

# The Role of Government in the Labor-Creditor Relationship: Evidence from the Chrysler Bankruptcy

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# The Role of Government in the Labor-Creditor Relationship: Evidence from the Chrysler Bankruptcy

## **Abstract**

We examine the role of government in the labor-creditor relationship using the case of the Chrysler bankruptcy. As a result of the government intervention, firms in more unionized industries experienced lower event-window abnormal bond returns, higher abnormal bond yields, and lower cumulative abnormal bond returns. The results are stronger for firms closer to distress. We also observe the effect in firms in which labor bargaining power is stronger and those with larger pension liabilities. Overall, the results underline the importance of government as a significant force in shaping the agency conflict between creditors and workers.

## **I. Introduction**

An extensive literature explores how agency conflicts affect contracting relationships between various firm stakeholders. For example, Jensen and Meckling (1976) argue that shareholders have incentives to make risky investments that increase the value of equity, but this is done at the expense of debtholders. Subsequent literature examines how other managerial actions can transfer wealth from debtholders to shareholders (see Shleifer and Vishny (1997) for a survey of the corporate governance literature) and how bondholders consider the incentive structures of top management in the prices of new bonds (Ortiz-Molina (2006)). Chen, Kacperczyk, and Ortiz-Molina (2012) examine how powerful nonfinancial stakeholders (unions) can affect the contracting relationship and agency conflicts between equity and debt. Like debtholders, labor has strong incentives to keep a firm solvent because workers have substantial human capital invested in the firm. Consequently, Chen et al. (2012) find that firms with a strong union presence have lower borrowing costs *ceteris paribus*.

Prior research examines contracting relationships between various stakeholders and the firm in settings (typically the U.S.) that are viewed as having stable legal environments. However, this research ignores the effect that the Government can have on these contracting relationships. Our paper examines how the contracting relationships between stakeholders can shift if there is a perceived change in the legal environment caused by government intervention. This is an important issue because the Government can influence the contracting environment when it has an interest in preferentially helping one stakeholder over others.

During the financial crisis of 2008, the U.S. Government became involved in the reorganization process of distressed non-financial firms such as Chrysler LLC (Chrysler) and

General Motors (GM).<sup>1</sup> Given the state of the economy, the Government was concerned about the consequences in the auto sector if Chrysler was liquidated. Consequently, the Government became involved in Chrysler's bankruptcy and orchestrated a sale of Chrysler's assets to "New Chrysler." Chrysler received a \$2 billion payment from New Chrysler in exchange for its assets and used these funds to pay secured creditors' claims of \$6.9 billion (payment of \$0.29 per dollar of secured liability). The United Auto Workers (UAW) Trust, an unsecured creditor with a \$10 billion claim for unfunded postemployment health care costs, received \$1.5 billion in cash, \$4.6 billion of unsecured debt, and a 55% equity stake in New Chrysler. At the time, the consensus in the popular press was that the Government's involvement in the bailout and reorganization and its support of the UAW were intended to preserve jobs.<sup>2</sup> While this intervention likely benefited labor and the auto sector in the U.S. more broadly, we hypothesize that the Government's intervention in the Chrysler bankruptcy harmed bondholders by unexpectedly weakening absolute priority rights in the bankruptcy proceedings. We hypothesize that the Government's intervention resulted in increased debt costs for firms with a strong labor presence because lenders of other firms perceived a weakening of their absolute priority rights or anticipated increased bargaining costs with labor in the event of distress.

We test for a change in the cost of debt for firms with a strong labor presence by examining changes in public bond prices and yields around the key events of the Government's intervention in the bankruptcy. We hypothesize that firms with similar key characteristics—high unionization of their workforce and unfunded post-employment benefits—that contributed to the

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<sup>1</sup> The Government played a similar role in the Chrysler and General Motors bankruptcies. We focus on the Chrysler bankruptcy because it occurred first. Consequently, we expect the market reaction to the Government's intervention in these bankruptcies occurred primarily around the key events in the Chrysler bankruptcy.

<sup>2</sup> We are unable to find an explicit quote from a Government official stating the reason for supporting the UAW.

intervention at Chrysler are most likely to experience an increase in the cost of debt if creditors perceive an increased risk of lending to firms with a strong labor presence.

We use several measures of the cost of debt. Our primary tests examine changes in public bond prices and yields in 3-day event windows surrounding key dates of the Government's intervention in the Chrysler bankruptcy. We find that more unionized firms experienced significant abnormal bond price declines and yield increases. We also find that the changes in bond prices and yields were strongest for distressed firms, consistent with bondholders being concerned about the Government's actions affecting their claims specifically in the event of bankruptcy. We obtain similar results using three alternative proxies for a strong labor presence (regulated utility firms, firms with a strike in the prior 6 years, and the absolute size of the pension obligation). Overall, our findings are consistent with the Government's intervention in the Chrysler bankruptcy increasing lenders' assessment of the risk of lending to firms with a strong labor presence, leading to a significant increase in borrowing costs for these firms.

We acknowledge that there were likely economic benefits from the Government's bailout of Chrysler that are not captured in our tests.<sup>3</sup> Our focus is on examining how Government intervention in the bankruptcy proceedings on behalf of labor affected the contracting relationship between other firms with a strong labor presence and their debtholders. The results of this study are intended to speak only to how one firm stakeholder (bondholders) reacted to a perceived change in the riskiness of their claims in these firms.

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<sup>3</sup> Concurrent research by Anginer and Warburton (2010) finds some (albeit mixed) evidence that bondholders of other firms reacted positively to the news that Chrysler would receive a government bailout prior to Chrysler's bankruptcy filing. Our paper differs from theirs in that we are only considering the events surrounding the actual bankruptcy (not the bailout) for which at least some bondholders perceived a change in the contracting environment because they believed that their absolute priority rights were violated.

Our findings contribute to the literature on the interaction between political and legal institutions and financial markets. Several studies find that creditor rights and political stability improve capital market efficiency and economic growth (La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997), (1998), Levine, Loayza, and Beck (2000), Wurgler (2000)), reduce the cost of debt (Qi, Roth, and Wald (2010)), improve judicial incentives (Gennaioli and Rossi (2010)), and reduce the cost of equity (Pastor and Veronesi (2012)).<sup>4</sup> The Chrysler bankruptcy provides a unique setting to test how a perceived change in the enforcement of creditor's rights affects the pricing of debt in a country with what were perceived to be generally strong creditor rights and strong legal enforcement of those rights.

This study also contributes to the growing literature on the interaction between organized labor and other stakeholders. Bronars and Deere (1991), Perotti and Spier (1993), Matsa (2010), and Klasa, Maxwell, and Ortiz-Molina (2009) document an association between capital structure (leverage and cash holdings) and interactions with organized labor. Chen, Kacperczyk, and Ortiz-Molina (2011) document a negative relation between the cost of equity and unionization. The study most closely related to the current paper is Chen et al. (2012). In contrast to our findings, Chen et al. (2012) document a significant positive association between unionization and the cost of debt. We extend this literature by examining the Chrysler bankruptcy in which the Government intervenes in the relationship between secured creditors and organized labor. This alters the association between unionization and borrowing costs previously documented by Chen et al. (2012). In the months leading up to the Chrysler bankruptcy, we find that firms with a strong union presence have lower bond yields, consistent with Chen et al. (2012). However, we

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<sup>4</sup> These studies have an international and cross-border focus, comparing the quality and types of institutions with gross domestic product, capital market development, firm value, governance, and the cost of debt.

hypothesize and document results consistent with an increase in the agency conflict between creditors and organized labor around the Chrysler bankruptcy that decreases the benefit of a strong union presence on firms' borrowing costs, particularly for distressed firms. Overall, we document evidence consistent with the Government playing an important and previously undocumented role in the financial contracting relationship between organized labor and other firm stakeholders.

Finally, we contribute to the literature on political economy and labor. Botero, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2004) find that the extent of labor regulation within countries is influenced by the political power held by the left. Pagano and Volpin (2005a), create a political economy model in which managers and workers join together to support political policies that strengthen labor rights at the expense of non-controlling (outside) shareholders. Pagano and Volpin (2005b) show that labor protection will be stronger in countries with proportional voting systems because workers and controlling shareholders have more homogenous preferences. Atanassov and Kim (2009) similarly find that managers in poor performing firms sell off assets to prevent layoffs (and increase favor with workers) in countries where investor protection is weak and labor protection is strong. Our study contributes to this line of work by showing how labor-friendly government policies can affect the relationship between workers and debtholders.

The remainder of the paper proceeds as follows. Section II develops our hypotheses. Section III discusses the institutional detail around the Chrysler bankruptcy. Section IV examines public bond market reactions to the key Chrysler bankruptcy events. Section V presents robustness tests and additional analysis. Finally, Section VI concludes.

## **II. Hypothesis Development**

Prior research on the interaction between governments and financial markets such as La Porta et al. (1997), (1998) focuses on the effects of legal institutions on financial markets. These studies take an international perspective and view the U.S. as having relatively strong legal institutions and creditor rights. This literature finds that having strong creditor rights and consistent enforcement of those rights enhances capital market efficiency. If lenders believed that the Government's involvement in the Chrysler bankruptcy and the bankruptcy plan's success in courts increased the riskiness of their secured claims in other firms with a strong labor presence, they would demand higher returns to compensate for the increased risk. In particular, lenders could be wary of a reduction in payment received in the event of financial distress and bankruptcy. Even absent future government intervention, bondholders could view the bankruptcy as an event likely to increase the probability of a costly disagreement between unsecured creditors, specifically unions, and other stakeholders when firms become distressed. This increased likelihood of disagreement could manifest in higher legal fees during a future bankruptcy settlement and result in lower net proceeds recovered by all creditors. The expected lower proceeds in a future bankruptcy would also increase the cost of borrowing for firms with a strong labor presence. These costs will be reflected in higher yields and lower prices on public bonds for similarly situated firms. In contrast, if bondholders viewed the Chrysler bankruptcy and reorganization process as being consistent with prior bankruptcy law, we should observe no increase in yields and no bond price reaction for other similarly situated firms around the Chrysler bankruptcy.

Given that the intervention occurred during the bankruptcy and reorganization process, it is likely that debtholders will be most concerned about weakened creditor rights when a firm is close to bankruptcy. Further, firms that are close to bankruptcy are most likely to have an



immediate need for secured financing to avoid bankruptcy since they are unlikely to obtain unsecured financing except on very costly terms. Consequently, an inability to obtain secured financing or the need to pay higher rates to obtain secured financing will lead to a more acute effect for distressed firms.

Because the Government intervened in the Chrysler bankruptcy and reorganization to benefit a specific unsecured creditor, the UAW, we hypothesize that highly unionized firms, particularly firms in financial distress, are more likely to face higher future financing costs due to the Chrysler bankruptcy. Formally, this leads to the following hypotheses:

*Hypothesis 1A: Relatively more unionized firms experienced an increase in the cost of debt around the Government's intervention in the Chrysler bankruptcy.*

*Hypothesis 1B: The increase in the cost of debt for relatively more unionized firms around the Government's intervention in the Chrysler bankruptcy is concentrated in firms in financial distress.*

The specific debt obligations held by the UAW are related to large unfunded post-employment benefit plans, for health care costs of current and past unionized Chrysler employees. The Government can become liable to fund the post-employment benefits for employees of bankrupt firms directly through the Pension Benefit Guaranty Corp (PBGC) and indirectly through Medicare and Medicaid. The Government may have intervened in the Chrysler bankruptcy to benefit the UAW due to the nature of the obligations owed by Chrysler to the UAW membership. In addition, employees can generally become creditors of their employer in one of two ways: the employer owes the employee wages for past work performed or the employer has an obligation to provide benefits such as a pension and health care during the employee's retirement. Significant outstanding obligations for wages payable are unlikely

because firms usually pay wages on a monthly (or more frequent) basis. As a result, post-employment benefit plans are likely the only mechanism through which a regular rank and file employee will become a substantial creditor of the firm. We hypothesize that firms with large unfunded post-employment benefit plans, particularly firms in financial distress, are more likely to face higher future financing costs due to the Chrysler bankruptcy. Formally, this leads to the following hypotheses:

*Hypothesis 2A: Firms with relatively large unfunded post-employment benefits experienced an increase in the cost of debt around the Government's intervention in the Chrysler bankruptcy.*

*Hypothesis 2B: The increase in the cost of debt for firms with relatively large unfunded post-employment benefits around the Government's intervention in the Chrysler bankruptcy is concentrated in firms in financial distress.*

### **III. The Chrysler Bankruptcy**

In this section, we describe events impacting the likelihood that the Chrysler bankruptcy would involve payments to an unsecured creditor, the UAW, without full payment to secured creditors. Our search includes the bankruptcy filing, the *New York Times*, the *Wall Street Journal*, LexisNexis, and Factiva. Our dates of interest relate to the terms of payment to various creditors, not the probability of bailout or other general economic information (see Table 1).<sup>5</sup>

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<sup>5</sup> We begin our event period at the time point when news about an agreement began to surface. As early as a month prior to the Chrysler bankruptcy, a task force of the Department of the Treasury determined that Chrysler was not viable as a stand-alone company (Isidore and Valdez-Dapena (2009)). Though an important date for Chrysler itself, this determination does not indicate a preference for unsecured creditors over secured creditors by the Government. Also, we do not include dates on which announcements were made regarding the availability of TARP funds to Chrysler, but with no information regarding priority deviations between secured and unsecured creditors.

The payout structure of the bankruptcy plan was primarily the result of negotiations between the Government and the UAW with the potential deal first being reported in the *New York Times* on Friday, April 17, 2009. An official agreement between the Government and the UAW was announced on Sunday, April 26, 2009 (Isidore (2009)). Chrysler's four principal bank creditors (JPMorgan, Morgan Stanley, Goldman Sachs, and Citigroup), which held nearly 70% of the value of Chrysler's secured debt, agreed to an offer that paid secured creditors \$2 billion for their \$6.9 billion claim with no debt or equity stake in New Chrysler (Bennett (2009)).<sup>6</sup>

Each of Chrysler's 46 secured creditors would need to agree to the deal for Chrysler to avoid formal bankruptcy proceedings. However, 20 of the secured creditors calling itself "the Committee of non-TARP Lenders," which held \$1 billion in secured claims and included several hedge and pension funds, rejected the deal (Blumer (2009)). Reuters reported that this group of creditors was "concerned that Government officials were acting to favor the union with a larger payout" despite the junior status of the union's unsecured claim (Krolicki and Crawley (2009)). Due to the lack of unanimous approval from creditors, Chrysler was unable to complete an out-of-court restructuring and filed for bankruptcy on April 30, 2009. Over the next week, the dissident lenders group shrunk from lenders holding \$1 billion to lenders holding \$295 million, with the majority of creditors ceasing their objections by May 8, 2009. Over the next month, the remaining creditors argued in U.S. Bankruptcy, District, and Circuit courts and ultimately in the Supreme Court that the structure of the Chrysler bankruptcy did not follow bankruptcy law and was even unconstitutional. The courts sided with Chrysler and the Government.

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<sup>6</sup> The Financial Times reported that the banks "accepted the offer under strong political pressure. Their ability to resist was weakened by the fact that all four were recipients of billions of dollars of taxpayers' money under [TARP]" (Simon (2009)).

[Insert Table 1 around here]

We note that all the event dates focus on whether the Chrysler reorganization would involve a significant payment by Chrysler to an unsecured creditor, the UAW, when secured creditors' claims would not be fully paid, and whether the courts would accept the payout structure agreed to by the Government and the UAW. None of the events provided information to the markets about the need for the Government to bail out Chrysler since the Government began providing funding to Chrysler months prior to our first event date in December 2008. Consequently, creditors' reactions to these events are specific to the payment structure of the Chrysler bankruptcy and to the courts' acceptance of this payment structure and are unlikely to reflect changes in investor beliefs about the need for a Chrysler bailout.

There is a debate in the law literature regarding the precedent set during the Chrysler bankruptcy. Some authors, such as Lubben (2009), argue that the bankruptcy involved a sale of assets under Section 363 of the bankruptcy code and was a non-event from a legal perspective. Others, such as Roe and Skeel (2009), argue that the asset sale was really a "sub rosa" reorganization that circumvented the creditor voting requirements of Section 1129 of the bankruptcy code. They argue that the asset sale favored politically powerful unsecured creditors and was enabled by the Government's pressure on secured creditors. Several critics of the bankruptcy plan argued that the Government's involvement in the Chrysler bankruptcy would have sweeping effects on capital markets and repercussions for the historical priority structure (Bullock (2009), Roe and Skeel (2009)).<sup>7</sup> Our tests examine the bond market reaction to the

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<sup>7</sup> See Warburton (2010) for a detailed discussion on the legal issues surrounding the Chrysler bankruptcy. The legal debate is essentially over the substance versus the form of the transaction. Secured creditors' claims were not fully paid even though unsecured creditors received a cash payment, debt, and equity in the new company. Our study

Government's intervention and consequently reflect the views of creditors on the precedent set in the Chrysler bankruptcy.

#### **IV. Publicly Traded Bonds**

We begin our empirical analysis by examining short window changes in bond prices and yields for similarly situated firms around key Chrysler bankruptcy event dates. We utilize this methodology to obtain the most direct measure of the change in the cost of debt in a tight window around the key events of the Chrysler bankruptcy. This proxy for the cost of debt mitigates some concerns that any observed change in the cost of borrowing could be due to other firm-specific or macroeconomic news.<sup>8</sup>

##### *A. Data*

We perform short window event tests around the dates presented in Table 1. We predict that all of the identified events increased investors' perceived likelihood of a preferential payment to an unsecured creditor (the UAW).

The sample consists of all firms with bond returns from TRACE and control variables from Compustat. We eliminate firms in the auto industry to avoid supply chain effects.<sup>9</sup> This yields a sample of 406 unique firms, although no more than 266 firms have bonds traded on any individual event day. The sample includes 5,152 daily firm-price changes and 4,981 daily firm-yield changes.

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examines whether lenders required higher returns on their investments as a result of the Government intervention, regardless of the presence of a true APD.

<sup>8</sup> This is a heightened concern during the sample period because a large amount of other economic news not directly related to our tests was released around the same time.

<sup>9</sup> Inferences remain unchanged if we include firms in the auto industry (NAICS codes 3361–3363).

## B. Public Bond Market Tests

We use the following model to test for changes in bond prices around the key Chrysler bankruptcy events:

$$(1) \quad \text{Abnormal\_Bond\_Return}_{i,t} = \beta_0 + \beta_1 \times \text{Unionization}_i + \beta_2 \times \text{Pension}_i + \beta_3 \times \text{Gray\_Area}_i + \beta_4 \times \text{Distress}_i \\ + \beta_5 \times \text{Leverage}_i + \beta_6 \times \text{MB}_i + \varepsilon_{i,t}$$

In order to obtain the most complete sample possible and to account for differences in liquidity, trade size, and duration, we begin by following the methodology recommended by Bessembinder, Kahle, Maxwell, and Xu (2009).<sup>10</sup> *Abnormal\_Bond\_Return<sub>i,t</sub>* is the daily abnormal return ( $Ret_{i,t} - Ret_{m,t}$ ) on each of the 23 trading days surrounding the eight event dates listed in Table 1 (23 total days because the 3-day windows surrounding events 7 and 8 overlap).  $Ret_{i,t}$  is the “clean” daily value-weighted mean return, using bond price but not interest payments, on an individual firm’s debt issues. We define  $Ret_{i,t}$  as  $(P_{i,t} - P_{i,t-1 \rightarrow t-5}) / P_{i,t-1 \rightarrow t-5}$ , where  $P_{i,t-1 \rightarrow t-5}$  is the last daily trade-weighted bond price prior to day  $t$  that occurred between day  $t-1$  and day  $t-5$ . If there was no trade in the 5 days prior to the trade(s) on day  $t$ ,  $Ret_{i,t}$  is coded as missing.  $Ret_{m,t}$  is the daily return for the Dow Jones Corporate Bond Price Index.<sup>11</sup> To ensure t-statistics are not inflated due to the correlation of bond returns of multiple issues from the same firm, we perform our analysis at the firm level using the mean firm daily bond return.

In addition to abnormal bond returns, we repeat our analysis using *Abnormal\_Yield\_Change<sub>it</sub>* as an alternate dependent variable. *Abnormal\_Yield\_Change<sub>it</sub>* is the

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<sup>10</sup> We thank William Maxwell for the use of SAS code provided on his website.

<sup>11</sup> Many sample firms have several debt issues. The results are similar if observations are at the issue, rather than the firm level. In addition, results are similar if we construct abnormal returns using the value-weighted return of portfolios based on bond rating and maturity as our measure of expected return. Inferences remain unchanged, although statistical significance is reduced, by requiring two contiguous trading day trades.

value-weighted mean yield change on firm  $i$ 's debt minus the average yield change for all publicly traded debt for the 23 days surrounding the eight event dates. Yield is multiplied by 100 so that a value of 1.0 represents a yield of 1% or 100 basis points. To compute the yield change we follow a similar methodology to the calculation of  $Abnormal\_Bond\_Return_{i,t}$ .<sup>12</sup>

Following Klasa et al. (2009), Chen et al. (2011), and Hirsch and Macpherson (2002), we define union coverage (i.e., the percentage of workers covered by union contracts) at the industry level.<sup>13</sup> As discussed by Klasa et al. (2009), "It is difficult to reliably collect firm-level unionization data from the filings of publicly traded firms because such firms are not required to provide union membership information about their workers" (p. 429). The use of industry-level data allows us to avoid the selection issues associated with a firm choosing to disclose union membership and allows for a larger and more complete sample.<sup>14</sup> Furthermore, Bronars and Deere (1991) and Matsa (2010) examine unionization and corporate policy decisions at both the firm and industry level and find qualitatively similar results using either proxy.<sup>15</sup>

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<sup>12</sup> Specifically,  $Abnormal\_Yield\_Change_{it}$  is  $(Y_{i,t} - Y_{i,t-1 \rightarrow t-5}) - (Y_{m,t} - Y_{m,t-1 \rightarrow t-5})$ , where  $Y_{i,t}$  is the trade-weighted yield on day  $t$ . This is similar to Bessembinder, Kahle, Maxwell, and Xu's (2009) definition of daily trade-weighted prices.  $Y_{i,t-1 \rightarrow t-5}$  is the last daily trade-weighted yield from prior to day  $t$  that occurred between day  $t-1$  and day  $t-5$ . If there was no trade in the 5 days prior to the trade(s) on day  $t$ ,  $Y_{i,t-1 \rightarrow t-5}$  is set as missing.  $(Y_{m,t} - Y_{m,t-1 \rightarrow t-5})$  is the average yield change across all publicly traded bonds corresponding to the days above.

<sup>13</sup> Union coverage data follow Hirsch and Macpherson (2002) and is obtained from the authors' website at the three-digit CIC code level, which we translate to three-digit NAICS codes. Since an employee can be covered by a union contract without being a member, we repeat our tests using union membership and obtain similar results.

<sup>14</sup> In robustness tests presented in Table 5 Panel B, we rerun our analysis on a hand-collected sample with firm-level unionization. Results are consistent with those obtained using industry-level unionization.

<sup>15</sup> The standard errors are clustered by industry and we include two-digit NAICS industry fixed-effects in our regression specifications.

*Pension* is the portion of a firm's pension obligation that is unfunded.<sup>16</sup> We use unfunded pension obligations rather than health care benefit obligations as our test variable for the following reasons. Health care obligations and assets are not well populated on Compustat; however, the Pearson correlation between health and pension obligations among firms with positive health obligations is 79%, indicating the pension variable captures much of the same information. Further, our broad research question is about the effects of government intervention on financial markets and how the Government affects the contracting relationship between labor and other firm stakeholders. The Government is not directly liable for unfunded health benefits (indirectly liable through Medicaid and Medicare) but is liable for unfunded pensions via the PBGC (Shepardson (2009)).

We define the following variables as firm-level controls. *Gray\_Area*, following Altman (1968), is an indicator variable equal to 1 for firms with an Altman Z-score between 1.8 and 3. *Distress* is an indicator variable equal to 1 for firms with a Z-score of less than 1.8. *Leverage* is the firm's long-term debt divided by total assets and *MB* is the firm's market value of equity divided by total stockholder's equity. Consistent with prior research (Perotti and Spier (1993) and Myers and Saretto (2011)), we control for leverage, market-to-book, and level of distress to reduce the likelihood that our unionization and post-employment benefit underfunding measures are capturing other risk effects at the industry or firm level.

Descriptive statistics for the bond market sample are reported in Table 2. All independent variables are winsorized at the 1% and 99% levels. *Unionization* ranges from 1.9% to 66.1%

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<sup>16</sup> *Pension*, and all other financial statement variables, is measured at fiscal year end 2008. *Pension* is the Projected Benefit Obligation less Pension Plan Assets, scaled by the Projected Benefit Obligation. Missing observations for pension variables are assumed to be zero. Compustat data items for our variables are provided in the tables.



with a median of 7.3%. The level of unfunded pensions ranges from  $-23.3\%$  (i.e., the pension is overfunded) to  $100\%$  with a median of  $18.0\%$ .

[Insert Table 2 around here]

Tables 3 and 4 present the results for which the change in the cost of debt proxy is  $Abnormal\_Bond\_Return_{it}$  and  $Abnormal\_Yield\_Change_{it}$ , respectively. These tests provide evidence that the market value of more unionized firms' public bonds decreased (consistent with firms' cost of debt increasing) around the key events of the Chrysler bankruptcy.

Panel A of Table 3 presents the results from equation (1), analyzing daily abnormal firm-level debt returns ( $Abnormal\_Bond\_Return$ ) across all 23 days surrounding the eight event dates. Standard errors are clustered by industry and event-day, and in unreported results, by firm. Column 1 presents the analysis without  $Unionization$  and  $Pension$  variables. In column 2, the observed coefficient of  $-0.011$  (p-value  $< 0.05$ ) is consistent with hypothesis 1A that  $Unionization$  is negatively associated with abnormal debt returns during the eight event windows. Economically, this effect is associated with an average abnormal bond return of  $-12$  basis points per day ( $-2.8\%$  over the entire event) for a firm with the mean level of unionization. However, the results of this test do not support our second hypothesis related to an increase in the cost of debt (i.e., a negative bond return) for firms with underfunded pension funds.

In column 3,  $Unionization$  and  $Pension$  are interacted with  $Distress$  to examine if the results are strongest in firms that are closest to bankruptcy. Consistent with hypothesis 1B, the coefficient on the interaction of  $Unionization$  and  $Distress$  is negative and significant (p-value  $< 0.05$ ). In Panel B we split the sample into distressed and non-distressed firms and find a negative relation between bond returns and unionization only in the sample of distressed firms (p-value  $< 0.05$ ). These findings provide further support for hypothesis 1B. The increase in borrowing costs

for highly unionized firms is concentrated in the distressed firms most likely to be affected by the intervention and is not observed in relatively profitable firms that are unlikely to enter bankruptcy and are therefore unlikely to be affected by the precedent set in the Chrysler bankruptcy. The coefficients on both *Pension* and the interaction of *Pension* and *Distress* are not significantly different than zero.

[Insert Table 3 around here]

Panel A of Table 4 presents the results from equation (1), analyzing abnormal yield changes (*Abnormal\_Yield\_Change*) surrounding the eight events. Standard errors are clustered by industry and event-day, and in unreported results, by firm. Results are broadly consistent with those obtained using *Abnormal\_Bond\_Return*. Column 1 presents the analysis without *Unionization* and *Pension*. In column 2, the observed coefficients on both *Unionization* and *Pension* are not significant at traditional levels. When interacted with *Distress* in column 3, the coefficient on *Unionization* is positive and significant, consistent with an increase in bond yields during the eight event windows for more unionized firms in distress. In Panel B we split the sample into distress and non-distress firms and find a negative relation between bond returns and unionization only in the sample of distressed firms (p-value < 0.05). The results do not support our second set of hypotheses related to firms with unfunded pensions.

[Insert Table 4 around here]

In untabulated tests we examine the relation between bond prices, union coverage, and the underfunding of post-employment benefits on each individual event day by estimating equation (1) on each individual event date using the change in bond price,  $CAR_{i,t}$ , as our dependent variable. We define  $CAR_{i,t}$  as the sum of  $(Ret_{i,t} - Ret_{m,t})$  over the 3-day window surrounding each event date. We find that *Unionization* is statistically significant and negatively

associated with abnormal debt returns on the first three event days: the date of the initial report that the UAW would receive a substantial payment from, and stake in, New Chrysler; the date the UAW and the Government reached agreement on the payments and ownership stake that would be given to the UAW; and the date that Chrysler filed for bankruptcy. Although we observe a significant coefficient for only three of the eight event days, it is the first 3 days that are significant. The preceding is consistent with lenders reacting strongly to the news when it is first released, and then not reacting upon later confirmatory news.

## **V. Additional Analysis**

### *A. Unionization Data*

A drawback of our methodology is that we utilize an industry-level unionization measure. This measure has been used in the literature (see our discussion of the industry measure in Section IV.B) and alleviates endogeneity concerns around the firm's decision of whether or not to disclose the level of unionization of its workforce. To ensure the robustness of our findings, we implement a number of additional analyses. First, in Table 5 Panel A we augment equation (1) by including industry-level control variables and running the regression at the industry level. Specifically, we include control variables to capture the average profitability, level of leverage, and the market-to-book ratio in an industry.

Column 1 presents results including all four industry level controls in the same regression and columns 2 through 5 include each control separately. The coefficient on *Unionization* is negative and significant in all specifications. We do not observe a significant coefficient on *Pension*. In column 6, we compute value-weighted averages for all firm-level variables and run the regression at the three-digit NAICS industry-day level (the level of our unionization data). The coefficient on *Unionization* continues to be negative and significant.

Next, we hand-collect firm-specific unionization and repeat our analysis using these data. As previously noted, the level of unionization is not a required disclosure, making it difficult to obtain a complete set of firm-level unionization data. Nonetheless, we collect these data, where available, for our sample of firms in order to provide reassurance that we are not simply observing an industry effect in our main analysis. Table 5 Panel B presents results using the hand-collected firm-level unionization data. Ideally we would like unionization rates in the U.S., since the precedent we study applies to the U.S.; but firms chose to report unionization at varying levels (if at all). In column 1, *Unionization* is the percentage of the U.S. workforce covered by a collective bargaining agreement. In column 2 we augment these data and add observations for *Unionization* measured as the percentage of the global workforce covered by a collective bargaining agreement when U.S.-specific data are not disclosed. Finally, in column 3 *Unionization* is an indicator variable equal to 1 when the firm states at least a portion of their workforce is unionized (whether or not they disclose a specific number or percentage of employees), and 0 if they state that they have no unions or collective bargaining agreements. Results are consistent with our main findings across all three specifications. The coefficients on *Unionization* are all negative and significant (p-value < 0.05 in column 1, p-value < 0.10 in column 2, p-value < 0.01 in column 3). We also report the correlation between the firm-specific unionization data and our industry-level proxies in the last row of the panel. All three correlations are high, ranging from 0.358 to 0.693, giving further support for the use of industry-level data.

In Panel C of Table 5, we implement a number of alternative measures for weakened creditor rights. Specifically, regulated firms, unionized firms in which organized labor has higher bargaining power, and firms with large defined benefit (DB) pension plans (as opposed to their

funding status). We expect an increase in the cost of debt around the Chrysler bankruptcy for regulated firms—those in the utility industry (NAICS-22)—because these firms tend to be highly unionized and deeply intertwined with the government. Both of these factors could lead creditors to perceive a heightened decrease in their creditor rights. Column 1 presents results using an indicator variable, *Utility*, set equal to 1 for utilities firms and 0 otherwise. The coefficient on *Utility* is  $-0.007$  and significant ( $p\text{-value} < 0.01$ ), consistent with a decrease in bond prices and increased borrowing costs for these utility firms.

We also expect an increase in the cost of debt around the Chrysler bankruptcy for firms in which organized labor has higher bargaining power. We proxy for increased labor bargaining power using an indicator variable, *Strike*, coded as 1 for firms that have experienced a strike within the previous 6 years and 0 otherwise. In column 2 we observe a significant negative coefficient of  $-0.004$  ( $p\text{-value} < 0.01$ ) on the strike indicator variable, consistent with a decrease in bond prices and increased borrowing costs for firms in which labor has high bargaining power.

Finally, we expect an increase in the cost of debt around the Chrysler bankruptcy for firms with larger DB pension plans. This proxy has two desirable characteristics. First, firms with large DB plans are more likely to be unionized (with a correlation of 0.17), and the pension obligation, unlike unionization, is a required firm-specific disclosure. Second, although *Pension* captures the current funding status of a firm's pension plan, the total obligation could be a better measure of the possibility of significant future underfunding. We use the variable *Pension\_Obligation*, coded as reported pension obligation scaled by total assets, as a proxy for the size of the defined pension plan. In column 3 we observe a significant negative coefficient of  $-0.005$  ( $p\text{-value} < 0.10$ ) on the DB plan size variable, consistent with a decrease in bond prices and an increase in borrowing costs for firms with large DB pension plans.

[Insert Table 5 around here]

### *B. Airline Carrier Case Study*

We also document the effect of the intervention in the Chrysler bankruptcy in the highly unionized airline industry in which a majority of firms disclose unionization data.<sup>17</sup> For this subsample we hand-collect unionization data from 10-K filings. One major U.S. passenger airline, JetBlue Inc., is non-unionized, while its primary domestic competitors (United Airlines, Delta Airlines, Southwest Airlines, US Airways, Alaska Air, and American Airlines) are all highly unionized (73% on average).

Consistent with hypothesis 1, in Figure 1 we observe that JetBlue's bonds outperformed each of its competitors over our 23-day event window. In addition, we also examine foreign unionized airlines because we predict these firms will be less affected by any change in U.S. bankruptcy rules or precedent than their domestic counterparts, but they will be affected by other news specific to the airline industry. Consistent with hypothesis 1, we observe that bonds of major unionized foreign carriers (Air Canada, Air France, SAS Airlines, Singapore Airlines, Cathay Pacific, Lufthansa, and Qantas Airlines), as measured in their domestic currencies, outperform domestic unionized carriers over our 23-day event window. These anecdotal findings provide further support for our hypothesis that unionized firms experienced an increase in the cost of borrowing and that the increase in the cost of borrowing in our main analysis is not simply due to unobserved industry effects.

[Insert Figure 1 around here]

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<sup>17</sup> A series of papers by Benmelech and Bergman (2008), (2009), (2011) and Benmelech, Bergman, and Enriquez (2012) also study financial distress and debt pricing in the airline industry. Most related to our study is Benmelech et al. (2012) who find that distressed airlines extract greater wage concessions in contract negotiations from employees when their pensions are underfunded and when those underfunded pensions are not fully covered by the PBGC.

### *C. Monte Carlo Simulation*

The event of interest in this study occurred during a volatile period in the economy. The focus on short-window returns provides reassurance that the Government intervention in the Chrysler bankruptcy is driving our findings and not some other event that occurred around the same time period and/or a time trend in the underlying data. In order to further rule out that we are simply capturing an overall time trend in the relation between unionization and the cost of debt, we perform 10,000 Monte Carlo simulations, randomly choosing 23 pseudo-event days during the 2-year window surrounding the Chrysler bankruptcy and rerunning equation (1). Figure 2 presents a plot of the frequency of various observed coefficients on *Unionization* in these Monte Carlo simulations. The observed coefficient of  $-0.011$  on *Unionization* in Table 3 column 2 (denoted with a line in Figure 2) was less than the observed estimated coefficients in all of the 10,000 random draws. This is consistent with our event study results picking up bondholders' reaction to the Government intervention specifically rather than some other event that occurred around the same time period and/or a time trend in the underlying data.

[Insert Figure 2 around here]

### *D. Alternative Proxies for Distress*

We also repeat our analysis using five alternative proxies for distress to explore the robustness of our findings to using alternative measures of distress; we present the results in Table 6. The dependent variable is *Abnormal\_Bond\_Return* as defined in Table 2. We use the following alternative measures of distress: in Column 1, *Distress* is the distance to default measure of Fong, Hong, Kacperczyk, and Kubik (2012) (leverage $\times$ equity return volatility) set equal to 1 for firms above the median and 0 for firms in the bottom quartile; in Column 2, *Distress* is an indicator variable equal to 1 for firms with junk rated debt, and 0 for firms with

investment grade debt; in Column 3, *Distress* is an indicator variable equal to 1 for firms in the top tercile of the naïve distance to default measure of Bharath and Shumway (2008), 0 otherwise; in Column 4, *Distress* is an indicator variable equal to 1 for firms in the top tercile of the Ohlson (1980) bankruptcy score, 0 otherwise; in Column 5, *Distress* is an indicator variable equal to 1 for firms with an interest coverage ratio below 1, 0 otherwise. We find a negative and significant interaction between unionization and distress for three of the five alternative distress measures (columns 1, 3, and 5) and the remaining two interactions are not statistically significant. While these results are somewhat mixed, overall they are consistent with the finding that the increase in borrowing costs (negative bond returns) for more unionized firms around the Chrysler bankruptcy is particularly strong for distressed firms.

[Insert Table 6 around here]

#### *E. Alternative Proxies for Borrowing Costs*

We repeat our main analysis using two alternative proxies for increased borrowing costs: change in equity prices and change in credit default swap (CDS) spreads around key Chrysler bankruptcy events. The hypothesized increase in debt borrowing costs should eventually flow through to equity holders as the residual claimants of the firm (Jensen and Meckling (1976) and Stulz and Johnson (1985)). The increased borrowing costs should also be reflected in CDS spreads. CDS spreads measure default risk as well as the expected losses in default because the CDS contract pays the difference between face value and the actual value received. In addition to being an alternative measure to the cost of debt, CDS spreads have the added advantage of illustrating the role of distress in our hypothesized effect. CDS spreads are jointly determined by the likelihood of bankruptcy and the expected costs within bankruptcy. We predict the likelihood



of receiving less in bankruptcy as a result of this event would cause CDS spreads to increase around the event days, especially for firms close to bankruptcy.

Using equity returns as the dependent variable, we observe a negative and significant coefficient on *Unionization* (p-value < 0.01), consistent with our first hypothesis. Under this specification, we also find evidence of a negative association between firms' unfunded post-employment benefits and abnormal equity returns around event dates (p-value < 0.05), consistent with our second hypothesis. When examining CDS returns we observe a significant positive coefficient (the predicted sign) on the level of unionization (p-value < 0.05) but do not observe similar support for our second hypothesis on *Pension*.

#### *F. Long-term Effects*

In addition to the short window event tests, we provide evidence on the longer-term effects of the Chrysler bankruptcy on the spreads of high versus low unionization firms' debt in two ways. First, we plot the estimated effect of unionization on bond yields for each week of 2009 using the same regression model as in our bond yield tests above. The results are shown in Figure 3. Consistent with Chen et al. (2012), we find at the beginning of 2009 that firms with higher unionization have lower bond yields. During the events of the Chrysler bankruptcy, which occurred during the time period denoted by the vertical lines in Figure 3, we observe an increase in the bond yields of more highly unionized firms consistent with our findings. This increase in bond yields for highly unionized firms is sustained through the end of the year, suggesting that the effects of the Government's intervention on bond pricing of highly unionized firms lasted longer than just the period of time immediately surrounding the bankruptcy.

[Insert Figure 3 around here]

Second, in untabulated results we also examine the spreads on newly issued private loans

using a difference-in-difference methodology, following Santos (2011), in the year prior to and the year following the events outlined in Table 1. This analysis allows for a direct estimate of the non-temporary changes in the cost of debt experienced by firms in highly unionized industries and firms with large unfunded pensions relative to their peers and also to control for known determinants of loan spreads.<sup>18</sup> These unreported results are consistent with both hypotheses: loan spreads of highly unionized firms and loan spreads of firms with highly unfunded pensions increased by 62 and 43 basis points, respectively, following the Chrysler bankruptcy.

### *G. Alternative Explanations*

One concern with our findings is the possibly remote likelihood of the events that lead to the Government's intervention in Chrysler's bankruptcy being repeated in the future. As discussed by Roe and Skeel (2009), the Chrysler bankruptcy is now a part of case law, and the legal precedent was used very shortly afterward in the bankruptcy of General Motors. If investors expect the secured debt of firms with politically powerful unsecured claims to be riskier due to this change in legal precedence, the hypothesized increase in firms' cost of debt will exist even without direct Government intervention in future bankruptcies. In addition, this legal precedent increases the bargaining power of unions relative to secured creditors by increasing the anticipated legal and negotiating costs to secured creditors in financial distress

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<sup>18</sup> Our sample of 287 new loans is obtained from Dealscan. We control for whether the loan is investment grade, whether it is secured, the spread between investment grade debt and treasury yields at origination, financial distress, leverage, the market-to-book ratio of the issuer, and industry and time fixed effects. We thank Michael Roberts for providing a Dealscan-Compustat link file. We also eliminate firms in the auto industry to avoid supply chain effects of the Chrysler bankruptcy. Inferences remain unchanged if we include firms in the auto industry (NAICS codes 3361–3363).

(even absent future Government intervention). The precedent set during the Chrysler bankruptcy could be viewed as strengthening a union's negotiating position relative to other creditors.

Another alternative interpretation for the results is that debtholders expected to be bailed out by the Government and were disappointed that they did not receive more bailout funds. Under this interpretation, the negative abnormal returns we observe simply represent secured creditors' surprise at not receiving a larger payout from the Government. However, this does not explain why the increase in bond yields for more unionized firms persists for several months after the economy began to improve and the government was no longer handing out TARP funds. Further, this argument applies specifically to the price of Chrysler debt but our tests examine the debt of a much larger sample of firms. For this argument to explain our results, debtholders of firms not already in bankruptcy would need to expect a bailout from the government even though they did not yet need to be bailed out.

## **VI. Conclusion**

A large body of literature beginning with Jensen and Meckling (1976) examines how agency conflicts between various stakeholders impact firms' contracting relationships with these stakeholders. Much of this literature assumes that a relatively stable contracting environment exists within the U.S. We use the setting of the Chrysler bankruptcy to examine what happens when government incentives to help one stakeholder can change the contracting relationships between various firm stakeholders. Prior research by Chen et al. (2012) finds that the overlap between unions' incentives and bondholders' incentives to keep firms solvent leads to a lower cost of debt for firms with a relatively strong labor presence. Our findings suggest that this relation between lower borrowing costs and a strong labor presence can change in settings when bondholders fear that government incentives to benefit labor conflict with bondholders'

incentives to maximize the value they receive in bankruptcy. Our findings are robust to using several alternative definitions of the strength of labor's presence in a firm and to using alternative measures of the cost of borrowing.

As a caveat, we note that our tests solely examine whether the cost of debt increased for other firms as a result of the Government's intervention specifically in the Chrysler bankruptcy. This is independent of the Government's stated reasons for bailing out Chrysler or whether bailing out Chrysler was desirable from a policy perspective for other reasons. We acknowledge that there may have been broader economic benefits from the Government's bailout that are not captured in our tests. Overall, this study suggests that the Government is an important, though sometimes ignored actor in the contracting relationship between various firm stakeholders.

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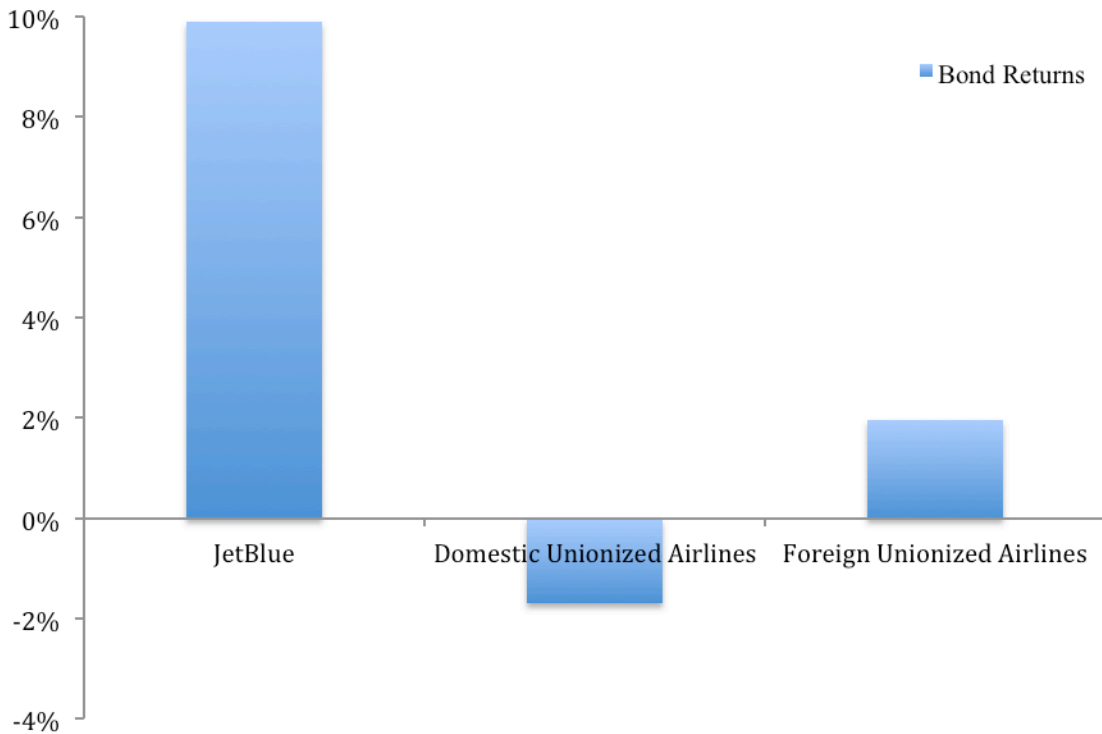


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**FIGURE 1**

**Airline Event Bond Price Changes**

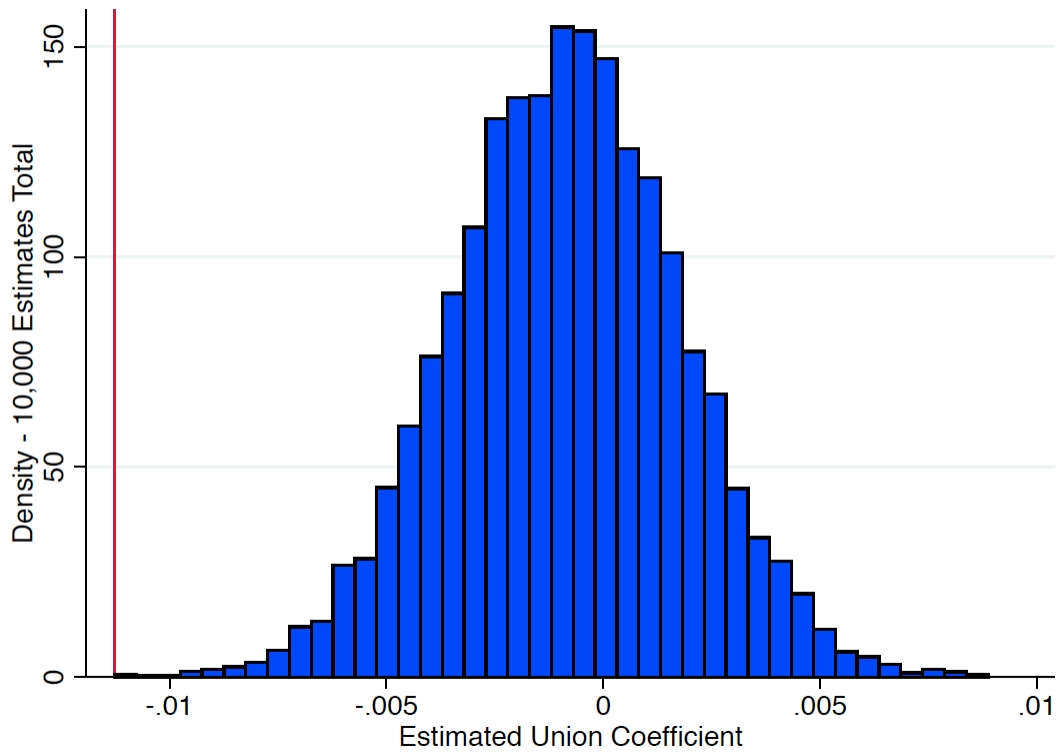
This figure presents bond price changes of JetBlue (a non-unionized carrier), the average bond price changes of domestic unionized airlines (United Airlines, Delta Airlines, Southwest Airlines, US Airways, Alaska Air, and American Airlines), and the average bond price changes of foreign unionized airlines (Air Canada, Air France, SAS Airlines, Singapore Airlines, Cathay Pacific, Lufthansa, and Qantas Airlines) over the 23-day, eight-event window.



**FIGURE 2**

**Monte Carlo Abnormal Bond Returns Unionization Coefficient Estimates**

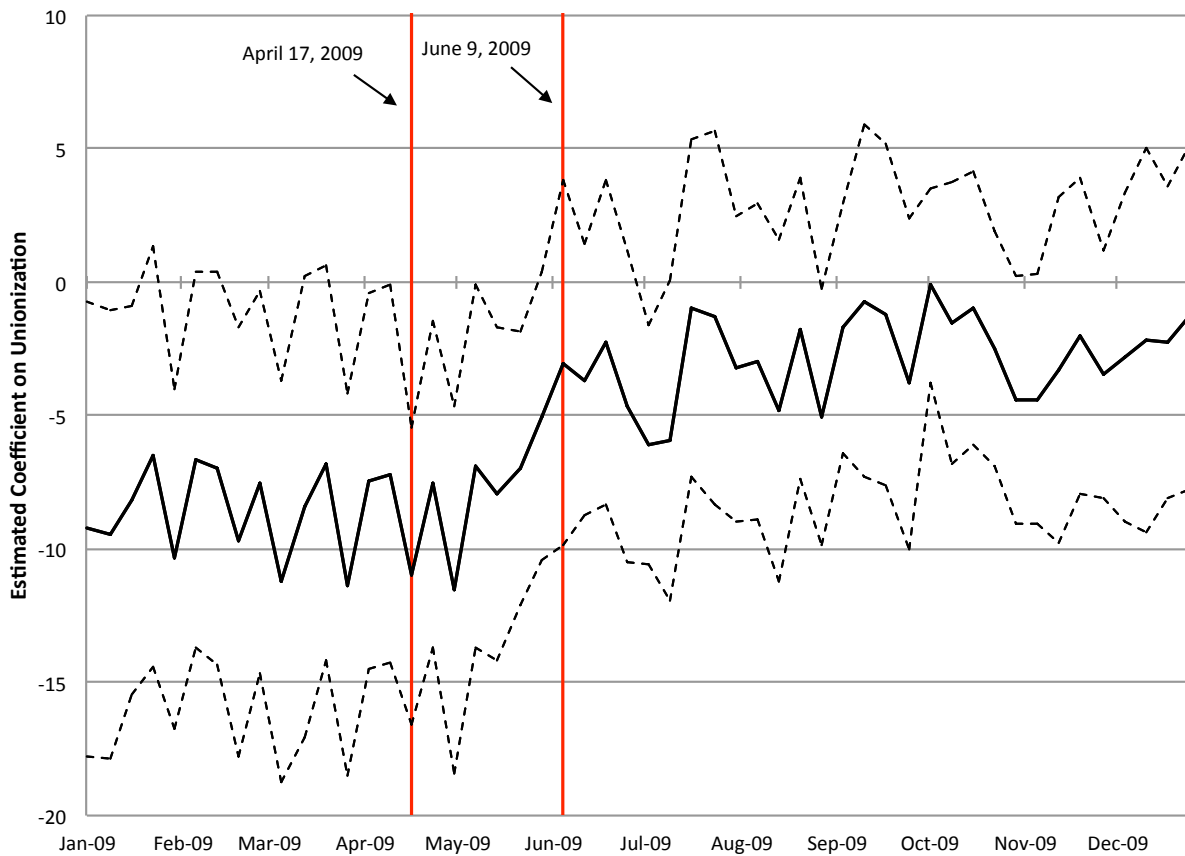
This figure presents a histogram of the Unionization coefficient estimates obtained through Monte Carlo methods; the solid vertical line represents the actual event Unionization coefficient. Coefficients were obtained through 10,000 random draws selecting 23 pseudo-event days in the 2-year window surrounding the Chrysler bankruptcy and estimating the same regression specification as presented in Table 3, Column 2. The actual coefficient estimate (-0.011) was less than all 10,000 pseudo-estimates.



**FIGURE 3**

**Weekly Abnormal Bond Yield Estimates**

This figure presents a plot of the ordinary least squares coefficient estimates on unionization from equation (1) for each week of 2009 using bond yields as the dependent variable and unreported controls and fixed effects similar to Table 4, Column 2. The solid line represents the weekly coefficient estimates and the upper and lower dotted lines represent the 95% confidence interval. The vertical lines denote the beginning and end of the Chrysler bankruptcy event window.



**TABLE 1**

**Chrysler Bankruptcy Event Dates**

To identify all possible event dates impacting secured creditors' claims on Chrysler's assets, we conducted a search of the Chrysler Bankruptcy filing, the *New York Times*, the *Wall Street Journal*, LexisNexis, and Factiva. The table below provides a listing and brief description of the event dates we identify and examine in our study.

	<b>Date</b>	<b>Event</b>
1	April 17, 2009	The <i>New York Times</i> reported that the Government was near a deal with the UAW that would give the Chrysler union retiree health care trust more than 20% of "New Chrysler" and make it "the single-largest stakeholder in the automaker" (Vlasic (2009)). The deal is made prior to any deal being made with secured lenders.
2	April 26, 2009	Official agreement announced between UAW and the Government (Isidore (2009)). The <i>Wall Street Journal</i> reported that in return for relinquishing an unsecured \$10 billion health benefits claim, the union trust received \$1.5 billion of cash, a \$4.6 billion unsecured note from New Chrysler, and a 55% equity stake in New Chrysler (Kellog and Maher (2009)). Despite this agreement, there had not been a deal involving Chrysler's secured lenders.
3	April 30, 2009	Chrysler files for Chapter 11 bankruptcy protection.
4	May 5, 2009	The U.S. Bankruptcy Court rules that dissident lenders must publicly disclose identities, causing several lenders to drop their opposition to Chrysler bankruptcy plan.
5	May 8, 2009	The majority of the dissident lenders' group disbands. Tom Lauria, a lawyer representing the group, said the "lenders concluded they just don't have the critical mass to withstand the enormous pressure and machinery of the US government" (Simon (2009)).
6	May 31, 2009	The U.S. Bankruptcy Court approves the sale assets to New Chrysler for \$2 billion.
7	June 5, 2009	The U.S. Second Circuit Court of Appeals upholds the Bankruptcy Court's ruling.
8	June 9, 2009	The U.S. Supreme Court declines the case and rejects the request to halt the Chrysler asset sale. In rejecting the request, the Supreme Court stated "those seeking to put the deal on hold have not carried that burden to justify such an action. The court's action was not a decision on the merits of the underlying legal issues" (Vicini (2009)).

**TABLE 2****Descriptive Statistics and Variable Correlations—Public Bond Sample**

Variable definitions are as follows. *Abnormal\_Bond\_Return* is the value weighted mean return on firm *i*'s debt minus the return on the Dow Jones Bond Price Index for the 23 days surrounding the eight event dates.

*Abnormal\_Yield\_Change* is the value-weighted mean yield change on firm *i*'s debt minus the average yield change for all publicly traded debt for the 23 days surrounding the eight event dates. Yield is multiplied by 100 so that a value of 1.0 represents a yield of 1% or 100 basis points. *Unionization* is the level of union coverage (number of employees covered by the union contract) in the firm's industry (three-digit NAICS). *Pension* is the level of unfunded pension: (Projected benefit obligation – Pension assets)/Projected benefit obligation (Compustat data items [PBPRO – PPLAO]/PBPRO) for the firm. *Gray\_Area* is an indicator variable equal to one for firms with an Altman (1968) Z-score between 1.8 and 3 ( $Z\_Score = 3.3 \times EBIT/Assets + 1.2 \times Working\ Capital/Assets + Sales/Assets + 1.4 \times Retained\ Earnings/Assets + 0.6 \times MVE/Liabilities$ ). *Distress* is an indicator variable equal to one for firms with an Altman (1968) Z-score of less than 1.8. *Leverage* is the firm's long-term debt divided by total assets (DLTT/TA). *MB* is the firm's market value of equity divided by total stockholder's equity (MKVALT/SEQ, missing MKVALT values are calculated as  $PRC \times CSHO$ ). Continuous variables have been winsorized at the 1% and 99% levels.

*Panel A: Descriptive Statistics*

<i>Variable</i>	<i>N</i>	<i>Mean</i>	<i>St. Dev.</i>	<i>Min</i>	<i>Q1</i>	<i>Median</i>	<i>Q3</i>	<i>Max</i>
Abnormal_Bond_Return	5152	0.004	0.022	-0.041	-0.006	0.001	0.010	0.074
Abnormal_Yield_Change	4981	0.011	0.578	-1.899	-0.117	0.052	0.174	1.466
Unionization	5152	0.109	0.108	0.019	0.034	0.073	0.159	0.661
Pension	5152	0.192	0.220	-0.233	0	0.180	0.338	1
Gray_Area	5152	0.332	0.471	0	0	0	1	1
Distress	5152	0.381	0.486	0	0	0	1	1
Leverage	5152	1.174	1.262	0.048	0.466	0.790	1.351	7.477
MB	5152	2.500	2.891	0.287	0.970	1.581	2.787	18.240

**TABLE 2 (cont.)***Panel B: Correlations*

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
<i>1</i> Abnormal_Bond_Return	1							
<i>2</i> Abnormal_Yield_Change	-0.50	1						
<i>3</i> Unionization	-0.04	0.01	-0.05	1				
<i>4</i> Pension	-0.01	0.01	-0.01	0.11	1			
<i>5</i> Gray_Area	-0.03	0.03	-0.05	-0.03	0.08	1		
<i>6</i> Distress	0.10	-0.09	0.15	0.15	0.00	-0.55	1	
<i>7</i> Leverage	0.06	-0.06	0.10	0.04	0.01	-0.06	0.27	1
<i>8</i> MB	-0.04	0.06	-0.06	-0.04	0.00	-0.06	-0.23	0.27

**TABLE 3****Overall Abnormal Public Bond Returns**

Panel A presents the entire sample of analysis. Specification 1 of Panel B presents subsample analysis in which *Distress* is equal to 0 and specification 2 reports subsample analysis in which *Distress* is equal to 1. The dependent variable in all specifications is *Abnormal\_Bond\_Return* and is defined as the daily abnormal return on each of the 23 trading days surrounding the eight event dates described in Table 1. All other variable definitions are presented in Table 2. Continuous variables have been winsorized at the 1% and 99% levels. Industry Effects are fixed effects and are coded at the two-digit NAICS level. Standard errors are reported in parentheses and are robust to heteroskedasticity and within-industry error correlation. \*\*\*, \*\*, and \* are reported for significance at the 1%, 5%, and 10% level, respectively.

*Panel A: Interacted Model*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
Constant	0.004* (0.002)	0.004*** (0.002)	-0.003 (0.002)
Unionization		-0.011** (0.006)	0.002 (0.006)
Pension		0.002 (0.002)	<0.001 (0.002)
Unionization*Distress			-0.013** (0.006)
Pension*Distress			0.001 (0.004)
Gray_Area	0.001* (0.001)	0.001* (0.001)	0.002** (0.001)
Distress	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
Leverage	0.001* (0.001)	0.001** (<0.001)	0.002*** (0.000)
MB	<0.001 (<0.001)	<0.001 (<0.001)	<0.001** (<0.001)
Industry Effects	Yes	Yes	Yes
R <sup>2</sup>	0.014	0.027	0.028
N	5152	5152	5152



**TABLE 3 (cont.)***Panel B: Distress and Non-Distress Subsamples*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>
Constant	<0.001 (0.002)	0.004 (0.003)
Unionization	0.001 (0.005)	-0.017** (0.007)
Pension	<0.001 (0.002)	0.004 (0.004)
Leverage	0.004*** (0.000)	<0.001 (0.001)
MB	-0.001*** (0.000)	<0.001 (0.001)
Industry Effects	Yes	Yes
R <sup>2</sup>	0.035	0.036
N	3189	1963

**TABLE 4**

**Abnormal Public Bond Yield Changes**

Panel A presents the entire sample of analysis. Specification 1 of Panel B presents subsample analysis in which *Distress* is equal to 0 and specification 2 reports subsample analysis in which *Distress* is equal to 1. The dependent variable in all specifications is *Abnormal\_Yield\_Change* and is defined as the daily abnormal value-weighted mean yield change for the 23 days surrounding the eight event dates described in Table 1. All other variable definitions are presented Table 2. Continuous variables have been winsorized at the 1% and 99% levels. Industry Effects are fixed effects and are coded at the two-digit NAICS level. Standard errors are reported in parentheses and are robust to heteroskedasticity and within-industry error correlation. \*\*\*, \*\*, and \* are reported for significance at the 1%, 5%, and 10% level, respectively.

*Panel A: Interacted Model*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
Constant	0.033 (0.033)	0.037 (0.036)	0.054 (0.042)
Unionization		0.019 (0.089)	-0.065 (0.100)
Pension		-0.037 (0.061)	-0.067 (0.081)
Unionization*Distress			0.190** (0.094)
Pension*Distress			0.085 (0.137)
Gray_Area	-0.021 (0.031)	-0.020 (0.031)	-0.017 (0.031)
Distress	-0.109*** (0.037)	-0.109*** (0.037)	-0.145*** (0.056)
Leverage	-0.025** (0.012)	-0.025** (0.012)	-0.025** (0.012)
MB	0.009** (0.004)	0.009** (0.004)	0.009** (0.004)
Industry Effects	Yes	Yes	Yes
R <sup>2</sup>	0.016	0.016	0.017
N	4981	4981	4981

**TABLE 4 (cont.)***Panel B: Distress and Non-Distress Subsamples*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>
Constant	0.054 (0.041)	-0.094*** (0.033)
Unionization	0.101 (0.122)	0.238** (0.121)
Pension	-0.081 (0.088)	0.059 (0.105)
Leverage	-0.037* (0.021)	-0.019 (0.013)
MB	0.011** (0.005)	0.009 (0.010)
Industry Effects	Yes	Yes
R <sup>2</sup>	0.011	0.026
N	3126	1855

## TABLE 5

### Abnormal Public Bond Returns Unionization Robustness

Panel A presents the main regression results including industry-level controls (columns 1 through 5) and run at the industry level (column 6). The dependent variable in all specifications is *Abnormal\_Bond\_Return* and is defined as the daily abnormal return on each of the 23 trading days surrounding the eight event dates described in Table 1. *Industry\_ROA* is the three-digit NAICS industry average of income before extraordinary items scaled by total assets (IB/AT). *Industry\_ROE* is the three-digit NAICS industry average of income before extraordinary items scaled by book value of equity (IB/SEQ). *Industry\_Leverage* is the three-digit NAICS industry average of long-term debt divided by total assets. *Industry\_MB* is the three-digit NAICS industry average of market value of equity divided by total stockholder's equity. Panel B presents results using firm-level Unionization (Column 1, Unionization is the percentage of the U.S. workforce covered by a collective bargaining agreement; Column 2. Unionization is the percentage of the global workforce covered by a collective bargaining agreement when U.S. specific data is not disclosed; Column 3. Unionization is an indicator variable equal to 1 when the firm states at least a portion of their workforce is unionized, and 0 if they state that no workers are unionized or covered by collective bargaining agreements). Panel C presents results using alternative proxies for firms expected to face higher future borrowing costs. *Utility* is an indicator variable equal to 1 for firms in the utility industry (NAICS-22). *Strike* is an indicator variable equal to 1 for firm that have experienced a strike within the previous 6 years. *Pension\_Obligation* is the firm's reported pension obligation divided by total assets. All other variable definitions are presented in Table 2. Continuous variables have been winsorized at the 1% and 99% levels. Industry Effects are fixed effects and are coded at the two-digit NAICS level. Standard errors are reported in parentheses and are robust to heteroskedasticity and within-industry error correlation. \*\*\*, \*\*, and \* are reported for significance at the 1%, 5%, and 10% level, respectively.

**TABLE 5 (cont.)**

*Panel A: Industry-level Controls*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>
Constant	0.005*** (0.002)	0.004*** (0.002)	0.004*** (0.002)	0.005*** (0.002)	0.004** (0.002)	0.003 (0.002)
Unionization	-0.011** (0.006)	-0.011** (0.006)	-0.011** (0.006)	-0.011** (0.006)	-0.011** (0.005)	-0.008*** (0.003)
Pension	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)	-0.002 (0.002)
Gray_Area	0.001 (0.001)	0.002** (0.001)	0.001 (0.001)	0.001 (0.001)	0.001* (0.001)	0.006** (0.002)
Distress	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)	0.002 (0.001)
Leverage	0.001* (0.001)	0.001* (<0.001)	0.001* (<0.001)	0.001* (0.001)	0.001* (0.001)	0.001 (<0.001)
MB	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)
Industry_ROA	<0.001 (<0.001)	<0.001 (<0.001)				
Industry_ROE	<0.001 (<0.001)		<0.001 (<0.001)			
Industry_Leverage	-0.002* (0.001)			-0.003* (0.001)		
Industry_MB	<0.001 (<0.001)				<0.001 (<0.001)	
Industry Effects	Yes	Yes	Yes	Yes	Yes	NA
R <sup>2</sup>	0.027	0.025	0.025	0.027	0.025	0.013
N	5152	5152	5152	5152	5152	1173

**TABLE 5 (cont.)***Panel B: Firm Level Unionization*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
Constant	0.003 (0.003)	0.003 (0.002)	0.004* (0.002)
Unionization	-0.008** (0.004)	-0.003* (0.002)	-0.004*** (0.001)
Pension	0.002 (0.003)	-0.003 (0.002)	0.003 (0.002)
Gray_Area	0.003* (0.002)	0.002* (0.001)	0.002** (0.001)
Distress	0.003 (0.002)	0.004*** (0.001)	0.003** (0.001)
Leverage	0.001 (0.001)	0.001*** (<0.001)	0.001* (0.001)
MB	<0.001 (<0.001)	-0.001*** (<0.001)	-0.001** (<0.001)
Industry Effects	Yes	Yes	Yes
R <sup>2</sup>	0.012	0.019	0.029
N	1039	2918	3513
Correlation with Industry Unionization	0.693	0.627	0.358

*Panel C: Alternative Proxies for Weakened Creditor Rights*

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
Constant	0.004** (0.001)	0.003* (0.002)	0.003* (0.002)
Utility	-0.007*** (0.001)		
Strike		-0.004*** (0.001)	
Pension_Obligation			-0.005* (0.003)
Gray_Area	0.001* (0.001)	0.001* (0.001)	0.002** (0.001)
Distress	0.005*** (0.001)	0.005*** (0.001)	0.005*** (0.001)
Leverage	0.001** (<0.001)	0.001* (0.001)	0.001* (0.001)
MB	<0.001 (<0.001)	<0.001 (<0.001)	<0.001 (<0.001)
Industry Effects	Yes	Yes	Yes
R <sup>2</sup>	0.026	0.027	0.027
N	5152	5152	5152

**TABLE 6****Alternative Proxies for Distress**

This table presents results using alternative proxies for distress (Column 1, Distress is the distance to default measure of Fong et al. (2012) (leverage $\times$ equity return volatility) set equal to 1 for firms above the median and 0 for firms in the bottom quartile; Column 2, Distress is an indicator variable equal to 1 for firms with junk rated debt, and 0 for firms with investment grade debt; Column 3, Distress is an indicator variable equal to 1 for firms in the top tercile of the naïve distance to default measure of Bharath and Shumway (2008); Column 4, Distress is an indicator variable equal to 1 for firms in the top tercile of the Ohlson (1980) bankruptcy score; Column 5, Distress is an indicator variable equal for 1 for firms with an interest coverage ratio below 1). The dependent variable in all specifications is *Abnormal\_Bond\_Return* and is defined as the daily abnormal return on each of the 23 trading days surrounding the eight event dates described in Table 1. All other variable definitions are presented in Table 2. Continuous variables have been winsorized at the 1% and 99% levels. Industry Effects are fixed effects and are coded at the two-digit NAICS level. Standard errors are reported in parentheses and are robust to heteroskedasticity and within-industry error correlation. \*\*\*, \*\*, and \* are reported for significance at the 1%, 5%, and 10% level, respectively.

<i>Variables</i>	(1)	(2)	(3)	(4)	(5)
Constant	-0.003 (0.002)	<0.001 (0.002)	0.006*** (0.001)	0.006*** (0.001)	<0.001 (0.002)
Unionization	0.006 (0.005)	-0.003* (0.001)	-0.010** (0.005)	-0.011** (0.005)	-0.003 (0.006)
Pension	0.004* (0.002)	-0.002 (0.003)	0.002 (0.002)	0.001 (0.002)	0.001 (0.002)
Unionization*Distress	-0.023** (0.009)	0.013 (0.010)	-0.025* (0.013)	-0.006 (0.012)	-0.023*** (0.006)
Pension*Distress	-0.004 (0.003)	0.004 (0.003)	-0.005 (0.003)	0.001 (0.004)	0.014*** (0.005)
Distress	0.009*** (0.002)	0.001 (0.002)	0.001 (0.001)	0.002 (0.002)	0.005** (0.002)
Leverage	0.001 (<0.001)	0.002*** (<0.001)	0.001*** (<0.001)	0.001*** (<0.001)	0.002*** (<0.001)
MB	<0.001*** (<0.001)	<0.001** (<0.001)	<0.001 (0.001)	-0.001*** (<0.001)	-0.001*** (<0.001)
Industry Effects	Yes	Yes	Yes	Yes	Yes
R <sup>2</sup>	0.029	0.021	0.021	0.024	0.028
N	3256	3841	4911	4837	4981