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# Do Creditor Rights Increase Employment Risk? Evidence from Debt Covenants

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# Evidence from Debt Covenants

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**Abstract**

This paper studies whether financial contracts exacerbate or mitigate agency conflicts among stakeholders. We consider a specific contractual provision, debt covenants, and examine how, by allocating control rights between shareholders and debtholders, debt covenants affect the employment relationship. We analyze the role of covenants in both public (bonds) and private (loans) debt contracts. For public debt covenants, we estimate dynamic employment equations and find a significant negative effect of leverage on employment only for firms with relatively high covenant protection. For private debt covenants, we use a regression discontinuity design and document sizable job cuts following a covenant violation. Overall, these findings suggest that creditor rights increase employment risk. As such, they complement the recent literature on financial covenants by showing that covenants affect a broader set of operating decisions than previously recognized. Moreover, the results contribute to our understanding of the consequences of the allocation of control rights within the firm by identifying a specific risk-shifting channel from debtholders to employees.

# 1 Introduction

One fundamental contribution of modern corporate finance is the insight by Jensen and Meckling (1976) that firms are a complex nexus of contractual relations. Important aspects of this original insight have been developed. In particular, the literature has extensively studied conflicts of interests between shareholders and managers and between shareholders and debtholders (see Stein (2003) for a comprehensive survey). It is now well understood that debtholders can potentially mitigate conflicts of interests with shareholders through contractual features such as financial covenants. A recent growing empirical literature shows that debt covenants are indeed effective, and that the transfer of control rights that accompanies covenant violations has important consequences for firm behavior. Chava and Roberts (2008), Roberts and Sufi (2007), and Nini, Smith and Sufi (2009b) show that following loan covenant violations, firms reduce investment, asset growth, and debt growth, and are more likely to cut dividends and to replace their CEO. Billet, King and Mauer (2008) show that creditors use bond covenants to mitigate conflicts with stockholders over the exercise of growth options.

Another important insight of the nexus of contracts view has received relatively little attention.[1] There can also be a fundamental conflict of interest between creditors and other stakeholders stemming from the fact that each of these groups represents a priority claim on firm revenues. As Jensen and Meckling (1976) put it, "firms incur obligations daily to suppliers, to employees, to different classes of investors, etc. So long as the firm is prospering, the adjudication of claims is seldom a problem. When the firm has difficulty meeting some of its obligations, however,

[1] "There is in a very real sense only a multitude of complex relationships (i.e., contracts) between the legal fiction (the firm) and the owners of labor, material and capital inputs and the consumers of output. The firm ... is a legal fiction, which serves as a focus for a complex process in which the conflicting objectives of individuals (some of whom may "represent" other organizations) are brought into equilibrium within a framework of contractual relations. In this sense the "behavior" of the firm is like the behavior of a market, that is, the outcome of a complex equilibrium process." (Jensen and Meckling (1976)).

the issue of the priority of those claims can pose serious problems." Since a complex web of multiple contracts ultimately determine the adjudication of claims, the allocation of rights between shareholders and creditors likely has an impact on contractual relations between the firm and other stakeholders. However, we have virtually no empirical evidence on whether creditor rights affect other stakeholders.

In this paper, we attempt to fill this gap in the literature by examining potential conflicts of interests between creditors and employees. In particular, we study how a specific contractual provision, debt covenants, which is used to mitigate conflicts between debtholders and shareholders, affects employees, an important class of stakeholders. As a firm's financial condition deteriorates and firms have difficulty meeting their obligations with creditors, debt covenants that strengthen creditor rights could lead firms to take actions that adversely affect employees, such as layoffs, in order to quickly generate earnings, which could then be available to pay principal and interest on the debt. Our evidence lends strong support to this hypothesis. By strengthening creditor control rights, private (loans) and public (bond) debt covenants are associated with lower job security for workers. Our empirical setting addresses directly the issue of the endogeneity between covenants, leverage, and firm characteristics, such as performance and growth opportunities, an issue that had not been previously addressed in the literature on financing and employment (see Ofek (1993), Sharpe (1994), and Hanka (1998)). Our study is the first to document large sample evidence of a relation between financial covenants and employment risk.

Debt covenants protect creditors outside bankruptcy through two channels—by defining a transfer of control rights when a covenant is violated or by influencing management actions even before a covenant is violated. The first is an ex post channel. Loan covenants are tied to performance indicators, and violations lead to a transfer of control rights (Chava and Roberts (2008)). Nini et al (2009b) argue that such violations provide creditors with the same rights as a payment default,

including the ability to accelerate any outstanding principal and to terminate any unused revolving credit facility. They find that loans renegotiated after a covenant violation are more costly and have more restrictions on firms' activities. Thus, management may take actions after violation in order to ensure continued access to credit on terms that are not too costly or restrictive. This contracting channel for covenants can increase employment risk if the transfer of control rights to creditors as a firm's financial condition deteriorates leads management to cut employees in order to quickly increase earnings and cash flow.

The second channel is an ex ante discipline mechanism. It is well established since Smith and Warner (1979) and confirmed by recent evidence in Nini, Smith, and Sufi (2009a) that creditors can use covenants to constrain managerial discretion. In particular, they can do so by writing into their debt contract covenants that limit the ability of managers to take actions that could have potentially adverse effects on creditors.[2] By introducing explicit constraints on managers' actions, debt covenants, like the amount of debt, may reduce operating flexibility and, thus, may force managers to make the hard choices in order to avoid deterioration in financial conditions. One such hard choice is to give up the "quiet life." To the extent that employment relations are a non-pecuniary private benefit for managers who prefer to avoid costly conflicts with unions and workers, covenants can lead to greater employment risk through an ex ante discipline channel by forcing otherwise reluctant management to confront employees and unions (see Bertrand and Mullainathan (2003) and Cronqvist et al. (2008)). Thus, the discipline channel also implies that financial covenants may end up hurting employees' job security.

In the first part of our analysis, we assess the contracting channel by exploring the link between violations of loan covenants and employment. Following Chava and Roberts (2008), we use

[2]In addition, debt covenants can be used to restrict stockholders' ability to take actions that can expropriate bondholder wealth (Billet et al, 2007).

a panel dataset of publicly traded firms (4,934 firm-year observations) from 1994 to 2007 which is constructed by merging data on private debt issues from Loan Pricing Corporation's (LPC) Dealscan with the Compustat database. We also find that covenant violations for loans occur frequently (Dichev and Skinner (2002)), which allows us to address identification and use a regression discontinuity design methodology to estimate the effect of loan covenant violations on employment.

We document sizable job cuts following loan covenant violations. Our results show that employment drops in response to a covenant violation by approximately 8% to 12% per year, a drop which is about twice as large as the median employment drop in our sample of 5.2%. This finding is robust to examining only the subsample of firms that are "close" to the covenant threshold, using a specification that includes only employment reductions, and complementing Compustat employment data with hand-collected information on 1,708 layoff announcements. Moreover, the result is robust to the inclusion of several control variables, including smooth functions of the distance to the covenant threshold, firm and year fixed effects, proxies for firm growth opportunities (Tobin's Q), measures of capital structure (leverage) and financial health (Altman's z-score), and proxies for earnings manipulation (abnormal accruals). Thus, consistent with the contracting hypothesis, the transfer of control rights accompanying a covenant violation leads to a significant decline in employment, as creditors' intervention leads managers to cut employees, which would reduce expenses and raise earnings, and reduce the costs of a new renegotiated loan.

In the second part of our analysis, we assess the discipline channel by considering the effect of public debt covenants on employment risk. Our dataset is constructed by merging data on public debt issues from the Fixed Investment Securities Database (FISD) with the Compustat database. FISD reports the incidence of more than 50 different types of covenants for debt issues by nonfinancial firms. Using these data on individual debt issues, we construct a firm's history of covenants by tracking the firm's FISD debt issues through time and adjusting for conversions

and retirements at maturity which allows us to construct a firm-level index of covenant protection. Our measure of covenant protection, which is based on Billett, King, and Mauer (2007), groups covenants into fifteen major categories and constructs covenant indicator variables for a firm's outstanding debt issues, which are then summed to compute an index of covenant protection. We address identification by using a Generalized Method of Moments procedure to estimate dynamic employment equations with panel data for a large sample of publicly traded firms (1,918 firms and 11,324 firm-year observations) from 1990 to 2007. We estimate dynamic employment equations that in addition to standard determinants of employment, include financial variables such as leverage and cash flow.

The employment equations we estimate are standard in the labor literature (see Nickell (1986) for a complete survey) and the GMM approach we employ has been recently used in the literature on financial constraints and investment (see, for example, Bond and Meghir (2004) and Brown, Fazzari, and Petersen (2008)). The main advantage of this approach is that it allows us to derive estimates of financing variables controlling for expected future profitability.

We find that leverage has a negative effect and cash flow has a positive effect only for firms with relatively high covenant protection. In particular, our coefficient estimates imply that, for firms with relatively high covenant protection, a one standard deviation increase in leverage leads to a drop in employment of 5.6%, a drop which is about as large as the median employment drop in our sample of 5.2%. By contrast, for firms with relatively low covenant protection, the point estimates for leverage and cash flow are statistically insignificant. These results are robust to measuring covenants with only restrictions on payout and financial decisions, and controlling for firm growth opportunities (Tobin's Q) and debt maturity. Moreover, they are stronger among firms with relatively low cash holdings and low free cash flow, and for firms with simpler debt structures (measured as in Davydenko and Strebulaev (2004) by the Herfindhal index - a measure

of dissimilarity of face value - of public bonds outstanding). Overall, we interpret these results to be consistent with the discipline hypothesis that creditor rights increase employment risk by strengthening the disciplinary role of debt.

In summary, we present empirical evidence that debt covenants, by strengthening creditor rights, lead to significant employment risk. To the best of our knowledge, this is the first direct evidence consistent with the important implication of Jensen and Meckling (1976) that there are conflicts of interest between creditors and other stakeholders with priority claims. In particular, credit contracts that mitigate one set of conflicts, those between debtholders and shareholders, can have spillover effects on parties that are not directly subject to credit contracts, in this case employees. Our findings have several implications for the literature.

First, we expand previous evidence on the real effects of financial contracting. Previous research has focused mostly on the effect of covenants on investment and financial decisions (Chava and Roberts (2008), and Nini, Smith, and Sufi (2009a)), and more recently CEO turnover (Nini, Smith, and Sufi, (2009b)). Our result that covenant violations increase employment risk is complementary to these previous studies. Since creditors and employees have directly competing claims to a firm's internal cash flows, our analysis offers a new direct test of the contracting channel. In addition, our results suggest that the transfer of control rights matters also for key operating decisions.

Second, we document evidence that debt covenants work through both an ex post contracting channel and an ex ante discipline channel. Thus, our evidence that there is a link between bond covenants and employment even without a covenant violation or debt default establishes that debt covenants, much like Jensen (1986) classical hypothesis about the amount of debt, act as an ex ante disciplining mechanism on management by reducing operating flexibility. In addition, the finding that loan covenant violations, which lead to an ex-post transfer of control rights, lead managers to cut employees, is also consistent with discipline from either direct bank intervention, or an indirect

need to reduce expenses and raise earnings, and reduce the costs of a new renegotiated loan.

Third, we document that financial contracting has real effects, specifically on employment. Previous studies have documented indirect real costs of bankruptcy, such as lost customers and employee relationships (Titman and Opler (1994)). Our study shows that some of these real effects are operative even before debt default or bankruptcy, which suggests that debtholders do not wait until a firm enters distress to exercise influence.

Finally, we provide evidence that covenants may be an important mechanism through which leverage can increase employment risk. Previous research suggests that employment risk is greater in more highly levered firms or industries: For example, Sharpe (1994) finds that employment in high debt firms more closely tracks the business cycle (see also Ofek (1993) and Hanka (1998), and Kaplan (1989), Muscarella and Vetsuypens (1990) and, more recently, Davis, Haltiwanger, Jarmin, Lerner, and Miranda (2008) for evidence from leveraged buyouts). However, these papers do not directly test a mechanism, and thus cannot show that debt acts directly as a disciplining channel because the observed correlation between debt and employment reductions could instead be caused by the strong association of debt with poor historical performance or with low growth opportunities. Our evidence is more direct since we test specific channels through which loan covenant violations lead to employment cuts.

# 2 Loan Covenant Analysis

In this section we study the consequences for employment of violations of covenants in private debt contracts (loans). Our analysis in this section follows closely Chava and Roberts (2008) and their insight that the "tightness" of loan covenants—i.e., the distance between the covenant threshold and the actual accounting measure—can be used to estimate the causal effect of financing within

a regression discontinuity design setting.

## 2.1 Motivation

Conditional on the transfer of control rights, creditors can take a number of actions that affect employment. An important aspect of the contracting channel is that employment may be affected directly by creditors intervening in operating decisions. For example, creditor interventions may take the form of "advising" management to reduce headcount and operating expenses after a covenant violation.

The following quote from the first quarter 10-Q filing of Interpharm Holdings in 2008 exemplifies such a situation:

> Subsequently, on January 28, 2008, Wells Fargo informed the Company that it would consider providing the Company with credit availability on the condition that the Company (i) develops and implements a new operating plan focused on increasing the amount of eligible collateral and reducing costs and (ii) develop an alternative financing arrangement. Further, on February 5, 2008, the Company and Wells Fargo entered into the Forbearance Agreement... In connection with its negotiation of the Forbearance Agreement, the Company completed a restructuring of its operations on January 25, 2008 and submitted a new operating plan to Wells Fargo, which the Company believes will result in positive cash flow and net profits, and includes...reducing payroll and headcount by approximately 20%.

Another example of a similar quote is from the annual 10-K filing of Meade Instruments Corp. in 2008:

> We are working with our lender on a potential amendment to our agreement to

cure this technical default. There can be no guarantee that such amendments may be obtained as of February 29, 2008. Our restructuring plans include implementation of headcount reductions, corporate overhead and manufacturing costs.

Finally, another similar quote from the second quarter 10-Q filing of Advanced Materials Inc. in 2004:

> The Company is in the process of attempting to cure its line of credit and term loan violations. Management has implemented a plan to reduce expenses and improve sales. Selling, general and administrative expenses for the first quarter of fiscal 2004 and 2003 were $397,000 and $499,000, respectively, a decrease of $102,000 or 20%. This decrease was due primarily to a reduction in the number of employees as the Company continues to improve individual productivity.

## 2.2 Data and Sample Selection

### 2.2.1 Loan Data

Our loan information comes from a July 2008 extract of Loan Pricing Corporation's (LPC) Dealscan database. The data consist of dollar-denominated private loans made by commercial banks and nonbank (e.g., investment bank, insurance companies, and pension funds) lenders to U.S. corporations during the period 1981 to 2007. The basic unit of observation in Dealscan is a loan, also referred to as a facility or a tranche. Loans are often grouped together into deals or packages. Most of the loans used in this study are senior secured claims, features common to commercial loans. We use the data to gather information on restrictive covenants.

Because information on covenants is fairly limited prior to 1994, we focus our attention on the sample of loans with start dates between 1994 and 2007. Additionally, we require that each loan

contain a covenant restricting the current ratio, or the net worth or tangible net worth (which we group together as net worth loans) to lie above a certain threshold.

We focus on these covenants for two reasons, as elaborated by Chava and Roberts (2008) and Dichev and Skinner (2002). First, they appear relatively frequently in the Dealscan database (Table I in Chava and Roberts (2008) shows that covenants restricting the current ratio or net worth are found in 9,294 loans (6,386 packages) with a combined face value of over a trillion dollars). Second, and most importantly, the accounting measures used for these two covenants are standardized and unambiguous.

### 2.2.2 Sample Construction

Our sample construction strategy follows closely Chava and Roberts (2008) and Dichev and Skinner (2002). Thus, in this section we summarize the main parts of our sample construction strategy, detail the few parts where it differs from these papers, and refer to Chava and Roberts (2008) for further details. We start with the annual merged CRSP-Compustat database, excluding financial firms (SIC codes 6000-6999). While Chava and Roberts (2008) use quarterly data, we use annual data because firms do not report employment at the quarterly frequency. We acknowledge that this data limitation is likely to make our assessment of when the covenant violation occurs more noisy. For brevity, we refer to this subset as the Compustat sample. All variables are defined in Appendix A.

Data from Compustat are merged with loan information from Dealscan by matching company names and loan origination dates from Dealscan to company names and corresponding active dates in the CRSP historical header file.[3] We then draw our sample containing firm-year observations

[3]Special thanks to Mark Carey and Greg Nini for their help with Dealscan and for kindly sharing their Compustat-Dealscan key.

in which firms are bound by either a current ratio or a net worth covenant during the period 1994 to 2007. Since our focus does not discriminate between these two covenants, we consider them together in our regression analysis.

Since covenants generally apply to all loans in a package, we define the time period over which the firm is bound by the covenant as starting with the earliest loan start date in the package and ending with the latest maturity date. In effect, we assume that the firm is bound by the covenant for the longest possible life of all loans in the package. We also require our employment measure and the covenant's corresponding accounting measure to be non-missing. It is not infrequent for our extract of Dealscan to have some missing information on the covenant threshold, especially in the case of net worth covenants. We are able to partially mitigate this issue and manually recover some missing covenant information by looking at the package notes provided by Dealscan (package_comments).[4] Overall, this process results in 4,986 firm-year observations. Thus, our unit of observation is a firm-year, each of which either is or is not in violation of a particular covenant.

Our key variable of interest, employment, is from Compustat and is the (log of) total number of employees. In our empirical analysis, we include a number of variables that have been previously employed in the literature on loan covenants. In particular, we include firm size, profitability, market-to-book asset ratio, leverage, debt maturity, and Altman's Z-score (see, for example, Chava and Roberts (2008)). Each variable is measured at the fiscal year-end prior to the year in which employment is measured.

Since our sample selection is not random, obvious sample selection concerns might arise. Table 1 compares the characteristics of other (nonfinancial) firms in Compustat to those in our sample. Our sample contains relatively larger firms (in terms of sales) and with higher cash flows and

[4]We thank Mark Carey for suggesting to pursue this route.

leverage ratios relative to the Compustat population, Our sample is similar to Chava and Roberts (2008) although direct comparison is somewhat impeded by the fact that they report results (Table II) for the net worth and current ratio samples separately.

### 2.2.3 Loan Covenant Violations

A firm is in violation of a covenant if the value of its accounting variable breaches the covenant threshold, i.e., when either the current ratio or the net worth falls below the corresponding threshold. While conceptually straightforward, the measurement of the covenant threshold, and consequently the covenant violation, poses several challenges, such as the possibility of multiple overlapping deals, and, importantly, the fact that covenant thresholds can change over the life of the contract. We deal with these measurement issues following Chava and Roberts (2008) (see their Appendix B for details).

In Table 1 we report Bind, the frequency of occurrence of covenant violations in our sample: 16% of the firm-year observations are classified as in violation. This figure is broadly in line with Dichev and Skinner (2002) and Chava and Roberts (2008), which is reassuring since we follow closely their data construction criteria.

## 2.3 Empirical Specification and Estimation Approach

Our empirical specification follows the approach of Chava and Roberts (2008). In particular, we consider covenant violations as the treatment and non-violations as the control and adopt a regression discontinuity design approach. We can do so since the treatment effect is a discontinuous function of the distance between the underlying accounting variable and the covenant threshold.

Specifically, our treatment variable, $Bind_{it}$, is defined as

$$Bind_{it} = \begin{cases} 1 & z_{it} - z_{it}^0 < 0 \\ 0 & \text{otherwise} \end{cases}$$

where $i$ and $t$ index firm and year observations, $z_{it}$ is the observed current ratio (or net worth), and $z_{it}^0$ is the corresponding threshold specified by the covenant.

Our baseline empirical model for this section is

$$Emp_{j,t} = \alpha + \alpha_0 Emp_{j,t-1} + \alpha_1 Bind_{j,t-1} + \beta x_{j,t-1} + \lambda_t + \eta_j + \nu_{j,t} \tag{1}$$

where $Emp_{j,t}$ is (log) employment and $x_{j,t-1}$ is a vector of control variables, $\eta_j$ is a firm fixed effect, $\lambda_t$ is a year fixed effect, and $\nu_{j,t}$ is a random error term assumed to be correlated within firm observations and potentially heteroskedastic (Petersen (2006)). The parameter of interest is $\alpha_1$, which represents the impact of a covenant violation on employment (i.e., the treatment effect). Because of the inclusion of a firm-specific effect, identification of $\alpha_1$ comes only from those firms that experience a covenant violation. Therefore, we restrict our attention to the subsample of firms that experience at least one covenant violation; however, the estimated treatment effect using the entire sample of firms is qualitatively similar. Note that, since our focus is on changes in employment and employment is highly persistent, we include one lag of the dependent variable ($Emp_{j,t-1}$) in our specification. However, we verify that our results are robust to considering a specification without the lagged dependent variable.

As noted in Chava and Roberts (2008), the nonlinear relation in equation (1) provides for identification of the treatment effect under very mild conditions. In fact, in order for the treatment effect $\alpha_1$ to not be identified, it must be the case that the unobserved component of employment

($\nu_{j,t}$) exhibits an identical discontinuity as that defined in equation (1), relating the violation status to the underlying accounting variable. That is, even if $\nu_{j,t}$ is correlated with the difference, $z_{it} - z_{it}^0$, our estimate of $\alpha_1$ is unbiased as long as $\nu_{j,t}$ does not exhibit precisely the same discontinuity as $Bind_{it}$.

Because the discontinuity is the source of identifying information, we also estimate equation (1) on the subsample of firm-year observations that are close to the point of discontinuity. We follow Chava and Roberts (2008) and we formally define the "Discontinuity Sample" as those firm-year observations for which the absolute value of the relative distance between the accounting variable (current ratio or net worth) and the corresponding covenant threshold is less than 0.20. This restriction reduces our sample size by about 60% to 1,970 firm-year observations.

For robustness, we also include smooth functions of the distance from the technical default boundary into our specification. More precisely, Default Distance (CR) and Default Distance (NW) are defined as Default Distance (CR) = I(Current Ratio$_{it}$ )$\times$(Current Ratio$_{it}$ - Current Ratio$_{it}^0$), Default Distance (NW) = I(Net Worth$_{it}$)$\times$(Net Worth$_{it}$ - NetWorth$_{it}^0$), where I(Current Ratio$_{it}$ ) and I(Net Worth$_{it}$ ) are indicator variables equal to one if the firm-year observation is bound by a current ratio or net worth covenant, respectively. The Current Ratio$_{it}^0$ and Net Worth$_{it}^0$ variables correspond to the covenant thresholds. As noted in Chava and Roberts (2008), in addition to isolating the treatment effect to the point of discontinuity, including these variables in the regression specification enables us to address the concern that the distance to the covenant threshold contains information about future investment opportunities not captured by the other determinants.

## 2.4 Results

Table 2 presents our results for the entire sample consisting of loans containing either a current ratio or a net worth covenant (Panel A, "Entire Sample"), and for the "Discontinuity Sample" (Panel B). Column 0 of Panel A shows that we essentially replicate the results of Chava and Roberts (2008) on covenants and investment in our sample. Moving on to employment, Column 1 shows that covenant violations are associated with a significant decline in employment on the order of 12.5% per year. Relative to a median yearly employment drop of approximately 5% in the entire sample (and, indeed, in the entire Compustat population), this estimate translates into job cuts that are twice as large as for the median firm. Column 1 in Panel B shows that covenant violations lead to significant employment drops also in the Discontinuity Sample. In the Discontinuity Sample, the order of magnitude of an average yearly drop in employment following covenant violations is about 8%, which is still much larger than the median drop in the entire sample.

Specifications (2) through (6) incorporate additional control variables used in previous studies to address omitted variable concerns. In particular, we include firm size, total wages, current and lagged cash flows, and ROA. The inclusion of these additional controls, some of which have significant coefficients (especially in the Discontinuity Sample), has little effect on the estimated impact of covenant violations. Finally, Column 7 in Panel A attempts to further isolate the discontinuity corresponding to the covenant violation by including smooth functions of the distance from the default boundary into the specification. While the coefficient of net worth distance is significant, the coefficient of the current ratio distance is largely insignificant. Nonetheless, the estimated treatment effect of almost 10% per year remains economically and statistically large.

Table 3 repeats the regression analysis in Table 2 by considering the effect of covenant vio-

lations on percentage employment drops, a variable studied in previous papers on financing and employment (see, for example, Hanka (1998)). Columns (1) to (3) report results for the percentage employment drop using Compustat data, while columns (4) to (6) construct the same variable for Compustat data complemented with hand-collected information on 1,708 layoff announcements from Wall Street Journal and other major news sources obtained from Factiva and Lexis Nexis news searches (see Ofek (1993) for a similar variable). A striking outcome of this analysis is that, as shown by columns (1) and (4), the effect of covenant violations is both qualitatively and quantitatively in line with the findings reported in Table 2. In, particular, the analysis of job cuts in Table 3 reveals that covenant violations lead on average to a 7% yearly cut of a firm's workforce.

### 2.4.1 Robustness

Table 4 verifies that our results are robust to controlling for additional factors that might affect employment. In particular, we include Tobin's Q (Column (1)), leverage (Column (2)), Altman's Z-score (Column (3)), and abnormal accounting accruals (Column (4)). Again, Panels A and B of Table 4 report results for the "Entire Sample" and for the "Discontinuity Sample," respectively. While Tobin's Q and abnormal accruals have statistically significant coefficients, the magnitude of the impact of covenant violations on employment remains virtually unchanged and strongly significant.

# 3 Bond Covenant Analysis

In this section, we study the role of bond covenants as an ex ante disciplining mechanism for firms. Creditors can use bond covenants that will limit the ability of managers to take actions that could have potentially adverse effects on creditors. Debt covenants, like the amount of debt, may reduce

operating flexibility and, thus, may force managers to make the hard choices in order to avoid deterioration in firms' financial conditions.

## 3.1 Data and Sample Selection

### 3.1.1 Bond Data

Similar to Billett, King, and Mauer (2007) and Chava, Kumar, and Warga (2004), our sample of public debt issues is from the Fixed Investment Securities Database (FISD), which contains detailed information on over 130,000 public debt issues across all rating categories. The version of FISD that we use includes debt issues that were issued through the last quarter of 2007 and that matured after 1989 and for which we have complete covenant information.[5] We employ standard selection criteria and exclude U.S. government bonds, foreign bonds, bonds denominated in foreign currency, bonds issued by financial firms and finance subsidiaries, and medium-term notes for which FISD does not record covenant information. We refer to Billett, King, and Mauer (2007) for details on the characteristics of the bond-level FISD data.

### 3.1.2 Sample Construction

Since our objective is to examine firm employment policy, we create a firm-year panel database that matches the FISD debt issue data to issuer-level data from Compustat. To do so, we create a firm-year history of debt issues. Starting in 1960, we trace individual debt issues to their issuing firms and then track the firms' portfolios of debt issues over time.[6] Finally, we match this historical

[5] As in Billett, King, and Mauer (2007), we include debt issues for which the subsequent data flag in the FISD is "yes." This flag indicates whether the issue proceeded beyond the initial input phase, containing data from a prospectus, pricing supplement, or other more detailed document or source.

[6] In particular, we make sure to use historical redemption information in FISD to account for the changing composition of a firm's debt issue portfolio by adjusting the outstanding principal of debt issues for sinking fund payments, calls, puts, conversions, and retirement at maturity.

debt issue database to Compustat data. Following Billett, King, and Mauer (2007), we start the firm-year sample in 1990 to allow sufficient time for a firm's debt issue portfolio to develop. The final sample consists of 11,324 firm-year observations, representing 1,918 different firms, over the period from 1990 to 2007.[7] Variable definitions are detailed in Appendix A.

**Bond Covenants** We follow Billett, King, and Mauer (2007) and group bond covenants into 15 categories to create firm-year indices of covenant protection (see Chava, Kumar, and Warga (2004) and Appendix therein for details on covenants in FISD). In our primary index, for a firm in a given sample year, we start by creating 15 covenant indicator variables that equal one if at least one debt instrument in its FISD debt issue portfolio has the given covenant and zero otherwise. We then sum the covenant indicator variables and divide by 15 to create an index that varies from zero - no covenant protection - to one - complete covenant protection. This index gives equal weight to the various covenant categories, an assumption that we will explicitly address in our empirical analysis by also examining covenant index components separately.

We also construct a weighted covenant index to address concerns about ascribing covenant protection to the overall firm if any debt issue has a covenant. Thus, for a firm in a given year, we first compute 15 covenant indicator variables for each of a firm's outstanding debt issues. For each covenant, we then weight each debt issue's covenant indicator variable by the amount outstanding relative to the total amount outstanding, and sum the weighted covenant indicator variable across issues. We then sum the weighted covenant indicator variables and divide by 15 to compute the weighted covenant index.

The 15 covenant categories can be grouped into four sub-groups as follows:

[7] As noted in Billett, King, and Mauer (2007), FISD debt coverage relative to Compustat debt measures is reasonably representative of the firm's outstanding debt (in our matched sample, the median ratios of the sum of FISD debt outstanding to Compustat long-term debt is 0.71.

1. Covenants restricting payouts to equityholders and others (two categories).

   An issue has a dividend restriction if there is a covenant limiting the dividend payments of the issuer or a subsidiary of the issuer. Typical subsidiary restrictions limit dividend payments to the parent, thereby preventing the parent from draining the subsidiary's assets. An issue has a share repurchase restriction if there is a covenant limiting the issuer's freedom to make payments (other than dividend payments) to shareholders and others. Note that this covenant would also restrict the issuers' ability to redeem subordinate debt.

2. Covenants restricting financing activities (seven categories).

   A funded debt restriction prevents the issuer and/or subsidiary from issuing additional debt with a maturity of one year or longer. The next three covenants restrict the issuer from issuing additional subordinate, senior, and secured debt, respectively. Note that the secured debt covenant is referred to as a negative pledge, and typically specifies that the issuer cannot issue secured debt unless it secures the current issue on a pari passu basis. The category of covenants that we refer to as "total leverage tests" includes a variety of accounting-based restrictions on leverage, ranging from a requirement that the issuer maintain a specified minimum net worth to a requirement that the issuer maintain a specified minimum ratio of earnings to fixed charges. A sale and leaseback covenant restricts the issuer and/or subsidiary from selling and then leasing back assets that provide security for the debtholder. This provision usually requires that the proceeds from the sale be used to retire debt or acquire substantially equivalent property. Finally, the stock issue restriction restricts the issuer and/or subsidiary from issuing additional common or preferred stock.

3. Event-driven covenants (three categories).

   An issue has a rating or net worth trigger if certain provisions are triggered (e.g., a put

option) when either the credit rating or net worth of the issuer falls below a specified level. An issue has a cross-default provision if default (or acceleration of payments in default) is triggered in the issue when default (or acceleration of payments in default) occurs for any other debt issue. Finally, we include the poison put provision as a separate category, since it is triggered in the event of a change in control.

4. Covenants restricting investment policy (three categories).

   An issue has an asset sale clause if the issuer and/or subsidiary are required to use the net proceeds from the sale of certain assets to redeem the issue at par or at a premium to par. Investment policy restrictions proscribe certain risky investments for the issuer and/or subsidiary. Finally, a merger restriction typically specifies that the surviving entity must assume the debt and abide by all of the covenants in the debt.

**Other firm characteristics** We control for a number of variables that have been previously employed in the literature on bond covenants (Billett, King, and Mauer (2007) and Johnson (2003)). In particular, we include firm size, profitability, market-to-book asset ratio, leverage, debt maturity, and Altman's Z-score.[8] Each variable is measured at the fiscal year-end prior to the year in which employment is measured. Since these variables are not integral to our predictions, we preserve space by not including their testable predictions here and refer the interested reader to the discussion in Johnson (2003).

**Renegotiation and Bargaining in Default** We use variables from Davydenko and Strebulaev (2004) to measure debt structure complexity and as a proxy for how difficult it is to renegotiate

[8] We also verify that our results are robust to including the following additional variables: investment tax credit, net operating loss, and regulated firm dummy.

the firm's debt. Our empirical variables for the dispersion of debtholders' interest are the number and the Herfindhal Index of public bond issues outstanding.

Table 5 presents descriptive statistics for our matched FISD-Compustat sample. For descriptive purposes, we report the unscaled versions of the unweighted and weighted covenant indices. Panel A shows that the median firm-year has 5 covenant categories, with firm-years ranging from 0 to 13 covenant categories. The weighted covenant index has a similar distribution, with a median of 4 and a range of 0 to 12 covenant categories. The similarity of the unweighted and weighted covenant indices suggests that the FISD debt issues of a firm do not have vastly different covenants. For the other variables, the last two columns of Panel A report mean and median values for all other nonfinancial firms in Compustat with complete data over the sample period from 1990 to 2007. The firms in our sample are clearly larger, more highly leveraged, have less short-term debt, but have similar market-to-book ratios to other Compustat firms.

Panel B of Table 5 presents correlations among leverage and the covenant indices and debt maturity, the market-to-book ratio, and the number of employees. Several correlations are notable. First, leverage is negatively related to the market-to-book ratio and positively related to the covenant indices. Second, the covenant indices are negatively related to the market-to-book ratio, a result that is consistent with the previous literature that examines the determinants of covenants in individual debt issues. Third, the covenant indices and short-term debt are negatively related, consistent with the view that they are substitutes in addressing stockholder-bondholder conflicts. Finally, both the leverage and the covenant indices are negatively related to the number of employees, which is consistent with Jensen's (1986) discipline argument, but could also be driven by the negative relation between leverage (and covenants) and growth opportunities. This last set of correlations is particularly important, since it highlights the need to control for endogeneity issues

when investigating the relation between creditor rights and employment.

## 3.2 Empirical Specification and Estimation Approach

To test the impact of creditor rights on employment we build on dynamic factor demand models as in Arellano and Bond (1991) and subsequent literature (see Bond and Van Reenen (2007) for a survey). This specification is based on the dynamic optimization "Euler condition" for firms that accumulate productive factors of production with a quadratic adjustment cost technology. The advantage of this approach is that it controls for expectations, thus helping to overcome a major challenge facing empirical work on financing constraints, specifically the need to separate the influence of variables that measure access to finance from their possible role as proxies for expected future profitability. The Euler equation estimation approach eliminates terms in the solution to the optimization problem that depend on unobservable expectations and it replaces expected values of observable variables with actual values plus an error orthogonal to predetermined instruments. If firms do not face financing constraints, Bond and Van Reenen (2007) survey the literature showing that current or lagged financial variables should not enter the specification merely as proxies for expected future profitability.

Nickell (1984) shows that the Euler equation leads to the following empirical dynamic employment equation specification in the absence of financing constraints:

$$Emp_{j,t} = \alpha_1 Emp_{j,t-1} + \alpha_2 Emp_{j,t-2} + \beta x_{j,t-1} + \lambda_t + \eta_j + \nu_{j,t} \tag{2}$$

where $Emp_{j,t}$ is the logarithm of employment for firm $j$ in period $t$, and the vector $x_{j,t-1}$ contains the following set of explanatory variables: log-assets, log-wages, and log-industry sales.[9] The

[9]In particular, Nickell (1984) derives a log-linear approximation to the Euler equation for a firm maximis-

specification also contains time effects, $\lambda_t$, to control for, among other things, aggregate demand shocks and movements in the aggregate cost of labor and tax rates, and firm-specific effects, $\eta_j$, to control for time-invariant determinants of firm-level employment demand.[10]

This employment equation is standard in the literature (see Nickell (1986) for a complete survey) and has been estimated on U.K. time series data by Layard and Nickell (1986) and on micro data by Nickell and Wadhwani (1991) and Arellano and Bond (1991). Its parameters can be interpreted as functions of the parameters of the original optimization problem. The structural model implies that $\alpha_1$ is positive, and the coefficient on lagged log-assets, and log-industry sales are positive. A significant advantage of this modeling approach is that the resulting empirical specification, although generated from an explicit optimization problem, has a form that corresponds to an intuitive, dynamic employment regression.

To explore the role of financing constraints on employment we add variables that correspond to the firm's access to both internal and external financing. In particular, we add the following variables:

1. Contemporaneous and lagged leverage. The use of this measure of corporate capital structure is standard in the literature on financing and employment (Ofek (1993), Hanka (1998), and Sharpe (1994)). Bond and Meghir (1994) and Brown, Fazzari, and Petersen (2008) include similar variables in their investment and R&D regressions.

ing the present discounted value of profits as $E_{t-1}(Emp_{j,t}) = \delta_0 + (2+r)Emp_{j,t-1} - (1+r)Emp_{j,t-2} + a(1+r)\left[Emp_{j,t-1} - Emp^*_{j,t-1}\right]$, where $r$ is a real discount rate, and $x_{j,t-1} = (w_{j,t}, k_{j,t}, \sigma_{j,t})$, i.e., the log of the real product wage, the log of capital, and a measure of industry demand shocks (as measured by log industry sales), respectively. The latter are from the standard log-linear labour demand equation (see, for example, Layard and Nickell (1986). Replacing the conditional expectation by its realisation and introducing an expectational error $\nu^*_{j,t}$ yields a model with the form in the text.

[10] If firms satisfy the Euler equation period by period and use all information dated t-1 or earlier to form rational expectations, the residual term, $v_{j,t}$, will be an i.i.d forecast error. A number of factors, however, might induce a firmspecific MA(1) component in the residuals, including short-run deviations from strict rational expectations or autocorrelated optimization errors. We compare regressions with instruments that are valid with i.i.d. errors with regressions that use longer instrument lags necessary with MA(1) errors and the results are robust.

2. Contemporaneous and lagged gross cash flow, scaled by beginning of the period assets, the standard measure of internal financing in the financial constraint literature. Based on arguments in Bond and Meghir (1994), gross cash flow might matter even without financial constraints, due to imperfect product market competition and/or decreasing returns to scale. However, without financial constraints, imperfect competition implies that the coefficient of lagged cash flow has a negative sign.

We split the data into high versus low bond covenant firms. The baseline Euler equation (2) should best describe employment for low covenant firms and the financing variables should have significant effects for firms with high covenants if the Jensen (1986) conjecture on creditor rights is important for employment.

We estimate these equations using the first-difference GMM procedure developed by Arellano and Bond (1991) for dynamic panel models with lagged dependent variables. We treat all right-hand side variables as potentially endogenous and use lagged levels dated t-3 and t-4 as instruments. The instruments must be lagged at least three periods if the error term follows a firm-specific MA(1) process (see Bond and Van Reenen (2007)). This is the case for our data, since employment is highly persistent. A number of authors have raised concerns, however, about the weakness of lagged levels as instruments in first-difference GMM regressions. Blundell and Bond (1998) show that a weak instrument problem arises if the time-series process for the regression variables is close to AR(1). Thus, to insure that weak instruments are not a significant source of bias, we follow Blundell and Bond (1998) and use two-step "system" GMM estimation.

## 3.3 Results

Table 6 presents two-step GMM coefficient estimates and standard errors for equation (2) in the 1990 to 2007 period. The standard errors are corrected for the well-known downward bias in small samples (e.g., Arellano and Bond (1991) and Windmeijer (2005)). Moreover, the standard errors are robust to heteroskedasticity and any arbitrary pattern of within-firm serial correlation (Petersen (2006)). The instruments are lags dated t-3 and t-4. The first column reports results for the baseline specification estimated in the entire sample. The p-values for the m1 statistic indicate first-order autocorrelation in the errors, which is expected with first-difference estimation. The m2 statistics do not reject the null of no second-order autocorrelation. The Sargan test does not reject the validity of the instruments. Neither contemporaneous nor lagged leverage have a statistically significant effect on employment.

### 3.3.1 Comparison of Firms with Low and High Covenant Protection

The second and third columns of Table 6 report results for the two-subsample split, based on whether firms have relatively low (below mean covenant index) or relatively high (above mean covenant index) covenant protection. The results indicate a strong negative impact of leverage on employment, but only for firms with relatively high covenant protection. The coefficient estimate on lagged leverage implies that, for firms with relatively high covenant protection, a one standard deviation increase in leverage leads to a drop in employment of 5.6%, a drop which is about as large as the median employment drop in our sample of 5.2%. By contrast, for firms with low covenant protection, neither current nor lagged leverage have a statistically significant effect on employment.

To lend further confidence to these results, Table 7 verifies that they continue to hold when

we split the sample based on finer sub-categories of the overall covenant index. In particular, the first two columns of Table 7 report results for a split based on the category of covenants restricting payout policies, and the third and forth columns reports results for a split based on covenants restricting financing decisions. Again, we use the mean values of each covenant class to define the respective thresholds. The coefficient of lagged leverage for both splits confirms that the strong negative impact of leverage on employment holds only among firms with relatively high covenant protection.

While our analysis so far has focused on identifying average employment effects, the results reported in Table 8 explore whether there is cross-sectional variation in these effects. We do this by focusing only on firms with relatively high covenant protection. We then further stratify this sub-sample by measures of the severity of financial constraints (Panel A) and of the bargaining power of bondholders in renegotiation or bankruptcy (Panel B). In Panel A we report results for two measures of the severity of financial constraints: firm cash asset holdings (first and second columns) and free cash flows (third and fourth columns). We find that, even within relatively high covenant protection firms, lagged leverage has a negative and statistically significant coefficient only if cash holdings and free cash flows are relatively low (below mean). In Panel B we report results for two measures of the bargaining power of bondholders in renegotiation or bankruptcy, based on Davydenko and Strebulaev (2004): the number of public bond issues outstanding (first and second columns) and the Herfindhal Index of public bond issues outstanding (third and fourth columns). Davydenko and Strebulaev (2004) argue that, due to free-rider issues, multiple creditors are less able to enforce their rights in case of bankruptcy or renegotiation triggered by covenant violation. Consistent with this intuition we find that the negative effect of leverage on employment for high covenant firms is concentrated within the sub-sample of firms with relatively simpler debt structures (fewer and more similar bonds).

Table 9 explores the robustness of our results to a variety of alternative specifications. In particular, in Panel A we verify that our results are robust to including Tobin's Q, a measure of firm growth opportunities, in our specification (first and second columns); and to including a measure of debt maturity (third and fourth columns). These two additional specifications address the important concern that, as emphasized by Billett, King, and Mauer (2007) and as shown by our discussion of the correlation table (Panel B) in Table 5, leverage, growth opportunities, and debt maturity are best thought as jointly determined variables. Panel B of Table 9 verifies the robustness of our results to using book leverage instead of market leverage (first and second columns), using a measure of inside financing (cash flow) rather than leverage (third and fourth columns), and, finally, to using a value-weighted average covenant index rather than an equally weighted index (fifth and sixth columns). Overall, these results provide strong support for the Jensen (1986) conjecture that creditor rights increase employment risk by strengthening the disciplinary role of debt.

# 4 Conclusion

This paper shows that stronger creditor rights increase employment risk. We consider both the effects of ex post loan covenant violations and the ex ante disciplinary role of bond debt covenants. We document reliable evidence that both loan covenant violations and bond covenant protection have significant adverse effects on employment risk. In particular, in response to a loan covenant violation employment drops by approximately 8% to 12% per year and in response to a one standard deviation increase in leverage it drops by 5.6%, but only for firms with relatively high bond covenant protection. Ours is the first direct evidence that there are conflicts of interest between creditors and other stakeholders with priority claims, since credit contracts between debtholders

and shareholders have spillover effects on parties that are not directly subject to credit contracts, in this case employees. In addition, our evidence shows that the real effects of financial contracting are operative even before debt default or bankruptcy, which suggests that debtholders do not wait until a firm enters distress to exercise influence.

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## Appendix A: Variable Definitions

The variables used in this paper are extracted from four major data sources: Fixed Investment Securities Database (FISD), Loan Pricing Corporation's (LPC) Dealscan database, COMPUSTAT, and CRSP. For each data item, we indicate the relevant source in square brackets. The specific variables used in the analysis are defined as follows:

- Bond Covenants [FISD] (see Billett, King, and Mauer (2007) for additional details):
  - Covenant Index is the sum of the firm's 15 covenant indicator variables, where covenant indicator variables are equal to one if any of the firm's outstanding debt issues have a given covenant.
  - Weighted Covenant Index is the weighted sum of the firm's 15 covenant indicator variables, with each covenant indicator variable is weighted by the ratio of the debt issue's amount outstanding to the total amount outstanding.
  - Payout Covenants is the sum of the firm's two payout-specific covenant indicator variables scaled by two.
  - Financing Covenants the sum of the firm's seven financing-specific covenant indicator variables scaled by seven.
- Loan Covenants [Dealscan]:
  - NW is the net worth covenant threshold
  - CR is the current ratio covenant threshold
- Outcome measures:
  - ((Log) Employment is defined as the log of the total number of employees (item 29). [Compustat]
  - Decline in employment (Compustat) is defined as percent decline in employment from previous year (left-censored at zero). As in Hanka (1998), this measure only includes employment reductions. [Compustat]
  - Decline in employment (Compustat and layoffs) is defined as percent decline in employment from previous year (left-censored at zero). As in Hanka (1998), this measure only includes employment reductions. This measure complements Compustat data with information on 1708 hand-collected layoff announcements from Wall Street Journal and other major news sources (obtained from Factiva and Lexis Nexis news searches).
- Controls:
  - Size is log of the book value of assets (item 6), deflated by CPI in 1990. [Compustat]
  - Total Wages is the log of total labor expenses (item 42), deflated by CPI in 1990. [Compustat]

- Leverage is defined as long term debt (item 9) plus debt in current liabilities (item 34) over the sum of long term debt (item 9) plus debt in current liabilities (item 34) plus market value of equity (item 25*item199). [Compustat]
- R&D is the ratio of R&D expenditures (item 46, or 0 is missing) over lagged sales (item 12). [Compustat]
- Advertising is the ratio of advertising expenditures (item 45, or 0 if missing) over lagged total sales (item 12). [Compustat]
- Cash Holdings is defined as the ratio of cash holdings (item 1) to total assets (item 6). [Compustat]
- Free Cashflow is defined as the ratio to total assets (item 6) of operating income before depreciation (item 13) less interest expense (item 15) and income taxes (item 16) and capital expenditures (item 128). [Compustat]
- Tobin's Q is defined as the market value of assets divided by the book value of assets (item 6), where the market value of assets equals the book value of assets plus the market value of common equity less the sum of the book value of common equity (item 60) and balance sheet deferred taxes (item 74). [Compustat]
- Debt Maturity is defined as the fraction of a firm's total debt that matures in three years or less. [Compustat]
- Investment is capital expenditures (item 128) over net property, plant and equipment at the beginning of the fiscal year (item 8). [Compustat]
- Return on assets (ROA) is the ratio of operating income after depreciation (item 178) over lagged total assets (item 6). [Compustat]
- Current Ratio is the ratio of current assets to current liabilities. [Compustat]
- Net Worth is total assets minus total liabilities. [Compustat]
- Tangible Net Worth is defined as current assets plus net physical plant, property, and equipment plus other assets minus total liabilities. [Compustat]
- Cash Flow is defined as the ratio of income before extraordinary items plus depreciation and amortization over the ratio of net property, plant and equipment at the beginning of the fiscal year to total assets. [Compustat]
- Altman's Z-Score is the sum of 3.3 times pre-tax income, sales, 1.4 times retained earnings, and 1.2 times net working capital all divided by total assets. [Compustat]
- Accruals TWW and Accruals DD are as defined in Chava and Roberts (2008). [Compustat]

Table 1: Bank Covenant Sample: Summary Statistics

The sample consists of 4986 firm-year observations from the Dealscan database corresponding to loans containing a covenant that restricts its current ratio or net worth to lie above a certain threshold. Definitions for all variables are in Appendix A.

| | Dealscan-Compustat | | Other Compustat | |
|---|---|---|---|---|
| | Mean | Median | Mean | Median |
| *Main Financial Characteristics* | | | | |
| Leverage | 0.26 | 0.20 | 0.23 | 0.21 |
| Cash Flow | 0.06 | 0.09 | -0.21 | 0.05 |
| Net Worth | 622 | 130 | 488 | 31 |
| Tangible Net Worth | 228 | 56 | 136 | 11 |
| Current Ratio | 1.91 | 2.42 | 3.45 | 1.74 |
| Bind | 0.16 | 0 | | |
| *Employment Characteristics* | | | | |
| Employees (000) | 8.21 | 1.59 | 5.11 | 0.40 |
| Decline in Employment (%, left censored at zero) [Compustat] | 5.20 | 0 | 5.30 | 0 |
| Decline in Employment (%, left censored at zero) [Compustat and hand-collected layoffs] | 5.32 | 0 | 5.36 | 0 |
| Labor Costs ($000 per employee) | 45.92 | 45.35 | 58.34 | 43.00 |
| *Other Firm Characteristics* | | | | |
| Tobin's Q | 1.94 | 1.36 | 1.89 | 1.41 |
| ROA | 0.04 | 0.07 | 0.03 | 0.07 |
| Size (Sales $M) | 1689 | 321 | 1007 | 60 |
| Investment/Capital | 0.06 | 0.04 | 0.07 | 0.04 |

Table 2: Bank Covenant Violations and Employment

This table presents regression results of log employment on a covenant violation measure ("Bind") and controls. The dependent variable in Column (0) is the ratio of capital expenditures to assets at the start of the period, to ensure comparability of samples to Chava and Roberts (2008). In all remaining columns, the dependent variable is log employment. All variable definitions are in the Appendix. All independent variables, except cash flow, are lagged one year. Panel A presents the results for the entire sample. Panel B only uses firm-year observations in which firm is close to violating the covenant, defined as a narrow range (±20%) around the covenant threshold ("Discontinuity sample"). All specifications include both firm and year fixed effects. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Panel A: Entire Sample

| | Investment | Log(Employment) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (0) | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Lag Log(Employment) | | 0.617*** | 0.587*** | 0.589*** | 0.606*** | 0.606*** | 0.605*** | 0.601*** |
| | | (0.044) | (0.057) | (0.057) | (0.057) | (0.057) | (0.057) | (0.057) |
| Bind | -0.011*** | -0.125*** | -0.124*** | -0.124*** | -0.120*** | -0.122*** | -0.118*** | -0.098*** |
| | (0.002) | (0.026) | (0.026) | (0.026) | (0.026) | (0.026) | (0.026) | (0.026) |
| Log(Assets) | | | 0.048 | 0.047 | 0.036 | 0.038 | 0.039 | 0.039 |
| | | | (0.033) | (0.033) | (0.033) | (0.032) | (0.032) | (0.032) |
| Total Wages | | | | 0.006 | 0.008 | 0.008 | 0.008 | 0.007 |
| | | | | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Lag Cash Flow | | | | | 0.023** | 0.006 | -0.004 | -0.003 |
| | | | | | (0.010) | (0.011) | (0.009) | (0.009) |
| Cash Flow | | | | | | 0.053 | 0.020 | 0.024 |
| | | | | | | (0.033) | (0.063) | (0.064) |
| ROA | | | | | | | 0.061 | 0.054 |
| | | | | | | | (0.071) | (0.071) |
| Default Distance (NW) | | | | | | | | 0.033** |
| | | | | | | | | (0.014) |
| Default Distance (CR) | | | | | | | | 0.010 |
| | | | | | | | | (0.007) |
| Intercept | 0.090*** | 0.164*** | -0.402 | -0.394 | -0.330 | -0.355 | -0.367 | -0.382 |
| | (0.009) | (0.057) | (0.444) | (0.448) | (0.436) | (0.435) | (0.433) | (0.435) |
| Firm Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,986 | 4,934 | 4,923 | 4,923 | 4,907 | 4,904 | 4,904 | 4,904 |

Panel B: Discontinuity Sample

| | Log(Employment) | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Lag Log(Employment) | 0.518*** | 0.459*** | 0.466*** | 0.467*** | 0.457*** | 0.461*** |
| | (0.112) | (0.129) | (0.125) | (0.126) | (0.123) | (0.117) |
| Bind | -0.079*** | -0.077*** | -0.079*** | -0.078*** | -0.082*** | -0.085*** |
| | (0.029) | (0.029) | (0.029) | (0.029) | (0.029) | (0.030) |
| Log(Assets) | | 0.103* | 0.100* | 0.097 | 0.106* | 0.102* |
| | | (0.061) | (0.060) | (0.062) | (0.062) | (0.058) |
| Total Wages | | | 0.022 | 0.022 | 0.026* | 0.026* |
| | | | (0.015) | (0.015) | (0.015) | (0.015) |
| Lag Cash Flow | | | | 0.018 | 0.064 | 0.079 |
| | | | | (0.066) | (0.083) | (0.088) |
| Cash Flow | | | | | 0.303** | 0.343** |
| | | | | | (0.137) | (0.153) |
| ROA | | | | | | -0.098 |
| | | | | | | (0.221) |
| Intercept | 0.378*** | -1.003 | -0.954 | -0.919 | -1.077 | -1.019 |
| | (0.110) | (0.806) | (0.785) | (0.819) | (0.822) | (0.760) |
| Firm Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 1,952 | 1,949 | 1,949 | 1,945 | 1,944 | 1,944 |

Table 3: Bank Covenant Violations and Employment Risk

This table presents regression results of employment declines on a covenant violation measure ("Bind") and controls. The dependent variable in Columns (1) -(3) is percent decline in employment, based on Compustat data only. The dependent variable in Columns (4) -(6) is percent decline in employment, based on Compustat data combined with hand-collected layoff data. All variable definitions are in the Appendix. All independent variables, except cash flow, are lagged one year. Panel A presents the results for the entire sample. Panel B only uses firm-year observations in which firm is close to violating the covenant, defined as a narrow range (±20%) around the covenant threshold ("Discontinuity sample"). All specifications include both firm and year fixed effects. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Panel A: Entire Sample

| | % Employment Drop [Compustat] | | | % Employment Drop [Compustat & Layoffs] | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Bind | 0.069*** | 0.070*** | 0.070*** | 0.070*** | 0.072*** | 0.071*** |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Log(Assets) | | 0.037*** | 0.037*** | | 0.037*** | 0.038*** |
| | | (0.007) | (0.007) | | (0.007) | (0.007) |
| Total Wages | | -0.008** | -0.008** | | -0.009** | -0.009** |
| | | (0.004) | (0.004) | | (0.004) | (0.004) |
| Lag Cash Flow | | -0.003 | -0.003 | | -0.003 | -0.003 |
| | | (0.004) | (0.004) | | (0.005) | (0.005) |
| Cash Flow | | -0.008 | -0.009 | | -0.010 | -0.011 |
| | | (0.014) | (0.014) | | (0.014) | (0.014) |
| ROA | | -0.016 | -0.015 | | -0.014 | -0.012 |
| | | (0.019) | (0.019) | | (0.019) | (0.019) |
| Default Distance (NW) | | | -0.002 | | | -0.003 |
| | | | (0.005) | | | (0.005) |
| Default Distance (CR) | | | -0.004 | | | -0.004 |
| | | | (0.004) | | | (0.003) |
| Intercept | 0.033*** | -0.507*** | -0.506*** | 0.033*** | -0.508*** | -0.508*** |
| | (0.009) | (0.099) | (0.100) | (0.009) | (0.099) | (0.101) |
| Firm Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4,664 | 4,582 | 4,582 | 4,664 | 4,582 | 4,582 |

Panel B: Discontinuity Sample

| | % Employment Drop [Compustat] | | % Employment Drop [Compustat & Layoffs] | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Bind | 0.047*** | 0.046*** | 0.048*** | 0.046*** |
| | (0.012) | (0.012) | (0.012) | (0.012) |
| Log(Assets) | | 0.054*** | | 0.053*** |
| | | (0.012) | | (0.012) |
| Total Wages | | -0.016*** | | -0.016*** |
| | | (0.006) | | (0.006) |
| Lag Cash Flow | | -0.008* | | -0.008* |
| | | (0.005) | | (0.005) |
| Cash Flow | | -0.038 | | -0.038 |
| | | (0.037) | | (0.036) |
| ROA | | -0.002 | | -0.000 |
| | | (0.085) | | (0.084) |
| Intercept | 0.044** | -0.714*** | 0.044** | -0.706*** |
| | (0.018) | (0.176) | (0.018) | (0.172) |
| Firm Fixed Effects | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes |
| Observations | 1,869 | 1,827 | 1,869 | 1,827 |

Table 4: Bank Covenant Violations and Employment: Robustness

In this table, we check for robustness of our main result in Table 7. The dependent variable is log employment. All variable definitions are in the Appendix. In addition to the set of controls in Table 7, Column (1) controls for market leverage, Column (2) controls for Tobin's Q, Column (3) controls for Altman's Z-score, and Column (4) controls for discretionary accruals. All independent variables, except cash flow, are lagged one year. Panel A presents the results for the entire sample. Panel B only uses firm-year observations in which firm is close to violating the covenant, defined as a narrow range (±20%) around the covenant threshold ("Discontinuity sample"). All specifications include both firm and year fixed effects. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Panel A: Entire Sample

| | Log(Employment) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Lag Log(Employment) | 0.591*** | 0.586*** | 0.594*** | 0.578*** |
| | (0.059) | (0.059) | (0.061) | (0.060) |
| Bind | -0.118*** | -0.118*** | -0.119*** | -0.117*** |
| | (0.027) | (0.027) | (0.028) | (0.026) |
| Log(Assets) | 0.074** | 0.073** | 0.075** | 0.087** |
| | (0.034) | (0.034) | (0.035) | (0.036) |
| Total Wages | 0.006 | 0.006 | 0.006 | 0.005 |
| | (0.010) | (0.010) | (0.011) | (0.011) |
| Lag Cash Flow | -0.009 | 0.010 | -0.006 | -0.084* |
| | (0.013) | (0.046) | (0.034) | (0.043) |
| Cash Flow | 0.017 | 0.029 | 0.014 | 0.036 |
| | (0.057) | (0.085) | (0.060) | (0.050) |
| ROA | 0.070 | 0.091 | 0.077 | -0.019 |
| | (0.069) | (0.058) | (0.072) | (0.094) |
| Tobin's Q | 0.131*** | 0.130*** | 0.130*** | 0.134*** |
| | (0.019) | (0.022) | (0.021) | (0.019) |
| Leverage | | 0.016 | | |
| | | (0.031) | | |
| Z-Score | | | -0.000 | |
| | | | (0.004) | |
| Accruals TWW | | | | 0.091 |
| | | | | (0.066) |
| Accruals DD | | | | 0.090** |
| | | | | (0.045) |
| Intercept | -0.957** | -0.957** | -0.957** | -1.111** |
| | (0.464) | (0.469) | (0.474) | (0.485) |
| Firm Fixed Effects | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes |
| Observations | 4,611 | 4,594 | 4,497 | 4,500 |

Panel B: Discontinuity Sample

| | Log(Employment) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| Lag Log(Employment) | 0.456*** | 0.463*** | 0.455*** | 0.462*** |
| | (0.120) | (0.121) | (0.120) | (0.116) |
| Bind | -0.095*** | -0.076** | -0.092*** | -0.092*** |
| | (0.031) | (0.031) | (0.030) | (0.029) |
| Log(Assets) | 0.116* | 0.122** | 0.116** | 0.117* |
| | (0.060) | (0.060) | (0.059) | (0.062) |
| Total Wages | 0.026 | 0.024 | 0.025 | 0.025 |
| | (0.017) | (0.017) | (0.017) | (0.017) |
| Lag Cash Flow | 0.056 | 0.043 | 0.058 | 0.094 |
| | (0.087) | (0.081) | (0.088) | (0.075) |
| Cash Flow | 0.333** | 0.356** | 0.321** | 0.333** |
| | (0.148) | (0.143) | (0.133) | (0.145) |
| ROA | -0.126 | -0.173 | -0.150 | -0.302 |
| | (0.226) | (0.222) | (0.311) | (0.359) |
| Tobin's Q | 0.065 | 0.063 | 0.066 | 0.071 |
| | (0.044) | (0.043) | (0.044) | (0.046) |
| Leverage | | -0.220* | | |
| | | (0.124) | | |
| Z-Score | | | 0.003 | |
| | | | (0.020) | |
| Accruals TWW | | | | 0.160 |
| | | | | (0.203) |
| Accruals DD | | | | -0.070 |
| | | | | (0.073) |
| Intercept | -1.331* | -1.356* | -1.323* | -1.326* |
| | (0.778) | (0.776) | (0.752) | (0.789) |
| Firm Fixed Effects | Yes | Yes | Yes | Yes |
| Year Fixed Effects | Yes | Yes | Yes | Yes |
| Observations | 1,866 | 1,865 | 1,853 | 1,853 |

Table 5: Bond Covenant Sample: Summary Statistics

The sample consists of 1918 firms from FISD database in the 1990 to 2007 period. Definitions for all variables are in Appendix A.

Panel A: Summary Statistics

| | FISD-Compustat | | | All Other Compustat | |
|---|---|---|---|---|---|
| | Mean | Median | Standard Deviation | Mean | Median |
| *Main Financial Characteristics* | | | | | |
| Leverage | 0.36 | 0.34 | 0.25 | 0.23 | 0.21 |
| Debt Maturity | 0.21 | 0.14 | 0.24 | 0.47 | 0.33 |
| Covenant Index | 5.10 | 5 | 2.08 | | |
| Weighted Covenant Index | 4.44 | 4 | 1.88 | | |
| *Employment Characteristics* | | | | | |
| Employees (000) | 19.5 | 4.8 | 58 | 3.8 | 0.4 |
| Labor Costs ($000 per employee) | 48 | 47 | 23.5 | 40 | 35 |
| *Firm Characteristics* | | | | | |
| Tobin's Q | 1.64 | 1.37 | 1.07 | 1.86 | 1.37 |
| Tangible Assets | 0.37 | 0.32 | 0.24 | 0.29 | 0.23 |
| Profitability | 0.12 | 0.12 | 0.11 | 0.05 | 0.11 |
| Size (Sales $M) | 3790 | 1047 | 8285 | 867 | 150 |

Panel B: Correlations

| | Leverage | Debt Maturity | Tobin's Q | Employees | Decline in Employment |
|---|---|---|---|---|---|
| Leverage | 1 | 0.01 | -0.44 | -0.11 | 0.17 |
| Covenant Index | 0.24 | -0.07 | -0.08 | -0.03 | 0.003 |
| Weighted Covenant Index | 0.24 | -0.05 | -0.07 | -0.10 | 0.004 |

Table 6: Dynamic Employment Regressions: High vs. Low Bond Covenant Protection Firms

This table reports dynamic employment regressions estimated with two-step GMM in first differences. The dependent variable is log employment. All variable definitions are in the Appendix. Column (1) reports results for all firms, columns (2) and (3) report results when the sample is split between firms with low (below sample mean) and high (above sample mean) values of the covenant index variable, respectively. Lagged variables dated t-3 and t-4 are used as instruments. Controls include log of total assets, total wages, and market leverage. Year dummies are included in all regressions. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. The statistics m1 and m2 test the null of no first- and second-order autocorrelation in the first-differenced residuals. Sargan is a test of the null that the overidentifying restrictions are valid. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

| | Entire Sample (1) | Low Covenants (2) | High Covenants (3) |
|---|---|---|---|
| $\text{Emp}_{t-1}$ | 0.932*** | 0.853*** | 0.935*** |
| | (0.021) | (0.052) | (0.023) |
| $\text{Emp}_{t-2}$ | -0.017 | -0.010 | -0.000 |
| | (0.015) | (0.029) | (0.018) |
| $\text{Size}_t$ | 0.536*** | 0.485*** | 0.519*** |
| | (0.058) | (0.062) | (0.069) |
| $\text{Size}_{t-1}$ | -0.468*** | -0.345*** | -0.467*** |
| | (0.063) | (0.077) | (0.072) |
| $\text{Total Wages}_t$ | -0.046** | -0.103*** | -0.045** |
| | (0.018) | (0.033) | (0.018) |
| $\text{Total Wages}_{t-1}$ | 0.010 | 0.030 | 0.014 |
| | (0.012) | (0.026) | (0.013) |
| $\text{Leverage}_t$ | -0.086 | -0.008 | 0.021 |
| | (0.067) | (0.096) | (0.085) |
| $\text{Leverage}_{t-1}$ | -0.071 | -0.048 | -0.221*** |
| | (0.057) | (0.095) | (0.074) |
| m1 (p-value) | 0.000 | 0.000 | 0.000 |
| m2 (p-value) | 0.316 | 0.486 | 0.208 |
| Sargan (p-value) | 0.556 | 0.236 | 0.3667 |
| Observations | 11,324 | 4,998 | 6,326 |

Table 7: Dynamic Employment Regressions: Analysis of Finer Covenant Classes

This table reports dynamic employment regressions estimated with two-step GMM in first differences. The dependent variable is log employment. All variable definitions are in the Appendix. Columns (1) and (2) report results for firms with low (below sample mean) and high (above sample mean) number of covenants that restrict payout activities. Columns (3) and (4) report results for firms with low (below sample mean) and high (above sample mean) number of covenants that restrict financing activities. Lagged variables dated t-3 and t-4 are used as instruments. Controls include log of total assets, total wages, and market leverage. Year dummies are included in all regressions. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. The statistics m1 and m2 test the null of no first- and second-order autocorrelation in the first-differenced residuals. Sargan is a test of the null that the overidentifying restrictions are valid. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

| | Payout Covenants | | Financing Covenants | |
|---|---|---|---|---|
| | Low | High | Low | High |
| | (1) | (2) | (3) | (4) |
| $Emp_{t-1}$ | 0.924*** | 0.947*** | 0.880*** | 0.969*** |
| | (0.031) | (0.031) | (0.040) | (0.023) |
| $Emp_{t-2}$ | -0.013 | -0.005 | -0.009 | -0.003 |
| | (0.017) | (0.022) | (0.022) | (0.020) |
| $Size_t$ | 0.563*** | 0.541*** | 0.544*** | 0.600*** |
| | (0.067) | (0.053) | (0.063) | (0.066) |
| $Size_{t-1}$ | -0.489*** | -0.479*** | -0.415*** | -0.580*** |
| | (0.077) | (0.054) | (0.077) | (0.068) |
| Total $Wages_t$ | -0.039 | -0.050** | -0.114*** | -0.030* |
| | (0.024) | (0.024) | (0.031) | (0.016) |
| Total $Wages_{t-1}$ | 0.005 | 0.025 | 0.046* | 0.017 |
| | (0.015) | (0.020) | (0.024) | (0.011) |
| $Leverage_t$ | -0.110 | 0.017 | -0.093 | 0.057 |
| | (0.145) | (0.077) | (0.082) | (0.083) |
| $Leverage_{t-1}$ | 0.022 | -0.169** | 0.029 | -0.153* |
| | (0.129) | (0.071) | (0.086) | (0.082) |
| m1 (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| m2 (p-value) | 0.380 | 0.222 | 0.903 | 0.584 |
| Sargan (p-value) | 0.248 | 0.596 | 0.658 | 0.290 |
| Observations | 7,887 | 4,030 | 5,762 | 6,155 |

Table 8: Dynamic Employment Regressions: High Bond Covenant Protection Firms with High vs. Low Cost of Debt

This table reports dynamic employment regressions estimated with two-step GMM in first differences for firms with high (above sample mean) values of the covenant index. The dependent variable is log employment. All variable definitions are in the Appendix. Panel A reports results for firms with low (below sample mean) and high (above sample mean) values of cash holdings (Columns (1) and (2)) and free cash flows (Columns (3) and (4)), respectively. Panel B reports results for firms with low (below sample mean) and high (above sample mean) number (Columns (1) and (2)) and concentration (Columns (3) and (4)) of bonds outstanding, respectively. Lagged variables dated t-3 and t-4 are used as instruments. Controls include log of total assets, total wages, and market leverage. Year dummies are included in all regressions. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. The statistics m1 and m2 test the null of no first- and second-order autocorrelation in the first-differenced residuals. Sargan is a test of the null that the overidentifying restrictions are valid. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Panel A: Cash Holdings and Free Cash Flows

| | Cash Holdings | | Free Cash Flows | |
|---|---|---|---|---|
| | Low | High | Low | High |
| | (1) | (2) | (3) | (4) |
| $Emp_{t-1}$ | 0.970*** | 0.855*** | 0.912*** | 0.991*** |
| | (0.036) | (0.330) | (0.032) | (0.024) |
| $Emp_{t-2}$ | 0.006 | -0.045 | 0.026 | -0.018 |
| | (0.030) | (0.353) | (0.025) | (0.021) |
| $Size_t$ | 0.637*** | 0.598 | 0.518*** | 0.584*** |
| | (0.067) | (0.853) | (0.077) | (0.074) |
| $Size_{t-1}$ | -0.596*** | -0.398 | -0.428*** | -0.578*** |
| | (0.064) | (0.860) | (0.079) | (0.076) |
| Total $Wages_t$ | -0.060*** | -0.204 | -0.057** | -0.024 |
| | (0.019) | (0.402) | (0.027) | (0.015) |
| Total $Wages_{t-1}$ | 0.034* | 0.145 | 0.015 | 0.017 |
| | (0.019) | (0.440) | (0.025) | (0.012) |
| $Leverage_t$ | 0.047 | -0.036 | 0.161 | -0.141 |
| | (0.101) | (1.199) | (0.108) | (0.100) |
| $Leverage_{t-1}$ | -0.263** | -0.022 | -0.293*** | -0.032 |
| | (0.106) | (0.699) | (0.090) | (0.098) |
| m1 (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| m2 (p-value) | 0.256 | 0.501 | 0.207 | 0.439 |
| Sargan (p-value) | 0.336 | 0.661 | 0.369 | 0.316 |
| Observations | 2,166 | 2,016 | 1,809 | 2,116 |

Panel B: Renegotiation Costs and Debtholder Bargaining Power in Bankruptcy

| | Number of Bonds | | Herfindhal of Bonds | |
|---|---|---|---|---|
| | Low | High | Low | High |
| | (1) | (2) | (3) | (4) |
| $\text{Emp}_{t-1}$ | 0.944*** | 0.967*** | 0.983 | 0.936*** |
| | (0.034) | (0.026) | (1.139) | (0.027) |
| $\text{Emp}_{t-2}$ | -0.014 | -0.005 | -0.018 | -0.007 |
| | (0.029) | (0.021) | (1.334) | (0.021) |
| $\text{Size}_t$ | 0.448*** | 0.653*** | 0.610 | 0.488*** |
| | (0.063) | (0.068) | (1.463) | (0.063) |
| $\text{Size}_{t-1}$ | -0.371*** | -0.609*** | -0.571 | -0.435*** |
| | (0.071) | (0.069) | (1.114) | (0.067) |
| $\text{Total Wages}_t$ | -0.047** | -0.064*** | -0.037 | -0.030 |
| | (0.021) | (0.020) | (0.076) | (0.021) |
| $\text{Total Wages}_{t-1}$ | 0.014 | 0.043*** | 0.033 | 0.008 |
| | (0.018) | (0.017) | (0.022) | (0.016) |
| $\text{Leverage}_t$ | 0.143 | -0.127* | -0.096 | 0.130 |
| | (0.112) | (0.075) | (1.095) | (0.097) |
| $\text{Leverage}_{t-1}$ | -0.350*** | -0.093 | -0.091 | -0.312*** |
| | (0.107) | (0.081) | (0.358) | (0.084) |
| m1 (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| m2 (p-value) | 0.279 | 0.548 | 0.299 | 0.320 |
| Sargan (p-value) | 0.551 | 0.484 | 0.371 | 0.698 |
| Observations | 1,881 | 2,064 | 2,006 | 2,320 |

Table 9: Dynamic Employment Regressions and Bond Covenants: Robustness

In this table, we check for robustness of our main result from dynamic employment regressions in Table 2. The dependent variable is log employment. All variable definitions are in the Appendix. Panel A includes controls for Tobin's Q (Columns (1) and (2)) and debt maturity (Columns (3) and (4)). In Panel B, we use book, instead of market, leverage (Columns (1) and (2)), control for cash flow (Columns (3) and (4)), and use value-weighted instead of equal-weighted index of covenants (Columns (5) and (6)). Lagged variables dated t-3 and t-4 are used as instruments. Other controls include log of total assets, total wages, and the ratio of long-term debt to assets. Year dummies are included in all regressions. Standard errors robust to heteroskedasticity and within-firm serial correlation appear below point estimates. The statistics m1 and m2 test the null of no first- and second-order autocorrelation in the first-differenced residuals. Sargan is a test of the null that the overidentifying restrictions are valid. Levels of significance are indicated by *, **, and *** for 10%, 5%, and 1% respectively.

Panel A

| | Include Growth Opportunities | | Include Debt Maturity | |
|---|---|---|---|---|
| | Low Covenants | High Covenants | Low Covenants | High Covenants |
| | (1) | (2) | (3) | (4) |
| $Emp_{t-1}$ | 0.907*** | 0.936*** | 0.960*** | 0.920*** |
| | (0.038) | (0.023) | (0.029) | (0.024) |
| $Emp_{t-2}$ | -0.040* | 0.010 | -0.053** | 0.028* |
| | (0.022) | (0.017) | (0.023) | (0.017) |
| $Size_t$ | 0.486*** | 0.593*** | 0.539*** | 0.654*** |
| | (0.066) | (0.059) | (0.052) | (0.055) |
| $Size_{t-1}$ | -0.363*** | -0.545*** | -0.462*** | -0.592*** |
| | (0.078) | (0.060) | (0.059) | (0.058) |
| Total $Wages_t$ | -0.088*** | -0.039** | -0.071*** | -0.078*** |
| | (0.033) | (0.018) | (0.020) | (0.020) |
| Total $Wages_{t-1}$ | 0.026 | 0.013 | 0.029 | 0.049*** |
| | (0.021) | (0.013) | (0.018) | (0.016) |
| $Leverage_t$ | 0.144 | 0.069 | 0.173 | 0.076 |
| | (0.118) | (0.098) | (0.109) | (0.095) |
| $Leverage_{t-1}$ | -0.083 | -0.209** | 0.041 | -0.187** |
| | (0.119) | (0.085) | (0.106) | (0.088) |
| Tobin's $Q_t$ | 0.108** | 0.032 | -0.007 | 0.008 |
| | (0.049) | (0.061) | (0.046) | (0.064) |
| Tobin's $Q_{t-1}$ | -0.045 | -0.019 | -0.020 | 0.014 |
| | (0.040) | (0.047) | (0.041) | (0.053) |
| Debt $Maturity_t$ | | | 0.009 | -0.076* |
| | | | (0.044) | (0.043) |
| Debt $Maturity_{t-1}$ | | | -0.014 | 0.027 |
| | | | (0.035) | (0.028) |
| m1 (p-value) | 0.000 | 0.000 | 0.000 | 0.000 |
| m2 (p-value) | 0.785 | 0.580 | 0.352 | 0.887 |
| Sargan (p-value) | 0.316 | 0.500 | 0.495 | 0.278 |
| Observations | 4,090 | 5,728 | 3,022 | 4,616 |

Panel B

| | Book Leverage | | Inside Financing | | Weighted Average Index | |
|---|---|---|---|---|---|---|
| | Low Cov | High Cov | Low Cov | High Cov | Low Cov | High Cov |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $Emp_{t-1}$ | 0.919*** | 0.963*** | 0.944*** | 0.941*** | 0.845*** | 0.952*** |
| | (0.057) | (0.024) | (0.053) | (0.024) | (0.063) | (0.025) |
| $Emp_{t-2}$ | -0.056* | -0.028 | -0.043 | -0.004 | -0.001 | -0.011 |
| | (0.029) | (0.020) | (0.027) | (0.020) | (0.031) | (0.018) |
| $Size_t$ | 0.427*** | 0.563*** | 0.549*** | 0.597*** | 0.431*** | 0.530*** |
| | (0.068) | (0.062) | (0.071) | (0.059) | (0.063) | (0.055) |
| $Size_{t-1}$ | -0.318*** | -0.518*** | -0.491*** | -0.534*** | -0.282*** | -0.493*** |
| | (0.090) | (0.071) | (0.088) | (0.062) | (0.088) | (0.054) |
| Total $Wages_t$ | -0.072** | -0.025 | -0.045** | -0.056*** | -0.110** | -0.033 |
| | (0.028) | (0.021) | (0.020) | (0.017) | (0.045) | (0.022) |
| Total $Wages_{t-1}$ | 0.033 | 0.015 | 0.016 | 0.023* | 0.029 | 0.016 |
| | (0.023) | (0.014) | (0.019) | (0.012) | (0.031) | (0.016) |
| $Leverage_t$ | 0.162 | 0.096 | | | -0.086 | 0.034 |
| | (0.129) | (0.069) | | | (0.127) | (0.085) |
| $Leverage_{t-1}$ | -0.014 | -0.156** | | | -0.017 | -0.247*** |
| | (0.022) | (0.063) | | | (0.126) | (0.078) |
| Cash $Flow_t$ | | | 0.010 | -0.005 | | |
| | | | (0.012) | (0.013) | | |
| Cash $Flow_{t-1}$ | | | 0.003 | 0.023** | | |
| | | | (0.006) | (0.011) | | |
| m1 (p-value) | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| m2 (p-value) | 0.534 | 0.870 | 0.3546 | 0.680 | 0.565 | 0.326 |
| Sargan (p-value) | 0.231 | 0.260 | 0.432 | 0.301 | 0.292 | 0.365 |
| Observations | 5,030 | 6,549 | 5,584 | 7,318 | 4,111 | 5,280 |