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# Does fiduciary duty to creditors reduce debt-covenant-violation avoidance behavior?

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## **Abstract**

Financial reports should provide useful information to shareholders and creditors. Directors, however, normally owe fiduciary duties to equity holders, not creditors. We examine whether this slant in fiduciary duties affects the extent to which firms use financial engineering to circumvent debt covenants violation. By avoiding debt covenants violation, firms prevent creditors from taking actions to reduce bankruptcy risk and recover their investment, and allow the firm to continue operating for the benefit of equity holders. We find that a Delaware court ruling that imposed fiduciary duties toward creditors led to a decrease in financial engineering and debt-covenant avoidance in Delaware firms. We also show that board quality lowers financial engineering and debt-covenant avoidance by firms only when their directors owe a legal fiduciary duty to creditors. Collectively, our results suggest that unless directors are required to protect creditors' interest, they are likely to take actions to circumvent debt covenant violations.

**Keywords:** Debt Structuring; Director Fiduciary Duties; Board Independence

**JEL Classifications:** G32, G34, M41, K22

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## 1. Introduction

Financial reports should provide useful information to creditors, and accounting regulators often revise financial standards to improve the faithful representation of debt.<sup>1</sup> Accounting standards, however, cannot completely curtail financial engineering by firms that wish, for example, to reduce reported debt (Dye et al. 2015). In this paper, we examine the role of corporate governance in restraining reporting opportunism that hurts creditors' interests. Although the literature shows high-quality governance decreases the occurrence of fraud and misstatements in financial reports (Dechow et al. 1996; Abbott et al. 2004; Beasley et al. 2000; Agrawal and Chadha 2005), in theory governance may not prevent financial engineering that hurts creditors—as long as governance practices require managers to maximize shareholders' value only. This requirement stems from the asymmetry in fiduciary duties, whereby managers and directors owe fiduciary duties to shareholders and not to debtholders. Given this asymmetry in fiduciary duties, managers have an incentive to maximize equity value even at the expense of debt value. These debt-equity value conflicts are mitigated when the law extends the protection of fiduciary duties to include debtholders (Becker and Stromberg 2012). We examine the effect of fiduciary duties on debt-equity reporting conflicts, or specifically on firms' propensity to use financial engineering for avoiding debt-covenants violation.

Accounting-based covenants in debt contracts are designed to mitigate debt-equity reporting conflicts. Debt covenants set limits on leverage and performance, and act as a trip wire allowing creditors to take timely actions to reduce bankruptcy risk and costs.<sup>2</sup> Evidence, however, suggests that managers bias financial reports to avoid violation of debt covenants (e.g., Dichev and Skinner, 2002; Jaggi and Lee, 2002).<sup>3</sup> Managers that circumvent covenant violation may undermine creditors' interests

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<sup>1</sup> For example, see Statement of Financial Accounting Concepts No. 1, Objectives of Financial Reporting by Business Enterprises (1978). For recent regulation that tries to limit financial engineering, see, for example, SFAS No. 150, FIN 46R (FASB Interpretation No. 46, revised December 2003), and the joint project of the FASB and IASB to change lease accounting (Project Update, Leases—Joint Project of the FASB and the IASB). Note that to the extent that lenders can require borrowers to provide information directly, their reliance on general purpose financial reporting may be reduced.

<sup>2</sup> Covenants in loan contracts include a range of affirmative and negative restrictions on various financial statement line items, as leverage, profitability, interest coverage, net worth, capital expenditures, investments and asset sales, dividends and repurchases, etc. (see, for example, Christensen and Nikolaev, 2012). In case of negative provisions that prohibit borrowers from adopting certain financial policies, any action that violates a prohibition triggers a covenant violation.

<sup>3</sup> Managers circumvent the violation of debt covenants, for example, to avoid turnover (Ozelge and Saunders, 2012) or prevent an increase in the cost of debt (Beneish and Press, 1993).

but allow the firm to continue operating and potentially gain positive equity value, and therefore act in line with their fiduciary duty to shareholders.<sup>4</sup> We examine whether extending the protection of fiduciary duties to include creditors lowers firms' propensity to circumvent violation of accounting-based debt covenants.

We use two test approaches to investigate the effect of directors' fiduciary duties on firms' propensity to avoid covenant violation. First, we examine the relation between a legal change in fiduciary duties and the extent to which firms use financial engineering to lower reported debt. Second, we use the covenant-slack distribution around zero to test the extent to which firms manipulate reporting to avoid debt-covenant violation.

Our main research setting is a 1991 Delaware court ruling that changed directors' fiduciary duties. On December 30, 1991, in the *Credit Lyonnais v. Pathe Communications* case, the Court of Chancery of Delaware issued a ruling that effectively increased directors' fiduciary duties to creditors. Historically, the position of US courts was that fiduciary duties are owed strictly to equity holders and not to creditors in solvent firms. The Delaware court, however, ruled in 1991 that when a firm is close to insolvency, directors are not merely the agents of the shareholders, but should consider the interests of creditors as well. The ruling was widely viewed as having created a new obligation for directors of Delaware firms, and evidence suggests that following this ruling, debt-equity conflicts decreased in Delaware firms (Becker and Stromberg, 2012) and accounting conservatism increased (Aier et al., 2014, Bens et al., 2020), especially for firms that were close to insolvency.

In our first test, we examine the impact of the change in fiduciary duties on issuances of mandatory redeemable preferred shares—preferred shares with a debt-like maturity feature that requires issuers to redeem the invested amount by a specific future date, which are in essence debt securities that

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<sup>4</sup> Covenant violations can trigger bankruptcy and erase equity, and by avoiding such covenant violations managers are generally viewed as benefiting equity holders. However, one could argue that actions imposed by creditors following a covenant violation may actually benefit equity holders because they may force the firm to react and potentially reduce the likelihood of bankruptcy. Moreover, lenders may also have incentives to waive and not trigger covenant violations, as unnecessarily prohibitive and tight covenants can reduce borrowers' flexibility in exploiting new investment and financing opportunities and be detrimental to lenders' interests (see e.g., Nash et al. 2003; Billett et al. 2007).

are structured as equity (DSE).<sup>5</sup> Prior to SFAS 150 (issued in 2003), these DSE securities were not reported as a liability, and firms used them to lower their reported leverage and circumvent the violation of debt covenants put in place by creditors (e.g., Engel et al., 1999; Moser et al., 2011; Levi and Segal, 2015).<sup>6</sup>

Using a difference-in-differences analysis around the 1991 ruling, we find that Delaware firms that were close to insolvency reduced structured debt issuances after 1991. Delaware firms that were not close to insolvency, as well as firms not domiciled in Delaware, did not experience a similar change in structured debt issuance around 1991. The results suggest that when managers and directors owe legal fiduciary duty to creditors, they are less likely to use structured debt transactions that lower reported leverage and circumvent debt covenant violations.<sup>7</sup> These results are consistent with our conjecture that unless required by law to protect creditors' interests, directors may take actions that benefit shareholders at the expense of creditors.

We next examine whether governance quality moderates the relation between fiduciary duties and creditors' protection. The evidence in the literature suggests board quality is associated with better audit quality (Abbott et al. 2003; Carcello et al., 2002), higher accruals quality (Klein, 2002; Jenkins, 2002), and fewer financial reporting frauds and misstatements (Dechow et al., 1996; Abbott et al., 2004; Beasley et al., 2000; Agrawal and Chadha, 2005). Hence, the findings in the literature suggest governance quality is positively associated with monitoring quality and consequently with better protection of shareholders' interests. Prior literature also documents that the quality of governance is negatively related to the cost of debt and positively related to firms' credit ratings (e.g., Bhojraj and Sengupta, 2003; Ashbaugh-Skaife et al., 2006). However, the positive impact of governance on creditors can be indirect. Better governance results in higher firm value, which in turn is associated with

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<sup>5</sup> Trust preferred shares (TPS), which are for example analyzed in Engle et al. (1999), are one form of mandatory redeemable preferred shares. We use the broader term of debt structured as equity, DSE, because the securities we examine are not necessarily structured using trusts.

<sup>6</sup> As discussed below, legitimate economic reasons exist for issuing structured debt, which we control for in our tests. We also conduct extensive construct-validity analyses to validate our conjecture that the issuance of mandatory redeemable preferred shares is indeed associated with attempts to avoid covenant violation. See discussion in section 5.

<sup>7</sup> Directors need to approve the issuances of new securities, and this form of reporting bias therefore requires their consent. See, for example, Del. Code Ann. tit. 8, § 161 (2010).

lower credit risk. Our setting allows us to examine whether a direct relation exists between board quality and creditors' protection. Using board independence as a proxy for board quality, we find board independence has negative effect on DSE issuances by Delaware firms that are close to insolvency. We do not find a relation between board quality and DSE issuance in non-Delaware firms or in Delaware firms with low default risk. These results imply governance quality is associated with better protection of creditors only when directors have explicit fiduciary duties to protect creditors.

In the second research setting, we examine the distribution of covenant slack around zero to test the extent to which Delaware firms manage their reporting to avoid violation of debt covenants after 1991. Managers who wish to avoid debt-covenant violation can issue structured debt or use their business and reporting discretion in other ways to achieve this goal. To gauge if firms avoid debt-covenant violations in general, we use a result-driven test, similar to Dichev and Skinner (2002) and Burgstahler and Dichev (1997), and examine the distribution of covenant slack. Covenant slack is the difference between the limit set by the debt covenant and the firm's actual financial ratio. If managers are trying to avoid debt-covenant violations, we expect to find unusually few observations just below zero slack and unusually many observations just above zero.

We find a discontinuity around zero in the covenant-slack distribution for non-Delaware firms with high default risk, evidence that suggests these firms act to avoid covenant violation. However, we find no such discontinuity for Delaware firms. These findings support our hypothesis that when directors owe fiduciary duties to creditors, they are less likely to engage in manipulations to avoid covenant violation.

This study makes several contributions to the literature. First, we contribute to the literature that examines the effect of fiduciary duties on debt-equity conflicts (Becker and Stromberg, 2012). For example, Aier et al. (2014) and Bens et al. (2020) show that the 1991 court ruling increased Delaware firms' reporting conservatism. We examine the effect of the change in fiduciary duties on the financial engineering firms use to lower their reported debt and circumvent debt covenant violations.<sup>8</sup> Moreover, we test firms' overall propensity to use manipulations and avoid debt covenants violation (e.g., Dichev

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<sup>8</sup> The choice to issue debt structured as equity is financial engineering aimed to reduce reported debt, and has real costs to the issuing firms (e.g., Engle et al., 1999; Levi and Segal, 2015).

and Skinner, 2002), and its relation to fiduciary duties toward creditors. In particular, we find firms are more likely to circumvent debt covenant violations when directors owe fiduciary duties only to shareholders than when they owe them to creditors as well.

Our results also show firms are less likely to use structured transactions to lower reported debt when corporate governance is designed by law to protect creditors' interests, rather than only shareholders' interests. Prior work demonstrates that firms structure transactions to lower their reported debt (e.g., Imhoff and Thomas, 1988; Engel et al., 1999; Dechow and Shakespeare, 2009; Moser et al., 2011; Levi and Segal, 2015). As a result, accounting regulation tries to limit such structured transactions.<sup>9</sup> However, accounting standards cannot completely curtail financial engineering (Dye et al. 2015). Our findings suggest that imposing fiduciary duties on directors towards creditors can be an effective alternative way to reduce the manipulative use of structured debt.

Finally, the evidence in the extant literature suggests board quality reduces reporting manipulations and improves the quality of financial reporting unconditionally. Our evidence suggests board quality reduces manipulations that hurt the stakeholder to whom directors owe fiduciary duties. Firms with high board quality that do not owe fiduciary duties to creditors are as likely to take actions to circumvent covenant breach as firms with low board quality. Only when directors owe fiduciary duties to creditors, governance quality is negatively associated with firms' propensity to take such actions.

The remainder of the paper is organized as follows. Section 2 discusses prior literature and the hypotheses. Section 3 describes the results concerning the relation between fiduciary duties and structured debt issuance, and section 4 presents the results related to the moderating impact of board quality. Section 5 describes construct-validity analyses on the relation between structured debt issuance and covenant avoidance. Section 6 examines the discontinuity around zero in the distribution of debt-covenant slacks, and section 7 concludes.

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<sup>9</sup> See footnote 1 for examples of such regulation.

## **2. Hypothesis Development**

Corporate governance mechanisms usually require that directors protect shareholders' interests. Other stakeholders, such as debtholders and employees, can presumably protect themselves through contracts and other legal means (Becker and Stromberg, 2012). Indeed, the position of US courts is that for solvent firms, directors and managers owe fiduciary duties to shareholders only. These duties require directors to protect and take actions that are in the interest of shareholders.

The 1991 *Credit Lyonnais v. Pathe Communications* ruling changed the fiduciary duties of directors in Delaware. The case followed the leveraged buyout of MGM Corporation in November 1990. Subsequent to the buyout, MGM filed for bankruptcy. It emerged from bankruptcy in part by securing a credit line from Credit Lyonnais, a French bank, which then used its agreed contractual right under the credit agreement to replace the directors and the CEO of MGM. Pathe Communication, the controlling shareholder of MGM, felt the newly appointed CEO and directors favored the creditors of the firm, and sued Credit Lyonnais, claiming breach of fiduciary duty by the CEO. The court ruled that when a firm is close to insolvency, directors owe duties not only to shareholders, but also to the enterprise as a whole; that is, the board should consider the interests of creditors as well.

Consistent with the change in duties to creditors, Becker and Stromberg (2012) show debt-equity conflicts decreased in Delaware firms following this ruling. Specifically, they provide evidence that firms that were close to insolvency were more likely to issue equity and increase investments, and to reduce operating risk.

Firms' reporting behavior also became more conservative following the 1991 ruling. Aier et al. (2014), and Bens et al. (2020) show the ruling resulted in greater overall conservatism, especially for Delaware firms that were close to insolvency. The results of these studies suggest a causal link between debtholders' demand for conservatism and actual conservatism.

We examine whether the change in ruling affected the propensity of firms to avoid debt covenant violation. The debt-covenants hypothesis predicts managers have an incentive to avoid debt-covenant violation, and the literature shows managers engage in reporting activities that reduce the likelihood of



covenant violations.<sup>10</sup> For example, Sweeney (1994) finds managers respond with income-increasing accounting methods when their firms face technical default. DeFond and Jiambalvo (1994) document income-increasing abnormal accruals one year prior to debt-covenant violations and also to some extent in the year of violation. Dichev and Skinner (2002) provide distributional evidence that managers take actions to avoid debt-covenant violation. Hence, theory and empirical evidence suggest shareholders and managers have an incentive to avoid covenant breach. However, by avoiding covenant breach, managers hurt creditors' interest, especially when the firm approaches insolvency, because they prevent creditors from taking timely actions to reduce bankruptcy risk, avoid bankruptcy costs, and recover more from the borrowing firm. Because the Credit Lyonnais ruling requires directors to protect creditors when firms approach insolvency, we expect that the ruling affected the propensity to avoid debt-covenant violation primarily for Delaware firms approaching insolvency. To test our conjecture, we examine whether the ruling affected the extent to which firms issue debt structured as equity, and in general manipulate reporting to avoid debt-covenant violation.

In particular, we examine whether the change in director duties following the court ruling affected the propensity of Delaware firms to issue mandatorily redeemable preferred shares—debt securities structured as equity (DSE). DSEs are preferred shares with a debt-like maturity clause in which the issuer commits to redeem the amount security holders invest at a specific future date. Although DSEs economically represent a form of debt, prior to SFAS 150, they were reported outside of the liabilities section, in the “mezzanine” section between liabilities and shareholders' equity. Several studies examined the financial reporting, dividend, and tax incentives of firms issuing DSE (e.g., Kimmel and Warfield, 1993, 1995; Engel et al., 1999; Frischmann et al., 1999). Subsequent work investigated the effect of SFAS 150 on firms' propensity to use DSE (e.g., Moser et al., 2011; Levi and Segal, 2015). DSE issuances were substantial prior to SFAS 150. For example, Moser et al. (2011), report a time series of outstanding DSE for all industrial firms during 1993-2005, highlighting an

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<sup>10</sup> Covenant violations increase the cost of debt (Beneish and Press, 1993). Stock prices also decrease upon disclosure of violations, or when investors suspect covenant violation is imminent (Stice 2018). Moreover, managers personally lose a significant part of their compensation or even their job following covenant violation (Ozelge and Saunders, 2012; Eckbo et al., 2015), and therefore have incentives to avoid covenant violation.

outstanding balance of approximately \$25 billion of DSE in 2002, dropping to approximately \$10 billion by 2005 (figure 1 and p.365). Levi and Segal (2015) document across their sample from 1981 to 2011, average proportion of DSE issuance to debt issuance of 2.3%—similar to the proportion of equity issuance to debt issuance of 2.2%. While the use of DSE has diminished following SFAS 150, these instruments were economically significant both in relative and in absolute numbers around the 1991 court ruling, making the research setting and the instrument a useful proxy to examine the impact of the change in fiduciary duties.

The evidence in the literature suggests firms used the discrepancy between the economic substance and the accounting treatment of DSE prior to SFAS 150 to undermine creditors' interests and transfer wealth from creditors to shareholders. Consistent with the contract-based argument (e.g., Holthausen and Watts, 2001; Watts, 2003; Ball et al., 2008), Moser et al. (2011) find that lenders primarily contract under GAAP, and following SFAS 150, firms redeemed their DSE to avoid breaching their debt covenants. Their findings suggest the classification of DSE in the mezzanine section before SFAS 150 helped levered firms avoid debt-contract limits. Similarly, De Jong et al. (2006) show that following the adoption of IAS 32 (which also requires classifying DSE as debt), Dutch firms either bought back their preference shares or changed the shares' characteristics in such a way that the classification as equity could be maintained on the balance sheet. Whereas Moser et al. (2011) and De Jong et al. (2006) focus on firms holding DSE and their choice to redeem it in reaction to SFAS 150 and IAS 32, respectively, Levi and Segal (2015) examine firms' ex-ante issuance choice between DSE and debt, and demonstrate that firms issued DSE to reduce their reported leverage. Engel et al. (1999) identify firms that issued DSE and used the proceeds to redeem debt, indicating firms used DSE to lower reported debt. Taken together, the evidence suggests firms used DSE to lower reported debt and circumvent debt-covenant violations.<sup>11</sup>

We test whether Delaware firms that are close to insolvency reduced the issuance of DSE following the 1991 ruling. Formally,

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<sup>11</sup> However, one can argue that DSE issuance actually benefits creditors, because the firm is getting cash infusion that potentially reduces bankruptcy concerns; if this is the case, we should not observe a decrease in DSE issuance following the 1991 ruling.

**Hypothesis 1a (H1a):** Following the 1991 Delaware ruling, there was a decrease in DSE issuances by Delaware firms that were close to insolvency.

Dichev and Skinner (2002) provide distributional evidence that managers take actions to avoid debt-covenant violation. They show that the number of observations just below the violation cutoff is small compared to the number of observations at and just above the cutoff. Thus, our next hypothesis predicts that non-Delaware (Delaware) firms take (do not take) actions to avoid debt covenant. We focus on firms that are close to insolvency, because they stand to lose more from covenant violation and therefore have greater incentives to avoid covenant violation. In addition, being closer to insolvency, firms are more likely to owe fiduciary duties to creditors in Delaware following the 1991 court ruling. Formally,

**Hypothesis 1b (H1b):** Following the 1991 Delaware ruling, there is no distributional evidence of avoidance of debt-covenant violation by Delaware firms that are close to insolvency. In addition, there is distributional evidence of debt-covenant violation by non-Delaware firms that are close to insolvency.

Our next hypothesis focuses on the mediating role of the quality of corporate governance. Prior literature finds the quality of governance is negatively related to the cost of debt and positively related to firms' credit ratings (e.g., Bhojraj and Sengupta, 2003; Ashbaugh-Skaife et al., 2006).<sup>12</sup> Better governance promotes better monitoring of management that results in higher firm value, which indirectly also benefits creditors (Ashbaugh-Skaife et al., 2006). Bond contracts include fewer covenants to protect creditors when borrowers have higher-quality governance (Li et al., 2014). More directly related to our study, Aier et al. (2014) and Bens et al. (2020) show the impact of the 1991 Delaware court ruling on conservatism applies particularly to firms with stronger boards. Hence, we examine whether the impact of the court ruling was more pronounced for firms with better governance.<sup>13</sup> More precisely, in the absence of fiduciary duty to creditors, board quality should not be

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<sup>12</sup> Relatedly, Sengupta (1998) finds better disclosure quality is associated with a lower cost of debt, and De Franco et al. (2014) find debt-equity conflicts covered by debt analysts increase the cost of debt financing.

<sup>13</sup> We focus our tests on board independence, because conceptually independent board members are more likely to act in accordance with their fiduciary duties toward creditors. Quality of governance is often correlated across many dimensions, and still we avoid using metrics not directly related to directors' fiduciary duties. Moreover,

associated with firms' actions (i.e., DSE issuance) to circumvent covenant violations. However, we predict that governance quality is associated with DSE issuance only when directors owe fiduciary duty to creditors, that is, after the 1991 ruling in Delaware firms that are close to insolvency. Formally,

**Hypothesis 2 (H2):** Following the 1991 Delaware ruling, a negative relation exists between governance quality and DSE issuance for Delaware firms that are close to insolvency; and no relation exists between governance quality and DSE issuance for Delaware firms that are not close to insolvency, or for non-Delaware firms.

### 3. DSE and Fiduciary Duties

In this section, we discuss the methodology, data, and results pertaining to H1a. Section 4 describes the results concerning H2. Section 6 reports the data and results concerning the distributional analysis (H1b).

#### 3.1 Methodology

Throughout the analysis, we measure DSE issuance as the ratio of mandatory redeemable preferred-shares issuances scaled by total debt issued during the year, where debt is defined as the sum of mandatory redeemable preferred shares and long-term debt issuances.

In all regressions, we control for variables that are associated with the decision to issue DSE. In particular, we control for the tax rate, loss carryforward, and firm size. *Tax Rate* is the effective tax rate. *Loss Carryforward* is an indicator variable of 1 for firms with non-zero loss carryforward and earnings before interest and taxes that are either negative or lower than one fifth of the loss carryforward. *Size* is the natural log of the market value of equity.

Tax is a major factor in the decision to issue DSE or debt. Firms that are highly profitable and have high tax rates can take advantage of the tax benefit associated with interest payments, and therefore would prefer to issue debt instead of DSE. We measure the effective tax rate as 1 minus the ratio of net income to earnings before taxes. Tax shields, on the other hand, lower firms' incentive to use debt

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some governance mechanisms that benefit shareholders may not be beneficial to creditors. For example, whereas exposure to takeovers generates value to shareholder (Gompers et al., 2003), it may negatively affect creditors (Cremers et al., 2007; Chava et al., 2009; Chava et al., 2010; Francis et al., 2012).

financing. Auerbach and Poterba (1986) find that firms with large tax-loss carryforwards are likely to face zero marginal tax rates, and consequently, these firms are less likely to issue debt (MacKie-Mason, 1990). To ensure the loss carryforwards are large, we use an indicator variable that equals 1 for firms with loss carryforward that is at least five times larger than current earnings (before interest and taxes).<sup>14</sup> In addition, we control for leverage to account for the possibility that DSE issuance is associated with the existing level of interest-bearing debt.

We use difference-in-differences methodology to investigate the effect of the court ruling on DSE issuances. Using data from 1988 through 1995, we estimate the following regression with firm and year fixed effects<sup>15</sup>:

$$DSE/Debt_{it} = a + b_1 DfDelaware_{it} \times Post1991_{it} + Controls + \varepsilon_{it} \quad (1)$$

The 1991 Credit Lyonnais v. Pathe Communications ruling requires that fiduciary duty be owed to creditors in firms that are in the “zone of insolvency.” Since the case only created new duties for firms in the zone of insolvency, any changes in corporate behavior that were driven by the ruling should be particularly visible for firms in financial distress but might be absent altogether for firms that are far from financial distress. Because of this, we focus on firms that are more financially distressed, using a measure of probability of default similar to Vassalou and Xing’s (2004). We sort the sample firms into terciles based on their probability of default in the first sample year prior to the ruling, and define firms in the top (bottom two) tercile as *High (Low) Default Risk*. *DfDelaware* is the interaction between the High Default Risk and the Delaware indicators, and hence *DfDelaware* represents the group of firms directly affected by the ruling. According to the above specification,  $b_1$  captures the change in DSE issuance for high default-risk Delaware firms following the court ruling, and a negative  $b_1$  coefficient indicates these firms experienced a greater decrease in DSE issuance in the period following the 1991 ruling.

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<sup>14</sup> Our definition of the loss-carryforward dummy follows Levi and Segal (2015). Similar results are obtained in specifications using a dummy that equals 1 for firms with loss carryforward that is at least three times or seven times larger than current earnings before interest and taxes.

<sup>15</sup> Because the regression is estimated with firm and year fixed effect, there is no need to control for the Delaware and Post1991 main effects.

### 3.2 *Data and Descriptive Statistics*

We obtain data from Compustat's annual database on mandatorily redeemable preferred-shares issuances (Compustat item PSTKR). The main feature of these shares is that they have to be redeemed by the issuer at the request of the holder or upon the occurrence of predetermined event or condition.<sup>16</sup> We code a firm as issuing DSE when its redeemable preferred shares increase during the fiscal year, and this increase parallels a rise in reported cash from issuances of preferred shares. Debt issuance is net debt issuance for firms that increased their net debt, that is, for firms having an increase in long-term debt, and zero otherwise. Net debt issuance is measured as the difference between long-term debt issuances and long-term debt reductions (Compustat items DLTIS minus DLTR). Total debt issued is the sum of net debt and mandatory redeemable preferred-shares issuances.

Our sample includes all observations in Compustat with non-missing values of the variables needed to estimate equation (1) and the probability of default following Vassalou and Xing (2004).<sup>17</sup> All variables are winsorized at the top and bottom percentiles. We exclude financial institutions (SIC codes 6000-6499) and firms with equity market value of less than \$10 million. The sample includes 5,585 (1,882) firm-years (firms) between 1988 and 1995.<sup>18</sup> The number of observations of Delaware firms (2,602) is similar to non-Delaware firms (2,983).

Table 1, Panel A provides the mean and median of the variables in equation (1) separately for Delaware and non-Delaware firms. Delaware firms issued slightly more DSE, and their DSE/Debt is 4.9% compared with 4.6% of the non-Delaware firms. Delaware firms have lower tax rates (29.1% vs. 31.5%) and higher tax shields (10.3% vs. 7.2%), which may drive them to issue more DSE. Delaware firms are slightly larger and have similar leverage to non-Delaware firms.

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<sup>16</sup> Hovakimian et al. (2001) and Fama and French (2005), for example, similarly use the change in Compustat items to gauge debt and equity issuances. We follow Segal and Levi (2015), and use the change in Compustat Item #175 as our proxy for DSE issuance. See Compustat definition of variable PSTKR (Preferred/Preference Stock – Redeemable, previously Item #175). There are alternative databases (Linsmeier et al. 2018) and approaches to obtaining the data. For example, using keyword searches in 10-K filings (e.g., Callen et al., 2016), which are not applicable to our study because most 10-K and other filings are not available electronically from EDGAR prior to 1996.

<sup>17</sup> We obtain the probability of default measure from Maria Vassalou's website. Firms with zero debt are defined as having zero probability of default. When using high debt-to-equity as an alternative measure of default, we get similar results.

<sup>18</sup> We get similar results using data from three, five, six, and seven years before and after 1991.

Table 1, Panel B reports correlations among the main variables. Pearson (Spearman) correlations are reported above (below) the diagonal. Although the correlations are mostly statistically significant, and large between related independent variables as tax rate and loss carryforwards, which have a Pearson correlation of 0.35, multicollinearity does not appear to be a concern.

### 3.3 Results

Table 2 compares the magnitude of DSE issuance relative to total debt issued for high and low default-risk firms, incorporated in Delaware and elsewhere.

Consistent with our Hypothesis 1a, we find that Delaware firms with high default risk reduced DSE issuance relative to total debt issued following the court ruling in 1991, and the decrease is economically and statistically significant. In particular, the mean of DSE issuance relative to total debt issued for high default-risk firms in Delaware in the period from 1988 through 1991 is 7.06%, whereas from 1992 to 1995, the ratio decreased to 3.71%, a decrease of 47.5%, which is significant at the 0.02 level. By contrast, DSE issuances by other firms did not decrease during that period. Non-Delaware firms actually increased DSE issuances, and low default-risk Delaware firms had an insignificant increase in DSE ratio.

Taken together, the univariate results reported in Table 2 support our hypothesis and suggest the 1991 Credit Lyonnais v. Pathe Communications ruling led to a reduction in DSE issuances for Delaware firms with high default risk.

The first column of Table 3 presents the regression results of equation (1) when we use the full sample. Consistent with H1a, the coefficient on the interaction of *DfDelaware* and *Post1991* indicators is negative and significant ( $p$ -value  $< 0.01$ ). Hence, the results indicate the Delaware court ruling in 1991 resulted in lower DSE issuance in Delaware firms that were close to insolvency.

To rule out the possibility that our results are due to differences in characteristics between Delaware and non-Delaware firms, we estimate equation (1) using a matched sample. The matched control sample acts as a (imperfect) counterfactual to help control for potential time-period effects (Meyer, 1995; Bertrand et al., 2004) and other potential correlated omitted variables (Cram et al., 2009). For each high default-risk Delaware firm, we find a matched control firm from the sample using

propensity score matching. Specifically, we estimate the propensity score using DSE determinants: leverage, size, tax rate, and loss carryforwards. We select the match from the control sample based on the closest propensity score with replacement.<sup>19</sup> The matched sample consists of 1,644 observations, with 822 pairs of the treatment Delaware firm and control firm observations. Untabulated analysis indicates that the matching is effective, as there are no statistically significant differences (at the 0.10 level) between the characteristics on which the samples are matched, i.e., leverage, size, tax rate, and loss carryforwards. The second column of Table 3 presents the regression results. The coefficient on the interaction of *DfDelaware* and *Post1991* indicators remains negative and significant (*p*-value 0.01). Thus, the results imply directors are less likely to allow transactions that benefit shareholders at the expense of debtholders when they face explicit fiduciary duty to creditors.<sup>20</sup>

We find the parallel trends assumption holds, and there are no statistical significant differences (at the 0.10 level) between DSE issuances of the treatment and control groups during the pre-ruling period, 1988 to 1991. We test for differences in trends between treatment and control firms by running the difference-in-difference regression (1) where we replace the *Post1991* dummy with year dummies, and use the first sample year as the holdout year. Results are presented in Figure 1. We find that coefficients on the pre-ruling year dummies are insignificant: the positive coefficient  $\beta_{89}$  and  $\beta_{90}$ , 0.007 and 0.006, are not greater than zero, and the negative coefficient  $\beta_{91}$ , -0.006, is not smaller than zero at the 0.10 (one-sided) significance level, as the confidence interval in Figure 1 shows. This analysis suggests that the parallel trend assumption is not violated.

[Figure 1 here]

We conduct several sensitivity analyses to examine the robustness of the results. First, we examine the change in DSE issuance separately for high and low default-risk firms. The results, reported

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<sup>19</sup> We match control firms with replacement. Matching without replacement, when few comparison units exist that are similar to the treated units, may lead to matching of comparison units that are quite different from the treated units. Matching with replacement minimizes the propensity score distance between the matched comparison units and the treatment unit—each treatment unit can be matched to the nearest comparison unit, even if a comparison unit is matched more than once. See Dehejia and Wahba (2002).

<sup>20</sup> Pennsylvania and Indiana have constituency statutes that allow corporate directors to take into account the interests of non-owners (e.g., workers, customers, creditors, and suppliers) in certain situations, such as hostile takeovers. Hence, to examine whether the inclusion of firms from these states in the non-Delaware sample affects our results, we exclude firms incorporated in Pennsylvania and Indiana. The results are similar to those reported above.



in Panel A of Table 4, are entirely consistent—we observe a decrease in DSE issuance in the post-ruling period only for Delaware firms with high default risk. All other firms did not experience a change in DSE. Second, we include profitability and coverage ratio, which may affect DSE issuances (e.g., Levi and Segal, 2015), as additional controls in equation (1), and find the results are not affected—see Panel B in Table 4. Third, we estimate the regression without firm and year fixed-effects, and control for the  $D/\text{Delaware}$  and  $\text{Post1991}$  main effects and their interactions (Model 2 in Panel B of Table 4), and find similar results.

Forth, because we scale DSE issuance by total debt and DSE issuance, a possible explanation for the decrease in DSE issuance of Delaware firms with high default risk is that these firms increased debt issuance subsequent to the court ruling. To rule out this explanation, we estimate equation (1) for DSE scaled by total assets in thousands of dollars at the end of the previous year ( $\text{DSE}/\text{Ast}_{it}$ ) as the dependent variable, showing the DSE issuances for every thousand dollars of total assets. The estimation results, reported in Model (3) of Panel B in Table 4, are consistent with the main results, and we find the coefficient on  $D/\text{Delaware}_i * \text{Post1991}_t$  is negative, -0.853, and significant at the 0.01 level, and supports the hypothesis. These results suggest the decrease in the DSE to Debt issuance is due to a decrease in DSE and not to an increase in debt issuance.

Fifth, we repeat the analyses using high debt-to-equity as measure of probability of default. The correlation between debt-to-equity and the probability of default measure we use in the main analysis is high (0.41), and results are similar. Sixth, we estimate equation (1) using Tobit. The results are similar to those reported in Table 3. Seventh, we estimate the regression where the dependent variable takes the value of 1 if the firm issued DSE during the year, and zero otherwise. We estimate the regression using Logit. The results are consistent—we observe that the likelihood of DSE issuance is lower in the post-ruling period only for Delaware firms with high default risk.

Finally, another potential explanation for the decrease in DSE issuance in the post period is a decrease in the number of debt covenants following the 1991 ruling. Creditors can require fewer covenants if they believe that the change in fiduciary duties results in greater creditor protection. Becker and Stromberg (2012) show the relative number of covenants used in Delaware firms decreased compared with non-Delaware firms after 1991, yet the absolute number of covenants have not

necessarily decreased.<sup>21</sup> Specifically, we find that the number of covenants of Delaware firms increased after 1991. Because DSE issuances of Delaware firms decreased not only in relative terms, but also in absolute terms, as shown in Table 2, the change in number of covenants around 1991 cannot by itself explain the decrease in DSE issuances.

We obtain data on the number of debt covenants from CapitalIQ, and if a firm has multiple loans in a given year, we use the average number of covenants. Similar to Becker and Stromberg (2012), we use a two-year window around the ruling, and compare 1990-1991 to 1992-1993. Merging the covenant data with our sample, we find 174 firm-year observations for Delaware firms, for which the mean (median) number of covenants is 5.72 (5), and mean log number of covenants is 1.61.<sup>22</sup> We find that the log number of covenants for Delaware firms increased from 1.13 to 1.69 after 1991, and the increase is statistically significant at the 0.01 level.

## **4. Governance Quality and DSE Issuances**

### *4.1 Methodology and Data*

We measure governance quality using board independence (see, e.g., Beasley, 1996). To the extent that board independence is associated with board quality, we expect that the change in DSE issuance after the ruling would be more pronounced for Delaware firms with greater board independence that are closer to insolvency. Data on board independence are only available from 1996 onwards, and hence we examine the relation between DSE issuance and board independence from 1996 through 2002, a year before SFAS 150 came into effect, and compare it in a difference-in-differences analysis to DSE issuances subsequent to SFAS 150 from 2003 to 2009. SFAS 150 required firms to reclassify DSE as debt on the balance sheet, and took away the reporting incentives for issuing these financial instruments. This reporting shock is expected to affect firms that potentially used DSE for reporting purposes, primarily non-Delaware firms, for which the 1991 Credit Lyonnais does not apply,

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<sup>21</sup> Becker and Stromberg (2012) use a difference-in-differences analysis and find a relative decrease in number of covenants used by Delaware firms—their analysis compares the change in number of covenants in Delaware relative to change in control group of non-Delaware firms over the same period. However, the absolute number of covenants could have increased over the sample period after 1991.

<sup>22</sup> Note that these numbers are comparable to those reported by Becker and Stromberg (2012), see e.g. page 1942.

and Delaware firms with fewer independent board members, which are less likely to uphold their fiduciary duties to creditors.

We take data on board independence from Institutional Shareholder Services (ISS), available starting 1996, and match it with Compustat using Coles, Daniel and Naveen's (2014) methodology.<sup>23</sup> As before, we exclude financial institutions (SIC codes 6000-6499) and firms with equity market value of less than \$10 million. The sample includes 2,891 (793) firm-years (firms) between 1996 and 2009. Of the 2,891 observations, 1,610 (1,281) relate to Delaware (non-Delaware) firms. We use board independence, i.e., the proportion of independent directors on the board, in the year prior SFAS 150 (*Indep*) for our difference-in-differences analysis. Average (median) *Indep* is slightly lower for Delaware firms, 0.565 (0.571), than for non-Delaware firms 0.604 (0.625), and the difference is significant at the 0.01 level.

We first examine the change in DSE issuances of high-default risk Delaware firms with independent boards. Firms with majority of board members that are independent are more likely to act in accordance with their fiduciary duties, and in Delaware firms with high default risk these fiduciary duties are owed to creditors (H2). These firms are less likely to issue DSE for reporting purposes. Table 5 shows that the average DSE/Debt issuances by Delaware firms with high default-risk and independent boards were already low before SFAS 150, 1.41%, and significantly lower than the issuances by other firms, 5.69%, at the 0.01 level. After SFAS 150, however, the DSE issuances by other firms significantly dropped to 0.90%, and became insignificantly different (at the 0.10 level) from DSE issuances by high default-risk Delaware firms, 2.16%. Specifically, non-Delaware firms, which were not affected by the 1991 Delaware court ruling, and thus did not owe fiduciary duty to creditors, decreased their DSE issuances after SFAS 150. Similarly, Delaware firms with low default risk, which do not owe fiduciary duty to creditors, also lowered their DSE issuances from 9.20% to 2.10% after 2003.<sup>24</sup> The 1991 Delaware ruling imposed fiduciary duties only on firms that are close to insolvency, and thus the low default-risk firms are not affected by it. Finally, the table shows that Delaware firms

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<sup>23</sup> The Coles, Daniel and Naveen's (2014) data that links ISS/RiskMetrics with Compustat data is taken from Lalitha Naveen's website.

<sup>24</sup> Note that apparent differences with the DSE levels reported in Table 2 are due to difference in periods and the availability of board independence data required for this test.

with high default risk and dependent boards also lowered their DSE issuances following SFAS 150, from 3.17% to 0. These high-default Delaware firms also owe fiduciary duties to creditors. However, consistent with H2 we find that board independence has first order effect on the firm's adherence to their fiduciary duties.

Together, the univariate results suggest that non-Delaware firms and Delaware firms with low default risk and dependent board issued DSE as long as it provided reporting advantages. Delaware firms with high default risk and independent boards issued less DSE prior to SFAS 150 relative to all other firms, and did not experience change in DSE issuance after 2003. These results are entirely consistent with H2, and indicate (a) that firms used DSE primarily because of its reporting advantages – classification of debt as non-debt instrument on the balance sheet; and (b) the strategic use of DSE was mitigated for firms which owe fiduciary duties to creditors *and* have more independent boards.

To formally test the effect of board independence on DSE issuances, we use the following difference-in-differences specification:

$$DSE/Debt_{it} = a + b_1 DfDelaware_i \times Pre2003_t + b_2 Indep_i \times Pre2003_t + b_3 DfDelaware_i \times Indep_i \times Pre2003_t + Controls + \varepsilon_{it}, \quad (2)$$

where  $DfDelaware_i$  is, as before, an indicator variable that equals 1 for high default-risk Delaware firms, where high-default firms are firms in the highest tercile of probability of default, which is measured in the pre-SFAS 150 period.  $Indep_i$  is the proportion of independent directors on the board also measured in the pre-SFAS 150 period.  $Pre2003$  is an indicator variable that equals 1 for years before SFAS 150 came into effect. The regression is estimated with firm and year fixed effects, and uses the same control variable in regression (1).

Panel A of Table 6 presents the estimation results. Model 1 compares the high default-risk Delaware firms to all other firms, and the negative coefficient on  $DfDelaware_i \times Indep_i \times Pre2003_t$ , -0.049, is in line with the univariate results. This indicates that before SFAS 150 high default-risk Delaware firms with more independent boards issued fewer DSE than other firms. Model 2 shows the marginal effect of board independence is negative. The coefficient on  $DfDelaware_i \times$

$Indep_i \times Pre2003_t$  is -0.157, indicating board independence has a more negative effect on DSE issuances in high default-risk Delaware firms.

To control for potential endogeneity, we also use a matched-sample research design, similar to the one discussed above (see Table 3), adding the level of board independence (ratio of independent directors to total number of directors) to the other DSE determinants. The matched sample consists of 1,014 firm-years, with 507 pairs of treatment Delaware and control firms. Untabulated analysis indicates that the matching is effective, as there are no statistically significant differences (at the 0.10 level) between the characteristics on which the samples are matched, i.e., leverage, size, tax rate, loss carryforwards, and board independence. Estimation results are reported in Panel B of Table 6 and are similar to results of the full sample, that is the coefficient on the interaction  $DfDelaware_i \times Indep_i \times Pre2003_t$  is negative and significant, supporting H2.

We also find the parallel trends assumption holds, and there are no statistical significant differences (at the 0.10 level) between DSE issuances of the treatment and control groups during the pre-SFAS 150 period, 1996 to 2002.

Taken together, the results in Tables 5 and 6 indicate that independent boards are more likely to uphold their fiduciary duties to creditors and less likely to use structured transactions that lower reported debt. Governance quality does play a role in protecting creditors' interest, however, when directors have explicit fiduciary duty toward creditors.

## **5. DSE Construct-Validity Analyses**

In this section, we report construct-validity analyses related to the association between DSE issuance and creditors' interests. We first discuss the association between DSE issuance and probability of covenant violation. We then examine the extent to which banks reclassified DSE as debt in the covenants, and hence the extent to which issuance of DSE effectively allowed firms to circumvent debt limits set by covenants.

As discussed above, the literature suggests that prior to SFAS 150, DSE issuance by a firm approaching insolvency adversely affected creditors' interests, because the issuance allowed firms to

avoid covenant violation, and consequently prevented creditors from taking timely actions to reduce bankruptcy risk or actions that allowed them to recover more from the borrowing firm. A counterargument is that DSE issuance actually benefited creditors because of the cash infusion, which likely alleviated some of the financial constraints of the firms and consequently mitigated the likelihood of bankruptcy. To examine which of the two arguments is valid in our sample, we test the likelihood of bankruptcy among DSE issuers compared with firms that only issue debt. If DSE issuance benefits creditors or alternatively is only a financing decision, we should observe no relation between the likelihood of bankruptcy and the decision to raise capital using debt or DSE.

We identify all COMPUSTAT firms with a form 8-K bankruptcy filing from 1996 through 2002 (the year prior to the issuance of SFAS 150) that issued DSE or debt in the same period.<sup>25</sup> This procedure yields 13,007 firm-year observations, of which 987 are classified as DSE issuance and the remaining as debt issuance. We find 11.14% of the firms that issued DSE filed for bankruptcy within five years of the issuance date, compared with only 5.76% of firms that issued debt (and no DSE) in the same window, and the difference between these two bankruptcy rates, 5.38%, is highly significant ( $p$ -value  $< 0.01$ ).<sup>26</sup> Hence, the greater likelihood of bankruptcy by DSE issuers is consistent with the claim in the literature that DSE are issued by firms troubled by debt (e.g., Engel et al. 1999; Moser et al. 2011; Levi and Segal 2015).

The higher likelihood of bankruptcy, however, does not necessarily suggest firms issued DSE to avoid debt-covenant violation. An alternative explanation is that firms issued DSE because they could not raise debt. Hence, our next analysis tests the conjecture that firms issue DSE to avoid covenant violation, that is, we examine the association between DSE issuance and probability of covenant violation. For this analysis, we use the measure of aggregate covenant violation probability that is calculated in Demerjian and Owens (2016) across all covenants included on a given loan package from the total set of fifteen covenant categories,  $PCovViol$ .<sup>27</sup> We estimate the following regression for 1,465

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<sup>25</sup> Complete data on 8K filings are only available from 1996, the first year of mandatory EDGAR filing.

<sup>26</sup> In comparison, Moody's reports a 6.86% five-year bankruptcy rate for debt rated between 1920 and 2008 (Moody's Investors Service 2009).

<sup>27</sup> Data on probability of covenant violation is taken from Peter Demerjian's website.

observations of 1,157 Delaware and non-Delaware firms between 1996 and 2002. Regressions are estimated with year fixed effects.<sup>28</sup>

$$DSE/Debt_{it} = a + b_1 PCovViol_{i,t-1} + b_2 DfDelaware_i + b_3 PCovViol_{i,t-1} \times DfDelaware_i + Controls + \varepsilon_{it}. \quad (3)$$

The regression results are presented in Table 7. As expected, we find the coefficient on *PCovViol* is positive and significant, that is firms with higher probability of covenant violation are more likely to issue DSE. In comparison, high default-risk Delaware firms are less likely to issue DSE, as the coefficient on *PCovViol\*DfDelaware* is negative and significant. That is, given the fiduciary duties toward creditors in Delaware firms that are close to insolvency, these firms are less likely to take actions to avoid covenant violation

Finally, we ascertain that DSEs were not reclassified as debt in the covenants. Ex ante, firms' ability to circumvent covenant violations with DSEs is not clear, because banks can adjust reported debt, reclassify DSE as additional debt in covenant agreements, and close this loophole (see, e.g., Beatty et al., 2008, Li, 2010 on loan contract adjustments). An alternate view, however, is that banks primarily contract on the GAAP numbers reported in financial reports (e.g., Holthausen and Watts, 2001; Watts, 2003; Ball et al., 2008; Moser et al., 2011). We find that debt covenants of the firms in our sample mostly maintained the preferred-shares classification of DSE, and did not reclassify DSE as debt. Specifically, we follow the procedure employed by Moser et al. (2011), and search Lexis-Nexis SEC EDGAR filings database for 10-K filings' Exhibit 4 or 10 containing material debt agreements. Within the debt agreements, we search for the terms "preferred shares" and "redeemable preferred shares," including wording variations (e.g., "preference shares" or "stock"), as well as variation in the order and distance between words. We conduct the search for all DSE issuances between 1996 and 2002 in our sample and find only three cases in which the covenant definition of indebtedness includes redeemable preferred shares, and 19 additional cases in which the definition of interest expense includes preferred

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<sup>28</sup> We do not include firm fixed-effects in this analysis because there are 1,465 observations for 1,157 firms and most firms have one observation.

shares in general or preferred dividends. Removing these 22 observations does not alter the analyses results.

Taken together, our results suggest firms in our sample could have circumvented debt-covenant violations with DSE, because the language of debt covenants of firms in our sample did not reclassify DSE as debt. Even if creditors do not adjust covenants to account for DSE, they may protect themselves by charging higher spreads or setting other or overall covenants more stringently.<sup>29</sup> We indeed find, using a measure of overall violation probability across many covenants, that DSE issuers face more stringent covenants, as discussed above. This finding is consistent with the view that creditors set more stringent covenants, knowing that firms with no fiduciary duties to debtholders may use financial engineering.

Our focus on one measure that firms use for managing covenant violation, the DSE, can be a limitation because firms may use it together with other measures of manipulation of financial benchmarks reports or renegotiate the covenant limits with creditors.<sup>30</sup> In the next section, we examine the relation between fiduciary duties to creditors and covenant violation avoidance in general.

## **6. Debt-Covenant-Slack Distribution**

In this section, we examine the distribution of covenant slack around zero to test the extent to which Delaware firms manage their reporting to avoid violation of debt covenants after 1991 (Hypothesis 1b). Firms that wish to avoid debt-covenant violation can use several means other than DSE issuance. To gauge if firms act to avoid debt-covenant violations in general, we use a result-driven test, similar to Dichev and Skinner (2002) and Burgstahler and Dichev (1997). We expect covenant-violation avoidance to be concentrated on firms that report low positive slack. Specifically, low density in the covenant-slack distribution just below zero and high density just above zero relative to expected values suggests firms engage in manipulation to avoid covenant violation.

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<sup>29</sup> For discussion of the interrelation of debt contract terms see, for example, Smith and Warner (1979) and Demerjian and Owens (2016).

<sup>30</sup> Even in absence of technical default, loan covenants are frequently renegotiated (see Roberts and Sufi, 2009; Denis and Wang, 2014). On a related note, if Delaware firms started negotiating more of their loan covenants after the 1991 Delaware court ruling for some reason, then our results may be affected.



We test the distribution of the debt-to-EBITDA covenant slack around zero.<sup>31</sup> Since data on Dealscan starts in 1994 we compare the debt-to-EBITDA slack of Delaware and non-Delaware firms in the post ruling period. We define covenant slack as the difference between the covenant threshold for that variable and the actual realization of the covenant variable. Actual debt-to-EBITDA is calculated as debt ( $DLTT+DLC$ ) divided by EBITDA.

When a firm has more than one loan, we use the debt covenant with the lowest limit, because the lowest limit provides the effective covenant—violation of this limit puts the firm in technical default, so negative covenant slack values imply covenant violations. As Dichev and Skinner show, covenant violations are relatively frequent on DealScan. One potential explanation for the high frequency of violation is that debt covenants are set more tightly in private lending agreements than in public debt agreements, because of the lower renegotiation costs of these agreements.

Relevant debt-covenant data on DealScan start in 1994. We use data until 2003, because a court ruling in 2004 partially reversed the Credit Lyonnais ruling (Becker and Stromberg, 2012). Our sample includes 3,722 observations between 1994 and 2003, of which 2,341 are of Delaware firms. To facilitate a larger number of observations for this distribution test, we do not require data on board independence. We also use debt-to-equity ratio as probability of default measure. Debt-to-equity has high correlation (0.41) with the probability of default measure, and is available all observations and thus yields a larger sample size. We split the sample on debt-to-equity ratio to distinguish between high and low insolvency risk, and as in the tests above sort firms into terciles and classify firms in the highest (bottom two) tercile as high default-risk firms (low default-risk firms).

Figure 2 presents the histograms. Following Dichev and Skinner (2002), we choose the histogram bin width as  $BW = 2(IQR)n^{-1/3}$ , where  $BW$  signifies bin width,  $IQR$  is the sample interquartile range, and  $n$  is the number of observations. Figure 2.1 shows that the distribution around 0 for high default-risk Delaware firms is smooth, indicating no evidence of unusual activity to avoid violation of the debt-to-EBITDA covenant limit. Figure 2.2 presents the distribution for non-Delaware firms with high default risk, and shows a spike in the number of observations just above zero. To test whether the

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<sup>31</sup> We focus on the debt-to-EBITDA covenant because it yields the highest number of observations and is directly related to the incentive of firms to issue DSE.

spike in frequency above zero is greater than the expected benchmark, we use Dichev and Skinner's methodology to test for deviations from smoothness. Under the null hypothesis of no abnormal behavior, the expected number of observations in any given bin is equal to the average of the number of observations in the two immediately adjacent bins. The test statistic is the difference between the actual number of observations in any given bin and the expected number of observations, divided by the estimated standard error of the difference. Under the null hypothesis of smoothness, these standardized differences are distributed approximately normal with a mean of 0 and a standard deviation of 1. Attempts to avoid covenant violation will result in a shift of observations from bin  $-1$  to bin  $0$ , so we expect to observe standardized differences that are unusually negative for bin  $-1$  and unusually positive for bin  $0$ . We find that for high default-risk non-Delaware firms, the value of bin  $0$  is positive and statistically significant ( $p$ -value  $< 0.01$ ) and the value of bin  $-1$  is negative and significant ( $p$ -value  $< 0.05$ ). Hence, the statistical tests indicate non-Delaware firms with high default-risk are likely to manipulate financial reporting to avoid covenant violation. Taken together, the two graphs indicate that whereas non-Delaware firms with high default-risk engage in manipulations to avoid covenant violation, high default-risk Delaware firms, in which directors owe fiduciary duties to creditors, do not use manipulations to avoid covenant violation.

Figures 2.3 and 2.4 show the distribution for low default-risk firms. The distribution is fairly smooth for both Delaware and non-Delaware firms, indicating low default-risk firms do not engage in manipulation to avoid covenant violation.

Collectively, consistent with the idea that high-leverage firms are likely to incur greater costs as a result of covenant violation, and therefore have a greater incentive to avoid covenant violations, we observe that non-Delaware firms likely take actions to avoid covenant violation. However, we observe no such evidence for Delaware firms. Hence, these findings provide additional support for our conjecture that the imposed fiduciary duties to creditors in Delaware firms that are close to insolvency affected the reporting behavior of those firms. In particular, because of the fiduciary duties to protect creditors' interests, Delaware firms are less likely to take actions to avoid debt-covenant violation.

## 6.1 Sensitivity Analyses

The covenant slack may be measured with error for two reasons. First, covenant thresholds can change over the life of the contract (e.g., Li et al., 2015), but DealScan reports only the initial threshold value. Second, lenders may make adjustments to GAAP numbers when defining covenant thresholds, and the actual debt-to-EBITDA ratio calculated from Compustat may be different from the debt-to-EBITDA ratio defined in the debt contract. Although important, we do not expect these measurement errors to systematically vary across Delaware and non-Delaware firms; therefore, they will not necessarily affect the results.

Nonetheless, we conduct the following analyses to examine whether these measurement errors affect any of our inferences. First, we exclude debt covenants for which the debt-to-EBITDA ratio changed over the life of the contract. We read all text comments on DealScan related to the covenants in our sample. We find 766 cases in which the debt-to-EBITDA ratio changed over the life of the contract.<sup>32</sup> Excluding these observations does not affect the results. Second, we adjust debt-to-EBITDA values. The definition of EBITDA often excludes non-recurring numbers. Hence, we exclude all special items identified by Compustat from EBITDA, and recalculate the debt-to-EBITDA ratio. In separate analyses, we modify the definition of debt and alternatively use total debt, and long-term debt. The results of these analyses are similar to those reported.

Third, Dichev and Skinner (2002) show that covenant violations are relatively frequent on DealScan, which is also true in our sample. As Figure 2 shows, the frequency of covenant violation is high, especially among high default-risk firms. In a sensitivity analysis similar to one used in Dichev and Skinner, we exclude firm-years subsequent to covenant violation, and use observations up to and including the first covenant violation. This restriction resulted in a sample of 485 observations of high default-risk Delaware firms and 301 observations of high default-risk non-Delaware firms. As before, we set the histogram bin width to  $BW = 2(IQR)n^{-1/3}$ . We then calculate the percent of observations or

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<sup>32</sup> Seven hundred sixty-six cases represent about 20% of our sample. Li et al. (2015) find that in their sample, for example, about 20% of debt-service coverage covenants and about 45% of debt-to-cash-flows covenants have covenant-threshold changes over the life of the contract. Note the number of observations we exclude is lower than the number of contracts we exclude, because firms with multiple contracts remain in the sample when they have at least one contract with a constant threshold.

distribution density in each bin, by dividing the number of observations in the bin by the total number of observations.

We find that non-Delaware firms have 2.4% (4.6%) fewer (more) observations than Delaware firms in bin -1 (0). These results suggest non-Delaware firms are more likely to manipulate the financial reports to avoid covenant violation. To estimate the statistical significance of the results, we use bootstrap sampling with replacement (e.g., Chernick, 2007). We find that in bin -1, the distribution density of non-Delaware firms is significantly lower than that of non-Delaware firms (p-value = 0.027), and in bin 1, the distribution density of non-Delaware firms is significantly higher than that of non-Delaware firms (p-value = 0.010). These results indicate non-Delaware firms manipulate financial reporting to avoid covenant violation more than Delaware firms.

## **7. Conclusion**

According to US accounting principles, financial reports should provide information to help shareholders and creditors assess the amount, timing, and uncertainty of prospective cash receipts from dividends or interest and the proceeds from the sale, redemption, or maturity of loans. Although financial reports should provide information that is useful for shareholders and creditors, US corporate governance usually protects equity investors, not debtholders. In this study, we examine whether this slant in corporate governance biases firms' reporting against creditors, and in particular, whether it is associated with the propensity of firms to take actions for avoiding covenant violation.

To examine the research question, we use the legal change in directors' fiduciary duties following the 1991 *Credit Lyonnais v. Pathe Communications* ruling. Before the ruling, directors of Delaware firms owed fiduciary duty only to shareholders. The ruling required directors of Delaware firms to protect creditors' interests when firms approach insolvency. We use two test approaches to examine the relation between fiduciary duties and the extent to which firms take action to avoid covenant violation. We test the effect of fiduciary duty on a specific action to circumvent covenant violations, namely, the issuance of debt structured as equity. Structuring debt as equity is an example of a financial engineering action that allows firms to report lower debt and avoid covenant violation. We also examine the general propensity of managers to avoid covenant violation using the distribution

of covenant slack. In both test settings, we find firms have lower propensity to take action and avoid covenant violation when their directors owe fiduciary duties to creditors. We also show that board quality can stop firms from taking actions to circumvent covenant limits only when directors have a legal fiduciary duty to creditors. Collectively, our results indicate fiduciary duties toward creditors lower firms' propensity to bias financial reports and circumvent debt covenants that protect creditors' interests.

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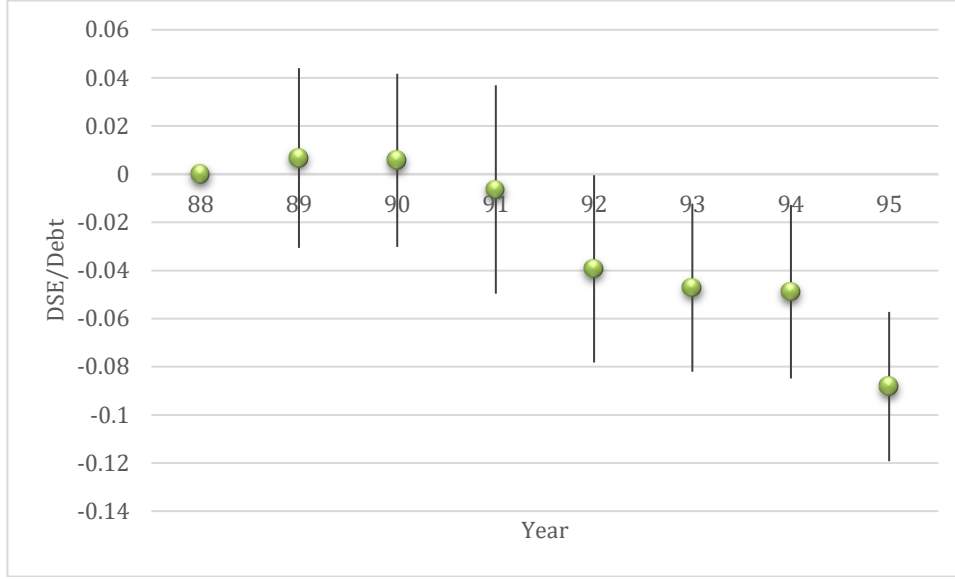
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**Figure 1**  
*DSE issuances of Delaware v. non-Delaware firms*



The figure presents the difference in DSE issuances of Delaware and non-Delaware firms over the sample period 1988-1995. Specifically, the graph presents the  $\beta_t$  coefficients from the following regression:

$$\frac{DSE}{Debt_{it}} = a + \sum_{t=89}^{95} \beta_t DfDelaware_i \times YrD_t + controls + Year FE + Firm FE ,$$

where  $DfDelaware$  is an indicator variable that equals 1 for the treatment group, i.e. high default-risk Delaware firms.  $YrD_t$  is an indicator variable that equals 1 for year  $t$ , and we include indicators for all years except for the first sample year 1988, which serves as the benchmark year, and  $\beta_t$  coefficients measure the change in DSE issuances in year  $t$  relative to 1988. Control variables are those used in equation (1). The sample includes 5,585 observations of Delaware and non-Delaware firms between 1988 and 1995. The regression is estimated with firm and year fixed effects, and standard errors are clustered by firm and year. The figure presents the  $\beta_t$  coefficients, and a 90% confidence interval.

Figure 2  
*Covenant Slack*

Figure 2.1

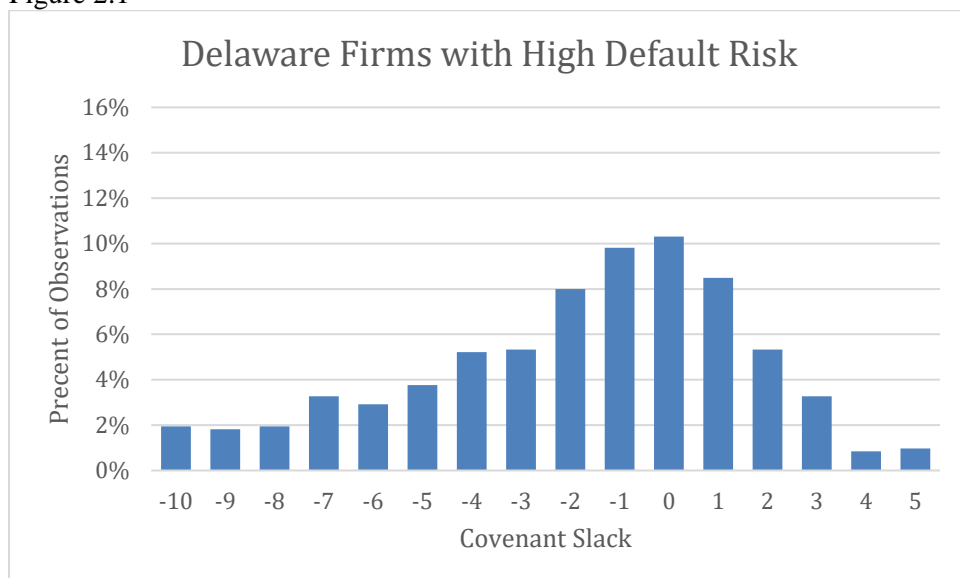


Figure 2.2

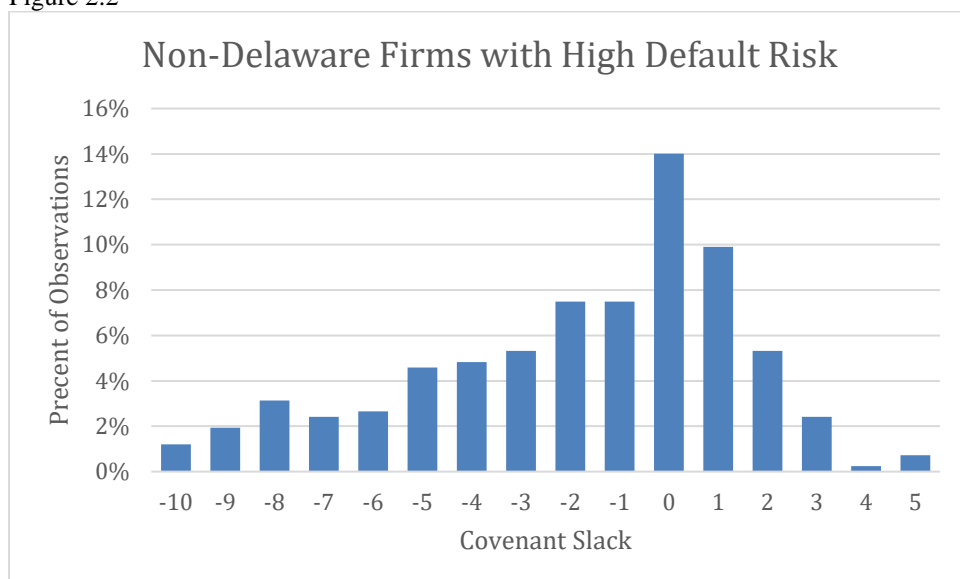


Figure 2.3

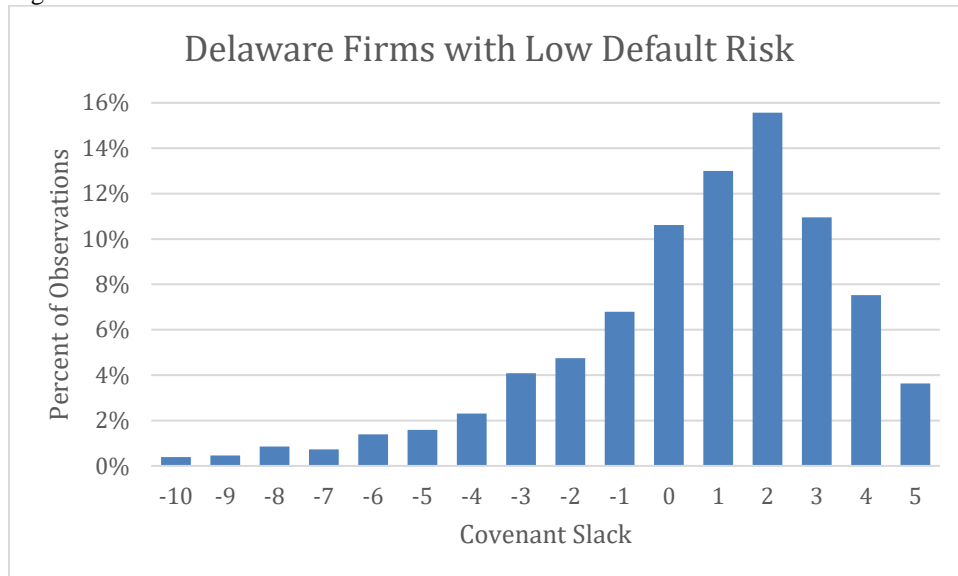
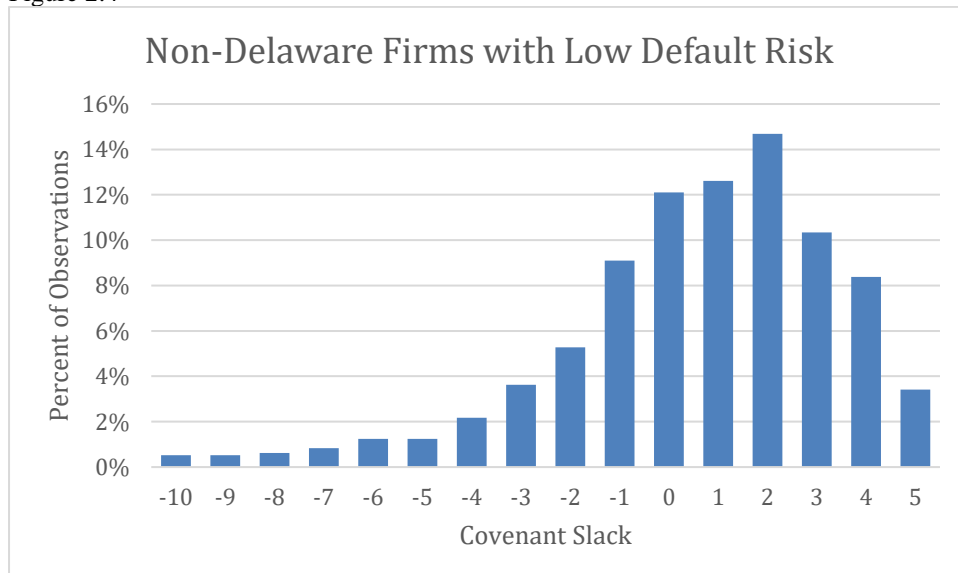


Figure 2.4



The figures present the distribution of the debt-to-EBITDA covenant slack around zero. The slack is computed as the difference between the maximum limit set by the debt covenant and the actual ratio of total debt to EBITDA for the year. The sample includes 3,722 observations between 1994 and 2003, of which 2,341 are of Delaware firms, and covenant-slack distribution is presented separately for firms with high and low default risk.

Table 1  
*Descriptive Statistics for H1a*

The sample includes 5,585 debt and debt securities structured as equity (DSE) issuances for Delaware and non-Delaware firms between 1988 and 1995. Financial institutions (SIC codes 6000-6499) and firms with equity market value of less than \$10 million are excluded. DSE/Debt is the dollar amount of DSE issued by the firm divided by the dollar amount of debt and DSE issued by the firm. Leverage is the natural log of 1 plus total debt divided by the market value of equity. Tax Rate is the effective tax rate. Loss Carryforward is a dummy variable that equals 1 for firms with non-zero loss carryforward and earnings before interest and taxes that are either negative or less than one fifth of the loss carryforward. Size is the natural log of the market value of equity. Panel A presents the descriptive statistics of the variables for Delaware and non-Delaware firms. Panel B presents the correlations, Pearson above the diagonal and Spearman correlations below the diagonal. \*, \*\*, and \*\*\* indicate two-sided significance at the 0.10, 0.05, and 0.01 levels.

*Panel A: Descriptive Statistics*

Variable	(A) Delaware Firms (N = 2,602)		(B) Non-Delaware Firms (N = 2,983)		(A)– (B)
	Mean	Median	Mean	Median	T-test
DSE/Debt <sub>t</sub>	0.049	0	0.046	0	0.003
Leverage <sub>t-1</sub>	0.412	0.271	0.427	0.334	-0.015
Tax Rate <sub>t-1</sub>	0.291	0.343	0.315	0.353	-0.022***
Loss Carryforward <sub>t-1</sub>	0.103	0	0.072	0	0.031***
Size <sub>t-1</sub>	12.34	12.06	12.23	11.95	0.11**

*Panel B: Correlations*

	DSE/Debt <sub>t</sub>	Leverage <sub>t-1</sub>	Tax Rate <sub>t-1</sub>	Loss Carryforward <sub>t-1</sub>	Size <sub>t-1</sub>
DSE/Debt <sub>t</sub>		0.08***	-0.07***	0.08***	0.03***
Leverage <sub>t-1</sub>	0.08***		-0.05***	0.00	-0.20***
Tax Rate <sub>t-1</sub>	-0.07***	0.01		-0.35***	0.13***
Loss Carryforward <sub>t-1</sub>	0.08***	-0.04***	-0.34***		-0.21***
Size <sub>t-1</sub>	0.02	-0.15***	0.11***	-0.22***	

Table 2

*Decrease in DSE Issuances in Delaware Firms after 1991 (H1a)*

This table shows the change in the issuances of debt securities structured as equity, DSE/Debt, for Delaware and non-Delaware firms after 1991. Sample firms are sorted into terciles based on their probability of default, and firms in the highest (bottom two) tercile are classified as High Default-Risk Firms (Low Default-Risk Firms). The sample includes 5,585 observations between 1988 and 1995. \*, \*\*, and \*\*\* denote one-sided significance at the 0.10, 0.05, and 0.01 levels.

	Delaware Firms		Non-Delaware Firms	
	High Default-Risk Firms (N=822)	Low Default-Risk Firms (N=1,780)	High Default-Risk Firms (N=810)	Low Default-Risk Firms (N=2,173)
a. 1988-1991	0.0706	0.0424	0.0324	0.0405
b. 1992-1995	0.0371	0.0499	0.0577	0.0556
b – a ( <i>p</i> -value)	-0.0335 (0.02)**	0.0075 (0.22)	0.0253 (0.04)**	0.0151 (0.05)**
Hypothesis	(-)			

Table 3

*Testing the Decrease in DSE Issuances in Delaware after 1991 (H1a)*

This table tests the decrease in the issuances of debt securities structured as equity (DSE) by Delaware firms after 1991. The dependent variable is DSE/Debt.  $DfDelaware_t$  is an indicator variable that equals 1 for high default-risk Delaware firms, where firms in the highest tercile of default probability are classified as high default-risk firms.  $Post1991$  is an indicator variable that equals 1 for 1992–1995 years. The control variables are defined in Table 1. The table presents the estimation results for the all sample, which includes 5,585 observations of Delaware and non-Delaware firms between 1988 and 1995, and for a matched sample of 1,644 observations, consisting of 822 pairs of the treatment Delaware firm and control firm observations. We match firms using propensity score matching based on leverage, tax rate, loss carryforward, and size. Regressions are estimated with firm and year fixed effects. Standard errors are clustered by firm and year. \*, \*\*, and \*\*\* denote one-sided significance at the 0.10, 0.05, and 0.01 levels, respectively.

$$DSE/Debt_{it} = \alpha + b_1 DfDelaware_{it} \times Post1991_{it} + Controls + \varepsilon_{it} \quad (1)$$

	Hypothesis	All Sample		Matched Sample	
		Estimates	p-value	Estimates	p-value
$DfDelaware_t \times Post1991_t$	(-)	-0.058	(<.01)***	-0.056	(0.01)***
Leverage <sub>t-1</sub>		0.000	(0.50)	0.003	(0.44)
Tax Rate <sub>t-1</sub>		-0.036	(0.04)**	-0.059	(0.05)**
Loss Carryforward <sub>t-1</sub>		0.015	(0.24)	-0.030	(0.21)
Size <sub>t-1</sub>		-0.009	(0.09)*	0.004	(0.41)
Firm Fixed-Effects		Yes		Yes	
Year Fixed-Effects		Yes		Yes	
Observations		5,585		1,644	
R-Square		50.3%		70.2%	



Table 4  
*Robustness Analyses*

This table tests the robustness of the decrease in the issuances of debt securities structured as equity (DSE) by Delaware firms after 1991. Panel A estimates Equation (1) separately for high and low default-risk firms, where high default-risk firms are firms in the highest tercile of default probability, and rest of firms are classified as low default-risk firms. Panel B estimates Equation (1) with additional control variables, shows the estimation with and without firm and year fixed effects, and for an alternative dependent variable, DSE divided by total assets (DSE/Ast) instead of the main dependent variable DSE/Debt. Delaware is an indicator variable that equals 1 for Delaware firms.  $D/\text{Delaware}_t$  is an indicator variable that equals 1 for high default-risk Delaware firms, where firms in the highest tercile of default probability are classified as high default-risk firms. Post1991 is an indicator variable that equals 1 for 1992–1995 years. EBIT is earnings before interest and taxes divided by total assets, Coverage is EBIT divided by interest expense, and the other control variables are defined in Table 1. Sample includes 5,585 observations of Delaware and non-Delaware firms between 1988 and 1995. Regressions are estimated with firm and year fixed effects. Standard errors are clustered by firm and year. \*, \*\*, and \*\*\* denote one-sided significance at the 0.10, 0.05, and 0.01 levels, respectively.

*Panel A: Analysis for high and low default risk*

	Hypothesis	High Default-Risk Firms		Low Default-Risk Firms	
		Estimates	p-value	Estimates	p-value
Delaware <sub>t</sub> *Post1991 <sub>t</sub>	(-)	-0.074	(<.01)***	0.014	(0.11)
Leverage <sub>t-1</sub>		-0.023	(0.15)	0.013	(0.19)
Tax Rate <sub>t-1</sub>		-0.036	(0.13)	-0.035	(0.09)*
Loss Carryforward <sub>t-1</sub>		-0.002	(0.47)	0.030	(0.18)
Size <sub>t-1</sub>		-0.023	(0.01)***	-0.003	(0.36)
Firm Fixed-Effects		Yes		Yes	
Year Fixed-Effects		Yes		Yes	
Observations		1,632		3,953	
R-Square		56.5%		47.8%	

Panel B: Additional analyses

Hypothesis	(1)		(2)		(3)		(4)	
	DSE/Debt <sub>it</sub>		DSE/Debt <sub>it</sub>		DSE/Ast <sub>it</sub>		DSE/Ast <sub>it</sub>	
	Estimates	p-value	Estimates	p-value	Estimates	p-value	Estimates	p-value
DfDelaware <sub>t</sub>			0.016	(0.04)**			0.186	(0.06)*
Post1991 <sub>t</sub>			0.012	(0.08)*			0.229	(0.20)
DfDelaware <sub>t</sub> *Post1991 <sub>t</sub>	(-)	-0.058 (<.01)***	-0.041 (<.01)***		-0.853 (0.01)***		-0.738 (<.01)***	
Leverage <sub>t-1</sub>		0.001 (0.47)	0.044 (<.01)***		-0.095 (0.38)		0.385 (0.02)**	
Tax Rate <sub>t-1</sub>		-0.036 (0.04)**	-0.044 (<.01)***		-0.328 (0.13)		-0.428 (0.03)**	
Loss Carryforward <sub>t-1</sub>		0.015 (0.24)	0.057 (<.01)***		0.394 (0.19)		0.935 (<.01)***	
Size <sub>t-1</sub>		-0.010 (0.06)*	0.008 (<.01)***		-0.274 (0.04)**		0.003 (0.46)	
Coverage <sub>t-1</sub>		0.078 (0.06)*	-0.051 (0.08)*		0.780 (0.20)		-0.606 (0.07)*	
EBIT <sub>t-1</sub>		0.024 (0.23)	-0.011 (0.31)		0.612 (0.18)		-0.285 (0.29)	
Firm Fixed-Effects		Yes	No		Yes		No	
Year Fixed-Effects		Yes	No		Yes		No	
Observations		5,585	5,585		5,585		5,585	
R-Square		50.4%	6.7%		41.6%		4.2%	

Table 5

*Testing the Effect of Board Independence (H2)*

This table presents the relation between board independence and issuances of debt securities structured as equity (DSE). The table presents the average DSE issuances, DSE/Debt, for Delaware firms with high default risk and independent board, and for three control groups, high default-risk Delaware firms with dependent boards, other Delaware firms, and non-Delaware firms. Firms with independent (dependent) boards are firms with proportion of independent board members that is at least (less than) half, and firms in the highest tercile of default probability are classified as high default-risk firms. Average DSE issuances is presented for the period before and after SFAS 150 came into effect in 2003. The sample includes 2,891 observations for Delaware and non-Delaware firms between 1996 and 2009. P-values are presented in parentheses. \*, \*\*, and \*\*\* denote one-sided significance at the 0.10, 0.05, and 0.01 levels.

	Delaware, High Default Risk, Independent Board	All	Other firms		
			Delaware, High Default-Risk, Dependent Board	Other Delaware Firms	Non- Delaware Firms
	(N=344)	(N=2,547)	(N=163)	(N=1,103)	(N=1,281)
a. 1996-2002	0.0141	0.0569	0.0317	0.0920	0.0296
b. 2003-2009	0.0216	0.0090	0.0000	0.0210	0.0000
b – a	0.0075	-0.0479	-0.0317	-0.071	-0.0296
(p-value)	(0.33)	(<.01)***	(0.02)**	(<.01)***	(<.01)***
Hypothesis		(-)	(-)	(-)	(-)

**Table 6**  
*Testing the Effect of Board Independence (H2)*

This table presents the relation between board independence and issuances of debt securities structured as equity (DSE). The dependent variable is DSE/Debt.  $DfDelaware_i$  is an indicator variable that equals 1 for high default-risk Delaware firms, which are firms in the highest tercile of default probability.  $Indep_i$  is the proportion of independent directors on the board.  $Pre2003$  is an indicator variable that equals 1 for years before SFAS 150 came into effect. Panel A presents the estimation results for the full sample, which includes 2,891 observations between 1996 and 2009. Panel B presents the estimation for a matched sample of 1,014 observations, consisting of 507 pairs of the treatment Delaware and control firm observations. We match firms using propensity score matching based on leverage, tax rate, loss carryforward, size, and board independence. Regressions are estimated with firm and year fixed effects. Standard errors are clustered by firm and year. \*, \*\*, and \*\*\* denote one-sided significance at the 0.10, 0.05, and 0.01 levels.

$$DSE/Debt_{it} = a + b_1 DfDelaware_i \times Pre2003_t + b_2 Indep_i \times Pre2003_t + b_3 DfDelaware_i \times Indep_i \times Pre2003_t + Controls + \varepsilon_{it} \quad (2)$$

*Panel A: Full sample*

Hypothesis	Model 1		Model 2	
	Estimates	p-value	Estimates	p-value
$DfDelaware_i * Pre2003_t$			0.069	(0.17)
$Indep_i * Pre2003_t$			0.012	(0.41)
$DfDelaware_i * Indep_i * Pre2003_t$ (-)	-0.049	(<.01)***	-0.157	(0.08)*
Leverage <sub>t-1</sub>	-0.031	(0.01)***	-0.032	(0.01)***
Tax Rate <sub>t-1</sub>	-0.007	(0.40)	-0.007	(0.39)
Loss Carryforward <sub>t-1</sub>	0.036	(0.22)	0.036	(0.23)
Size <sub>t-1</sub>	-0.007	(0.21)	-0.007	(0.21)
Firm Fixed-Effects	Yes		Yes	
Year Fixed-Effects	Yes		Yes	
Observations	2,891		2,891	
R-Square	58.4%		58.5%	

*Panel B: Matched sample*

Hypothesis	Model 1		Model 2	
	Estimates	p-value	Estimates	p-value
$DfDelaware_i * Pre2003_t$			0.072	(0.13)
$Indep_i * Pre2003_t$			-0.036	(0.18)
$DfDelaware_i * Indep_i * Pre2003_t$ (-)	-0.058	(0.04)**	-0.140	(0.08)*
Controls	Yes		Yes	
Firm Fixed-Effects	Yes		Yes	
Year Fixed-Effects	Yes		Yes	
Observations	1,014		1,014	
R-Square	79.2%		79.4%	

**Table 7**  
*Covenant Slack and DSE Issuances*

This table presents the relation between the probability of covenant violation and issuances of debt securities structured as equity (DSE). PCovViol is the measure of aggregate covenant violation probability. DfDelaware is an indicator variable that equals 1 for high default-risk Delaware firms, where high-default firms are firms in the highest tercile of default probability. The sample includes 1,465 observations for Delaware and non-Delaware firms between 1996 and 2002. Regressions are estimated with year fixed effects, and standard errors are clustered by firm and year. \*, \*\*, and \*\*\* denote one-sided significance at the 0.10, 0.05, and 0.01 levels.

$$DSE/Debt_{it} = a + b_1 PCovViol_{i,t-1} + b_2 DfDelaware_i + b_3 PCovViol_{i,t-1} \times DfDelaware_i + Controls + \varepsilon_{it} \quad (3)$$

	Hypothesis	Coefficient	p-value
PCovViol <sub>i,t-1</sub>	(+)	0.043	(0.03)**
DfDelaware <sub>i</sub>		0.005	(0.38)
DfDelaware <sub>i</sub> *PCovViol <sub>i,t-1</sub>	(-)	-0.041	(0.01)***
Leverage <sub>t-1</sub>		0.029	(0.01)***
Tax Rate <sub>t-1</sub>		-0.163	(<.01)***
Loss CarryForward <sub>t-1</sub>		0.027	(0.22)
Size <sub>t-1</sub>		0.006	(0.04)**
Observations		1,465	
R <sup>2</sup>		12.8%	