relative amounts of R&D expenditures should create more growth options, we expect a positive relation between these ratios and a firm's investment opportunities. Finally, we draw from Gilson and Warner (1998) and measure growth opportunities by examining the rate of change in the firm's post-issue sales. We expect that firm's with more growth opportunities should exhibit greater increases in ex post sales.

3.2. Measurement of likelihood of financial distress

We employ several variables to measure the firm's likelihood of financial distress. First, we follow Asquith et al. (1994) and use the firm's interest coverage ratio to determine its nearness to financial distress. The interest coverage ratio is equal to EBITDA divided by interest expense. There should be an inverse relation between the value of this ratio and the firm's likelihood of default. We also calculate the Altman's (1993) Z-score for each firm. The Altman Z-score is a weighted combination of five ratios, with the most weight placed on return on assets.³ Frequently used as a bankruptcy predictor, lower values of this score indicate a greater chance of encountering financial difficulties. Finally, Smith and Warner (1979), Gaver and Gaver (1993), and Griner and Huss (1995) contend that smaller firms are more likely to experience financial distress. We measure firm size with the log of sales and expect a negative relation between size and the likelihood of financial distress.

3.3. Other control variables

The level of interest rates may also impact the design of bond contracts. For example, Goyal (2000) determines that firms are more likely to include investment and debt restrictions during periods of higher interest rates. This finding is consistent with Riger (1991) who contends that firms (along with underwriters) choose bond covenants based on market conditions. Therefore, as a control variable, we include the log of the Treasury yield (matched by issuing date and bond maturity).

Since there are differences in agency costs and potential growth opportunities across industries, a firm's industry may also affect its choice of debt covenants. Barclay and Smith (1996) contend that regulation effectively reduces the possibility of many agency problems by limiting managerial discretion. Therefore, debt of firms in regulated industries should be less likely to have restrictive covenants. We include a dummy variable if the issuer is in the telecommunications (SIC of 4812–4813) or utility (SIC of 4900–4939) industry. We expect a negative relation between regulation and the use of restrictive covenants.

We also consider the year in which the bonds are issued to determine if there is a temporal pattern in our results. Malitz (1998), for example, suggests that covenant use declined from the 1970s to the 1980s.

³ The Z-score is defined as: $Z = 3.3(\text{EBIT}/\text{Assets}) + 0.999(\text{Sales}/\text{Assets}) + 0.6(\text{Equity}/\text{Liabilities}) + 1.2(\text{Current Assets}/\text{Assets}) + 1.4(\text{Retained Earnings}/\text{Assets})$.

3.4. Data

We match the firms issuing bonds in 1989 and 1996 against the Compustat database to obtain data on the firms' assets, market value, leverage, research and development expenditures, and other financial variables of interest. This match leaves us with 208 bonds issued by 138 firms in 1989 and 288 bonds issued by 172 firms in 1996, for a total of 496 bonds issued by 310 firms. We divide our sample in half. Those bonds issued by firms with a market-to-book value of assets greater than the median (1.29 in 1989, 1.46 in 1996, 1.40 for the combined sample) are considered to be issued by high investment opportunity firms, while those with a market-to-book value of assets less than the median are considered to be issued by low investment opportunity firms. (We perform similar analyses based on quartile rank and also differentiate our results on the basis of R&D expenses with few differences in the reported results.) Using this dichotomy, we examine differences in the frequency of the varying restrictive covenants. We also use logistic analysis to determine how various firm characteristics proxying for investment opportunities and financial distress costs affect the probability of the inclusion of specific covenants in bond contracts.

Table 1 provides information on the characteristics of 310 companies with Compustat data available. We use the CPI to adjust the 1996 US\$ values to 1989 equivalents. The combined sample statistics are in Panel A, 1989 sample data are in Panel B, and the 1996 sample data are in Panel C. Overall, the firms are large. For the full sample (Panel A), assets average US\$7.0 billion, sales average US\$5.9 billion, and the market value of equity averages US\$5.3 billion. Medians are lower (US\$2.4 billion, US\$2.3 billion, and US\$2.0 billion, respectively). The firms in the 1996 sample are similar (in 1989 US\$) to the 1989 sample in assets and sales, while their value of equity is somewhat larger. The median book value of assets and sales are increased only slightly from US\$2.4 billion to US\$2.5 billion, and US\$2.2 to US\$2.4 billion, respectively. The median value of equity increased from US\$1.9 billion in 1989 to US\$2.2 billion in 1996. The average leverage (0.351) and median leverage (0.357) ratios for the full sample (measured as the book value of long-term plus short-term debt over the book value of assets minus the book value of equity plus the market value of equity) shows some decline between 1989 and 1996, probably reflecting the increase in the market value of equity. The median market-to-book value of 1.40 for our full sample is similar to [Stohs and Mauer's \(1996\)](#) median market-to-book value of 1.18 (averaged from 1980–1989) for a sample of 328 Compustat firms with comprehensive bond data available during that period.

Comparing the low investment opportunity firms to the high investment opportunity firms, there are no significant differences between the value of assets or the level of sales for the full sample when comparing medians using the Wilcoxon test statistic. In 1996 and for the full sample, the high investment opportunity firms have significantly greater market value of equity, not surprisingly given that the sample is differentiated on the basis of the market-to-book ratio. The high investment opportunity firms have significantly lower leverage and significantly higher research and development expenditures and sales growth across the three samples.⁴ The significant difference in leverage is consistent with [Smith](#)

⁴ Though the median level of R&D expenditures in all samples is zero, the Wilcoxon test statistic confirms that R&D expenditures are higher in the high investment opportunity firms.

and Watts' (1992) finding that firms with more investment opportunities have lower leverage. The significant differences in the R&D measures and sales growth are consistent with these variables serving as alternative measures of investment opportunities.

Table 2 presents descriptive statistics of the bonds themselves. Panel A (full sample), Panel B (1989) and Panel C (1996) report data for the different time periods. In the full sample, bonds issued by high investment opportunity firms have a somewhat higher principal amount (US\$188.3 million vs. US\$168 million) on average, and both pay coupons about 89% of the time. The coupon is significantly lower for the high investment opportunity bonds (8.09% vs. 8.54%) on average, and the yield spread (the bond's yield minus the yield on U.S. Treasury securities of similar maturity) is also significantly lower (0.99% vs. 1.59%). The high investment opportunity debt is more likely to be convertible and less likely to be secured or senior debt. The 1989 and 1996 bonds follow the same pattern as the combined sample, except that by 1996 the inclusion of convertibility features had significantly declined (from 17.8% to 6.2%) and the significant difference with respect to convertibility was no longer observed between the low and high investment opportunity sets. These comparisons, combined with those in Table 1, suggest that high investment opportunity firms have a relatively lower likelihood of financial distress (larger firms, higher interest coverage ratios and Z-scores, lower coupons and yield spreads) and that they issue bonds with more flexible features (convertibility and not secured).

While we do not focus on the differences between 1989 and 1996 extensively in this study, we do note that 1989 was a period of substantial restructuring, including acquisitions, leveraged buyouts, and asset sales.⁵ After the downturn in the junk bond market, much of this activity slowed. Consistent with this change in the use of financing, our sample data indicate a significant increase in senior bond financing between 1989 and 1996 (from 66.3% to 86.2%) and a significant decline in junk bond financing (40% to 25.4%). Thus, we expect that some of the differences we observe between the two periods in the bond characteristics reflect this larger fundamental change in the use of debt financing. In the multivariate regression analysis, however, the year of issuance does not affect the significance of the investment opportunity or financial distress variables, after controlling for other firm characteristics.

The data presented here and our results discussed below represent specific information about bonds issued in 1989 and 1996. They do not necessarily provide a profile of debt contracts, in general, or of the issuing firm's overall debt contractual relations. For example, by looking only at firms issuing debt in 1989 or 1996, we might underrepresent firms with high investment opportunities relative to the population of all firms since high investment firms are more likely to use equity financing (Smith and Watts, 1992).⁶ Nevertheless, we expect that once the debt issuance decision has been made, growth opportunities of the firm will be relevant in designing the debt contract. In addition, the restrictions that we document here do not take into account restrictive covenants that may

⁵ See, e.g., Grad (1993).

⁶ This hypothesis is confirmed with our finding of lower leverage in our sample of high investment opportunity firms.

be present in other debt contracts of the firm, whether public or private.⁷ While we recognize that there are restrictions in other debt contracts that may limit managers' actions, we believe that the purchasers of the bonds studied here are primarily concerned with protection in the debt contracts they negotiate. The courts have consistently held that creditors are limited to those protections that have been negotiated within their contracts and an implied covenant of good faith (see, e.g., [Lehn and Poulsen, 1990](#)). In *Metropolitan Life v. RJR Nabisco*, the U.S. District Court said it “will not ... permit an implied covenant to shoehorn into an indenture additional terms plaintiffs now wish had been included.”⁸ In *Katz v. Oak Industries*, the Delaware Chancery Court stated, “The rights and obligations of the various parties are, or should be, spelled out in that [bond] documentation. The terms of the contractual relationship agreed to ... define the corporation's duty to bondholders.”⁹ Thus, our research focuses on the specific contract terms that the bondholders of a given issue agree to when investing in the security.

4. Investment opportunities and restrictive covenants

We divide the various covenants into two broad categories: covenants that restrict dividend and financing activities of the firm and covenants that restrict restructuring or investment decisions. The first category includes limits on payment of dividends and other distributions, limits on the issuance of additional debt, limits on mortgages and encumbrances (negative pledge clauses), and limits on sale/leasebacks of property. While [Smith and Warner \(1979\)](#) separate the dividend limitations from the other financing restrictions in their categorization of covenants, we include these covenants with the financing restrictions because they also fundamentally affect the availability of cash within the firm. The second category consists of merger restrictions, change-of-control covenants (poison puts), and limits on asset sales. We consider the variation in the inclusion of each type of limitation on the basis of the firm's investment opportunities and financial distress costs. Throughout the following discussion, we base the summary statistics and regression analysis on the 496 bond indentures with Compustat data available for the issuing firm, unless otherwise noted.

4.1. Restrictions on dividend and financing activities

[Table 3](#) reports the frequency of covenants restricting dividend and financing activities. We present data for the full sample (Panel A) and for the separate years (1989 in Panel B and 1996 in Panel C). For the full Compustat sample, about 20% of the bond issues include a covenant restricting the payment of dividends on common stock and other distributions including the repurchase or redemption of common stock. This restriction

⁷ Private debt agreements tend to have more restrictive covenants, though these are also more easily renegotiated if required since renegotiation does not require agreement among as many creditors.

⁸ *Metropolitan Life Ins. v. RJR Nabisco*, 716 F. Suppl. 1504 (S.D.N.Y. 1989).

⁹ *Katz v. Oak Industries*, 508 A.2d 873, 879 (Del. Ch. 1986).

rarely applies to dividends paid on preferred stock. The covenant usually states the restriction in terms of a test based on net income (70.4% of those with restrictions, with the limit set as an average of 59% of accumulated net income allowed to be paid as

Table 1

Mean and median (in parentheses) firm characteristics for firms issuing bonds in 1989 and 1996, differentiated by investment opportunities

	Full sample	Low investment opportunities	High investment opportunities
<i>Panel A: full sample</i>			
<i>N</i>	310	146	164
Assets (millions of 1989 US\$)	7035.8 (2445.7)	9010.0 (2798.6)	5278.3 (2338.4)
Sales (millions of 1989 US\$)	5870.8 (2276.2)	6272.8 (2158.1)	5513.0 (2430.2)
Value of shares (millions of 1989 US\$)	5272.2 (2031.4)	3167.2 (1173.5)	7146.1 (2535.4)***
Leverage	0.351 (0.357)	0.433 (0.425)	0.278 (0.286)***
Market/book	1.65 (1.40)	1.135 (1.133)	2.11 (1.78)***
R&D/assets	0.016 (0.014)	0.009 (0)	0.023 (0)***
R&D/sales	0.031 (0)	0.010 (0)	0.049 (0)***
Post sales growth	0.059 (0.032)	0.042 (0.016)	0.073 (0.045)**
Interest coverage	6.51 (4.88)	4.38 (3.58)	8.41 (6.57)***
Z-score	2.66 (2.32)	1.81 (1.69)	3.42 (3.16)***
Percent regulated firms	15.2	23.3	7.9***
<i>Panel B: 1989</i>			
<i>N</i>	138	67	71
Assets (millions of 1989 US\$)	7482.1 (2445.7)	10712.1 (3417.3)	4434.0 (2134.6)**
Sales (millions of 1989 US\$)	6089.8 (2211.6)	7727.2 (2284.1)	4544.6 (1985.1)
Value of shares (millions of 1989 US\$)	4011.6 (1868.9)	3478.7 (1430.8)	4514.5 (2004.2)
Leverage	0.385 (0.395)	0.470 (0.461)	0.304 (0.320)***
Market/book	1.49 (1.29)	1.08 (1.09)	1.88 (1.71)***
R&D/assets	0.019 (0)	0.015 (0)	0.023 (0)
R&D/sales	0.048 (0)	0.015 (0)	0.080 (0)
Post sales growth	0.011 (–0.003)	–0.020 (–0.018)	0.038 (0.030)***
Interest coverage ratio	5.51 (4.45)	4.34 (3.13)	6.61 (5.80)***
Z-score	2.50 (2.22)	1.83 (1.69)	3.13 (3.15)***
Percent regulated firms	19.6	29.8	9.8***
<i>Panel C: 1996</i>			
<i>N</i>	172	79	93
Assets (millions of 1989 US\$)	6677.8 (2456.9)	7566.5 (2225.6)	5922.8 (2500.8)
Sales (millions of 1989 US\$)	5695.1 (2389.9)	5039.2 (1936.3)	6252.3 (2512.8)
Value of shares (millions of 1989 US\$)	6283.6 (2154.2)	2903.1 (1139.3)	9155.2 (2858.0)***
Leverage	0.325 (0.322)	0.402 (0.387)	0.259 (0.259)***
Market/book	1.78 (1.46)	1.18 (1.19)	2.29 (1.84)***
R&D/assets	0.014 (0)	0.005 (0)	0.022 (0)***
R&D/sales	0.016 (0)	0.005 (0)	0.026 (0)***
Post sales growth	0.104 (0.073)	0.103 (0.065)	0.105 (0.081)
Interest coverage ratio	7.32 (5.26)	4.42 (4.03)	9.81 (7.91)***
Z-score	2.80 (2.39)	1.80 (1.69)	3.65 (3.18)***
Percent regulated firms	11.6	17.7	6.5***

distributions) and proceeds of stock issues (65% of those with restrictions) since some “peg” date (generally the beginning of the fiscal year of the debt issue). In addition, in 40% of the cases with the dividend restriction, the company also adds a set dollar amount (the dip) to the “available funds” requirement, averaging US\$72 million.

About one quarter of the bond issues with Compustat data available include limitations on the issuance of additional debt. In most cases, the limit is based on a ratio between the income or assets of the company and the debt or interest charges. The restriction is most often related to the ratio of income to interest charges (61% of the bonds with restrictions on additional debt) with an average restriction ratio of 1.84. Other common ratios include the ratio of net tangible assets to funded debt (14.1% of those restricting debt, requiring an average ratio of 0.38) and tangible net worth to funded debt (9.4% of those restricting debt, requiring an average ratio of 1.67). Often, debt issued to refund bonds of equal or higher seniority is permitted (69% of those restricting debt) as is debt issued in the amount equal to cash deposited with a trustee (23%) or issued to finance property additions (23%).

More than two-thirds of the sample bonds include a covenant preventing the company from creating, incurring, assuming, or permitting to exist any mortgage, pledge, lien, encumbrance, or charge on any property or asset of the company superseding the claim of the bondholders. In most cases, this covenant is stated in the negative, i.e., the company will not permit any of the above unless the bond issue is secured equally and ratably with the mortgage or encumbrance. Hence, this covenant is generally called a “negative pledge.” Approximately half of the bond issues permit exceptions such as mortgages created by subsidiaries for debt owed to the company, liens for taxes or other governmental charges, and mortgages and liens on property acquired after the date of the indenture. Due to the nature of the negative pledge (i.e., that it guarantees that the bondholders’ claims cannot be superseded), these clauses tend to be observed primarily in senior securities.

We also include restrictions on sale/leaseback agreements in the financing category of covenants. About 40% of the bond issues have limitations on sale/leasebacks. In general, the sale/leaseback restrictions conditionally permit sale/leasebacks, including if allowed

Notes to Table 1:

High investment opportunity firms are those with higher than median market-to-book ratios; low investment opportunity firms are those with lower than median market-to-book ratios.

Descriptive data for issuing firms are obtained from Compustat. Leverage is measured as the ratio of long-term plus short-term debt to the sum of the book value of assets and the market value of equity minus the book value of equity. The market-to-book ratio for the firm is computed as the market value of assets (book value of assets plus market value of equity minus the book value of equity) to the book value of assets. Sales growth is based on the 2 years following the bond issuance, with annualized growth rates reported. The interest coverage ratio equals EBITDA/interest expense. The Z-ratio is from Altman (1993) and primarily measures return on assets. Firms with low investment opportunities are defined as those with less than the median market-to-book ratio, firms with high investment opportunities are those with above the median market-to-book ratio. Asterisks indicate significance of differences in medians based on Wilcoxon test statistics.

* Refers to the significant difference at the 90% level.

** Refers to the significant difference at the 95% level.

*** Refers to the significant difference at the 99% probability level.

under other provisions of the indenture, if the proceeds are used to repay funded debt or to acquire real property, if the transaction is between the company and a subsidiary, or if the lease is for less than a certain time period, generally 3 years. There is a significant increase

Table 2

Descriptive statistics for bonds issued in 1989 and 1996, differentiated by data availability and investment opportunities

	Full sample	Sample with Compustat data	Low investment opportunities	High investment opportunities
<i>Panel A: full sample</i>				
<i>N</i>	763	496	249	247
Value of issue (millions of US\$)	180.0	178.1	168.0	188.3
Percent coupon paying	85.1	89.3	89.1	89.5
Average coupon	8.73	8.32	8.54	8.09***
Yield spread	1.60	1.29	1.59	0.99***
Treasury yield	7.15	7.02	7.01	7.04
Years to maturity	17.4	17.5	17.9	17.1
Percent callable	51.1	45.8	44.2	47.4
Percent convertible	8.5	11.1	6.02	16.2***
Percent secured	17.8	12.5	22.5	2.4***
Percent rated as junk	32.4	26.6	28.5	24.7
Percent senior	76.7	80.4	83.9	76.9**
<i>Panel B: 1989</i>				
<i>N</i>	365	208	105	103
Value of issue (millions of US\$)	182.6	174.4	154.7	194.5*
Percent coupon paying	80.8	85.1	82.8	87.4
Average coupon	10.2	9.69	9.93	9.46**
Yield spread	1.87	1.42	1.79	1.08***
Treasury yield	8.2	8.15	8.12	8.17
Years to maturity	16.0	15.3	16.0	14.5
Percent callable	70.1	64.9	66.7	63.1
Percent convertible	12.0	17.8	8.6	27.2***
Percent secured	24.1	14.4	28.6	0***
Percent rated as junk	40.0	30.8	29.5	32.0
Percent senior	66.3	70.7	78.1	63.1**
<i>Panel C: 1996</i>				
<i>N</i>	398	288	144	144
Value of issue (millions of US\$)	177.7	180.8	177.7	183.9
Percent coupon paying	88.9	92.4	93.7	91.0
Average coupon	7.53	7.4	7.65	7.15***
Yield spread	1.37	1.20	1.46	0.92***
Treasury yield	6.21	6.22	6.21	6.23
Years to maturity	18.7	19.1	19.3	19.0
Percent callable	33.7	31.9	27.8	36.1
Percent convertible	5.3	6.2	4.2	8.3
Percent secured	12.1	11.1	18.0	4.2***
Percent rated as junk	25.4	23.6	27.8	19.4*
Percent senior	86.2	87.5	88.2	86.8

in the use of negative pledge clauses (54.8% to 76.7%) and sale/leaseback agreements (15.4% to 58.0%) between 1989 and 1996.

We find some patterns in the overlapping usage of the covenants. For example, 81% of those bond issues with dividend restrictions also have a debt restriction covenant and 64% of the bonds with debt restrictions have dividend restrictions. Thus, these two covenants frequently appear together. The data indicate a similar pattern between the negative pledge clauses and the limits on sale/leasebacks. We find that 99% of the bonds with sale/leaseback covenants also have a negative pledge clause and 59% of the bonds with negative pledge clauses include a sale/leaseback restriction. The correlation coefficients between the various restrictions verify these patterns. Dividend and debt limitations are significantly positively correlated with each other as are negative pledges and limits on sale/leasebacks. However, dividend and debt limitations are each significantly negatively correlated with the negative pledge clauses and sale/leaseback limitations.

The difference in usage of the various covenants suggests that they are incorporated in bond contracts to control for different problems. Myers (1977) discusses dividend restrictions as a means to mitigate the underinvestment problem. By restricting the amount of dividends it may pay, the firm must keep cash and reinvest it in value-adding projects. Thus, Myers predicts that high-growth companies would have more dividend restrictions. However, too much cash in the firm can also result in investment in unprofitable projects or in projects that increase the variance of the firm's cash flows. Begley (1994) notes that requiring firms to keep money within the firm may result in investment in negative NPV projects. If high investment opportunity firms have more uncertainty about their future project selection, it may be preferable to have fewer dividend restrictions, allowing managers to decide in the future whether they want to continue investing in the firm or return the cash to stockholders.

Similarly, it is unclear whether high investment opportunity firms would be more or less likely to have restrictions on debt issuances. Debt restrictions allow investors to control the future investments of the firm by limiting the availability of new capital and also allow bondholders to protect themselves from the weakening of their claims through the issuance of additional debt. Bondholders may prefer such controls when the firm's future investment set is uncertain, that is, in high investment opportunity firms. However, by accepting debt restrictions in their bond contracts, firms are reducing their flexibility in

Notes to Table 2:

High investment opportunity firms are those with higher than median market-to-book ratios; low investment opportunity firms are those with lower than median market-to-book ratios.

Descriptive data for bond issues are obtained from prospectuses filed with the U.S. Securities and Exchange Commission and from Securities Data. The yield spread is the difference between the bond yield and the yield on the U.S. Treasury security with comparable maturity.

Asterisks indicate significance of differences, measured with *t*-statistics for means of value of issue, average coupon, yield spread, Treasury yield and years to maturity and with binomial test statistics for differences in percentages for remaining variables.

* Refers to the significant difference at the 90% level.

** Refers to the significant difference at the 95% level.

*** Refers to the significant difference at the 99% probability level.

Table 3

Restrictive covenant usage in bonds issued in 1989 and 1996: restrictions on dividends and financing activities, differentiated by data availability and investment opportunities

Type of covenant included	Percent of full sample	Percent of Compustat sample	Percent of low investment opportunities sample	Percent of high investment opportunities sample
<i>Panel A: full sample</i>				
<i>N</i>	776	496	249	247
Dividend restrictions	29.9	19.9	28.5	11.3***
Additional debt limitations	33.4	24.2	33.3	15.0***
Negative pledge	65.0	67.5	62.6	72.5**
Limits on sale/leasebacks	33.9	40.1	35.7	44.5**
<i>Panel B: 1989</i>				
<i>N</i>	365	208	105	103
Dividend restrictions	39.7	26.4	37.1	15.5***
Additional debt limitations	40.0	24.5	35.2	13.6***
Negative pledge	50.1	54.8	43.8	66.0***
Limits on sale/leasebacks	11.2	15.4	8.6	22.3***
<i>Panel C: 1996</i>				
<i>N</i>	398	288	144	144
Dividend restrictions	20.8	15.3	22.2	8.3***
Additional debt limitations	27.4	23.9	31.9	16.0***
Negative pledge	78.6	76.7	76.4	77.1
Limits on sale/leasebacks	54.8	58.0	55.5	60.4

High investment opportunity firms are those with higher than median market-to-book ratios; low investment opportunity firms are those with lower than median market-to-book ratios.

Details on included covenants are obtained from filed with the U.S. Securities and Exchange Commission.

Asterisks indicate significance of differences, measured with binomial test statistics for differences in percentages.

* Refers to the significant difference at the 90% level.

** Refers to the significant difference at the 95% level.

*** Refers to the significant difference at the 99% probability level.

responding to any future profitable investments. This would be more costly in the high investment opportunity firms.

The presence of negative pledge clauses is closely related to the seniority of the security. As noted by Wilson (1987, p. 58), “This provision is found in most senior, unsecured debt issues and a few subordinated issues.... It is intended to prevent other creditors from obtaining a senior position at the expense of existing creditors, but it is not intended to prevent other creditors from sharing in the position of debentureholders.” Barclay and Smith (1995b) argue that higher priority claims address both the underinvestment problem and asset-substitution problem in firms with more investment opportunities since by issuing higher priority claims, shareholders can obtain funds for new investments without transferring wealth to the existing bondholders. Berkovitch and Kim (1990), however, argue that maintaining flexibility with respect to the “me-first” rules helps to reduce underinvestment. It is difficult to make an empirical prediction for our work with

respect negative pledge clauses. It is not clear whether in the issues we observe, firms are reserving the right to issue higher priority debt in the future (no negative pledge clause) or are now issuing higher priority debt to raise funds (include negative pledge clause) for additional investments.

The last two columns of [Table 3](#) report the usage of the covenants in the low investment opportunity firms and the high investment opportunity firms, with indications of the significance of the difference in usage. Only 11.3% of the high investment opportunity firms included restrictions on dividends vs. 28.5% of the low investment opportunity firms, significantly different at the 99% probability level. Similarly, high investment opportunity firms are significantly less likely to have restrictions on the issuance of additional debt. Only 15.0% of the high-growth firms included restrictions on additional debt in their bond indentures as compared to 33.3% of the low-growth firms (significantly different at the 99% level). In contrast, the high investment opportunity firms were more likely to have a negative pledge clause (72.5% vs. 62.6%, 95% probability level) and restrictions on sale/leasebacks (44.5% vs. 35.7%, 95% probability level). The patterns for the dividend and debt restrictions are the same in both the 1989 and 1996 samples. However, the significant differences in the negative pledge and sale/leaseback restrictions are only observed in 1989. This may reflect the much higher reliance on senior debt in 1996 (87.5% vs. 70.7%) and the high correlation between senior debt and the use of these covenants.

[Table 4](#) provides descriptive information on the bond issues (Panel A) and the issuing firms (Panel B) based on whether a specific covenant is present or not. Again, there is a similarity between the dividend and debt restrictions and between negative pledge clauses and limits on sale/leasebacks. For those bonds that have dividend or debt restrictions, the coupon rate and yield spread are significantly higher, and they are significantly more likely to be callable, secured, and rated as junk and less likely to be senior securities. The opposite pattern is observed for the negative pledge and sale/leaseback bonds. Coupons are significantly lower in the case of the sale/leaseback bonds and bonds with either or both of these two covenants are significantly less likely to be callable, convertible, secured, and rated as junk and are significantly more likely to be senior securities (more than 90% of the bonds with these restrictions are senior bonds). Thus, the overall characteristics of the bonds suggest that the use of dividend and debt restrictions is associated with bonds that have more protection for holders in the event of financial distress, while negative pledge clauses and sale/leaseback restrictions are associated with bonds that have fewer protective features. These patterns also suggest that issuers do not use alternative bond characteristics, such as call features or security, to substitute for dividend or debt restrictions. Instead, the features appear to be complementary.

Similar patterns emerge when considering the characteristics of the firms issuing the bonds. Firms issuing dividend and debt-restricted bonds are significantly smaller than those without the same covenants, their leverage is significantly higher, and their interest-coverage and Z-score ratios are significantly lower, all related to higher probability of financial distress. Both the averages and the medians confirm these patterns. Firms issuing bonds with negative pledge clauses and sale/leaseback restrictions are larger, have higher interest-coverage and Z-score ratios (with the medians significantly higher). These

Table 4

Descriptive statistics for bond issues and issuers for 496 bonds from 1989 and 1996 with and without restrictions on dividends and financing policy

	Dividend restriction (with/without)	Limit to debt (with/without)	Negative pledge (with/without)	Limit sale/leaseback (with/without)
<i>Panel A: statistics for bond issues</i>				
<i>N</i>	99/397	120/376	335/161	199/297
Issue value (millions of 1989 US\$)	173.6/179.2	167.97/181.4	190.3/152.9***	207.6/158.4***
Percent coupon paying	89.9/89.1	92.5/88.3	93.4/80.7	95.0/85.5
Average coupon	9.95/7.91***	9.29/7.99***	8.30/8.36	7.65/8.81***
Yield spread	2.86/0.91***	2.39/0.94**	1.43/0.98***	1.12/1.41**
Yield	7.19/6.98*	6.98/7.03	6.90/7.27***	6.55/7.34***
Years to maturity	16.3/17.8	17.1/17.7	17.5/17.6	18.4/16.9*
Percent callable	77.8/37.8***	63.3/40.1***	33.1/72.0***	22.6/61.3***
Percent convertible	8.1/11.8	0.8/14.4***	0/34.2***	0/18.5***
Percent secured	20.2/10.6***	26.7/8.0***	7.5/23.0***	3.5/18.5***
Percent senior	52.5/87.4***	70.8/83.5***	94.3/51.5***	98.4/68.3***
Percent rated as junk	69.7/15.9***	52.5/18.3***	17.3/45.9***	12.6/36.1***
<i>Panel B: statistics for bond issuers</i>				
<i>Averages</i>				
Assets (millions of 1989 US\$)	6371.6/11237**	6962.2/11320.4**	11938.9/6785.1**	12399/8837*
Sales (millions of 1989 US\$)	4492.4/9005.9***	4535.7/9244***	9705.5/4775***	10444/6537.8***
Equity value (millions of 1989 US\$)	1998/8548***	3485.7/8439.4***	8608/4397***	9613.3/5651***
Leverage	0.412/0.348***	0.406/0.346***	0.357/0.369	0.351/0.367
Market-to-book	1.30/1.66***	1.34/1.67***	1.623/1.51	1.72/1.499***
R&D/assets	0.007/0.015**	0.003/0.017***	0.013/0.015	0.015/0.013
R&D/sales	0.030/0.021	0.004/0.029	0.014/0.041*	0.017/0.027
Sales growth	6.77/4.28	9.61/3.43***	3.65/7.41*	4.72/4.79
Interest coverage	3.30/6.94***	3.25/7.16***	6.52/5.55	6.68/5.89
Z-score	1.67/2.73***	1.92/2.71***	2.655/2.23***	2.87/2.28***
Percent regulated	27.3/11.3***	35.0/8.0***	9.5/24.8***	4.5/21.2***
<i>Medians</i>				
Assets (millions of 1989 US\$)	1160.6/5480***	2412.9/5185.6***	5102.1/3529.5***	5102.1/4593**
Sales (millions of 1989 US\$)	1046/4338.0***	1963.0/4623.4***	4595.1/1765.4***	4595/2708***
Equity value (millions of 1989 US\$)	604.8/3819.6***	1221.1/3547.2***	4157.2/1881.5***	4329/2528***
Leverage	0.387/0.357***	0.389/0.357***	0.357/0.373	0.356/0.368
Market-to-book	1.17/1.44***	1.22/1.44***	1.41/1.22***	1.46/1.29***
R&D/assets	0/0***	0/0***	0/0***	0.004/0***
R&D/sales	0/0***	0/0***	0/0***	0.003/0***
Sales growth	1.67/2.26	2.39/1.81**	1.46/3.82**	2.34/2.26
Interest coverage	2.72/5.61***	3.05/5.63***	5.21/4.23***	5.26/4.71**
Z-score	1.57/2.47***	1.68/2.48***	2.43/1.79***	2.67/1.95***

characteristics would suggest a lower probability of financial distress for firms utilizing the negative pledge and sale/leaseback covenants.

Our measures of investment opportunities indicate that firms without dividend and debt restrictions have greater growth opportunities, as measured by market-to-book or R&D expenditures. Again, to the extent that there are significant differences, the opposite pattern exists in those firms issuing bonds with negative pledge clauses and limits on sale/leasebacks. The medians for the market-to-book and R&D expenditure ratios are significantly lower for those firms not including negative pledge or sale/leaseback provisions.

We use logistic regression techniques to determine the likelihood of including restrictions on the financing activities of the firm as a function of these firm characteristics. We use the market-to-book value ratio and the R&D-to-asset ratio as measures of the firms' investment opportunities. Higher values of these variables indicate more valuable real options for the firm. We estimate alternative specifications using the R&D-to-sales ratio or the sales growth rate with similar results (the coefficient on the sales growth rate is generally insignificantly different from zero). We measure firms' financial distress potential with the interest-coverage ratio and size (as measured by the log of sales). Alternatively, we tested the model with the Z-score. We expect firms with higher interest coverage ratios and larger firms have lower expected probability of financial distress and, thus, investors are less concerned about conflicts of interests between bondholders and shareholders in these firms. Our other explanatory variables in the reported regressions include the log of the treasury yield on comparable bonds, whether the firm is in a regulated industry, and an indicator variable equal to one in 1989 and zero otherwise.

We estimate reduced-form equations where the explanatory variables are exogenous variables from the system explaining the contractual form of the issuance. Obviously, other bond features, such as whether the bond is convertible, callable, secured, or senior, and the yield and yield spread of the bond, are factors that will influence and be influenced by the presence of any specific covenant. However, because all of these characteristics are endogenous to the design of the bond contract, we do not include them in the regression

Notes to Table 4:

Descriptive data for bond issues are obtained from prospectuses filed with the U.S. Securities and Exchange Commission.

Descriptive data for issuing firms are obtained from Compustat. Leverage is measured as the ratio of long-term plus short-term debt to the sum of the book value of assets and the market value of equity minus the book value of equity. The market-to-book ratio for the firm is computed as the market value of assets (book value of assets plus market value of equity minus the book value of equity) to the book value of assets. The interest coverage ratio equals EBITDA/interest expense. The Z-ratio is from Altman (1993) and primarily measures return on assets.

Asterisks indicate significance of differences, measured with *t*-statistics for mean values, Wilcoxon statistics for median values and binomial statistics for the percentage variables. The significance levels for R&D/assets and R&D/sales indicate higher R&D ratios for firms without debt and dividend restrictions and higher R&D ratios for firms with negative pledge or limitations on sale/leasebacks.

* Refers to the significant difference at the 90% level.

** Refers to the significant difference at the 95% level.

*** Refers to the significant difference at the 99% probability level.

Table 5

Logistic regression explaining the inclusion of covenants restricting the financing activities of the firm

	Restrictions on dividends	Restrictions on additional debt
Intercept	8.15 (0.019)	3.501 (0.2592)
Market-to-book value of the firm	– 1.195 (0.0005)	– 0.5294 (0.0819)
R&D/asset	– 10.182 (0.022)	– 15.874 (0.0229)
Interest coverage ratio	– 0.078 (0.004)	– 0.1255 (0.0002)
log(Sales)	– 0.589 (0.0001)	– 0.3543 (0.0001)
Regulated industry	0.3354 (0.2906)	1.3496 (0.0001)
log(Treasury yield)	– 1.796 (0.3356)	– 0.2918 (0.8623)
1989 Indicator variable	1.1548 (0.0518)	– 0.1387 (0.7942)
– 2log Likelihood statistic	112.75	118.06
<i>p</i> -Value	0.0001	0.0001
Percent correct prediction	82.4	81.6

The dependent variable equals one if the indicated covenant is included in bond indenture for 496 bonds issued in 1989 and 1996. *p*-Levels in parentheses.

Descriptive data for bond issues are obtained from prospectuses filed with the U.S. Securities and Exchange Commission.

Descriptive data for issuing firms are obtained from Compustat. The market-to-book ratio for the firm is computed as the market value of assets (book value of assets plus market value of equity minus the book value of equity) to the book value of assets. The interest coverage ratio equals EBITDA/interest expense. The treasury yield is matched by maturity to the bond issue.

analysis.¹⁰ We do reestimate the regressions, assuming that the other features are determined independently of the covenants investigated here, and find no significant differences with respect to the investment opportunity or financial distress variables. As noted in Table 4, and confirmed with tests of the correlation coefficients between bond features, bonds with restrictions on dividends and additional debt are significantly more likely to be secured and callable, and significantly less likely to be convertible (debt-restricted issues) and senior securities. Bonds with negative pledge clauses or restrictions on sale/leasebacks are significantly less likely to be secured, convertible, or callable, and more likely to be senior securities.

The logistic regressions reported in Table 5 illustrate the importance of investment opportunities in determining the inclusion of limitations on dividends or additional debt. The coefficients of the market-to-book ratio and the R&D ratio are significantly negative in the logistic regressions explaining the probability of including these two restrictions. Thus, the greater the investment opportunities for the firm, the less likely the firm is willing to restrict itself by including either of these covenants. Our finding of a negative relation between investment opportunities and the inclusion of dividend restrictions is inconsistent with Myers' (1977) prediction that high-growth firms would use dividend restrictions to mitigate the underinvestment problem. The results suggest instead that high investment opportunity firms maintain flexibility in future decisions, a reasonable strategy since high investment opportunities also suggest more uncertainty in future outcomes. By not imposing dividend or debt restrictions, firms are able to pay out cash if there are few

¹⁰ Barclay et al. (1997) provide an extensive discussion of the problem of endogeneity in bond contract design.

positive NPV projects or are able to raise additional funds if there are many. Thus, it seems that the high investment opportunity firms do not include features in their bonds aimed at reducing asset substitution and underinvestment problems, which would be achieved at the expense of flexibility.

There is evidence, however, that firms closer to financial distress are more likely to include restrictive covenants. These are the firms where bondholders would have the greatest concern about managerial actions. Firms with lower interest coverage ratios and smaller firms are more likely to include the dividend or debt limitation covenants. This is consistent with bondholders limiting the cash payouts and the future indebtedness of firms with the greatest possibility of financial distress. Our additional control variables also add to the explanatory power of the model. Bonds issued by firms in regulated industries are more likely to include debt restrictions and bonds issued in 1989 are more likely to contain dividend restrictions. The treasury yield does not add significantly to regression.

As with the univariate statistics, we find no indication that the measures of investment opportunities significantly affect the likelihood of the inclusion of negative pledge clauses or restrictions on sale/leasebacks in the logistic regressions, reported in Table 6. As noted above, these clauses are strongly associated with priority of debt. More than 90% of the issues with these clauses are senior securities. Barclay and Smith (1995b) argue that firms with more investment opportunities value the ability to issue higher priority debt since it allows shareholders to raise funds for further investment in positive NPV projects without transferring wealth to existing bondholders, thus ameliorating the underinvestment problem. Berkovitch and Kim (1990), in contrast, suggest that growth firms will maintain flexibility with respect to further issuances of debt. Since we observe the issuance of a specific security rather than the overall priority structure of the firms' claims, it is not clear

Table 6
Logistic regression explaining the inclusion of covenants restricting the financing activities of the firm

	Negative pledge	Restrictions on sale/leasebacks
Intercept	– 5.78 (0.0368)	– 3.6697 (0.1742)
Market-to-book value of the firm	0.1734 (0.3815)	0.3137 (0.1540)
R&D/asset	1.1522 (0.736)	7.078 (0.0493)
Interest coverage ratio	– 0.0082 (0.6571)	– 0.0289 (0.1408)
log(Sales)	0.3961 (0.0001)	0.3891 (0.0001)
Regulated industry	– 0.8376 (0.0035)	– 1.3780 (0.0007)
log(Treasury yield)	2.084 (0.1628)	0.3610 (0.8037)
1989 Indicator variable	– 1.572 (0.0009)	– 2.300 (0.0001)
– 2log Likelihood statistic	82.51	157.5
<i>p</i> -Value	0.0001	0.0001
Percent correct prediction	74.5	80.5

The dependent variable equals one if the indicated covenant is included in bond indenture for 496 bonds issued in 1989 and 1996. *p*-Values in parentheses.

Descriptive data for bond issues are obtained from prospectuses filed with the U.S. Securities and Exchange Commission.

Descriptive data for issuing firms are obtained from Compustat. The market-to-book ratio for the firm is computed as the market value of assets (book value of assets plus market value of equity minus the book value of equity) to the book value of assets. The interest coverage ratio equals EBITDA/interest expense. The treasury yield is matched by maturity to the bond issue.

what pattern we would expect to observe with respect to the relation between debt priority and the investment opportunities of the firm.

The regression results also indicate that larger firms are more likely to include these provisions, the opposite result from the dividend and debt restrictions. Thus, these covenants seem to be included in relatively secure, senior issues by large firms, rather than high investment opportunity firms with uncertainty about their future cash flows. This is also consistent with our contention that firms with greater uncertainty of future cash flows attach a higher value to financing flexibility. Avoiding the use of the negative pledge and sale/leaseback restriction allows greater financing flexibility (i.e., the ability to issue new secured debt or engage in sale/leaseback transactions). These opportunities should be especially valuable to firms seeking sources of liquidity during times of financial difficulties.¹¹

4.2. Restrictions on restructuring activities

Most bond contracts (80.4% of the Compustat sample) conditionally allow consolidations, mergers, and sale of substantially all assets, as reported in Table 7. The conditioning requirements generally include that the successor be a corporation under the laws of the U.S. and assume all obligations under the debentures, including payment of principal and interest and performance of every covenant, and that no event of default under the indenture exist after the transaction. We find only four bond issues that specifically prohibited any consolidation or merger. Thus, this restrictive covenant seems to be more important in specifying straightforward conditions for mergers rather than in restricting mergers per se.

The use of change-of-control covenants or “poison puts” appears less boilerplate than the merger covenant. We find that 27.4% of the Compustat bonds contained poison puts, with 30.3% of the bonds in 1989 and 25.3% of the 1996 bonds having the covenant.¹² In more than 90% of the bonds, this feature gives the bondholder the right to put the debt security (at or slightly above par value, 100.3% on average) to the company under certain conditions. In a few cases (less than 5%), the poison put requires the bond issuer to increase the interest rate on the debt so that the securities bear interest at the market rate. The conditions which trigger the poison put include: the company merges with another company, an individual becomes a beneficial owner of more than a certain percent of stock, there is a change in the majority of the board of directors, or there is a sale of all or substantially all assets. In some cases, the poison put comes into play only if the debt is downgraded in addition to one of the triggers mentioned above.

¹¹ This inverse relation between the likelihood of financial distress and the use of the negative pledge and sale/leaseback would explain the significant increase in the use of these covenants when comparing our 1989 and 1996 samples. With higher interest coverage ratios and Z-scores, the 1996 sample firms appear, on average, much less likely to encounter financial distress. Therefore, they should be more willing to accept the financing restrictions imposed by the negative pledge and sale/leaseback covenants.

¹² The number of poison puts in the 1996 sample seems to contradict some popular press reports and comments by observers arguing that poison puts are no longer frequently observed. However, most of the bonds with poison puts are junk bonds (66.2%) and most of the bonds without poison puts are investment grade (93.7%). The reports concerning the lack of poison puts seem to refer primarily to investment grade debt.

Table 7

Restrictive covenant usage in bonds issued in 1989 and 1996: restrictions on restructuring activities, differentiated by data availability and investment opportunities

Type of covenant included	Percent of full sample	Percent of Compustat sample	Percent of low investment opportunities sample	Percent of high investment opportunities sample
<i>Panel A: full sample</i>				
<i>N</i>	776	496	249	247
Limits on mergers	78.6	80.4	77.1	83.8*
Poison puts	29.9	27.4	25.3	29.5
Limits on asset sales	13.6	9.1	10.0	8.1
<i>Panel B: 1989</i>				
<i>N</i>	365	208	105	103
Limits on mergers	66.3	68.3	60.9	75.7***
Poison puts	31.6	30.3	18.1	42.7***
Limits on asset sales	12.9	6.7	3.8	9.7*
<i>Panel C: 1996</i>				
<i>N</i>	398	288	144	144
Limits on mergers	89.9	89.2	88.9	89.6
Poison puts	28.4	25.3	30.6	20.1**
Limits on asset sales	14.3	10.8	14.6	6.9**

High investment opportunity firms are those with higher than median market-to-book ratios; low investment opportunity firms are those with lower than median market-to-book ratios.

Details on included covenants are obtained from filed with the U.S. Securities and Exchange Commission.

Asterisks indicate significance of differences, measured with binomial test statistics for differences in percentages.

* Refers to the significant difference at the 90% level.

** Refers to the significant difference at the 95% level.

*** Refers to the significant difference at the 99% probability level.

Restrictions on asset sales appear infrequently in our sample bond contracts. Only 9.1% of the contracts prohibit asset sales except under certain conditions, including a dollar limit or if the proceeds are used for the acquisition of property or assets or used to prepay an equal principal amount of funded debt.

The restructuring covenants limit the firm in its ability to substantially change the investments of the firm. As [Smith and Warner \(1979\)](#) note, restrictions on asset substitution help to keep the bondholders' claims from being reduced through increases in the variance of the firm's cash flows or through substantial changes in the leverage ratio. While merger covenants seem to set fairly mild restrictions on the ability of firms to merge, the poison put, in particular, seems to have developed as a means through which bondholders can protect themselves from significant increases in leverage in addition to asset substitution resulting from a merger. If a merger occurs, bondholders can divest themselves of the bonds at face value or at a small premium. [Crabbe \(1991\)](#) finds that bondholders value the inclusion of the poison put covenant. [Lehn and Poulsen \(1991\)](#) find that poison put covenants are more likely to appear in firms where the likelihood of a merger or leveraged buyout is relatively high, i.e., in industries where there is existing substantial merger activity or for firms where there have been takeover rumors. [Jensen's \(1986\)](#) free cash flow theory argues that low investment opportunity firms have more free

cash flow and that these are the firms that should increase their obligated cash outflows through leverage-increasing mergers and leveraged buyouts. If low investment opportunity firms were more likely to increase their debt, then we would expect that bondholders in these firms would negotiate for a means to minimize any wealth losses associated with the

Table 8

Descriptive statistics for bond issues and issuers for 496 bonds from 1989 and 1996 with and without restructuring restrictions

	Limits on mergers (with/without)	Poison puts (with/without)	Limits on asset sales (with/without)
<i>Panel A: statistics for bond issues</i>			
<i>N</i>	399/97	136/360	45/451
Issue value (millions of 1989 US\$)	189.6/130.8***	183.3/176.2	205.5/175.4
Percent coupon paying	88.7/91.7	83.1/91.7	91.1/89.1
Average coupon	8.25/8.58	8.79/8.16***	10.0/8.15***
Yield spread	1.38/0.94***	1.59/1.13***	3.29/0.1.09***
Yield	6.90/7.54***	7.07/7.00	6.86/7.04
Years to maturity	17.6/17.4	15.6/18.2***	15.2/17.8*
Percent callable	42.3/59.8***	70.6/36.4***	80.0/42.3***
Percent convertible	10.5/13.4	31.6/3.33***	4.44/11.7
Percent secured	8.27/29.9***	3.68/15.8***	11.1/12.6
Percent senior	80.4/80.4	47.8/92.8***	53.3/83.1***
Percent rated as junk	28.6/18.5**	67.6/11.1***	86.7/20.6***
<i>Panel B: statistics for bond issuers</i>			
<i>Averages</i>			
Assets (millions of 1989 US\$)	9499.0/13420.7	3197.2/12936.4***	2349.1/11055.9***
Sales (millions of 1989 US\$)	7900.9/8944.7	3158.2/9973.9***	2491.3/8665.2***
Equity value (millions of 1989 US\$)	7339.4/6835.8	2403/9068.6***	1402.2/7823.5***
Leverage	0.353/0.394**	0.370/0.357	0.383/0.359
Market-to-book	1.63/1.42**	1.62/1.57	1.47/1.60
R&D/assets	0.015/0.008*	0.017/0.012	0.007/0.014
R&D/sales	0.022/0.029	0.032/0.020	0.009/0.024
Sales growth	5.44/2.01	7.67/3.66**	12.61/4.03***
Interest coverage	6.40/5.42	4.62/6.81***	2.88/6.54***
Z-score	2.61/2.15***	2.63/2.48	1.96/2.57**
Percent regulated	9.0/37.11***	6.62/17.5***	17.8/14.1
<i>Medians</i>			
Assets (millions of 1989 US\$)	4142.6/7575.1***	1319.0/6272.0***	811.0/5185.7***
Sales (millions of 1989 US\$)	3186.7/3839.4	1091.4/4663.6***	658/3839.4***
Equity value (millions of 1989 US\$)	2816.8/3726.6	744.6/4380.5***	681/3362.4***
Leverage	0.357/0.390***	0.386/0.359	0.365/0.362
Market-to-book	1.40/1.22***	1.37/1.37	1.39/1.38
R&D/assets	0/0***	0/0**	0/0***
R&D/sales	0/0***	0/0**	0/0***
Sales growth	2.86/0.47*	3.25/1.56**	3.97/2.24
Interest coverage	4.87/4.47*	4.08/5.35***	2.60/5.08***
Z-score	2.36/1.88***	1.95/2.28	1.74/2.33**

leverage increase. This finding would also be consistent with managers of high investment opportunity firms desiring fewer restrictions on their future investments.

We do not find much difference between the high and low investment opportunity firms with respect to their use of restructuring restrictions for the full sample (Panel A of Table 7). While high investment opportunity firms are significantly more likely to have a limit on mergers, both low and high investment opportunity firms have high usage of this covenant (77.1% vs. 83.8%). We find no significant differences in the use of poison puts or limits on asset sales based on investment opportunities for the full sample. It is interesting to note, however, that poison puts were significantly more likely to be used by high investment opportunity firms in 1989, but significantly less likely in 1996 to be used in the same category. Due to the significant difference in the use of poison puts over the two time periods, we estimate separate models for the poison put sample differentiated by the year of the issue.

In Table 8, we report descriptive statistics for the sample based on whether a restructuring covenant is present or not. To the extent we observe significant differences, bonds with poison put and asset sale restrictions are associated with financial distress characteristics. The issues are more likely to be junk bonds and less likely to be secured or senior securities. In addition, the issuing firms are smaller, and have lower interest coverage and Z-score ratios. In contrast, bonds with merger restrictions are associated with firms with higher interest coverage and Z-score ratios. The investment opportunity variables are significant only for the merger limitations, with firms with merger limitations having significantly higher market-to-book ratios and R&D expenditures.

In the logistic regressions reported in Table 9, we use the same explanatory variables as in Tables 5 and 6 to measure the probability that bond issues will include the indicated restructuring covenants. The ratios of market-to-book value and R&D-to-assets proxy for the investment opportunities of the firm. The interest coverage ratio and the log of sales proxy for the financial distress costs. None of the restructuring regressions shows a significant relation between the investment opportunities of the firm and the use of restrictive covenants on restructuring activities. Consistent with the descriptive statistics, however, poison puts and asset sale limitations are significantly more likely to be used in

Notes to Table 8:

Descriptive data for bond issues are obtained from prospectuses filed with the U.S. Securities and Exchange Commission.

Descriptive data for issuing firms are obtained from Compustat. Leverage is measured as the ratio of long-term plus short-term debt to the sum of the book value of assets and the market value of equity minus the book value of equity. The market-to-book ratio for the firm is computed as the market value of assets (book value of assets plus market value of equity minus the book value of equity) to the book value of assets. The interest coverage ratio equals EBITDA/interest expense. The Z-ratio is from Altman (1993) and primarily measures return on assets. Asterisks indicate significance of differences, measured with *t*-statistics for mean values, Wilcoxon statistics for median values and binomial statistics for the percentage variables. The significance levels for R&D/assets and R&D/sales indicate higher R&D ratios for firms without debt and dividend restrictions and higher R&D ratios for firms with negative pledge or limitations on sale/leasebacks.

* Refers to the significant difference at the 90% level.

** Refers to the significant difference at the 95% level.

*** Refers to the significant difference at the 99% probability level.

Table 9

Logistic regression explaining the inclusion of covenants restricting the financing activities of the firm

	Restrictions on mergers	Poison puts	Restrictions on asset sales
Intercept	3.99 (0.2436)	3.1221 (0.2958)	-4.3219 (0.3426)
Market-to-book value of the firm	0.0568 (0.7899)	0.0205 (0.8693)	-0.0830 (0.7561)
R&D/asset	3.945 (0.4323)	-2.8164 (0.4842)	-10.244 (0.0826)
Interest coverage ratio	-0.0013 (0.9560)	-0.0570 (0.0065)	-0.0923 (0.0043)
Log (sales)	-0.1043 (0.2085)	-0.6486 (0.0001)	-0.6026 (0.0001)
Regulated industry	-1.729 (0.0001)	-1.7548 (0.0001)	-0.0396 (0.9319)
Log (treasury yield)	-0.4525 (0.8052)	0.7100 (0.6643)	4.0435 (0.1054)
1989 indicator variable	-1.1626 (0.0388)	0.1591 (0.7509)	-1.7751 (0.0222)
-2log Likelihood statistic	71.22	110.54	56.99
p-Value	0.0001	0.0001	0.0001
Percent correct prediction	75.3	79.1	80.1

The dependent variable equals one if the indicated covenant is included in bond indenture for 496 bonds issued in 1989 and 1996. *p*-Values in parentheses.

Descriptive data for bond issues are obtained from prospectuses filed with the U.S. Securities and Exchange Commission.

Descriptive data for issuing firms are obtained from Compustat. The market-to-book ratio for the firm is computed as the market value of assets (book value of assets plus market value of equity minus the book value of equity) to the book value of assets. The interest coverage ratio equals EBITDA/interest expense. The treasury yield is matched by maturity to the bond issue.

bonds issued by firms with lower interest coverage ratios and in smaller firms, suggesting that these provisions are more likely to be included when there is higher probability of financial distress. The near universal use of merger restrictions results in no significant variables in the merger regression, other than they are less likely to be used in regulated firms and were less common in 1989.¹³

Given the differences in the market-to-book ratios for the poison put samples from the different years, we estimated additional logistic regressions examining the likelihood of including a poison put differentiating by the year of the bond issue. In 1989, bond issues are significantly more likely to include a poison put the higher the market-to-book ratio. The relation, however, is insignificant in the 1996 sample. Given that poison puts are new features in bond contracts (the earliest identified by several authors appeared in 1986), it may be that the difference between 1989 and 1996 indicates that the appropriate role of poison puts had not been determined by issuers and investors as of 1989. The 1996 (and combined sample) results suggest that poison puts are viewed as being valuable when financial distress considerations are important, but less valuable with respect to the investment opportunities of the firm. Cook and Easterwood (1994) find negative stock price reactions to poison puts in 1988 and 1989 and argue that the early poison puts were used as antitakeover devices. Nanda and Yun (1996), however, find insignificant changes

¹³ We find an increase in the use of several covenants between 1989 and 1996, including merger agreements (66.3% to 89.9%), negative pledge clauses (50.1% to 78.6%), and sales/leaseback agreements (11.2% to 54.8%). This result follows from an increase in senior debt during this period (66.3% to 86.2%) and the fact that these provisions tend to be more likely to be included in senior debt.

in stock prices for a sample drawn primarily from the 1990s and wealth gains for high takeover probability firms. This change in market reaction is consistent with the use of poison puts having evolved to protect bondholders (from a takeover or other “event” causing financial distress) without preventing a transaction that would benefit stockholders.

5. Summary and concluding comments

Our research provides empirical tests into factors that determine the structure of contracts between shareholders and bondholders. We develop a detailed dataset of the structure of 496 bond contracts in 1989 and 1996 and analyze them for evidence on the use of restrictive covenants by firms with high and low investment opportunities. We believe this analysis provides important insights into the contractual relations between shareholders and bondholders.

The contracting literature suggests that bondholders, particularly in high-growth firms, prefer to protect themselves from managerial discretion (that might result in asset substitution, underinvestment, or claim dilution) with more protective covenants. However, the real options literature suggests that shareholders in these same firms prefer flexibility in exercising the valuable real options in their asset portfolio. For the high investment opportunity firm with many real options to be exercised in the future, it seems likely that the issuer of debt will prefer flexibility, while the purchaser of debt will prefer restrictions on managerial discretion, all other things held constant.

We find that once high-growth firms have decided to issue debt rather than equity, they are likely to design bond contracts that preserve the flexibility of the firm with respect to the payment of dividends and the issuance of debt. Covenants restricting dividends and debt are significantly less likely to be included in firms with high investment opportunities. We do not find, however, that the inclusion of other restrictive covenants, such as negative pledge clauses, mergers restrictions, or limitations on sale/leaseback agreements or asset sales, is significantly influenced by investment opportunities.

The difference in the determinants of the use of financing covenants and restructuring covenants in high-growth firms suggests that there is something fundamental about financing that is very important to the high investment opportunity firm. Having more growth options also implies uncertainty about future investments. If the firm finds that it has positive NPV projects in which to invest, it would need to raise funds to finance those projects. The ability to issue debt insures that the firm can raise cash without sharing the wealth gains with new shareholders (i.e., a solution to the underinvestment problem identified by Myers, 1977). The uncertainty about future projects also suggests that the firm may find that it has excess cash without any positive NPV projects in which to invest (Begley, 1994). Thus, the firm would prefer to have the flexibility to pay cash out to stockholders rather than invest in negative NPV projects. While this may seem somewhat contradictory to the idea of a growth firm, the higher variance of the future cash flows suggests that firms benefit from maintaining flexibility with respect to the use of cash. In addition, Opler et al. (1999) show that firms with more growth options and riskier cash flows maintain higher cash holdings. Thus, investors may be less concerned about

restricting dividends given that these firms are more likely to maintain higher balances without the covenant.

The other covenants that we study here are not as closely related to the investment opportunities of the firm and are not as fundamental to the overall project selection of the firm. They restrict certain aspects of financing (negative pledges or sale/leaseback restrictions) or a specific type of investment (merger restrictions or poison puts), but they do not have the same broad-based effect as the dividend and debt restrictions. We find no relation between these covenants and the investment opportunities of the firm.

Financial distress concerns have different impacts on the various covenants we study. Dividend and debt restrictions, poison puts, and restrictions on asset sales are more likely to appear if the firm is closer to financial distress (as proxied by interest coverage ratios and firm size). These results are consistent with bondholders worrying about managers undertaking actions that would lower bondholder wealth, whether through asset substitution, underinvestment, or claim dilution, when the firms are close to financial distress. Of course, it is when the firm is closest to financial distress that bondholders most worry about the repayment of their claims. However, negative pledge clauses, sale/leaseback restrictions, and merger restrictions do not have this same relation with financial distress costs. Since the first two are almost totally limited to senior issues, it is likely that financial distress is less of a concern for holders of these bonds. In addition, we do not identify any characteristic that determines the near-universal presence of merger restrictions.

While much of the capital structure literature emphasizes that firms with high-growth options will use relatively high levels of equity financing, most of the discussion has centered on the agency costs of debt and how bondholders may not wish to expose themselves to managerial discretionary decision making after loaning funds to the firm. In contrast, our results emphasize that high-growth firms and their shareholders recognize the value of flexibility in exercising their real options and protect that flexibility through both the issuance of equity and by maintaining flexibility in contractual relations with bondholders. Our results support [Smith and Warner's \(1979\)](#) costly contracting hypothesis that indentures are negotiated to provide optimal protection for bondholders at the lowest cost to issuers.

Acknowledgements

We thank Roberts Brokaw, Thomas Copeland, Ken Lehn (the editor), David Mauer, Clifford Smith, Sheridan Titman, two anonymous referees, and seminar participants at the University of Miami, the Financial Management Association Meetings and the Western Finance Association Meetings for many helpful comments. This research was partially supported by National Science Foundation Grant #9122347.

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