Lenders' Demand for Conservatism in Financial Statements and in Debt Contract Modifications: Evidence from the 1991 *Credit Lyonnais* Ruling

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Abstract:

We exploit a legal ruling which effectively increased creditors' power in a specific group of firms to examine lenders' demand for conservatism in general purpose financial statements issued by borrowers and in debt contract modifications. Following the ruling, there is a greater increase in accounting conservatism for firms in which creditor's power increased, but no change in the use of income escalators or of conservative definitions of net income, cash flows or net worth in the loan contracts of these firms. These results suggest a preference by lenders for conservative reporting in GAAP financial statements rather than conservative modifications to loan contracts. There is, however, an increased use of intangible asset exclusions, suggesting that lenders are concerned about borrowers using loan proceeds to make risky investments in intangible assets.

Keywords: accounting conservatism; debt contract modifications; equity-debtholder conflict

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1. INTRODUCTION

This paper exploits an exogenous change in lender-borrower relationships affecting a specific group of companies to examine how lenders' demand for conservatism is met through two distinct channels: conservatism in borrowers' GAAP financial reporting and conservative modifications to accounting numbers in loan contracts. Both channels have been proposed as serving the interests of debt providers (e.g., Watts (2003), Schipper (2005)). Watts (2003) defines accounting conservatism as "the asymmetrical verification requirements for gains and losses". Similarly, we consider loan contract modifications to be conservative if they require asymmetric treatment of gains and losses.[1]

Despite the importance of this research question, direct empirical studies on this issue are scarce and have produced mixed results. Beatty et al (2008) focus on two types of modifications to private loan contracts involving adjustment to net worth calculations: income escalators and exclusion of intangible assets. In cross-sectional analyses, they find that the use of income escalators is more likely when agency costs of debt are higher. They also find a positive relationship between the use of income escalators and financial reporting conservatism, which suggests that lenders' demand for conservatism is met both through contract modifications and through conservatism in GAAP financial statements. However, they find no relationship between intangible assets exclusion and accounting conservatism, and they obtain mixed results for the relationship between intangible asset exclusion and agency costs of debt: some of their proxies

[1] As an illustration, in an exhibit to its 10-Q for September 1993, Tandycrafts, Inc. filed a credit agreement dated September 29, 1993 which contains the following language:

"Consolidated Net Income" shall mean, with respect to any period, consolidated net earnings (after income taxes) of Company and its Subsidiaries for such period, determined in accordance with Generally Accepted Accounting Principles, but excluding […] any gain arising from any write-up of assets

for agency costs suggest a positive association, while other proxies suggest a negative association.

The event which provides an exogenous change in lender-borrower relationships is a December 1991 legal ruling by a Delaware court in the case of *Credit Lyonnais v. Pathe Communications*. Prior to the ruling, it was the position of U.S. courts that directors of solvent firms owe fiduciary duties to the corporation as a whole and to its shareholders, but not to creditors or other stakeholders. Only if a firm becomes insolvent do fiduciary duties extend to other stakeholders such as creditors. The Delaware court's ruling changed this by arguing that directors owe fiduciary duties to creditors of firms that may not be insolvent but are in "the vicinity of insolvency".

Since the ruling only applied to firms incorporated in Delaware but not elsewhere, and only to Delaware firms which are close to insolvency, it provides us with an opportunity to examine the effects on financial reporting conservatism and contract modifications in Delaware and non-Delaware firms, with varying levels of insolvency risk, both before and after the ruling. Thus, we can effectively implement difference-in-difference methodologies which can help shed additional light on the important question of the extent to which lenders' demand for conservatism is met through GAAP financial reports and/or through loan contract modifications.

The asymmetric treatment of gains and losses has important consequences on accumulated balance sheet numbers and, in many cases, conservatism in GAAP financial statements serves the needs of lenders. For example, one of the ways in which lenders can address concerns about recovering their principal capital at maturity is to require maintenance of net worth covenants. The asymmetric treatment of gains and losses under GAAP rules works in lenders' favor because net worth covenant slack will be tightened if the borrower encounters

adverse conditions. As a result, the lender will be more likely to receive an early warning sign about eventual recoverability of the loan amount and to be granted control rights which can help them safeguard their capital (Tan (2013)).

A related major concern of lenders is that borrowers might behave in a riskier manner after taking out a loan. This concern can be partly addressed by writing covenants on net worth which explicitly exclude intangible assets, i.e., focus on tangible net worth. By definition, net worth is the difference between assets and liabilities. If a borrower applies loan proceeds towards, say, risky R&D activities, the effect will be to reduce tangible net worth (since tangible assets are being used up). The reduction in tangible net worth covenant slack can help curtail borrowers' inclination to engage in risky R&D using debt capital after taking out a loan. If, on the other hand, a borrower issues new equity and uses the equity issuance proceeds to make R&D investments, tangible net worth will be unaffected (Guay (2008)).

GAAP rules differ depending on whether intangible assets are internally-developed or acquired. The different treatments allowed under GAAP reflect the "general purpose" objectives of GAAP. For a lender, however, both types of investments in intangible assets are risky. In the case of internally-developed intangible assets, GAAP rules generally prohibit recognition of such assets on the balance sheet, and therefore, as argued in the preceding paragraph, calculations of net worth under GAAP rules provide lenders with adequate protection. However, when a borrower acquires intangible assets, which GAAP rules generally allow to be capitalized and shown on the balance sheet, lenders' needs are not fully met. Reliance on GAAP-compliant net worth numbers would not protect lenders in cases where a borrower makes acquisitions of risky intangible assets using debt capital. It would be useful in such cases for lenders to negotiate loan contract modifications which explicitly exclude intangible assets in net worth calculations.

Understanding lenders' demand for conservatism through general-purpose financial statements and in loan contracts has important implications for firms' managers, lenders, and regulators. In particular, given that general-purpose financial statements may only partially fulfill creditors' needs, a broader understanding of other mechanisms used by creditors can help inform debates about economic demand and supply of conservative accounting. These other mechanisms may or may not involve conservative modifications to accounting numbers (in the sense of asymmetrically treating gains and losses). Moreover, unlike most extant research on this topic which performs cross-sectional analysis of agency costs of debt, we identify a setting with an exogenous change in the balance of power between lenders and borrowers. This setting allows for cleaner interpretations of the ways in which lenders' preferences are met.[2]

We conduct two main sets of empirical analyses. Our first set of results documents changes in the levels of financial reporting conservatism in several groups of firms. Our main measure of accounting conservatism is the C-score developed by Khan and Watts (2009). We use this measure because it allows us to estimate accounting conservatism at the firm-period level, which suits our setting better than alternatives such as the Basu (1997) measure, which is typically estimated at the industry-period level or at the firm level using time series. The C-score is derived from a statistical model and can be difficult to interpret. As an alternative, we also use special items as a measure of accounting conservatism (similar approaches are used by Gormley et al. (2012) and Tan (2013)). This latter measure has the advantage of more direct interpretability. Of particular interest are Delaware-incorporated firms which are in the zone of insolvency. The December 1991 ruling led to an increase in creditors' power in the borrower-

[2] Papers relying on cross-sectional analyses are numerous and include Ahmed et al. (2002), Bushman and Piotroski (2006), Ball et al. (2008), Beatty et al. (2008), Wittenberg-Moerman (2008), Zhang (2008). Our setting allows us to address more directly concerns about distinguishing links between institutions, accounting-based contracts, and conservatism (Guay and Verrecchia (2006)).

lender relationship of these firms, since it expanded directors' fiduciary duties to creditors. Since creditors prefer more conservative financial reports, we would expect and we find an increase in accounting conservatism for Delaware firms. The average increase in accounting conservatism for Delaware firms pre- and post-1991 is significantly greater than for non-Delaware firms over the same time period.[3] Furthermore, this pattern holds more strongly in firms closer to bankruptcy.

Our second set of analyses focuses on private loan contracts signed in the years 1989 to 1994. Since these contracts are not readily available in machine-readable format, we randomly select both Delaware and non-Delaware firms from those years and hand-collect the contracts from microfiche records of their SEC filings. We collect a total of 282 contracts, approximately equally split between 1989 to 1991 (pre-ruling period) and 1992 to 1994 (post-ruling period), as well as between Delaware and non-Delaware incorporated companies. We read through all 282 contracts and extract their debt covenant terms, noting any conservative modifications to the definition of net worth, net income, or cash flows, i.e., which explicitly specify different treatments for gains and losses. Aside from the asymmetric treatments of gains and losses, we also collect data on whether contractual net worth calculations explicitly exclude intangible assets, since these are a fairly common feature of private debt contracts (Beatty et al. (2008)).

We note several interesting patterns. Our loan contracts are sampled from a time period which has not been extensively studied because of the high cost of manual data collection. Nini, Smith and Sufi (2009) collect electronically-filed loan contracts for the years 1996 to 2005 (electronic filing on the SEC's Edgar system only became mandatory in 1996). Compared to the

[3] Non-Delaware firms also exhibit an increase in accounting conservatism from the period before to the period after the ruling, consistent with the general pattern of increasing accounting conservatism over time as documented by Givoly and Hayn (2000).

Nini et al. (2009) sample, in our earlier time period, loan contracts are much more likely to contain net worth covenants (73% vs. 45%) but much less likely to contain interest and fixed charge coverage ratio covenants (47% vs. 74%).[4] This trend is consistent with the declining use of balance sheet covenants documented by Demerjian (2011).

We analyze conservative modifications to accounting numbers which involve asymmetric treatments of gains and losses. There are several types of these conservative modifications. The first category is the use of income escalators (Beatty et al. (2008)). These typically require changes in net worth from one fiscal period end to the next to reflect net losses for the period in full, but only partially for positive net income. This asymmetric treatment of positive and negative net income is a form of conservatism. Another category consists of conservative contractual definitions of net income and net worth, as in Li (2010). For example, contractual net income is often defined to exclude extraordinary gains, gains from assets sales and asset write-ups but not the corresponding losses or write-downs, which would be part of GAAP net income.

Our results stand in contrast to Beatty et al. (2008) who find that the use of income escalators is more likely when agency costs of debt are higher and conclude that lenders' demand for conservatism is not fully met through contract modifications. This finding is echoed in a public debt setting by Nikolaev (2010) who finds a positive association between the use of covenants in bond contracts and the degree of conservatism in the issuing firms' GAAP financial statements.

In contrast to those papers, when we compare the periods before and after the *Credit Lyonnais* ruling, we find no change in the use of income escalators or of conservative definitions of net income, cash flows, or net worth. Since our earlier results on accounting conservatism

[4] The comparison statistics for the period 1996-2005 are taken from Table 1 of Nini et al. (2009).

showed a significantly greater increase in GAAP financial reporting conservatism for firms in which creditors gain power, this suggests that lenders' demand for conservatism is adequately met through more conservative GAAP financial reports rather than through conservative modifications to loan contracts.

There is, however, a significant increase in the use of intangible asset exclusion in net worth calculations for Delaware firms close to default. For non-Delaware firms and Delaware firms distant from default, there is no change in the likelihood of observing these modifications. Although this type of modification does not involve asymmetric treatments of gains and losses, it can help protect lenders by discouraging acquisitions of higher risk intangible assets by borrowers (through reduction of covenant slack). This suggests that, although borrowing firms are reporting more conservatively under GAAP, there is additional demand for protection which is not met through GAAP-mandated asymmetric treatment of gains and losses. Specifically, from the perspective of lenders, the permitted capitalization of acquired intangible assets on borrowers' balance sheets constitutes a GAAP deficiency. When lenders find themselves in a higher position of power, their remedy to this deficiency is to negotiate intangible asset exclusion modifications, which helps protect them from risky investing behavior by borrowers after the loan proceeds have been advanced.

Taken together, our analyses of financial reporting conservatism and of loan contract modifications indicate that, when they have more power, creditors' demand for conservatism is satisfied through increased financial reporting conservatism rather than through conservative modifications to loan contracts. There is, however, an increase in intangible asset exclusions in the definition of net worth, suggesting that creditors are also concerned about borrowers using loan proceeds to make acquisitions of risky intangible assets.

The rest of the paper is laid out as follows. Section 2 develops the hypotheses tested in the paper. Section 3 describes the sources of data and presents descriptive statistics and results of our analyses, and section 4 concludes.

2. DEVELOPMENT OF HYPOTHESES

2.1 Lenders' demand for conservatism

Accounting conservatism has received a lot of attention in the academic accounting literature, and the fundamental nature of accounting conservatism (the differential verifiability for recognizing economic gains versus losses (Watts 2003)) is well-documented. Watts (2003) highlights an important explanation for the existence of accounting conservatism, which is that it helps address agency problems between lenders and borrowers.[5] He also proposes that other users of GAAP financial statements may have their own preferences for conservatism in those statements. Such non-debt sources of demand for conservatism include litigation, tax, and equity.

To illustrate the usefulness of accounting conservatism to lenders, consider a typical lending scenario. After a decision has been made to provide debt capital to a borrower, debt investors are concerned about their ability to collect principal and interest. To address this concern, they put in place contract terms which are designed to protect them if this ability to collect is jeopardized. Solvency concerns might arise if, for example, the borrower's net worth declines below some pre-agreed level. Conservatism in general-purpose GAAP financial reports which are periodically issued by the borrower during the term of the loan can help lenders in their monitoring efforts. Consider the effect of accounting conservatism on debt covenants which

[5] Several papers provide indirect evidence supporting the hypothesis that financial reporting conservatism exists largely to meet lenders' demand for conservatism (Ahmed et al. (2002), Beatty et al. (2008), Wittenberg-Moerman (2008), Zhang (2008), Nikolaev (2010)). More direct evidence supporting debt contracting as a major source of demand for conservatism is provided by Ball et al. (2008) and Tan (2013).

are based on reported accounting numbers. If a borrower reports conservatively, its covenant slack based on net worth calculations will be reduced when events with potentially adverse consequences occur. Less conservative financial reporting would, on the other hand, result in net worth covenants to be less likely to be violated. Tan (2013) finds that accounting conservatism increases significantly and for at least two years following debt covenant violations. This reflects creditors' preference for conservative financial reporting which they are able to satisfy after they gain control rights.

Lenders can also protect themselves without having to rely on conservatively prepared general-purpose GAAP financial statements. They can negotiate accounting measure rules which differ from GAAP rules (Leftwich (1983), Schipper (2005)). Thus, if lenders' demand for conservatism is not satisfied by GAAP-compliant financial statements, they may negotiate conservative adjustments to the GAAP reported accounting numbers. Balance sheet (e.g., net worth) covenants may require that updates to net worth calculations include future period losses in full, but future period profits only partially (the "income escalators" highlighted in Beatty et al (2008)). Financial covenants in loan contracts may also contain conservative modifications, e.g., by excluding extraordinary gains but not extraordinary losses, or excluding gains from asset sales or asset write-ups, but not the corresponding losses, and these conservative modifications may impact definitions of net income or net worth (Li (2010)).

Other types of debt contract modifications do not rely on the asymmetric treatment of gains and losses. For example, a net worth covenant may stipulate the exclusion of intangible assets, which protects lenders by discouraging the diversion of loan proceeds to higher risk intangible asset acquisitions (Beatty et al. (2008), Guay (2008)).

Moreover, non-financial covenants which place restrictions on borrowers' actions can also be put in place. These may include restrictions relating to payouts, investing, and financing activities (Nikolaev (2010)). It is likely that the different protective mechanisms available to a lender will have different monitoring costs, and the choice among the various options available will depend on a variety of factors, including the gap between desirability and availability of conservatively-prepared GAAP financial statements.

2.2 The *Credit Lyonnais* ruling

In this section, we summarize some of the salient points in the *Credit Lyonnais* case, focusing on the ways in which it shifted the balance of power in favor of creditors for a specific group of firms, namely, Delaware-incorporated firms which are in the zone of insolvency. Becker and Strömberg (2012) provide additional details about the case.

The *Credit Lyonnais* ruling was reached on December 30, 1991.[6] Prior to the ruling, insolvency in fact provided the bright line rule to determine when the fiduciary duties of directors shifted to include creditors and not just primarily shareholders (Sprayregen et al. (2002)). The *Credit Lyonnais* case involved the controlling shareholder of MGM Corporation (Pathe Communications) and a major lender to MGM (Credit Lyonnais). MGM had just been in and out of bankruptcy. To get MGM out of bankruptcy, Pathe and Credit Lyonnais had entered into a corporate governance agreement which gave control to Credit Lyonnais (through nomination of MGM directors). Under the agreement, Pathe would take back control if MGM's debt was sufficiently paid down. Pathe sought to have certain of MGM's assets sold in order to pay down the loan. The directors did not approve the sale, and Pathe sued for breach of fiduciary

[6] See http://blogs.law.harvard.edu/corpgov/files/2007/06/20070606%20Credit%20Lyonnais.pdf

duty owed by the board towards them as principal shareholder. In his ruling on the case, Judge William Allen wrote:

> At least where a corporation is operating in the vicinity of insolvency, a board of directors is not merely the agent of the residue risk bearers [the shareholders], but owes its duty to the corporate enterprise . . . Such directors will recognize that in managing the business affairs of a solvent corporation in the vicinity of insolvency, circumstances may arise when the right (both the efficient and fair) course to follow for the corporation may diverge from the choice that the stockholders (or the creditors, or the employees, or any single group interested in the corporation) would make if given the opportunity to act.

Thus, the ruling expanded the scope of directors' fiduciary duty to parties other than shareholders, even before the corporation becomes insolvent. The ruling did not provide an exact definition for what constitutes "vicinity of insolvency" (in this particular case, there did not appear to have been any doubt about MGM being in the vicinity of insolvency because the company had been in bankruptcy "and even thereafter the directors labored in the shadow of that prospect" (section *34 of the memorandum opinion)). For our empirical tests, we follow Becker and Strömberg (2012) and we use two different types of default measures: one based on a structural model of debt and equity valuation in an options framework as developed by Merton (1974) and implemented by Vassalou and Xing (2004), and the other one based on Altman's Z-score (1968) which is constructed from several publicly-observed accounting signals.[7]

[7] An improvement on Vassalou and Xing (2004) is provided by Hillegeist et al. (2004). The Hillegeist et al. (2004) implementation of the Merton (1974) model allows for dividend payments by the firm to equity holders, and is less computationally intensive.

2.3 Changes in conservatism in financial statements and in loan contracts

As discussed in the previous section, the *Credit Lyonnais* ruling had the effect of strengthening creditors' power since directors are now required to act on creditors' behalf in an expanded set of circumstances, and not just when the firm is in default. Moreover, this power shift will be more pronounced for firms closer to default, i.e., within the zone of insolvency. To the extent that this increase in creditors' power manifests itself post-1991 in financial reports and in loan contracts, the relative magnitudes of changes observed will reflect lenders' preferences for the different mechanisms available to them.

Since prior research has shown that accounting conservatism has increased over time (Givoly and Hayn (2000)), we state our first hypothesis as follows:

H1: After the 1991 *Credit Lyonnais* ruling, Delaware-incorporated firms will exhibit increases in accounting conservatism in their GAAP financial statements which are higher than for non-Delaware firms. In addition, this effect will be more pronounced for firms closer to default.

Similarly, we expect the shift in power in favor of creditors to be reflected in an increase in conservative modifications to loan contracts. Since we have no *a priori* expectation about time trends in the use of loan contract modifications over our sample period, we hypothesize:

H2: After the 1991 *Credit Lyonnais* ruling, there will be an increase in conservative modifications in loan contracts of Delaware-incorporated firms close to default, but not of other firms.

3. DATA AND RESULTS

3.1 Sample selection

We use the annual merged CRSP-Compustat database, excluding financial firms (SIC codes 6000-6999). For tests of financial reporting conservatism, we use all firms with fiscal year ends falling within four years before (1988 – 1991) and four years after (1992 – 1995) the *Credit Lyonnais* ruling, and require the incorporation code (*incorp*) to be available. This results in a base dataset with 37,816 firm-year observations ("the Compustat sample"). To test hypothesis 1, which examines changes in accounting conservatism before and after the ruling, we merge this dataset with our conservatism measures, distance-to-default measures, and control variables. The sample size varies across different regression specifications because not all variables are available in all specifications.

To test hypothesis 2, which examines loan contract modifications before and after the ruling, we retrieve loan contracts filed by the above companies with the SEC. Under SEC Regulation S-K, item 601 (b), public firms are required to include all material contracts as exhibits in their filings. Most loan contracts can be found in Forms 10-K, 10-Q, 8-K and registration statements, and they are typically attached as exhibit item 4 and/or item 10. Because the time period we study is before the mandatory implementation of electronic filings on the SEC's EDGAR system, we manually search microfiche records of firms' filings from Q-File to locate loan contracts. After identifying the location of loan contracts from the microfiche records, the next step is to purchase the exhibits from commercial data providers because most microfiche records only contain the main filings and do not include exhibits. Due to the high cost of data collection, we adopt a random sampling strategy to construct the credit agreement sample. The procedure is as follows:

(1) We focus on firms in our base dataset which have debt to total assets ratio ((*dlc* + *dltt*) / *at*) of 10% or more. According to Item 601(b) (4) of Regulation S-K, firms are required to file long-term debt instruments only when the debt amount exceeds 10% of total assets. This step ensures that the firms we select have a good chance of having "material" debt contracts which need to be disclosed as exhibits.

(2) For each year, we categorize firms into two groups, Delaware and non-Delaware, and randomly select 150 firms from each year and each group.[8] We locate and read the microfiche records for these firms from Q-File. Q-File provides index books containing firm names and filing types. Firms are alphabetically ordered by name. We manually match our random sample with the index book by company name and verify our matches using the EIN numbers from both sources.[9] To make our hand collection work manageable, we only run this random selection procedure four times from years 1991 to 1994, and we read the exhibit list of the selected companies' 10-K reports.[10] In each 10-K exhibit list, we search for credit agreements that are initiated three years before (1989 – 1991) and three years after (1992 – 1994) the *Credit Lyonnais* ruling. Following Beatty, Cheng and Zach (2011), our search looks for key words related to "credit", "loan" or "financing" in the exhibit list.[11] If a loan is initiated within the year

[8] The distribution of public firms on Compustat between Delaware and non-Delaware incorporation is approximately half-half, which is similar to the proportions reported in Daines (2001).

[9] When matching by name, we consider both current and historical names of a company.

[10] This simplified approach focusing on 10-Ks is likely to have an innocuous impact on our sample selection for the following reasons: Compared to other filing types, a 10-K report has the most comprehensive exhibit list. All material loan contracts of a company as of the fiscal year end will be disclosed in the 10-K exhibit list. The 10-K report constitutes a reasonable starting point for our search since it includes loans initiated within the year of the 10-K as well as references to loans initiated in the prior periods back to their original filings. Thus, from a company's 10-K exhibit list, we are able to track down the filing where the loan was originally filed.

[11] For example, a credit agreement can be called "credit agreement", "loan agreement", "credit facility", "loan and security agreement", "loan & security agreement", "revolving credit", "financing and security agreement",

of the 10-K, the loan contract can be immediately located in the 10-K using the exhibit number. If a loan is initiated prior to the year of the 10-K, the 10-K exhibit list will reference the type, date and the exhibit number of the original filing where the actual copy of the loan is filed. The original filing could be of any form, such as 10-K, 10-Q, 8-K and registration statements.

(3) Since Q-File keeps only the main body of filings but not exhibits, we record the location (filing type, date and exhibit number) of the actual copies of the loan contracts and purchase those copies from commercial data providers.

(4) Finally, we read through each loan contract and manually code the variables of interest.

Through search procedure (3), we find 333 exhibit items that are likely to be credit agreements. We are able to find 310 copies of exhibits from commercial data providers (23 cases cannot be found for various reasons, including cases where the filings refer to an exhibit which was never filed with the SEC). For the 310 exhibit copies, we further eliminate 28 copies (3 cases are promissory notes or loan commitment letters without covenant details; 2 cases are guaranty or security agreements only; 3 cases are minor amendments or incomplete contracts; 16 cases are bond contacts; and 4 cases are unreadable due to low quality of the microfiche copies). Our final credit agreement sample consists of 282 loan contracts that were initiated in a six-year window around the *Credit Lyonnais* ruling ("the random credit agreements sample").[12]

"financing & security agreement", "credit and guarantee agreement", "credit & guarantee agreement", "credit and security agreement" or "credit & security agreement".

[12] Our loan contracts sample size compares favorably to the few studies that have examined private loan agreements before 1996 (when electronic filings became mandatory). Leftwich (1983) reviews 10 loan agreements from before 1977. Beneish and Press (1993) investigate 96 loan contracts or amendments from 1983 to 1987. Beatty, Ramesh and Weber (2002) study 285 credit agreements that are searchable through Lexis-Nexis during 1994 – 1996 when electronic filings are sparsely available.

3.2 Distance-to-default estimation

In this section, we describe the distance-to-default measures which we use, and which follow Becker and Strömberg (2012). The first measure is based on the Vassalou and Xing (2004) approach to estimating probability of default, or equivalently distance-to-default, extracted from a structural model.

The structural form is from Merton (1974), who views equity as a call option on the value of the firm's assets, with the strike price equal to the face value of debt and expiry at the time of maturity of the debt. Under the Merton framework, default occurs if the firm's assets are worth less than the face value of debt at maturity, in which case equity holders will let their option expire and debt holders will take over all of the firm's assets. The option pricing formula for a European call option can therefore be applied and produces the following equation:

$$V_E = V_A N(d_1) - X\, e^{-rT}\, N(d_2), \qquad (1)$$

where $d_1 = \frac{\ln\left(\frac{V_A}{X}\right)+(r+\frac{1}{2}{\sigma_A}^2)T}{\sigma_A\sqrt{T}}$, $d_2 = d_1 - \sigma_A\sqrt{T}$, V_E is market value of equity, V_A is the firm's asset value, X is book value of debt, r is the risk-free rate, T is the time to maturity, σ_A is volatility of returns on V_A, and $N(d_1)$ and $N(d_2)$ are standard normal cumulative density functions of d_1 and d_2.

One additional assumption in the Merton (1974) model is that asset values follow a geometric Brownian motion:

$$dV_A = \mu\, V_A\, dt + \sigma_A\, V_A\, dW, \qquad (2)$$

where μ is instantaneous drift, σ_A is instantaneous volatility, and W is a standard Wiener process.

Since neither V_A nor σ_A is directly observable, we estimate both using the iterative procedure in Vassalou and Xing (2004). At the end of each fiscal year, an initial estimate for σ_A is obtained from the sample standard deviation of daily stock price returns for the past

12 months. This initial estimate for σ_A is used in formula (1) to calculate V_A on each trading day in the previous 12 months. Risk-free rate is estimated using monthly 1-year T-bill rates and T is set equal to 1. These values of V_A then provide a new estimate of σ_A which is used in the next iteration. The procedure is repeated until convergence of successive values of σ_A is achieved within a tolerance level of 0.0001. The final value of σ_A obtained is then used to calculate the month-end value of V_A. Return on asset values over the previous year can then be used as estimates of μ.

Default probability is the probability that the firm's assets are worth less than the liabilities, i.e., $V_A < X$. Distance-to-default (DD) is a one-to-one transformation of this probability, and can be thought of as the number of standard deviations of the variable $\ln(\frac{V_A}{X})$ from its mean which corresponds to default. Vassalou and Xing (2003) show that DD can be expressed as follows:

$$DD = \frac{\ln\left(\frac{V_A}{X}\right) + \left(\mu - \frac{1}{2}\,{\sigma_A}^2\right)T}{\sigma_A\sqrt{T}} \qquad (3)$$

By setting T equal to 1, obtaining book value of debt X from the balance sheet, and estimating V_A, μ and ${\sigma_A}^2$ are as previously described, an estimate of distance-to-default DD can be calculated using expression (3) for each firm-year.

We repeat our tests using Altman's Z-score (1968) as an alternative measure of insolvency. The advantages of using the Z-score are that it is familiar to most readers and it is very easy to compute.

3.3 Results for financial reporting conservatism

Several recent papers have used the C-score as a financial reporting conservatism measure (e.g., Beatty and Liao (2011), Ettredge et al. (2012), Jayaraman (2012)). We follow these papers and estimate the C-scores as follows. Each fiscal year, the following cross-sectional regression model is run:

$$\begin{aligned} X_i = \ & \beta_0 + \beta_1 D_i + R_i \left(\mu_1 + \mu_2 Size_i + \mu_3 \frac{M}{B}_i + \mu_4 Lev_i \right) \\ & + D_i R_i \left(\lambda_1 + \lambda_2 Size_i + \lambda_3 \frac{M}{B}_i + \lambda_4 Lev_i \right) \\ & + \left(\delta_1 Size_i + \delta_2 \frac{M}{B}_i + \delta_3 Lev_i + \delta_4 D_i Size_i \right. \\ & \left. + \delta_5 D_i \frac{M}{B}_i + \delta_6 D_i Lev_i \right) + \varepsilon_i \end{aligned} \quad (4)$$

where for each firm *i*, *X* = earnings (Compustat item *ib*) scaled by lagged market value of equity (*csho* * *prcc*), *R* is cumulative stock return over the preceding year, *D* is an indicator variable for negative values of *R*, *Size* is market value of equity, $\frac{M}{B}$ is market value of equity divided by book value of equity (*ceq*), and *Lev* is leverage ratio ((*dlc* + *dltt*) divided by market value of equity). Firm-specific C-scores are calculated using the λ coefficients from the above regression model as follows:

$$\text{C-score}_i = \hat{\lambda}_1 + \hat{\lambda}_2 Size_i + \hat{\lambda}_3 \frac{M}{B}_i + \hat{\lambda}_4 Lev_i \quad (5)$$

Higher C-scores indicate greater degrees of accounting conservatism. Similarly, special items (Compustat dataitem *spi* deflated by lagged market capitalization) reflect recognition of material non-recurring losses and gains.

Table 1 shows descriptive statistics for the Compustat sample. C-score has a mean value of 0.133 with standard deviation of 0.13. Although more than half of the sample do not report

special items (median of zero), the special items measure is more easily interpretable than the C-score as a measure of accounting conservatism. The mean value of special items is -0.025, the negative sign implying that there are more losses than gains recognized in special items. The standard deviation of special items is 0.108, indicating that there is large variation in the non-zero values of this variable.

The two measures we use of how close firms are to bankruptcy, the Altman Z-score and the distance-to-default measure, both display high variation. In the rest of the paper, we form quintiles based on these measures and classify firms in the lowest quintile as being close to insolvency. The results in this paper are not sensitive to the exact choice of cut-off. As robustness checks, we also repeat the tests using alternative partitioning into quartiles or terciles, and we obtain similar results.

Table 2 reports the results for tests examining hypothesis 1. We conduct OLS regressions of C-score on indicator variables for Delaware-incorporation, time period (1 if fiscal period ends on or after December 1991, 0 otherwise), interaction terms, and control variables. The control variables include size, market-to-book, and leverage (Khan and Watts (2009)). We include industry and year fixed effects in all regressions and report robust standard errors clustered by firm. Column 1 shows the results for all firm-years with available data. The coefficient on *Delaware x Post* is highly significantly positive, indicating that Delaware firms have more conservative financial statements after the ruling. Interestingly, the main effect on *Delaware* is negative suggesting that pre-1991, Delaware firms reported less conservatively than non-Delaware firms. The main effect on *Post* is positive, consistent with the trend of increasing accounting conservatism over time documented in Givoly and Hayn (2000).

Columns 2 to 5 show the results for the same regression run on partitions of the sample formed on the two different distance-to-default measures. In columns 2 and 3, which use the Merton-derived (1974) distance-to-default measure, we continue to find the significant coefficients on *Delaware x Post* and on *Post*. However, the *Delaware* main effect is weaker in the individual sub-partitions than in the column 1 full sample, and is no longer statistically significant for firms which are in good financial health. Columns 4 and 5 use an alternative proxy for closeness to default, the Z-score (Altman (1968)). The pattern for columns 4 and 5 almost exactly mirrors that in columns 2 and 3. We also report at the bottom of the table a formal statistical test comparing the *Delaware x Post* coefficient across the partitions for each measure of distance-to-default, and in both cases we find that the effect is more pronounced for firms closer to default.

Table 3 repeats the same analysis as table 2 using an alternative conservatism measure which is based on the amounts of net losses recognized in special items (Gormley et al. (2012), Tan (2013)). The conclusions are the same as for table 2. For the full sample, we obtain a negative coefficient -0.005 on the *Delaware x Post* interaction. The interpretation is that Delaware firms on average report larger net losses in special items after 1991, and the increase amounts to 0.5% of their opening market capitalization. When we split the sample by distance-to-default or Z-score, we find that there is a substantially larger effect in firms that are close to insolvency (3.1% of opening market capitalization when using Vassalou and Xing's (2004) distance-to-default and 3.8% when using Z-scores). Again, the size of the effect for observations close to insolvency is statistically larger than for observations far from insolvency, as indicated by the *p*-values for the hypothesis tests at the bottom of table 3.

We conduct several robustness tests. First, we allow the window surrounding the *Credit Lyonnais* ruling to vary. In tables 2 and 3, the results reported are for four-year windows before and after December 1991. We repeat the tests using three-year and five-year windows and our conclusions are unchanged. Second, we drop observations with fiscal year ending in 1991 because there may be noise in these data, especially since the ruling date (December 30, 1991) was very close to many firm's fiscal year end. Excluding the 1991 observations indeed produces similar and statistically stronger results. In addition, as previously mentioned, we also vary the cut-off threshold for forming partitions of observations by closeness to insolvency, forming terciles, quartiles, or quintiles of distance-to-default and Z-score, and the results continue to hold.

3.4 Results for loan contract modifications

Table 4 shows the sample size and composition for the hand-collected loan contracts sample. The year columns indicate the year in which the loan contract was signed. We collect an initial total sample of 282 contracts, 159 for Delaware and 123 for non-Delaware firms, spread out across the six sample years. After reading all the contracts, we ascertain that 206 (74%) of these contracts contain net worth covenants. We examine net worth covenants in order to establish whether or not conservative modifications are made, and we focus on two modifications highlighted by Beatty et al. (2008), income escalators and intangible asset exclusion. The typical income escalator clause that we encounter stipulates changes to net worth calculations which incorporate future profits only partially and future losses in full. Following Li (2010), we also code whether the contracts contain conservative definitions of net income, cash flows, or net worth.

Table 5 contains descriptive statistics of our credit agreements sample. A complementary loan contracts dataset which is widely used in academic research is the one compiled by Sufi (2007) and extended in Nini, Smith, and Sufi (2009). One reason for its widespread use is that this dataset is freely available on Professor Sufi's website. Since our sample covers an earlier time period (1989 to 1994 compared to the Sufi sample period of 1996 to 2005), it is instructive to compare the two samples. Aside from the time period, another major difference in sample composition is that Sufi only includes contracts with a table of content because he relied on machine-readable contracts electronically available on EDGAR. Our sample was not subject to this constraint. Moreover, the starting point for the Sufi sample is the Dealscan database from Loan Pricing Corporation, which has a focus on syndicated loans, whereas our procedure samples directly from companies' regulatory filings regardless of the type of loan.

Table 5 shows that our sample picks up relatively smaller loans (mean of $98 million compared to $435 million for the Sufi sample). Less that 23% of the loans we examine have performance pricing, whereas the corresponding percentage in Sufi's sample exceeded 75%. This pattern is consistent with the observation in Asquith et al. (2005) that performance pricing is a relatively new feature of debt contracts after 1994. The different emphasis on stock vs. flow covenants is also striking. Loans from our earlier sample period are much more likely to contain balance sheet covenants (liquidity, debt to balance sheet, and net worth covenants are present in 54%, 69%, and 73% of our sample, respectively) than the later period covered by the Sufi sample (15%, 29%, and 45%, respectively). This pattern is consistent with the trend documented in Demerjian (2011). The opposite pattern is observed for flow covenants. Coverage and debt to cash flows covenants are present in only 47% and 23% of our sample, whereas Sufi reports these same covenants in over 74% and 57% of his sample, respectively. The other notable difference is

that dividend restrictions are relatively rare in our early sample period (32% occurrence) whereas they are very common in Sufi's sample (over 80%).

Table 6 provides additional descriptive statistics on features of loan contract modifications. In the 73% of the loans containing a net worth covenant, we observe income escalators and intangible asset exclusions 40% and 74% of the time, respectively. The corresponding proportions for loans from the period 1994-2004 as reported in Beatty et al. (2008) are two-thirds and one half. We find conservative definitions of cash flows, net income, and net worth (i.e., involving differential treatment of gains and losses) in 4.6%, 16%, and 20.9% of the contracts. The conservative modifications to these definitions that we commonly encounter are to exclude extraordinary gains, gains from asset sales, and gains from asset write-up from the contractual measures of cash flows, net income, or net worth, but not the corresponding losses.

We report in table 7 the results of our analyses of loan contract modifications. The three columns in table 7 examine different types of conservative modifications to loan contracts. Column 1 is a probit regression in which the dependent variable is an indicator variable equal to 1 if an income escalator is used, and 0 otherwise. Similarly, column 2 uses as dependent variable an indicator for the exclusion of intangible assets in net worth calculations. In column 3, we consider the use of conservative definitions of cash flows, net income, or net worth in the loan contract. Given the small number of observations, for these tests, we compare Delaware firms close to default (the group affected by the ruling) to all other firms (all non-Delaware firms and Delaware firms distant from default). Table 7 uses the distance-to-default measure from Vassalou and Xing (2004) as proxy for insolvency risk. We find no effect for income escalators and for conservative definitions, and a modest effect in the intangible asset exclusion regression

(column 2). In column 2, the *DelawareDD x Post* coefficient is positive, suggesting a greater likelihood of observing this type of loan contract modification in Delaware firms close to default after the ruling. Interestingly, the *DelawareDD* coefficient is negative, suggesting a lower likelihood of finding the use of this type of modification in the period before the ruling.[13] Table 8 repeats the tests in table 7 using the Z-score as a proxy for insolvency risk. Similar results to table 7 are obtained, with slightly stronger statistical significance for the intangible asset exclusion regression. Among the control variables, we consistently observe a positive significant coefficient for covenant intensity across all regressions. One interpretation, along the lines of Beatty et al. (2008), is that when agency problems are greater (loan contracts contain more covenants), all three types of contract modification are more likely to be used.

4 CONCLUSION

This paper exploits an exogenous shift in the balance of power between lenders and borrowers to examine how lenders' demand for conservatism is met through two distinct channels: (1) accounting conservatism in the GAAP financial statements of borrowers and (2) conservative modifications (i.e., achieved through asymmetric treatment of gains and losses) to accounting measurement rules in the debt contracts. A Delaware court ruling in the 1991 *Credit Lyonnais* case provides a natural experiment to examine this question. The ruling argued that directors owe fiduciary duties to creditors of firms that may not be insolvent but are in the vicinity of insolvency. Prior to the ruling, it was held that directors owe fiduciary duties to creditors only after the firm becomes insolvent. This shift in the balance of power in the lender-

[13] Prior research has documented a "Delaware effect". For example, Daines (2001) finds that firm value is higher for Delaware-incorporated public firms and these firms are more likely to be acquired.

borrower relationship can be viewed as exogenous and, since the ruling only affected Delaware incorporated firms, we are able to conduct difference-in-difference analyses.

We find that there is a greater increase in GAAP financial statement conservatism in Delaware than in non-Delaware firms and that this effect is more pronounced for firms closer to insolvency. In a hand-collected sample of loan contracts entered into before and after the ruling, we find no evidence that the contracts contain either fewer or more conservative modifications to accounting measures following the ruling, whether in the form of income escalators in net worth calculations or in the form of conservative definitions of cash flows, net income, or net worth. These results suggest that, when lenders gain power in their relationship with borrowers, their need for conservatism is met primarily through financial reporting conservatism rather than through conservative loan contract modifications.

However, for Delaware firms close to insolvency, we do find an increase after the *Credit Lyonnais* ruling in the likelihood that the contract specifies the exclusion of intangible assets when determining net worth. There is no change for other firms which were unaffected by the ruling. These findings suggest that lenders negotiate other types of contract modifications which help protect their interests when GAAP rules are deficient from the lenders' perspective.

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Appendix A: Variable Definitions

Terms in italics refer to variable names in Compustat.

C-score	A firm-year measure of financial reporting conservatism as in Khan and Watts (2009)
Special items	*spi* / lagged market value of equity (*prcc_f***csho*)
Size	log(*csho***prcc_f*)
MB	(*csho***prcc_f*)/*ceq*
Lev	(*dlc*+*dltt*)/(*csho***prcc_f*)
Z-score	1.2*(*wcap*/*at*)+1.4*(*re*/*at*)+3.3*(*pi*/*at*)+0.6*((*prcc_f***csho*)/*lt*)+(*sale*/*at*)
Distance-to-default	The distance-to-default measure estimated as in Vassalou and Xing (2004)
Delaware	A dichotomous variable taking value 1 if the company is incorporated in Delaware, 0 otherwise.
Post	A dichotomous variable taking value 1 if the firm-year/loan is after 1991, 0 otherwise.
Escalator	A dichotomous variable taking value 1 if the net worth covenant includes an income escalator, 0 otherwise.
Tangible	A dichotomous variable taking value 1 if the net worth covenant specifies tangible net worth, 0 otherwise.
ConsDef	A dichotomous variable taking value 1 if the definition of income, cash flow or net worth in a debt contract includes losses but not gains, 0 otherwise.
DelawareDD	A dichotomous variable taking value 1 if the company is incorporated in Delaware and is close to insolvency according to the distance-to-default measure, 0 otherwise
DelawareZS	A dichotomous variable taking value 1 if the company is incorporated in Delaware and is close to insolvency according to the Z-Score measure, 0 otherwise
Loan Size	Loan amount/total assets (*at*)
Cov_intensity	Number of financial covenants

Maturity	The maturity of the loan in years
PPricing	A dichotomous variable taking value 1 if performance pricing is included in the loan contract, 0 otherwise.
Spread	The interest rate spread over LIBOR for loans without performance pricing.
Revolver	A dichotomous variable taking value 1 if the agreement contains a line of credit/revolver, 0 otherwise.
Growth	Growth in assets *at*/lag(*at*)
Rating	A pooled cross-sectional regression of the debt rating on a set of financial variables (total assets, ROA, debt to assets, dividend indicator, subordinated debt indicator, and a loss indicator) is estimated for rated firms. The regression parameter estimates and the firm's financial information are then used to predict a credit rating for each firm year. The ratings for sample firms are between 1 (AAA) and 24 (C).
Goodwill	The amount of goodwill measured as *gdwl*/*at*.
Intangible	The amount of intangible assets measured as *intan*/*at*.

Table 1 Summary Statistics for Key Variables in the Compustat Sample

	N	Mean	SD	25th	Median	75th
C-score	26,816	0.133	0.130	0.057	0.131	0.203
Special items	32,466	-0.025	0.108	-0.005	0.000	0.000
Size	37,816	4.191	2.100	2.682	4.067	5.553
MB	37,791	2.842	4.633	1.057	1.794	3.228
Lev	37,711	0.696	1.373	0.034	0.233	0.721
Z-score	35,993	5.087	8.423	1.657	3.183	5.443
Distance-to-default	32,889	4.446	4.874	1.709	3.723	6.708

Note: This table presents summary statistics for the Compustat sample. The sample period is from 1988 to 1995. C-score is a firm-year measure of financial reporting conservatism as in Khan and Watts (2009). Special items is *spi* / lagged market value of equity (*prcc_f***csho*). Size is log(*csho***prcc_f*). MB is (*csho***prcc_f*)/*ceq*. Lev is (*dlc*+*dltt*)/(*csho***prcc_f*). Z-score is 1.2*(*wcap*/*at*)+1.4*(*re*/*at*)+3.3*(*pi*/*at*)+0.6*((*prcc_f***csho*)/*lt*)+(*sale*/*at*). Distance-to-default is estimated as in Vassalou and Xing (2004).

Table 2 C-Score: Difference-in-difference Results around *Credit Lyonnais* Ruling

		Distance-to-default		Z-Score	
	(1)	(1)	(2)	(1)	(2)
	Full Sample	Close to Insolvency	Far from Insolvency	Close to Insolvency	Far from Insolvency
Delaware × Post	0.007***	0.014***	0.003**	0.016***	0.003*
	(0.000)	(0.004)	(0.020)	(0.001)	(0.071)
Delaware	-0.003***	-0.007**	-0.001	-0.009***	-0.000
	(0.003)	(0.011)	(0.260)	(0.006)	(0.679)
Post	0.049***	0.028***	0.055***	0.162***	0.053***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Size	-0.044***	-0.042***	-0.043***	-0.043***	-0.044***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
MB	-0.007***	-0.007***	-0.007***	-0.007***	-0.008***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Lev	0.043***	0.044***	0.050***	0.045***	0.044***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.259***	0.259***	0.249***	0.252***	0.259***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Industry Effects	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes
Observations	26,816	4,816	18,834	4,600	18,256
Adjusted R^2	0.780	0.684	0.798	0.730	0.830
H_0: Close to Insolvency = Far from Insolvency		*p*-value = 0.030		*p*-value = 0.005	

Note: This table presents results examining the effect of the *Credit Lyonnais* Ruling on financial reporting conservatism as measured by C-score. C-score is a firm-year measure of financial reporting conservatism as in Khan and Watts (2009). Delaware is a dichotomous variable taking value 1 if the company is incorporated in Delaware, 0 otherwise. Post is a dichotomous variable taking value 1 if the firm-year is after 1991, 0 otherwise. Size is log(*csho***prcc_f*). MB is (*csho***prcc_f*)/*ceq*. Lev is (*dlc*+*dltt*)/(*csho***prcc_f*). Z-score is calucalted as 1.2*(*wcap*/*at*)+1.4*(*re*/*at*)+3.3*(*pi*/*at*)+0.6*((*prcc_f***csho*)/*lt*)+(*sale*/*at*). Distance-to-default is estimated as in Vassalou and Xing (2004). *P*-values are in parentheses and are adjusted for within cluster correlation by firm. *, ** and *** indicate significance at two-tailed probability levels of 10%, 5%, and 1%, respectively.

Table 3 Special Items: Difference-in-difference Results around *Credit Lyonnais* Ruling

		Distance-to-default		Z-Score	
	(1) Full Sample	(1) Close to Insolvency	(2) Far from Insolvency	(1) Close to Insolvency	(2) Far from Insolvency
Delaware × Post	-0.005**	-0.031**	-0.004**	-0.038***	-0.005**
	(0.032)	(0.025)	(0.043)	(0.005)	(0.021)
Delaware	-0.002	0.011	-0.001	0.009	0.002
	(0.338)	(0.270)	(0.675)	(0.367)	(0.315)
Post	-0.014***	-0.036**	-0.011***	-0.034**	-0.013***
	(0.000)	(0.011)	(0.000)	(0.013)	(0.000)
Size	0.004***	0.007***	0.001***	0.001	0.001*
	(0.000)	(0.002)	(0.001)	(0.484)	(0.077)
MB	0.000	0.001	-0.000	0.001***	-0.000
	(0.283)	(0.294)	(0.914)	(0.009)	(0.369)
Lev	-0.020***	-0.023***	-0.013***	-0.028***	-0.011***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.012***	-0.015	-0.004*	-0.024**	0.001
	(0.000)	(0.152)	(0.074)	(0.020)	(0.721)
Industry Effects	Yes	Yes	Yes	Yes	Yes
Year Effects	Yes	Yes	Yes	Yes	Yes
Observations	32,270	5,760	22,280	5,556	21,872
Adjusted R^2	0.087	0.070	0.020	0.118	0.025
H_0: Close to Insolvency = Far from Insolvency					
			p-value = 0.057		*p*-value = 0.016

Note: This table presents results examining the effect of the *Credit Lyonnais* Ruling on financial reporting conservatism manifested through special items. The dependent variable is Special items (Compustat item *spi* scaled by lagged market value of equity (*prcc_f***csho*)). Delaware is a dichotomous variable taking value 1 if the company is incorporated in Delaware, 0 otherwise. Post is a dichotomous variable taking value 1 if the firm-year is after 1991, 0 otherwise. Size is log(*csho***prcc_f*). MB is (*csho***prcc_f*)/*ceq*. Lev is (*dlc*+*dltt*)/(*csho***prcc_f*). Z-score is calculated as 1.2*(*wcap*/*at*)+1.4*(*re*/*at*)+3.3*(*pi*/*at*)+0.6*((*prcc_f***csho*)/*lt*)+(*sale*/*at*). Distance-to-default is estimated as in Vassalou and Xing (2004). *P*-values are in parentheses and are adjusted for within cluster correlation by firm. *, ** and *** indicate significance at two-tailed probability levels of 10%, 5%, and 1%, respectively.

Table 4: Distribution of the Random Credit Agreements Sample

Panel A: All Credit Agreements

	1989	1990	1991	1992	1993	1994	Total
Delaware:	16	30	30	26	35	22	159
Non-Delaware:	20	18	26	20	23	16	123
Total:	36	48	56	46	58	38	282

Panel B: Credit Agreements with Net Worth Covenant

	1989	1990	1991	1992	1993	1994	Total
Delaware:	11	23	24	19	27	14	118
Non-Delaware:	15	14	18	13	18	10	88
Total:	26	37	42	32	45	24	206

Note: This table shows the distribution of the random sample of hand-collected credit agreements. Each cell shows the number of credit agreements collected in a given year and for a given group of firms (i.e., Delaware or Non-Delaware). Panel A shows the full credit agreement sample and Panel B shows the subsample of agreements containing net worth covenants.

Table 5: Summary Statistics for Loan Characteristics in the Random Credit Agreements Sample

	Our Sample			Sufi Sample		
	Mean	Median	N	Mean	Median	N
Loan amount (in $ millions)	97.7	25.0	282	435	190	3,717
Loan size (amount/total assets)	0.243	0.163	282	0.373	0.253	3,717
Maturity	3.29	3.000	282	3.875	3.5	3,663
Spread (basis points above LIBOR)	141.5	100.0	218	173.7	150	3,715
Secured	0.635	1	282	0.647	1	3,130
Has performance pricing	0.227	0	282	0.752	1	3,659
Has a line of credit/revolver	0.766	1	282	0.884	1	3,717
Financial Covenants						
# of financial covenants	3.309	3	282	2.57	3	3,603
Any liquidity covenant	0.539	1	282	0.147	0	3,603
Any debt to balance sheet covenant	0.695	1	282	0.292	0	3,603
Any net worth covenant	0.730	1	282	0.452	0	3,603
Any coverage covenant	0.475	0	282	0.743	1	3,603
Any debt to cash flows covenant	0.230	0	282	0.575	1	3,603
General Covenants						
# of general covenants	23.617	23	282	N/A	N/A	N/A
Any merger restriction	0.809	1	282	N/A	N/A	N/A
Any capex restriction	0.422	0	282	0.322	0	3,720
Any dividend restriction	0.323	0	282	0.809	1	3,459
Has table of content	0.603	1	282	1.000	1	3,720

Note: This table presents summary statistics of our random credit agreement sample and compares loan characteristics with the credit agreements in a more recent period, namely, the Sufi sample (based on a recent credit agreement sample from Nini, Smith, and Sufi (2009)). Maturity is maturity of the loan in years. Spread is the interest rate spread over LIBOR for loans without performance pricing.

Table 6: Conservative Loan Characteristics in the Random Credit Agreements Sample

	Percentage
Net worth covenant	0.730
Income escalator	0.398
Tangible net worth covenant	0.743
ConsCF	0.046
Exclude any extraordinary gains but not losses	0.769
Exclude gains but not losses from asset sales	0.462
Exclude gains but not losses from asset write-up	0.077
ConsNI	0.160
Exclude any extraordinary gains but not losses	0.267
Exclude gains but not losses from asset sales	0.311
Exclude gains but not losses from asset write-up	0.644
ConsNW	0.209
Exclude any extraordinary gains but not losses	0.000
Exclude gains but not losses from asset sales	0.068
Exclude gains but not losses from asset write-up	0.932

Note: This table shows the frequency with which conservative loan characteristics are observed in the random credit agreement sample. ConsCF shows the frequency of cash flow related definitions in the contracts that are conservative. ConsNI shows the frequency of net income definitions in the contracts that are conservative. ConsNW shows the frequency of net worth definitions in the contracts that are conservative.

Table 7: Debt Contract Modifications – Distance-to-Default Measure

	(1) Escalator	(2) Tangible	(3) ConsDef
DelawareDD × Post	-0.6147	1.0505*	-0.1679
	(0.318)	(0.067)	(0.713)
DelawareDD	0.3031	-0.7323*	0.1681
	(0.495)	(0.058)	(0.614)
Post	0.6484	-1.1567	0.5819
	(0.299)	(0.178)	(0.203)
Loan Size	0.1969	-0.3029	-0.5989*
	(0.565)	(0.414)	(0.058)
Cov_intensity	0.1983**	0.2244**	0.2926***
	(0.021)	(0.016)	(0.000)
Maturity	0.1182*	-0.1381**	0.0377
	(0.060)	(0.043)	(0.453)
PPricing	0.3234	-0.1569	0.1552
	(0.286)	(0.639)	(0.574)
Spread	0.0763	0.0689	-0.0166
	(0.435)	(0.488)	(0.817)
Revolver	-0.5967**	-0.1557	0.0899
	(0.017)	(0.638)	(0.703)
Size	-0.0001	-0.0001	0.0000
	(0.407)	(0.595)	(0.736)
Growth	-0.1697	-0.4511*	0.0491
	(0.175)	(0.083)	(0.443)
Rating	-0.0264	-0.0583	-0.0666*
	(0.596)	(0.257)	(0.093)
Goodwill		-1.3325	
		(0.478)	
Intangible		-2.3925	
		(0.139)	
Year Effects	Yes	Yes	Yes
Observations	206	206	282
Pseudo R^2	0.153	0.298	0.139

Note: This table presents results examining the effect of the *Credit Lyonnais* ruling on debt contract modifications, where proximity to insolvency is proxied by the Vassalou and Xing (2004) measure of distance-to-default.
The dependent variable in each of columns (1) to (3) is as follows: Escalator is a dichotomous variable taking value 1 if the net worth covenant includes an income escalator, 0 otherwise. Tangible is a dichotomous variable taking value 1 if the net worth covenant specifies tangible net worth, 0 otherwise. ConsDef is a dichotomous variable taking value 1 if the definition of income, cash flow or net worth in the debt contract includes losses but not gains, 0 otherwise.
The independent variables are as follows: DelawareDD is a dichotomous variable taking value 1 if the company is incorporated in Delaware and is close to insolvency according to the distance-to-default measure, 0 otherwise. Distance-to-default is the distance-to-default measure as in Vassalou and Xing (2004). Post is a dichotomous variable taking value 1 if the loan date is after 1991, 0 otherwise. Loan Size is loan amount/total assets (*at*). Cov_intensity is number of financial covenants. Maturity is the maturity of the loan in years. PPricing is a dichotomous variable taking value 1 if performance pricing is included in the loan contract, 0 otherwise. Spread is the interest rate spread over LIBOR for loans without performance pricing. Revolver is a dichotomous variable taking value 1 if the agreement contains a line of credit/revolver, 0 otherwise. Growth is growth in assets *at*/lag(*at*). Rating is a pooled cross-sectional regression of the debt rating on a set of financial variables (total assets, ROA, debt to assets, dividend indicator, subordinated debt indicator, and a loss indicator) which is estimated for rated firms. The regression parameter estimates and the firm's financial information are then used to predict a credit rating for each firm year. The ratings for sample firm-years range between 1 (AAA) and 24 (C). Goodwill is the amount of goodwill measured as *gdwl*/*at*. Intangible is the amount of intangible assets measured as *intan*/*at*. *P*-values are in parentheses and are adjusted for within cluster correlation by firm. *, ** and *** indicate significance at two-tailed probability levels of 10%, 5%, and 1%, respectively.

Table 8: Debt Contract Modifications - Z-Score Measure

	(1) Escalator	(2) Tangible	(3) ConsDef
DelawareZS × Post	0.0673	1.3787**	-0.0357
	(0.911)	(0.030)	(0.940)
DelawareZS	-0.4267	-1.1689**	-0.0693
	(0.422)	(0.023)	(0.860)
Post	0.4842	-1.0287	0.5500
	(0.459)	(0.177)	(0.231)
Loan Size	0.1782	-0.2044	-0.5932*
	(0.599)	(0.608)	(0.060)
Cov_intensity	0.1833**	0.2214**	0.2903***
	(0.034)	(0.013)	(0.000)
Maturity	0.1264**	-0.1336**	0.0364
	(0.049)	(0.040)	(0.462)
PPricing	0.3420	-0.1685	0.1570
	(0.261)	(0.610)	(0.571)
Spread	0.0575	0.0467	-0.0189
	(0.563)	(0.633)	(0.790)
Revolver	-0.6464**	-0.1130	0.0690
	(0.015)	(0.743)	(0.779)
Size	-0.0001	-0.0001	0.0000
	(0.388)	(0.595)	(0.760)
Growth	-0.1403	-0.4262	0.0560
	(0.286)	(0.130)	(0.369)
Rating	-0.0125	-0.0564	-0.0613
	(0.802)	(0.278)	(0.118)
Goodwill		-1.6415	
		(0.376)	
Intangible		-1.7758	
		(0.262)	
Year Effects	Yes	Yes	Yes
Observations	206	206	282
Pseudo R^2	0.152	0.296	0.139

Note: This table presents results examining the effect of the *Credit Lyonnais* ruling on debt contract modifications, where proximity to insolvency is proxied by Altman's (1968) Z-score.
The dependent variable in each of columns (1) to (3) is as follows: Escalator is a dichotomous variable taking value 1 if the net worth covenant includes an income escalator, 0 otherwise. Tangible is a dichotomous variable taking value 1 if the net worth covenant specifies tangible net worth, 0 otherwise. ConsDef is a dichotomous variable taking value 1 if the definition of income, cash flow or net worth in the debt contract includes losses but not gains, 0 otherwise.
The independent variables are as follows: DelawareZS is a dichotomous variable taking value 1 if the company is incorporated in Delaware and is close to insolvency according to the Z-score measure, 0 otherwise. Z-score is calculated as 1.2*(*wcap*/*at*)+1.4*(*re*/*at*)+3.3*(*pi*/*at*)+0.6*((*prcc_f***csho*)/*lt*)+(*sale*/*at*). Post is a dichotomous variable taking value 1 if the loan date is after 1991, 0 otherwise. Loan Size is loan amount/total assets (*at*). Cov_intensity is number of financial covenants. Maturity is the maturity of the loan in years. PPricing is a dichotomous variable taking value 1 if performance pricing is included in the loan contract, 0 otherwise. Spread is the interest rate spread over LIBOR for loans without performance pricing. Revolver is a dichotomous variable taking value 1 if the agreement contains a line of credit/revolver, 0 otherwise. Growth is growth in assets *at*/lag(*at*). Rating is a pooled cross-sectional regression of the debt rating on a set of financial variables (total assets, ROA, debt to assets, dividend indicator, subordinated debt indicator, and a loss indicator) which is estimated for rated firms. The regression parameter estimates and the firm's financial information are then used to predict a credit rating for each firm year. The ratings for sample firm-years range between 1 (AAA) and 24 (C). Goodwill is the amount of goodwill measured as *gdwl*/*at*. Intangible is the amount of intangible assets measured as *intan*/*at*. *P*-values are in parentheses and are adjusted for within cluster correlation by firm. *, ** and *** indicate significance at two-tailed probability levels of 10%, 5%, and 1%, respectively.