The Debt-Contracting Value of Accounting Numbers, Renegotiation, and Investment Efficiency*

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Abstract

This paper investigates the impact of the debt-contracting value (DCV) of borrowers' accounting information on the likelihood of private debt renegotiation and the implication of renegotiation for borrowing firms' investment efficiency. DCV captures the inherent ability of firms' accounting numbers to predict future credit quality. Building on incomplete contract theory, I hypothesize that lower DCV of a borrower's accounting numbers creates *ex post* incentives for both parties to renegotiate the terms of the initial contract, leading to higher probability of renegotiation. During the renegotiation, the lenders can extract partial gains from the borrowers' investment according to their relative bargaining power. Anticipating the high-probability of renegotiation reduces the *ex ante* investment incentives of borrowers, inducing underinvestment. Using a sample of 3,720 private debt contracts, I find that firms with higher DCV have a lower probability of renegotiation and less underinvestment. Moreover, the impact of DCV on investment increases with lenders' relative bargaining power.

Keywords: debt-contracting value of accounting numbers; renegotiation; incomplete contract; hold-up problem; underinvestment
JEL Classification: M40, G30

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1 Introduction

Accounting information plays a crucial role in formal debt contracting. The accounting-based contractual features use accounting numbers as state-contingent signals to efficiently map economic conditions to a set of actions such as transfer of control rights (Smith and Warner 1979; Aghion and Bolton 1992). The contracting usefulness of these accounting variables depends on how well they measure the contracting constructs (e.g., future credit quality). While a number of recent studies argue that the most useful accounting numbers or measurement rules are chosen in debt contract originations to *ex ante* avoid costly renegotiation (El-Gazzar and Pastena 1990; Frankel and Litov 2007; Frankel et al. 2008; Beatty et al. 2008; Li 2010; Armstrong et al. 2010), there is no empirical evidence showing how the quality of accounting numbers affects the *actual* probability and the real cost of renegotiation.

In this paper, I address these questions by investigating the influence of the debt-contracting value of borrowers' accounting numbers on the likelihood of private debt renegotiation and the implication of renegotiation for investment efficiency. The debt-contracting value captures the inherent ability of firms' accounting numbers to predict future credit quality (Ball et al. 2008). Specifically, when a shock occurs at some future time, the debt-contracting value of accounting captures the extent to which contracted accounting numbers at that future time reflect new information relevant to debt contracting.

I focus first on the impact of the debt-contracting value of accounting on the likelihood of renegotiation. In an incomplete contracting framework,[1] the parties *ex ante* can only contract on some verifiable signals, which are imperfectly related to the contracting constructs. After signing a contract, there is always room for Pareto-improving renegotiations once the contracting parties receive new information beyond contracted signals. The parties trade off the gains from writing a more suitable contract against the costs of renegotiation. The size of the gains is affected by the ability of contracted accounting numbers to serve as verifiable signals to incorporate the new

[1]If the parties to an agreement could specify their respective rights and duties for every possible future state of the world, their contract would be complete. Incomplete contract literature attributes the incompleteness into unforeseen contingencies, writing costs, enforcement costs, and complexity. See Dye (1985), Segal (1999), and Tirole (1999).

information. The higher the debt-contracting value of accounting, the less there is to gain by replacing the old contract. Consequently, the incentive to renegotiate should decrease. Thus, I hypothesize that firms with higher debt-contracting value of accounting are less likely to renegotiate debt contracts.[2]

Further, I explore the real investment effects of renegotiation. While borrowers undertake all the costs of investment, the gains from borrowers' investment are partially shared by lending banks during the renegotiations. Higher anticipated probability of renegotiation reduces the *ex ante* investment incentive of the borrowers. Incomplete contract theory predicts that the borrowing firm will underinvest, which is also known as the hold-up problem (Williamson 1975, 1979; Klein et al. 1978; Grossman and Hart 1986; Hart and Moore 1990). The degree of distortion depends on the perceived probability of renegotiation and the relative bargaining power of the parties involved. Lenders with more bargaining power can extract more gains, amplifying the effect of renegotiation on underinvestment. In an extreme case, if lenders have zero bargaining power and thus cannot obtain any gain from renegotiation, there is no underinvestment problem and the expected probability of renegotiation is irrelevant. The relative bargaining power is a function of the outside options for both contracting parties. For example, the information advantage of incumbent lenders over outside lenders reduces the outside option of borrowing firms, because outside lenders face a "Winner's Curse" when competing with incumbent lenders in bidding for their clients (Sharpe 1990; Rajan 1992). I expect that firms with higher debt-contracting value of accounting numbers have less underinvestment, and the impact of the debt-contracting value on investment increases when lenders have more relative bargaining power.[3]

[2]The following is a simple example of "perfect" accounting that maximizes the debt-contracting value of accounting information at some future time when new information arrives. Consider a firm whose sole asset is a bond traded in deep and liquid markets and the bond is marked to market each period. Any new information in future periods is reflected in the bond's carrying value and there are no Pareto improvements from renegotiating the debt contract. As a further simple example, one indicating poor debt-contracting value of accounting numbers, consider a firm whose sole asset is one in-process R&D project. If internally generated intangibles are not capitalized and the project is still in-process at some future time when new information arrives, the accounting numbers will not at that future time reflect new information relevant to contracting. This gives rise, *ex post*, to Pareto improvements from renegotiating the debt contract. For most firms, the accounting will be somewhere between these polar extremes of perfect and poor quality of accounting numbers.

[3]Note that the hold-up problem does not conflict with borrowing firms' incentive to renegotiate contracts, as long as lenders do not appropriate all the gains from renegotiation.

Private loan contracting provides a desirable empirical setting to investigate the implication of debt-contracting value of accounting on renegotiation and investment efficiency for several reasons. First, private debt contracts frequently use accounting-based contractual features. For example, 96% of the contracts in my sample contain financial covenants. Second, the hold-up problem is more significant due to the information advantage of incumbent lenders about borrowers over outside lenders. Finally, private debts have low renegotiation costs relative to public bonds. After tracking 3,720 private loan agreements for 1,939 U.S. public borrowing firms, I find that 76% of loan contracts are renegotiated before maturity, and more importantly, 75% of these renegotiations involve changes in the accounting-based contractual features.

I estimate a direct proxy for the debt-contracting value of accounting by modifying the approach in Ball et al. (2008).[4] My measure is a goodness-of-fit statistic from a Probit model where the levels of credit ratings are modeled as a function of lagged earnings, interest coverage ratios, leverages, and net worths, all of which are frequently used in accounting-based contractual terms. The debt-contracting value of accounting, DCV, is calculated at the industry level to capture how well accounting numbers predict future credit ratings. To measure lenders' relative bargaining power, I first use two characteristics of lenders, the proportion of institutional loans in a lead lender's total portfolio and the proportion of a syndicated loan deal held by foreign lenders. When lead lenders hold a greater proportion of institutional loans for sale on the secondary market, or a higher proportion of a syndicated loan is held by foreign lenders, there is less incentive for lead lenders to collect information, reducing information advantage relative to outside competing banks (Sufi 2009). Therefore, lenders are in a weaker bargaining position. I also use two characteristics of borrowing firms, financial constraint and asset tangibility. Arguably, the higher financial constraint of borrowers reduces the possibility of refinancing, yielding more bargaining power for lenders. After signing contracts, when borrowers have less tangible assets, which cannot be easily sold by lenders, lenders have less bargaining power (Bergman and Callen 1991; Benmelech and Bergman 2008).

The results of cross-sectional analyses show that increasing the debt-contracting value of accounting numbers from the first quartile to the third quartile decreases the probability of renego-

[4]Using the original debt-contracting value measure of Ball et al. (2008) does not affect my inferences.

tiation by 6%. I also find significantly less investment of borrowing firms in capital expenditure and R&D than would be expected based on investment fundamentals in the period after entering a private debt agreement and before renegotiation for renegotiation cases or maturity date for non-renegotiation cases. Additional tests using matched control firms suggest that sample firms invest less than the firm itself in the same period the previous year or relative to peers matched by year, industry, and sales growth. Consequently, lower investment leads to lower future operating performance. Furthermore, I find that a positive shift in the debt-contracting value of accounting increases borrowers' investment, and the increase is larger when lenders have more relative bargaining power. My empirical findings are robust to (1) additional measures of the debt-contracting value of accounting numbers, (2) a battery of alternative explanations on renegotiation, (3) alternative explanations on investment, and (4) different model specifications.

This study makes several contributions to the literature. First, it extends the literature on the choice of accounting numbers/rules in private debt contracts. Prior studies focus on how accounting variables are chosen and adjusted through negotiated measurement rules in debt contracting, arguing that the most relevant accounting numbers/rules are chosen in debt *originations* to *ex ante* avoid costly renegotiation (El-Gazzar and Pastena 1990; Frankel and Litov 2007; Frankel et al. 2008; Beatty et al. 2008; Li 2010; Armstrong et al. 2010). However, there is no evidence showing that better quality of accounting numbers *actually* reduces the probability of renegotiation. Relying on incomplete contract theory, I provide large sample evidence of the negative relation between the debt-contracting value of accounting and the likelihood of renegotiation. Armstrong et al. (2010, 227) state that, "there has been relatively little research on the role of accounting reports in the renegotiation process." This paper fills this gap, and to my knowledge is one of the first to investigate the cross-sectional impact of low quality of accounting numbers on debt renegotiation.

Second, this paper complements the accounting literature on the effect of debt contracts on accounting choice. One of the primary testable implications of positive accounting theory is the debt covenant hypothesis (Watts and Zimmerman 1990). According to this hypothesis, managers have incentives to reduce the likelihood of accounting-based covenant violation through their accounting discretion. However, the extant empirical evidence is mixed (Healy and Palepu 1990; DeAngelo

et al. 1994; DeFond and Jiambalvo 1994; Sweeny 1994; Dichev and Skinner 2002). Moreover, Holthausen (1981) and Leftwich (1981) find limited results by detecting the effect of cosmetic accounting changes on stock returns. Holthausen and Leftwich (1983) contend that the agency cost of accounting discretion is bounded above by the costs of renegotiation. In other words, depending on which cost is lower, managers either use accounting discretion to avoid covenants violation or renegotiate a new contract. In the private loan setting, renegotiation costs with lenders are reasonably low when compared to the costs of renegotiating with a large and diverse set of bondholders. My finding of frequent renegotiations related to accounting-based contractual terms suggests that besides manipulating accounting numbers, firms may instead renegotiate a new set of covenants, providing a potential explanation for the weak findings of the debt covenant hypothesis.[5]

Third, by addressing the hold-up problem, this study provides a new avenue to answer one of the fundamental questions in accounting: how does financial reporting quality affect investment efficiency? Generally, the prior literature claims that higher quality of accounting numbers mitigates moral hazard and adverse selection problems, thus enhancing investment efficiency (Kanodia and Lee 1998; Bens and Monahan 2004; Biddle and Hilary 2006; Hope and Thomas 2008; McNichols and Stubben 2008; Biddle et al. 2009; Beatty et al. 2010a; Chen et al. 2011b). This paper identifies a different channel by which a higher quality of accounting numbers (i.e., higher debt-contracting value of accounting numbers) improves investment efficiency. Incomplete contract theory predicts that *ex post* renegotiation reduces the incentive for *ex ante* investment, resulting in the problem of underinvestment. I find that higher debt-contracting value of accounting mitigates the underinvestment problem by reducing the probability of renegotiation, and this effect increases with lenders' relative bargaining power.[6]

Finally, this paper extends Roberts and Sufi (2009a) by identifying key *ex ante* determinants of the probability of renegotiation. In their Probit analyses, none of the firm characteristics at origination load in explaining renegotiation.[7] I argue that the incentive for *ex post* renegotiation

[5]See Barton and Simko (2002) and Baber et al. (2011) for situations where earnings management is very costly.

[6]Neither adverse selection nor moral hazard can predict this interaction effect that the impact of the debt-contracting value of accounting on investment increases with lenders' relative bargaining power

[7]The firm characteristics include log assets, debt to EBITDA, book leverage, market-to-book, EBITDA/assets, and EBITDA volatility.

comes from a lower quality of contractual accounting numbers and find that higher debt-contracting value of accounting numbers significantly decreases the likelihood of renegotiation.

The next section develops the testable hypotheses. Section 3 shows descriptive statistics on the renegotiation. Section 4 explains the research design choices. Section 5 presents evidence on the relation among the debt-contracting value of accounting, the likelihood of renegotiation, and investment efficiency. Section 6 discusses additional robustness tests. Section 7 concludes. Appendix I develops a stylized analytical model that both motivates and supports the empirical analyses.[8]

2 Hypotheses Development

2.1 Debt-Contracting Value and Renegotiation

Debt contracts typically contain financial covenants, performance pricing and/or borrowing bases,[9] all of which are usually based on accounting numbers.[10] These accounting-based contractual features use accounting numbers as state-contingent signals to efficiently map economic conditions to the set of actions (e.g., transfer of control rights, change of interest rates, change of credit commitment, etc.) and bind both parties against engaging in value-destroying actions due to divergent interests. For example, accounting-based covenants transfer certain decision rights to creditors in states of deteriorating financial performance, in which borrowers have greater incentives to take actions detrimental to firm values. Performance pricing allows both parties to commit, *ex ante*, to adjust interest rates on the debt contract when there are changes in the borrower's credit quality, thereby reducing the potential for renegotiation costs, hold-up problems and other potential conflicts (Asquith et al. 2005; Armstrong et al. 2010). A borrowing base is a type of credit line, for

[8]The model is a simplified version of Rajan (1992) augmented with an accounting component. In Rajan (1992), there is no state-contingent contractible variable (accounting number), and therefore he only examines two extreme cases: (1) long-term contract, where there is absolutely no renegotiation; (2) short-term contract, where there must be a renegotiation to renew the contract during interim. This simple model fits in-between and can generate the implication of the debt-contracting value of accounting.

[9]Appendix III provides examples on these contractual features.

[10]Performance pricing can also be based on credit ratings. See Ball et al. (2008) and Costello and Wittenberg-Moerman (2011) for the choice between accounting numbers and credit ratings.

which fund availability is tied to the borrower's accounts receivable, inventory, etc. It allows lenders' actual exposure to vary with the borrowers' success (Flannery and Wang 2011). The usefulness of the contractual accounting numbers depends on how well they capture the relevant information for debt contracting. Failing to fully reflect the information gives rise to *ex post* renegotiation.[11]

Usually, the accounting numbers generated under Generally Accepted Accounting Principles (GAAP) cannot fully capture the constructs of interests to private debt market participants, and hence these participants adjust the accounting numbers to improve contracting efficiency. Leftwich (1983) observes that the accounting measurement rules that are negotiated in private lending agreements differ from GAAP systematically. Beatty et al. (2008) find that nearly two thirds of their sample contracts with net worth covenants contain income escalators, which are systematic adjustments to net worth covenants that exclude a percentage of positive cumulative net income from covenant calculations. More recently, Li (2010) argues that most debt-contracting constructs are *forward-looking*. By closely examining 3,720 private debt contracts, Li discovers that in the contractual definition of net income, 23% of the contracts exclude extraordinary items, which is perceived less informative about future performance.[12]

Although the pre-determined formulaic adjustment helps refine the contractual accounting numbers, it cannot fully offset their imperfections. Contracting on customized accounting numbers involves the costs of ascertaining the optimal contracting variables and additional costs of monitoring with more complicated measurement rules. Li (2010) observes that debt contracts are generally incomplete and that there is a large cross-sectional variation in the use of adjustments.

[11]Fleetwood, of Riverside, Calif., is the nation's largest manufacturer of recreational vehicles (RV) and leading producer and retailer of manufactured housing. Its business woes began in early 2000 just as the Internet bubble began to burst. The company closed 16 manufactured housing and four RV factories, and laid off about 32% of its workforce later on and was still number one in the RV sector. Fleetwood needed to have EBITDA of $17.7 million in the second quarter and these figures were not going to be met. On December 10, 2001, the company successfully renegotiated a new contract with Bank of America. One of the amended items was the replacement of the EBITDA covenant. Instead, there was a free cash flow covenant that took into account a whole range of factors, including capital expenditure and service on junior subordinated debt. One year later, the restructuring worked and Fleetwood gradually recovered from the difficult time. In contrast, according to the original contract, technical default could trigger termination or liquidation. Since the EBITDA covenants overreacted to the shocks, sending a false alarm, hindsight suggests liquidation was not better than waiting for the recovery. An excerpt of the amendment/renegotiation is included in Appendix III Example 3.

[12]This paper uses the same private debt agreements sample. Instead of studying the *ex ante* contract design, I focus on the *ex post* renegotiation probability and investment efficiency.

Interestingly, Beatty et al. (2008) find that conservatism adjustments (i.e., income escalators) complement instead of substitute accounting conservatism in GAAP, implying the incompleteness of adjustments. Using optimal measurement rules, therefore, cannot guarantee that the modified accounting numbers always perfectly capture the relevant information for debt contracting.

Once the contracted accounting numbers fail to fully reflect *ex post* new relevant information for debt contracting, indicating inefficient actions (e.g., transferring the control right to creditors unnecessarily), borrowers and lenders have an incentive to renegotiate contractual terms.[13] They trade off gains by writing a more suitable contract with the costs from renegotiation. The gains of more suitable contracts could come from fewer false alarms of covenants violations (Gigler et al. 2009), a more flexible environment to explore investment opportunities (Roberts and Sufi 2009a) and better incentives for managers to make subsequent decisions (Gorton and Kahn 2000). Of course, these renegotiations are not costless. Both parties need to spend time and effort in understanding the transaction.

Higher debt-contracting value of accounting numbers helps to incorporate news into contracts directly and reduces the size of the gains from renegotiations.[14] This yields my first hypothesis:

H1: *Ceteris paribus, firms with higher debt-contracting value of accounting numbers have a lower likelihood of renegotiating their private debt contracts.*

Debt contract renegotiation is not completely new for accounting research. One of the consequences of covenants violation is the amendment to original contracts (Beneish and Press 1993; Chen and Wei 1993). For example, based on 126 violation cases, Beneish and Press (1993) find

[13]There may be an information wedge between borrowing firms and lenders. However, theories of financial intermediation highlight the special role of banks in private information production and mitigation of informational asymmetries in an imperfect capital market (Leland and Pyle 1977; Campbell and Kracaw 1980; Diamond 1984, 1991). Lenders require private information regarding a borrower before making a lending decision as well as periodic reporting of private information after a loan has been made (Standard & Poor's 2007). Moreover, renegotiation is usually initiated by borrowers and they have an incentive to provide more information to minimize the information wedge (Taylor and Sansone 2007).

[14]Arguably, higher debt-contracting value of accounting may ease the renegotiation process and lower the costs. This could also generate the prediction of H1, but the effect of debt-contracting value should not depend on the magnitude of shocks based on this argument. See section 5.2.

that on average, the interest rate increases 80 basis points, and the number of covenants increases by 27%. Chen et al. (2011a) expand the violation sample and find that parties' relative bargaining power determines the outcome in the bargaining process after violation. However, in my sample, only 17% of renegotiation cases are triggered directly by covenant violation.[15]

2.2 Debt-Contracting Value, Hold-up, and Underinvestment

In the renegotiation process, borrowers and lenders find out how to improve the original contracts, and split the incremental gains from the new contract according to their relative bargaining power. Since either party can simply reject a renegotiation proposal as long as the party has a better alternative choice, the relative bargaining power is a function of the outside options for both contracting parties.

On the borrowers' side, their outside option of finding a refinancing source is significantly reduced by incumbent banks' information advantage about the borrowers over outside banks (Sharpe 1990; Rajan 1992). Rajan (1992) examines competition between an informed "inside" bank that is already lending to a risky firm and an uninformed "outside" bank that is not currently lending to the firm. The inside bank knows whether the firm will succeed or fail, whereas the outside bank only knows that the firm will succeed with certain probability. In this situation, if the outside bank makes a bid to lend to the firm, it faces the "Winner's Curse". As the inside bank only bids for the loan when it knows that the firm will succeed, the outside bank is more likely to win the loan when the firm is failing.[16] In equilibrium, the uninformed banks use mixed strategies. In other words, they only bid with probability less than one. That constrains the outside option of the borrowers. Therefore, the incumbent banks partially hold monopolistic positions and share part of the benefit of the borrowing firm's investment.[17]

Empirical studies find evidence consistent with the theory of information monopoly (Houston

[15]My results are robust to excluding renegotiations triggered by covenant violation.

[16]The intuition here parallels that of the information risk in the equity market in a rational expectation framework (Easley and O'Hara 2004). Rajan's theory is based on auction theory and does not rely on the shocks of assets supply, which is a key assumption in rational expectation equilibrium.

[17]It is consistent with the finding of Roberts and Sufi (2009b) that borrowers rarely switch lenders following a violation.

and James 1996; Bharath et al. 2008; Santos and Winton 2008; Hale and Santos 2008; Schenone 2010; Ioannidou and Ongena 2010). For example, using detailed data from Bolivia, Ioannidou and Ongena (2010) show that a loan granted by a new (outside) bank carries a loan rate that is significantly lower than the rates on comparable new loans from the firm's current inside banks. The new bank initially decreases the loan rate further but eventually ratchets it up sharply. The evidence is consistent with the incumbent banks being able to hold up borrowers.

On the lenders' side, their outside option (bargaining power) is reduced when borrowers' liquidation value is low, because it is hard for them to liquidate borrowers' assets when borrowing firms' credit conditions deteriorate (Bergman and Callen 1991; Benmelech and Bergman 2008). For example, Benmelech and Bergman (2008) find that airlines successfully renegotiate their lease obligations downward when the liquidation value of their fleet is low.

Due to the fear of lenders' rent extraction in *ex post* renegotiation, borrowers will underinvest before the renegotiation (Williamson 1975, 1979; Klein et al. 1978; Grossman and Hart 1986; Hart and Moore 1990). The distortion depends on the magnitude of the expected rent extraction, which is the product of perceived probability of renegotiation and creditors' relative bargaining power. Decreasing the perceived probability of renegotiation reduces the underinvestment, and such an effect is increasing in creditors' bargaining power.[18] The above yields my second hypothesis:

H2a: *Ceteris paribus, firms with higher debt-contracting value of accounting have less underinvestment.*

H2b: *Ceteris paribus, the impact of the debt-contracting value of accounting on investment increases when lenders have more relative bargaining power.*

[18]Take a simple exercise for example. If a borrowing firm faces an investment decision I of a project with returns of $r(I) = I^{1/2}$, where I is the investment amount and $r(.)$ is an increasing and concave function. To maximize its profit $I^{1/2} - I$, the firm's optimal investment level $I^{FB} = \frac{1}{4}$ should solve $\frac{1}{2}\frac{1}{\sqrt{I}} - 1 = 0$. FB and SB indicate the first best and the second best, respectively. Suppose that with a probability of $p \in (0, 1)$, a lender can share $\beta \in (0, 1)$ of the returns through the renegotiation process. Then the objective function of the borrower becomes $(1 - p\beta)I^{1/2} - I$, and the optimal investment level solving $(1 - p\beta)\frac{1}{2}\frac{1}{\sqrt{I}} - 1 = 0$ is $I^{SB} = \frac{1}{4}(1 - p\beta)^2$, lower than I^{FB}. The distortion $I^{FB} - I^{SB}$ is an increasing function of the probability of renegotiation $\frac{\partial(I^{FB} - I^{SB})}{\partial p} = \frac{\partial p\beta(2-p\beta)}{\partial p} = \beta(2 - p\beta) > 0$ and the slope increases with lenders' bargaining power $\frac{\partial^2(I^{FB} - I^{SB})}{\partial p \partial \beta} = \frac{\partial \beta(2-p\beta)}{\partial \beta} = 2p(1 - p\beta) > 0$

The underinvestment problem can be solved if both parties can commit not to renegotiate initial contracts. However, this commitment is never *credible* and *enforceable*, given the *ex post* mutual benefit for both parties. Note that the hold-up problem does not conflict with borrowers' incentive to renegotiate, as long as lenders do not appropriate all the gains from renegotiation. Although the underinvestment problem is developed through incomplete contract theory, it is similar to Myers (1977) in the sense that the distortion is driven by lenders sharing the benefit but not the cost of investment. In Myers (1977), the sharing of the benefit is due to the possibility of firm's asset-in-place being lower than the face value of debt rather than the rent extraction during renegotiation. In addition, Myers (1977) argues the impossibility of other institutional arrangements to eliminate the problem. One example is the inability to find a perfect contractible variable to govern the investment decisions efficiently, which could be partially attributed to low debt-contracting value of accounting numbers. In the following analyses, I control for Myers's underinvestment problems following Hennessy et al. (2007).

3 Data and Sample Statistics

I start with 3,720 original debt contracts extracted from SEC filings by Nini et al. (2009a).[19] I merge the contract data with Compustat through Gvkey and with Dealscan through DealScan name and date given in the dataset. Panels A and B of Table 1 present the mean borrower and loan characteristics respectively. The median deal amount of $190 million is about twice the value reported in Dichev and Skinner (2002) for the DealScan-Compustat intersection sample. This indicates that the sample is biased toward large loan contracts, which is not surprising because debt contracts are required to be filed only when the debt amounts are material (exceed 10% of total assets).[20] In my sample, 95.8%, 50.1%, and 19.7% of debt contracts have financial covenants,

[19]Nini et al. (2009a) begin with a sample of loans from Reuters LPC's DealScan database that are matched to firm financial variables from Standard & Poor's COMPUSTAT for the years 1996 through 2005. They then use text-search programs to scan SEC filings in Edgar for loan contracts and match the contracts to DealScan based on the dates of the loan agreements and the names of the companies. Their final sample consists of 3,720 loan agreements for 1,939 borrowers.

[20]I also use other publicly available data sources such as I/B/E/S and Thomason Reuters to generate my control variables (see appendix IV for details). The number of observations for each regression may vary due to the availability of some variables.

accounting-based performance pricing, and accounting-based borrowing bases, respectively.

Besides material contracts, Regulation S-K item 601 also requires all the amendments into which a firm enters to be filed with its 8-K, 10-K, or 10-Q.I first randomly pick 100 contracts, and manually search the 10-K, 10-Q and 8-K of borrowing firms after the initiation of each contract for any mention of changes in any major contractual terms including principal, interest, maturity, and accounting-based contractual terms. Accounting-based contractual terms include financial covenants, accounting-based performance pricing and accounting-based borrowing bases. Implicit in this strategy is a definition of renegotiation as any *ex post* change to these terms. Focusing on the first amendment, I find that 67% of the contracts are renegotiated. Second, I download all the filings containing the amendments or renegotiated contracts, and then develop a search algorithm (see Appendix II for details) using *Perl* based on these 67 manually collected filings and apply this algorithm to the 10-K, 10-Q and 8-K filings of borrowing firms of the remaining 3,620 contracts. The algorithm can capture all 67 renegotiation cases in my pilot sample. However, it also indicates many false alarms. Therefore, after extracting blocks of texts, I read through each of them to make sure that they are truly debt contract renegotiations. I identify 2,819 contracts that are renegotiated before maturity.[21] For the contracts without renegotiation, 355 of them stop filing before maturity. By searching Compustat footnotes and the Internet, I find that most of them disappear due to mergers and acquisitions, Chapter 11 bankruptcy protection, or going private.[22]

Table 2 Panel A presents the results after comparing the 2,819 amendment files with the original contracts. I provide both the unconditional and conditional probability estimates. Unconditionally, 75.8% of contracts are renegotiated with respect to major contractual terms. I calculate the incidences conditional on three events (Event A, B, and C). Given any major contractual term being renegotiated (Event A), 74.7% of the renegotiations involve changes of accounting-based contractual terms.[23] Within the renegotiations related to changes in accounting-based terms (Event B), 90.7%,

[21]This finding is consistent with Roberts and Sufi (2009a)'s estimate and Liu and Ryan (1995)'s claim that commercial loans are frequently renegotiated.

[22]Deleting them does not affect my results. See section 6.4 for formally correcting the bias of right-censoring in a hazard model.

[23]For comparison, given Event A, 47.2%, 46.4%, and 43.7% of renegotiations involve changes of maturity, principal, and interest respectively. Roberts (2010) also finds that the most frequently changed items are covenants using accounting measures.

34.8%, and 10.4% of the renegotiation cases involve amendments to accounting-based covenants, accounting-based performance pricing, and accounting-based borrowing bases respectively (see appendix III for five examples). The sum of the percentages in column $Pr(.|B)$ is greater than one because often more than one term is changed in a renegotiation. Since performance pricing and borrowing bases are less frequently used than financial covenants, I also calculate the percentage conditional on the existence of the contractual term in the corresponding row (Event C). For example, conditional on a contract having an accounting-based borrowing base, there is a 30.1% chance of amending this borrowing base subsequently.

Table 2 Panel B breaks down the renegotiations of accounting-based covenants by type. The income statement-based covenants are most likely to be amended. In particular, all the top three frequently amended financial covenants (i.e., debt to cash flow/earnings, fixed charge coverage, and interest coverage) use accounting numbers from the income statement. This pattern parallels the findings of Li (2010) and Demerjian (2011) that the modification of accounting numbers from the income statement in *original* contracts is more frequent than that from the balance sheet. Column $Pr(.|C)$ presents the probability of renegotiating each financial covenant conditional on the existence of that particular covenant. It ranges from 12.9% to 44.6%.

Table 2 Panel C classifies the accounting-related renegotiation cases by action. In particular, 72.4% of them simply change the threshold (see appendix III example 2), and 41.9% of them redefine the accounting-based contractual terms (see appendix III example 1). Adding and deleting financial covenants are also adopted in 21% and 19% of the cases respectively (see appendix III example 3).The results in Table 2 are very similar if I delete renegotiations due to covenant violations.[24]

[24]I use the violation data from Nini et al. (2009b). They identify the covenant violations of each firm-quarter by searching the keywords from SEC filings.

4 Research Design

4.1 Measure of Renegotiation

For the main analysis, I create an indicator variable $RENEG$ that takes the value of one if any major terms of a contract is renegotiated before maturity. The cross-sectional variation of duration between loan initiation and renegotiation is further explored in a survival analysis in section 6.4. For robustness, I also construct an index capturing how intensively the renegotiations are related to changes in accounting-based contractual terms and estimate a negative binomial model in section 6.2.

4.2 Measure of Investment

I take the average of quarterly capital expenditures plus R&D scaled by total assets starting from the quarter after signing the debt contract and ending with the quarter containing the renegotiation for renegotiation cases or maturity date for non-renegotiation cases.[25]

4.3 Measure of Debt-Contracting Value of Accounting Numbers

I conceptualize the debt-contracting value of accounting as the ability of contracted accounting numbers to capture future states, in particular future credit rating levels.[26] The original DCV from Ball et al. (2008) captures how well lagged seasonally adjusted changes in earnings predict future credit rating downgrades. Beatty (2008) suggests that a level of credit quality specification in the estimation of DCV could be more appropriate. Table 2 shows that besides earnings, various coverage ratios, leverage and net worth are used and amended in covenants. For any given year, I estimate an Ordered Probit Model using quarterly data in the past 5 years for each Fama-French industry (48 categories):

$$P(Rating_{t,i} \leq N) = \Phi(\sum_{n=1}^{N} \mu_n + \sum_{k=1}^{4} \alpha_k E_{it-k} + \sum_{k=1}^{4} \beta_k COV_{it-k} + \sum_{k=1}^{4} \gamma_k LEV_{it-k} + \sum_{k=1}^{4} \delta_k NW_{it-k})$$

[25] Deleting non-renegotiation cases in investment analyses yields similar results

[26] My results are robust to two alternative measures of debt-contracting value of accounting numbers. See section 6.1.

where $Rating_{t,i}$ is assigned 1 to companies with the highest S&P credit rating in quarter t, 2 to companies with the second-highest credit rating, and so on. E_{it-k} is EBITDA divided by total assets in quarter $t-k$. COV_{it-k} is interest coverage (EBITDA divided by total interest expense).[27] LEV_{it-k} is long-term debt divided by total assets in quarter $t-k$. NW_{it-k} is net worth divided by total assets. Each regression requires at least 100 firm-quarter observations. Specifically, DCV is measured as Somers' D, a goodness-of-fit statistic.[28] The higher DCV is, the higher the credit rating prediction ability accounting numbers have.[29]

Contracting parties normally choose their own measurement rules of accounting-based terms, as use of the accounting variables under GAAP could induce noise. Li (2010, 2011) closely examines the same agreements sample as I use in this study and finds that the most frequently excluded terms in net income are extraordinary items (23%), and the most frequently excluded accrual items are long-term accruals (80% in interest coverage sample, 89% in fixed charge coverage sample, and 96% in debt to earnings sample). As such, I use earnings *before* extraordinary items, depreciation, and amortization in the regression. Section 6.2 also presents a test taking into account all contractual adjustments in a small sample.

4.4 Measures of Bargaining Power

To capture contracting parties' relative bargaining power, I use two characteristics of lenders, the proportion of institutional loans in the lead lender's total portfolio and the proportion of a syndicated loan deal held by foreign lenders, and two characteristics of borrowing firms, financial constraint and asset tangibility.

First, I calculate the proportion of institutional loans in the portfolio of lead lenders, multiplied by minus one ($INSTLP$).[30] Wittenberg-Moerman (2008) finds that institutional investors con-

[27] Using the same sample of debt contracts, Li (2011) observes that EBITDA is the most frequently used form of earnings.

[28] Beatty (2008) points out that Somers'D depends on the true underlying probability of default in each estimation group. I include both Altman's zscore and credit ratings fixed effects in the main analyses. In addition, my main results are robust to using pseudo R^2 instead of Somers' D.

[29] Oil and gas industry is in the lowest tercile of the distribution, which is not surprising given the large uncertainty and accounting discretion in this industry (Malmquist 1990; Aboody 1996).

[30] For $INSTLP$, I focus on the lead lender(s) of a particular loan facility, as it is frequently the administrative agent that has the fiduciary duty to other syndicate participants to provide timely information about the borrower

stitute the main participants in the secondary loan market and institutional loans represent 45% of traded loans during the sample period. When the loan is originated for sale on the secondary market, lenders have less incentive to acquire information and monitor the borrowers (Pennacchi 1988; and Gorton and Pennacchi 1995). Moreover, if the portfolio of a lead lender consists of a large proportion of institutional loans, this lead lender is probably an institutional investor rather than a bank and has a weak position of information monopoly relative to outside lenders. The higher value $INSTLP$ has, the more relative bargaining power lenders have.

Second, I use the proportion of a syndicated loan deal held by foreign lenders multiplied by minus one ($FLENDER$). A larger proportion of syndicated loans owned by foreign lenders lead to less incentive of lead lenders to collect borrowers' information (Sufi 2009). The information monopolistic position of incumbent banks is weakened. A higher value of $FLENDER$ suggests more relative bargaining power of lenders.

Third, since most private debt agreements do not carry considerable prepayment penalties (Roberts and Sufi 2009a), the ease of finding another source of financing to a borrower significantly reduces lenders' bargaining power. I use Kaplan-Zingales index of financial constraint (Kaplan and Zingales 1997) as another measure ($KZIND$). The lenders' bargaining power increases when borrowing firms are more financially constrained.

Finally, I calculate the asset tangibility ($TANG$) of borrowers following Berger et al. (1996)'s formula to proxy for creditors' *ex post* bargaining power under renegotiation (Bergman and Callen 1991; Benmelech and Bergman 2008). The lower the value of $TANG$, the less bargaining power creditors have. It is because creditors' outside option – to sell the repossessed asset – is not very attractive.

(Taylor and Sansone 2007).

4.5 Tests of H1: *Ex Ante* Determinants of Probability of Renegotiation

Using the cross-sectional sample of 3,720 debt contracts, I estimate a Probit model following Roberts and Sufi (2009a)'s specification and add DCV into the regression:

$$P(Renegotiation_{t,i} = 1) = \Phi(\alpha_0 + \beta_1 DCV_{t,i} + \mathbf{X'_{t,i}}\zeta) \tag{1}$$

where $DCV_{t,i}$ is the debt-contracting value of accounting numbers before signing the contract, and $\mathbf{X_{t,i}}$ contains *ex ante* determinant variables of renegotiation, including firm characteristics, deal characteristics, lender characteristics, deal purpose fixed effects, year fixed effects and credit rating fixed effects. All the determinant variables are calculated using data before loan initiation. Specifically, for firm characteristics, I include log of assets ($LNASSET$); debt to EBITDA ratio (DTE); book leverage (LEV); return on assets (ROA); return on assets volatility ($STDROA$); Altman's zscore ($ZSCORE$); asset tangibility ($TANG$); and Kaplan-Zingales financial constraint index ($KZIND$). For deal characteristics, I include log of stated maturity ($LNMATURITY$); loan spread ($SPREAD$); number of lenders ($NLENDER$); log of deal amount scaled by assets ($DAMOUNT$); an indicator variable equal to one for the presence of a revolving line of credit ($REVLV$); an indicator variable equal to one if a tranche contains performance pricing (PG); an indicator variable equal to one for the presence of a borrowing base ($BOWBASE$); an indicator variable equal to one for the presence of any income statement-based covenant ($COVIS$); an indicator equal to one for the presence of any balance sheet-based covenant ($COVBS$); an indicator equal to one if collateral is required ($COLL$); and lending relationship intensity ($RELINT$). All the variables at tranche level ($LNMATURITY$, $SPREAD$, $REVLV$, PG, $BOWBASE$, $COLL$, and $RELINT$) are aggregated to deal level by taking an average, weighted by the amount of each tranche. Finally, I include two lender characteristics, the proportion of institutional loans in lead lenders' portfolio, multiplied by minus one ($INSTLP$) and the proportion of a syndicated loan deal held by foreign lenders, multiplied by minus one ($FLENDER$). All the variables are defined in Appendix IV. Since some firms may have multiple deals and have thus entered into my sample multiple times, I calculate the standard errors clustered by firm (Petersen 2008). If H1 that DCV

reduces the likelihood of renegotiation is true, I expect $\beta_1 < 0$.

4.6 Tests of H2: The Impact of The Debt-Contracting Value of Accounting on Investment

To test my second hypothesis, I first examine whether the sample firms underinvest. I identify abnormal investment as investment that differs from the amount that would be predicted given the firm's investment opportunities, using a model motivated by the finance and economics literature on optimal investment. Specifically, for each sample firm, I calculate $INVEST$ in the same period as the sample firm for the other Compustat firms in the same year and 2-digit SIC industry. I then pool the sample firm with the Compustat firms together and estimate the regression of $INVEST = \theta_1 + \theta_2 Q + \theta_3 CF + u$ to obtain the residuals as the abnormal investment. Q and CF indicate Tobin's Q and cash flow, respectively. In addition, I examine the sensitivity of my findings to two alternative estimates of expected investment: (1) the investment of the same firm during the same period the previous year, (2) the investment of a control firm matched by year, industry (2-digit SIC) and sales growth. I expect the abnormal investment of my sample firms to be negative.

To emphasize that the impact on distortion of investment is through the perceived probability of renegotiation, I calculate the predicted probability of non-renegotiation driven by the debt-contracting value ($RENEGDCV$). It is calculated as one minus the predicted value of plugging DCV and the means of other independent variables using the coefficients estimated in equation (1). Thus, the higher $RENEGDCV$ is, the less likely there will be a renegotiation. To test H2a that higher DCV increases corporate investment, I estimate the following regression:[31]

$$INVEST = \gamma_0 + \delta_1 RENEGDCV_{t,i} + \mathbf{Y'_{t,i}}\eta + \epsilon \tag{2}$$

where $\mathbf{Y_{t,i}}$ contains *ex ante* determinant variables of investment including investment opportunities (Q), cash flow (CF), governance variables, firm characteristics , deal purpose fixed effects, year

[31] If I use the raw DCV, the results are similar.

fixed effects, and credit rating fixed effects. All the determinant variables are calculated using data before loan initiation. Specifically, for governance variables, I include institutional ownership ($INSTHOLD$); analysts following ($ANALYF$); Gompers' gscore ($INVGS$ for the original score multiplied by minus one and an indicator variable $GSCORED$ equal to one for observations with missing gscore); and CAPEX covenants ($CAPEXREST$). I also include eight firm characteristics: log of assets ($LNASSET$); investment through lease ($LEASE$); return on assets volatility ($STDROA$); standard deviation of investment ($STDINVEST$), Altman's zscore ($ZSCORE$), firm ages (AGE), sales growth ($SALEG$), and debt overhang correction (RK). The standard errors are clustered by firm (Petersen 2008). According to H2a that DCV reduces underinvestment, I expect $\delta_1 > 0$. Theoretically, under certain ideal conditions, only investment opportunities affect the optimal investment decisions (Hayashi 1982). Since there are some measurement errors in Tobin's Q, cash flow could partially capture investment opportunities (Alti 2003). I control for Tobin's Q and cash flow in all the specifications.

To test H2b that the effect of DCV on investment is an increasing function of lenders' relative bargaining power, I add an interaction term:

$$INVEST = \gamma_0 + \delta_1 RENEGDCV_{t,i} + \delta_2 BARGPOW * RENEGDCV_{t,i} + \delta_3 BARGPOW + \mathbf{Y'_{t,i}}\eta + \epsilon \tag{3}$$

where $BARGPOW$ is equal to $INSTLP$, $FLENDER$, $KZIND$, or $TANG$. I expect $\delta_2 > 0$.

5 Empirical Results

5.1 Summary Statistics

Table 3 presents descriptive statistics of all variables for the regression analyses. All the continuous variables are winsorized at the top and bottom 1% level. The average quarterly investment $INVEST$ between contract initiation and renegotiation/maturity is about 2% of total assets. The mean (median) firm in the sample has a DCV of 0.572 (0.562). On a univariate basis, DCV is negatively correlated with $RENEG$ with a value of -0.03 ($p = 0.05$), and positively correlated

with $INVEST$ with a value of 0.06 ($p < 0.01$). Debt overhang correction (RK) is negatively and significantly correlated with $INVEST$, consistent with prior findings (Hennessy et al. 2006).

5.2 *Ex Post* Shocks, Debt-Contracting Value and Renegotiation

Although Table 2 shows that most renegotiation cases involve changes in accounting-based terms, whether they are due to the inability of accounting numbers to reflect *ex post* shocks is still unclear. I combine the borrower, loan origination and renegotiation data to form an unbalanced loan-quarter panel data set consisting of 21,412 loan-quarter observations. The first observation for each loan corresponds to the quarter of origination and the last observation corresponds to the ultimate outcome of the loan (mature, renegotiation, or stopping filings). DCV is calculated before loan initiation. Shocks are measured as the absolute value of changes in Altman's zscore in quarter $q + 1$ for any particular quarter q relative to the quarter prior to origination. Negative (positive) shocks mean negative (positive) changes. High and low of DCV and shocks are partitioned by their medians. For each loan-quarter, I create an indicator variable $RENEGQ$, which equals one if there is any renegotiation during that loan-quarter.

In Table 4, I compare the mean of $RENEGQ$ across each subgroup split by one variable and controlling for the other. For the full sample, when the shock is high, the group with high DCV has a 11.8% probability of renegotiation, which is significantly less than the group with low DCV (13.7%). The difference (1.8%) is economically significant relative to the unconditional mean of $RENEGQ$ (12.3%).[32] Such a relation does not hold when the shock is low. In particular, the difference is only 0.4% and is statistically insignificant. Similarly, the group with high shock has a higher probability of renegotiation than the group with low shocks, and the difference is significant only when DCV is low. Partitioning the sample by the nature of shocks (i.e., positive or negative changes) does not change the results. This pattern sheds some light on the mechanism through which DCV affects renegotiation.[33] In the next subsection, I do not include *ex post* shocks to explain the incidence of renegotiation, because the purpose of the analyses is to identify determinant variables before firm

[32]Note the unconditional mean of $RENEGQ$ at the loan-quarter level is less than 75.8% at the contract level.
[33]I obtain similar results if shocks are measured using changes in tangible assets (Berger et al. 1996).

making any investment decisions rather than to maximize the explanatory power.

5.3 *Ex Ante* Determinants of Probability of Renegotiation

Table 5 reports the marginal effects for my Probit analyses of hypothesis H1. I first estimate the model using the full sample and then delete renegotiations not involving changes in accounting-based contractual terms. In columns (1) and (4), only firm characteristics are included. Columns (2) and (5) use all the control variables following the specification of Roberts and Sufi (2009a). I add more relevant control variables in columns (3) and (6).

I find evidence that DCV is negatively associated with the likelihood of *ex post* renegotiation. That is, the estimated coefficients on DCV are negative and statistically significant. The t-statistics range from 1.67 to 2.93. In terms of the economic significance, the marginal effects of DCV are -0.316 in column (2). In other words, a positive change in DCV from the first quartile to the third quartile is associated with a change in the predicted probability of renegotiation equal to 4.6%. Given that the mean probability of renegotiation equals 75.8%, this effect represents a decrease of 6% . These findings provide consistent support for H1.

Roberts and Sufi (2009a) do not find any significant coefficient on firm characteristics. In contrast, I observe that larger firms are less likely to renegotiate their private debt contract in columns (1) and (4). It could be due to my almost three times larger sample size than theirs. Interestingly, the coefficients on MTB are consistently negative and statistically significant in columns (1)-(4). While firms with a high market-to-book ratio may be exposed to more shocks and therefore are more likely to renegotiate, the renegotiation cost for both parties to find a new and better contract could also be very high due to high uncertainty. The negative coefficients suggest that the second argument dominates.

In terms of loan characteristics, consistent with Roberts and Sufi (2009a), I find that loans with longer maturities, any accounting-based borrowing base, and any covenant on cash flow are more likely to be renegotiated.[34] I have no direct predictions on other loan characteristics. For example,

[34]Roberts and Sufi (2009a) observe that over 90% of long-term debt contracts are renegotiated, suggesting little variation on $RENEG$ for long-term contracts. After deleting contracts with maturity less than three years, I continue to find results supporting my main conclusion.

on one hand, there is more to gain by amending a large lending deal. On the other hand, the renegotiation may be more costly for both parties due to the complexity of the transaction. The results shows that $DAMOUNT$ load positively, suggesting that the first argument dominates. In addition, $REVLV$ and PG load positively in all specifications. The coefficients on $BOWBASE$ are positive and significant in columns (3)-(6). $COVIS$ load positively in columns (4)-(6). The results similar to Roberts and Sufi (2009a) suggest that the presence of *ex ante* contingent contractual features (covenants, performance pricing, and borrowing bases) does not reduce renegotiation. It could be due to the possibility where *ex ante* contingencies are put into contracts that are more likely to be renegotiated. If these contractual features are used to reduce renegotiation and, therefore, are more frequently included in contracts where renegotiation is more likely, then my parameter estimate will be biased upwards. In other words, renegotiation would have been even more likely had the contingent features not been incorporated into the contract, all else equal.

For additional control variables, I do not find significant coefficients on $COVBS$. This finding, combined with the positive loadings of $COVCF$ in columns (5) and (6), is consistent with Christensen and Nikolaev (2011).[35]. The results on DCV continue to support my main conclusion after including all the control variables.

5.4 The Impact of the Debt-Contracting Value on Investment

Table 6 provides evidence on underinvestment. Panel A columns (1) and (2) present the mean and median of abnormal investment. The abnormal investment is the difference between actual investment and the predicted investment by Tobin's Q and cash flow CF. The coefficients on Q and CF are estimated within each 2-digit SIC industry. My sample firms underinvest on average 0.00591 or 30% relative to the mean of $INVEST$ (0.020). Columns (3)-(6) present the distribution of matched-pair difference of investment. The sample firms invest less relative to themselves in the same period the previous year, or relative to peers matched by year, industry and sales growth. Nini

[35]Christensen and Nikolaev (2011) argue that income statement-based covenants ("performance covenants" in their paper) and balance sheet-based covenants ("capital covenants" in their paper) improve contracting efficiency through different mechanisms. They further predict and find that the number of income statement-based covenants is positively related to the frequency of contract renegotiations that waive or reset covenants, and the number of covenants on balance sheet items does not affect the likelihood of renegotiations.

et al. (2009a) find that capital expenditure covenants effectively reduce the $CAPEX$ investment level. Bearing that in mind, I delete the sample firms have $CAPEX$ covenants. The magnitude of underinvestment in Panel B becomes smaller, consistent with Nini et al. (2009a), but I keep observing both statistic and economic significance of underinvestment. Panel C presents the implication of $INVEST$ on ROA in the next one, two, and three years after controlling for Q, CF, $STDROA$, $LNASSET$, and past ROA average over the same horizon as the dependent variables ($LAGROA$). The positive coefficients of $INVEST$ suggest that a positive shift of investment increases future rate of return, consistent with the underinvestment story.

Table 7 columns (1) and (2) report the results for my tests of H2a. I find evidence that DCV is positively associated with the $INVEST$. The t-statistics are 2.44 and 1.82. In terms of economic significance, taking column (2) for example, given the impact of DCV on probability of renegotiation (4.6%), increasing DCV from the first quartile to the third quartile increases the investment (or improves the underinvestment) by approximately 0.0013, or 22% relative to 0.00591 in Table 6 Panel A column (1). I control for a potential omitted correlated variable $LEASE$, which is the estimated investment through leasing, because Beatty et al. (2010b) find that firms with low accrual quality tend to lease rather than buy their assets. The results are robust to that control. Consistent with the findings in Nini et al. (2009a) and Chava and Roberts (2008), the covenants of capital expenditure ($CAPEXREST$) significantly reduce the level of investment.

Table 7 columns (3) to (6) present the results after adding the interaction terms between $RENEGDCV$ and the proxies of lenders' relative bargaining power ($INSTLP$, $FLENDER$, $KZIND$, and $TANG$). The interaction terms are significant for all cases, and the signs are consistent with my predictions. The results in general are consistent with H2b that the impact of the debt-contracting value of accounting on investment increases with lenders' relative bargaining power.

6 Additional Analyses

To this point, I conclude that firms with higher debt-contracting value of accounting are less likely to renegotiate their private debt contracts and have less underinvestment. The impact of the debt-contracting value of accounting on investment increases with lenders' relative bargaining power. However, in this section I further examine the robustness of my results.

6.1 Alternative Debt-Contracting Value Measures

Original Debt-Contracting Value: I calculate Ball et al. (2008)'s original debt-contracting value which is measured as Somers' D, a goodness-of-fit statistic, from the following Probit regression for each 2-digit SIC industry groups with at least 20 firms:[36]

$$P(Downgrade_{t,i} = 1) = f(\alpha_0 + \alpha_1 \Delta E_{t-1,i} + \alpha_2 \Delta E_{t-2,i} + \alpha_3 \Delta E_{t-3,i} + \alpha_4 \Delta E_{t-4,i})$$

where $Downgrade_{t,i}$ is an indicator variable equal to one if firm i's credit rating is downgraded in the current quarter t (equal to 0 otherwise), and $\Delta E_{t-k,i}$ is the seasonally adjusted change in quarterly earnings before extraordinary items scaled by total assets in the k^{th} quarter prior to the current quarter t. Using this measure does not change my inference.[37]

Accounting Quality: I also adopt the measure of accounting quality (AQ) estimated from the Modified Dechow-Dichev model (McNichols 2002; Francis et al. 2005). I estimate the following equation for each of Fama and French's (1997) 48 industry groups with at least 20 firms in year t:

$$TCA_{j,t} = \phi_0 + \phi_1 CFO_{j,t-1} + \phi_2 CFO_{j,t} + \phi_3 CFO_{j,t+1} + \phi_4 \Delta Rev_{j,t} + \phi_5 PPE_{j,t} + v_{j,t}$$

AQ is calculated as the standard deviation of firm j's residuals, $v_{j,t}$ over years $t-4$ through t. This

[36] Ball et al. (2008) also estimate another measure by adding additional five variables: change in sales, change in sales of the largest business segment, change in the number of business segments, change in cash from operations divided by total debt and change in leverage. Among them, the last two variables are often used in accounting-based contracting terms. Including all these five variables or just the last two variables in the estimation of DCV does not change the results.

[37] In a footnote, Ball et al. (2008) indicate that including upgrades in the estimation of DCV does not change their inference. My results are also robust to this specification

measure is at firm level, capturing how well accounting numbers map into the past, current and future realized operating cash flows. Using this new measure, I find similar results. I also put both AQ and my DCV into the investment regression and find that both load positively.[38]

6.2 Additional Analyses on Renegotiation

Intensity of Renegotiation Related to Accounting Numbers: Debt renegotiation can be triggered by many factors other than issues concerning accounting numbers. Table 2 shows that there are 25% of cases without changes in accounting-based contractual terms. In addition, the binary variable ($RENEG$) cannot capture the intensity of renegotiation related to accounting issues. I first create an indicator variable for each change of covenant in Table 2 Panel B, change of accounting-based performance pricing and change of accounting-based borrowing base in Table 2 Panel A. The intensity is calculated by summing up all the indicators for each renegotiation. I then estimate a negative binomial model of this new variable on all the factors in Table 5. The total number of financial covenants ($FCOVNUM$) is also included. Table 8 column (1) shows that firms with higher DCV are less likely to have a renegotiation involving changes in many accounting-based contractual terms.

Accounting Adjustment in Original Contracts: Li (2010, 2011) shows that the contracts in my sample use adjusted accounting numbers, which are systematically different from GAAP.

[38]Conditional accounting conservatism is another important accounting attribute in debt contracting. I do not choose it to measure DCV for three reasons. First, all the Basu-type conservatism measures in the literature use news in *current* stock returns or *current* cash flows as a benchmark to see how well accounting numbers reflect bad news relative to good news. However, evidence shows that lenders and borrowers have more private information about future conditions beyond current stock prices (Massoud et al. 2010). Second, conditional conservatism measures the *asymmetric* timeliness of accounting numbers. In other words, the timeliness of bad news *relative to* good news. Despite the fact that after signing the contract bad news is more relevant to lenders due to the asymmetric payoff structure, given that *ex ante* the project financed by debt has positive NPV, it is unclear whether more timeliness of bad news is more preferable for both parties (Gigler et al. 2009; Lambert 2010). Third, a high level of conditional conservatism may help reflect bad economic conditions, but it may also trigger more false alarms (Gigler et al. 2009). This argument is not inconsistent with prior findings. Zhang (2008) adopts an *ex post* setting to explore the usefulness of conditional conservatism in debt contracting. Specifically, she starts with her sample firms with at least one monthly return less than -30% during 1999 and 2000. In her setting, given that large negative shocks occur, covenant violations accelerated by conservative reporting are less likely to be false alarms. Despite these three reasons, I put two measures of conditional conservatism into my Probit analyses separately: a time-series estimated Basu measure (Francis et al. 2004) and the Cscore (Khan and Watts 2009). The coefficient of Basu measure is negative but not significant, whereas the coefficient of Cscore is insignificantly positive. Thus the impact of conditional conservatism on renegotiation is still inconclusive.

The adjustments have been taken into account in calculating DCV to some extent. To further rule out the possibility that some special contractual adjustments drive the main results, I focus on a subsample where the contractual definition of earnings is exactly the same as the definition of earnings used in calculating DCV. Specifically, using the data from Li (2011), I identify contracts with debt to earnings covenants (DCF sample hereafter). Li (2011) finds that 96.4% of contracts in the DCF sample exclude depreciation and amortization (long-term accruals). Within these contracts, I further require that there is no other adjustment such as excluding non-cash expense, non-cash income, etc., yielding 1,058 observations.[39] Then I estimate a Probit model. The dependent variable is an indicator capturing whether the debt to earnings covenant is amended or not. The explanatory variables include DCV and other factors in Table 5. The results are tabulated in Table 8 column (2). No inferences are affected.

Covenant Tightness: Dichev and Skinner (2002) propose a "trip wire" theory of financial covenants that initial covenants are intentionally set tight so that triggering covenants rings the bell for lenders monitoring, and borrowers renegotiate down the covenants restriction after each violation. Table 4 shows that not only negative shocks, but also positive shocks trigger renegotiation.[40] To further explore this issue, I add the number of financial covenants ($FCOVNUM$) as a proxy for initial tightness in the regressions of Table 5. The coefficient of $FCOVNUM$ is significantly positive (z-stats=2.46), supporting the "trip wire" argument. More importantly, the inference on DCV is unchanged.

Operation Complexity: Segal (1999) suggests that operation complexity is one of the major reasons for contract incompleteness. Facing a complex world, contracting parties may find it efficient to leave some scope of renegotiation in the future. In Table 5, I control for firm size, market-to-book ratio, and standard deviation of ROA. To further explore the possibility of complexity as a reason for renegotiation, I add two more control variables: the number of business segments and the number of geographic segments. The inference is not affected.

[39]Li (2011) focus on three samples: contracts with debt to earnings covenants, contracts with interest coverage covenants, and contracts with fixed charge coverage covenants. I do not use the other two samples because of the small sample sizes (267 and 519 observations respectively) after my requirement.

[40]In Appendix III Example 4, Warnaco Inc requests and obtains lower interest rates and tighter fixed charge coverage covenants (untabulated) in the renegotiation, which is very likely to be triggered by positive shocks.

Mandatory GAAP Changes: If a contract uses rolling GAAP as a starting point to define the contractual accounting numbers, then mandatory accounting changes could potentially create incentives of renegotiation to shield off the impact from the changes. In addition, Christensen and Nicoleav (2010) identify a new contracting practice that gives the contracting parties an option to exclude the effect of accounting changes (mutual-option-to-freeze GAAP). I randomly pick 100 contracts to read the definition of GAAP in detail, and find that 37%, 30%, and 33% of them use rolling, frozen, and mutual-option-to-freeze GAAP respectively. The t-tests across any two groups about $RENEG$ are never significant, suggesting that the GAAP rules chosen in the initial contracts may not play a significant role in *ex post* renegotiation. However, these results should be interpreted with caution due to the small sample size.

Redacted Disclosure: Despite the strict requirement of Regulation S-K, there are some exemptions. Verrecchia and Weber (2006) find that the SEC allows firms to request the proprietary information contained within the contract be withheld, if it "covers trade secrets and commercial or financial information obtained from a person and privileged or confidential information." Therefore, the contracts identified as non-renegotiation could be due to the borrowing firms filing the amendment privately with the SEC. Following Verrecchia and Weber (2006), I search the exhibit lists of my sample firms' 10-K forms using the phrase "confidential treatment" between the debt initiation date and maturity date. I create an indicator variable equal to one if there is any confidential treatment during that period. I find that the contracts with renegotiation are even more likely to have redacted disclosure (21%) than the ones without renegotiation (19%) (t-stats=1.60). This finding suggests that non-renegotiation cannot be explained by redacted disclosure. The bias, if any, is against my findings.

Replacing Original Contracts: Among 2,819 cases of renegotiation, there are 372 cases of actually initiating a new loan right before maturity to replace the prior one. For example, Alcoa Inc and J.P. Morgan had a loan with a maturity of April 26, 2003. They initiated a new loan starting on April 25, 2003, to repay the old one. Obviously, replacing original contracts are not driven by accounting issues. I conduct two analyses. First, I exclude the replacing cases and rerun the Probit regression. All the results still hold. Second, I only keep the replacing cases and non-renegotiation

cases, and rerun the tests. DCV loses significance, consistent with my expectation.

Control for Endogeneity: I acknowledge that it is challenging to establish causality between the debt-contracting value of accounting and the likelihood of renegotiation. However, I have implemented research design features to at least partially alleviate such concerns. First, and perhaps most important, economic theory supports my finding that DCV has a negative effect on the probability of renegotiation. Second, I test the effect of DCV before signing the contract on the likelihood of renegotiation after signing the contract. Third, I include control variables motivated by prior research. Furthermore, I introduce a number of additional controls. As a final control for endogeneity, I consider a simultaneous equations model estimated by maximum likelihood method. To model cross-sectional variation in DCV, I first include all control variables from Table 5 column (3). Then I add a variable which reflects the strength of the relation between the firm and suppliers. Extant research (e.g., Bowen et al. 1995; Raman and Shahrur 2008; Dou et al. 2011) shows that a firm's suppliers affect the firm's financial reporting quality. The instrument (SRD) is constructed as suppliers' R&D investment intensity following Raman and Shahrur (2008). SRD is significantly correlated with DCV but is not significantly correlated with the incidence of renegotiation. The results in Table 8 columns (3) and (4) show that no inferences are affected after controlling for potential endogeneity of DCV through this simultaneous equation estimation.

6.3 Additional Analyses on Investment

Investment Opportunities: It has been shown that the average Q used in my regression models is a very noisy measure of true investment opportunities (Cummins et al. 2006). Therefore the relation between DCV and investment could be attributed to a component of DCV related to investment opportunities. Following Cummins et al. (2006), I use analysts' earnings forecasts to calculate the expected market value (i.e., intrinsic value following Frankel and Lee (1998)) as the numerator of Q. Using this new Q does not change my results in Table 7.

The Debt-Contracting Value and Information Monopoly: Incumbent creditors' information monopolistic position could be further enhanced when outside creditors cannot learn about the borrower from its accounting numbers. Therefore, the bargaining power of inside lenders might

well be reduced by borrowers' higher DCV, increasing the *ex ante* incentive of investment as a result. However, this explanation cannot generate the interaction effect from H2b. Nevertheless, if higher DCV can unwind the information monopoly to some extent, I should observe that firms with higher DCV are more likely to obtain borrower favorable renegotiation outcomes. Following Massoud et al. (2010), I define borrower favorable loan amendments as those loan amendments with at least one favorable loan contract term change, but with no unfavorable loan contract term changes, which would entail smaller principal, a higher interest rate or a shorter maturity. Value one is assigned to borrower favorable outcomes and zero is used otherwise. I estimate a Probit model of the renegotiation outcomes on DCV controlling for all the factors in Table 5. The coefficient of DCV is negative and insignificant, suggesting that there is another channel of communication between borrowers and outside lenders. In the same time, this channel is not fully effective, yielding the hold-up problem. The interpretation should be cautious because of the difficulty of determining whether renegotiation is borrower favorable, even in simple cases (consider the tightening of a financial covenant coupled with a decrease in interest).

Growth Opportunities: When calculating the measure of investment, I include both capital expenditure and R&D. Smith and Watts (1992) and Skinner (1993) argue that accounting numbers are poorer performance measures for firms with relatively more growth opportunities because of the need for objective and verifiable numbers for recognition. Specifically, R&D is one of the proxies for growth opportunities in Skinner (1993). The relation between my DCV variables and investment, including R&D, could be driven by this growth opportunities argument. I exclude R&D expense from my investment measure, and rerun all the tests related to investment. The results are similar.

6.4 Survival Analysis

Survival analysis explores the duration between loan initiation and renegotiation. If greater DCV helps to incorporate news about future credit quality, then I predict that it should delay renegotiation of the original agreements. To test this prediction, I adopt the Cox proportional hazard

model:[41]

$$h_i(t) = \frac{f_i(t)}{1 - F_i(t)} = h_0(t)exp(\beta_1 DCV_{t,i} + \mathbf{X'_{t,i}}\zeta)$$

where $h_i(t)$ represents the instantaneous risk of renegotiation at time t for debt i conditional on i surviving to time t, and $h_0(t)$ is the baseline hazard rate. The term $\mathbf{X_{t,i}}$ includes all the factors in Table 5. Let $d_i = 1$ if debt i does not mature and the borrower does not stop filing (i.e., uncensored), $d_i = 0$ otherwise (right-censored). The likelihood function is

$$L(\theta) = \sum_{i=1}^{n} d_i ln f_i(t) + \sum_{i=1}^{n} (1 - d_i) ln(1 - F_i(t))$$

Note that the second part on the right-hand side is used to correct right-censoring. The estimated coefficients as well as z-statistics from the robust standard errors (Lin and Wei 1989) are presented in column (5) in Table 8. As expected, the coefficient on DCV is significantly negative, indicating that the hazard ratio (renegotiation conditional on surviving) is reduced by higher DCV even after controlling for other determinants. Put another way, the length of time that elapses between debt initiation and renegotiation is longer for borrowers with higher DCV.

7 Concluding Remarks

Accounting numbers are broadly used in debt contracting to incorporate news and hence facilitate the lending process. This paper focuses on the contracting role of accounting numbers and the real effects of accounting on corporate investment. Specifically, I investigate the impact of the debt-contracting value of accounting numbers on the likelihood of *ex post* private debt renegotiation and the implication of renegotiation for investment efficiency. The extent to which accounting numbers reflect the shocks about future states determines the size of gains by renegotiation. When the gains are large enough, both parties have incentives to renegotiate a new contract. During the renegotiation, lenders can extract benefit from borrowers' investment. Higher anticipated probability of renegotiation reduces the *ex ante* investment incentives of borrowers and leads to the

[41] See Kiefer (1988) for basic background. See Beatty et al. (2002) and Zhang (2008) for applications in accounting research.

underinvestment problem.

Tracking 3,720 private debt contracts, I find that 76% of the contracts are renegotiated before maturity, and 75% of these renegotiation cases are related to changes of accounting-based contractual terms. I further find that firms with higher debt-contracting value of accounting have a lower probability of renegotiation, and less underinvestment. Moreover, the effect of the debt-contracting value of accounting on investment increases when lenders have more relative bargaining power. By exploring the role of accounting numbers in private debt agreement renegotiation, this paper identifies a specific channel through which better quality of accounting numbers (i.e., higher debt-contracting value of accounting) improves contract completeness and thus investment efficiency. Future research could consider applying the set of analyses in this paper to other material contracts (e.g., executive compensation contracts) that explicitly use accounting numbers.

Appendix I: A Stylized Simple Model Relating to H1 and H2

This model is a simplified version of Rajan (1992) augmented with a financial covenant. In Rajan (1992), there is no state-contingent contractible variable (accounting number), and therefore he only examines two extreme cases: (1) long-term contract, where there is absolutely no renegotiation; (2) short-term contract, where there must be a renegotiation to renew the contract during interim. By incorporating a financial covenant, this simple model fits in-between and could generate the implication of DCV on both renegotiation and investment. Gigler et al. (2009) propose a similar model, but there is no private signal and both parties learn about future cash flows from an accounting signal. Therefore there exists no renegotiation opportunities. My model also shares some similarities with Aghion and Bolton (1992) in that both parties have incentive to renegotiate a new contract when new information comes in and the contracted variable is imperfect. However, they do not examine how the quality of the contracted variable affects renegotiation and investment, which is the focus of this model.

Consider a two-period game. At date 0 a firm signs a loan contract with a bank, and invests the borrowed amount K into a project A. At date 1 if the project is liquidated, it produces a deterministic liquidation value of M; if the project is continued, it produces an uncertain cash flow x (x_H or x_L with equal probability *ex ante*). Assume risk-free rate is 1, and $x_H > \frac{x_H+x_L}{2} > K > M > x_L$. Prior to making the liquidation/continue decision at date 1, an accounting signal y that reveals noisy information about x is received by both parties. Assume y equals y_H or y_L with equal probability *ex ante*. Between date 0 and 1, both lenders and borrowers observe a binary private signal s about x. Suppose s is correlated with x (i.e.$Prob(x_H|s_H) = Prob(x_L|s_L) = \rho$ where $\frac{1}{2} < \rho < 1$), but not contractible. Although y is contractible and related to s ($Prob(y_H|s_H) = Prob(y_L|s_L) = \gamma$ where $\frac{1}{2} < \gamma < 1$), it cannot provide additional information about x beyond s (i.e.,$Prob(x_H|s_H, y_i) = Prob(x_L|s_L, y_i) = \rho$ where $i \in H, L$). Following the Bayesian rule, $Prob(x_H|y_H) = Prob(x_L|y_L) = \gamma\rho + (1-\gamma)(1-\rho) = 1-\rho+\gamma(2\rho-1)$. Given the information content of the private signal ρ, **the parameter γ captures the debt-contracting value of accounting–the correlation between the contracted accounting signal and the future credit quality**.

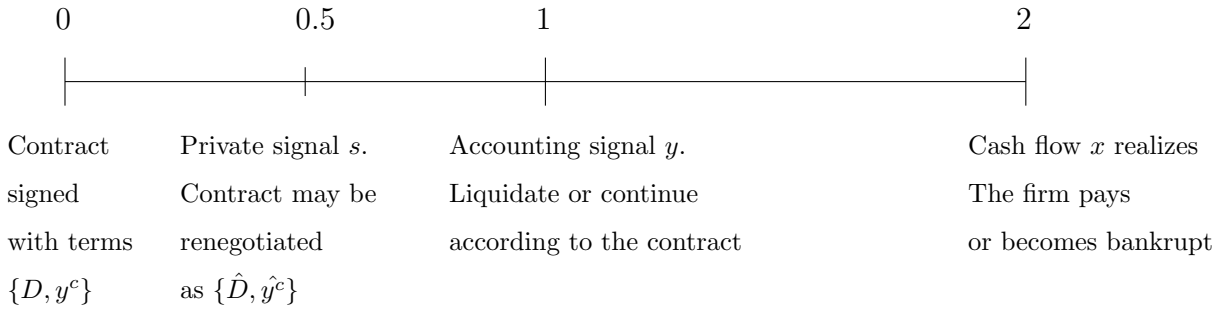

Figure 1: Time Line of Events in Each Period

At date 0, the contract is signed as $\{D, y^c\}$. D is the chosen face value of the debt, so that if the project is continued, at date 2 the lender receives the amount D if x_H is realized ($x_H > D$), or x_L if x_L is realized ($D > x_L$). In any equilibrium, D cannot be less than M, otherwise the lenders and borrowers

would not sign the contract *ex ante*. y^c is the covenant provision that the project is continued as long as $y > y^c$. Since y is a binary variable, $y^c \in \{y_L, y_H\}$.[42] At date 0.5, after receiving the new information s, the firm and bank can renegotiate a new contract $\{\hat{D}, \hat{y^c}\}$ and undertaking the renegotiation cost c. Assume $0 < c < M - (1-\rho)x_H - \rho x_L < \rho x_H + (1-\rho)x_L - M$.[43]

Proposition 1 *If* $\gamma \geq 1 - \frac{c}{(2\rho-1)(x_H - x_L)}$ *then* $y^{c*} = y_L$ *and* $Prob(Renegotiation) = 0$*; If* $\gamma < 1 - \frac{c}{(2\rho-1)(x_H - x_L)}$ *then* $y^{c*} = y_H$ *and* $Prob(Renegotiation) = \frac{1}{2}$.

Proposition 1 corresponds to my H1. It shows that even if the initial contracting terms are endogenously determined, the effect of DCV on the probability of renegotiation still holds.[44]

Suppose the firm has another independent project B with investment I at date 0 after signing the debt contract, and returns $r(I)$ at date 2 or 0 if the project A is liquidated,[45] where $r(.)$ is a concave function. Let $r(I) + x_L < M$; otherwise, the bank and firm will always continue the project A. Then the first best investment level for project B is $r'(I^{FB}) = 1$, and the second best investment level in the sense of Myers (1977) is $r'(I^{SB}) = 2$ due to the half probability of liquidation *ex ante*. Since $r(.)$ is a concave function, $I^{SB} < I^{FB}$. Assume that bargaining power is allocated as $1-\beta$ for the bank and β for the firm. Since the bank in some probability of renegotiation can extract $1-\beta$ shares of the total surplus when DCV is low, the *ex ante* incentive of investment in project B will be hurt further.

Proposition 2

a. If $\gamma \geq 1 - \frac{c}{(2\rho-1)(x_H - x_L)}$ *then* $y^{c*} = y_L$ *and* $I^* = I^{SB}$*; If* $\gamma < 1 - \frac{c}{(2\rho-1)(x_H - x_L)}$ *then* $y^{c*} = y_H$ *and* $I^* < I^{SB}$.

b. $\frac{\partial(I^{SB} - I^*)}{\partial \beta} < 0$

Proposition 2 *a,* and *b* corresponds to my H2*a,* and H2*b* that the underinvestment problem is mitigated by higher DCV and such mitigation is stronger when the borrowing firm has less bargaining power.

Proof of Proposition 1: Using backward induction, I first examine the renegotiation decision at date 0.5 after receiving s given y^c, and then choose the optimal contract at date 0.

At date 0.5, the borrowers and lenders trade off the benefit from renegotiating a new contract to reduce the Type I errors (errors due to false alarms) as well as Type II errors (errors due to undue optimism) and the renegotiation cost. Let R denote renegotiating the contract (e.g., cancel the covenant $y^c = y_H$) and NR denote not renegotiating a new contract

For $s = s_H$

If $y^c = y_L$, R need $\rho x_H + (1-\rho)x_L - c > MProb(y_L|s_H) + [\rho x_H + (1-\rho)x_L]Prob(y_H|s_H)$
$\Rightarrow$ if $\gamma < 1 - \frac{c}{\rho x_H + (1-\rho)x_L - M}$ then R; Otherwise NR

If $y^c = y_H$, R by $\rho x_H + (1-\rho)x_L - c > M$

[42] $y^c = y_H$ indicates a very restrictive covenant, meaning that the covenant will be violated with probability 1, whereas $y^c = y_L$ indicates that the covenant is violated only when $y = y_L$.

[43] If the renegotiation cost is prohibitive then the renegotiation will never happen as a bond contract and the problem becomes trivial.

[44] The intuition of this result is similar to Gigler et al. (2009), who demonstrate that the optimal adjustment in the initial covenant to offset the conservative accounting signal is always incomplete.

[45] Note that in equilibrium D should be bigger than M. When project A is liquidated the bank can claim the assets of project B to compensate the difference.

For $s = s_L$

If $y^c = y_L$, $\quad$ R need $M - c > MProb(y_L|s_L) + [(1-\rho)x_H + \rho x_L]Prob(y_H|s_L)$

$\Rightarrow$ if $\gamma < 1 - \frac{c}{M-(1-\rho)x_H-\rho x_L}$ then R; Otherwise NR

If $y^c = y_H$, $\quad$ NR because both parties just want to liquidate

At date 0, the borrower and lender need to choose the optimal covenant to minimize the expected renegotiation costs or maximize the total surplus (denoted TS)

For $\gamma < 1 - \frac{c}{M-(1-\rho)x_H-\rho x_L}$

If choose $y^c = y_L$, $\quad TS = Prob(s_H)[\rho x_H + (1-\rho)x_L - c] + Prob(s_L)(M-c)$

$= \frac{1}{2}[\rho x_H + (1-\rho)x_L - c] + \frac{1}{2}(M-c)$

If choose $y^c = y_H$, $\quad TS = Prob(s_H)[\rho x_H + (1-\rho)x_L - c] + Prob(s_L)M$

$= \frac{1}{2}[\rho x_H + (1-\rho)x_L - c] + \frac{1}{2}M$

$\Rightarrow y^{c*} = y_H, Prob(Renegotiation) = \frac{1}{2}$

For $1 - \frac{c}{M-(1-\rho)x_H-\rho x_L} \leq \gamma < 1 - \frac{c}{\rho x_H+(1-\rho)x_L-M}$

If choose $y^c = y_L$, $\quad TS = Prob(s_H)[\rho x_H + (1-\rho)x_L - c]$

$+Prob(s_L)[Prob(y_H|s_L)((1-\rho)x_H + \rho x_L) + Prob(y_L|s_L)M]$

$= \frac{1}{2}[\rho x_H + (1-\rho)x_L - c] + \frac{1}{2}[((1-\rho)x_H - \rho x_L)(1-\gamma) + M\gamma]$

If choose $y^c = y_H$, $\quad TS = Prob(s_H)[\rho x_H + (1-\rho)x_L - c] + Prob(s_L)M = \frac{1}{2}[\rho x_H + (1-\rho)x_L - c] + 1/2M$

$\Rightarrow y^{c*} = y_H, Prob(Renegotiation) = \frac{1}{2}$

For $1 - \frac{c}{\rho x_H+(1-\rho)x_L-M} \leq \gamma < 1 - \frac{c}{(2\rho-1)(x_H-x_L)}$

If choose $y^c = y_L$, $\quad TS = Prob(s_H)[Prob(y_H|s_H)(\rho x_H + (1-\rho)x_L) + Prob(y_L|s_H)M]$

$+Prob(s_L)[Prob(y_H|s_L)((1-\rho)x_H + \rho x_L) + Prob(y_L|s_L)M]$

$= \frac{1}{2}[(\rho x_H + (1-\rho)x_L)\gamma + M(1-\gamma)] + \frac{1}{2}[((1-\rho)x_H + \rho x_L)(1-\gamma) + M\gamma]$

If choose $y^c = y_H$, $\quad TS = Prob(s_H)[(\rho x_H + (1-\rho)x_L) - c] + Prob(s_L)M$

$= \frac{1}{2}[(\rho x_H + (1-\rho)x_L) - c] + \frac{1}{2}M$

$\Rightarrow y^{c*} = y_H, Prob(Renegotiation) = \frac{1}{2}$

For $\gamma \geq 1 - \frac{c}{(2\rho-1)(x_H-x_L)}$

The TS formulas are the same as in the last case, but the value of γ changes.

$\Rightarrow y^{c*} = y_L, Prob(Renegotiation) = 0$ ■

Proof of Proposition 2: First of all, after adding project B, the whole tradeoff is unchanged due to $r(I) + x_L < M$.[46] When $\gamma \geq 1 - \frac{c}{(2\rho-1)(x_H-x_L)}$, the covenant can perfectly govern the project A. At date 0 after signing the contract, the firm will choose the optimal investment level to maximize $Prob(continue)r(I) - I \Rightarrow I^* = I^{SB} < I^{FB}$ where $r'(I^{SB}) = 2$. When $\gamma < 1 - \frac{c}{(2\rho-1)(x_H-x_L)}$, the covenant is too restrictive. At date 0.5, the bank will only let the project A continue when it receives s_H and require $1-\beta$ shares of additional surplus which is $\rho x_H + (1-\rho)x_L + r(I) - M$. Therefore, at date 0 after signing the contract, the firm will choose the optimal investment level to maximize $\beta Prob(continue)r(I) - I \Rightarrow r'(I^*) = \frac{2}{\beta}$ and $I^* < I^{SB} < I^{FB}$. Since $r(.)$ is a concave function, it is easy to show that $\frac{\partial(I^{SB}-I^*)}{\partial\beta} < 0$■

[46] One can consider replacing the old x_H and x_L with $x_H + r(I)$ and $x_L + r(I)$.

Appendix II: The Procedures of Checking Renegotiation Status

1. Read the manually collected 67 renegotiations and find the similarities. The amendments are usually in the format below.

2. Try different searching patterns for the 67 cases until it captures all of them.

3. Download all the 10-K, 10-Q, and 8-K filings from Edgar between the initiation date and maturity date. Clean the files with html format following Li (2008).

4. Apply the finalized searching pattern to all the files and extract the relevant blocks of texts.

5. Go through the block of texts and identify the renegotiation.

EXHIBIT 10.1

FIRST AMENDMENT TO CREDIT AGREEMENT AND CONSENT OF GUARANTORS

This FIRST AMENDMENT TO CREDIT AGREEMENT AND CONSENT OF GUARANTORS (this "AMENDMENT") is dated as of December 4, 2001, but upon its effectiveness in accordance with its terms shall be effective as of October 28, 2001 and entered into by and among FLEETWOOD ENTERPRISES, INC. ("FLEETWOOD"), FLEETWOOD HOLDINGS, INC. and its Subsidiaries listed on the signature pages hereof (collectively, "FMC"), FLEETWOOD RETAIL, INC. and its Subsidiaries listed on the signature pages hereof (collectively, "FRC"), the banks and other financial institutions signatory hereto that are parties as Lenders to the Credit Agreement referred to below (the "Lenders"), and BANK OF AMERICA, N.A., as administrative agent and collateral agent (in such capacity, the "Agent") for the Lenders.

RECITALS

WHEREAS, Fleetwood, the Borrowers, the Lenders, and the Agent have entered into that certain Credit Agreement dated as of July 27, 2001 (the "CREDIT AGREEMENT"; capitalized terms used in this Amendment without definition shall have the meanings given such terms in the Credit Agreement); and

WHEREAS, the Borrowers have requested amendments to the Credit Agreement to modify certain covenants; and

WHEREAS, the Lenders and the Agent are willing to agree to the amendments requested by the Loan Parties, on the terms and conditions set forth in this Amendment;

NOW THEREFORE, in consideration of the premises and the mutual agreements set forth herein, Fleetwood, the Borrowers, the Lenders, and the Agent agree as follows:

Appendix III: Excerpts of Amendment Files

Example 1: CSK Auto Inc Renegotiation on February 17, 2000

Subsection 1.1 of the Credit Agreement is hereby amended by deleting in its entirety the definitions of ... "Consolidated Net Income" and substituting in lieu thereof, respectively, the following:

"Consolidated Net Income": for any period, net income of the Company and its Subsidiaries, determined on a consolidated basis in accordance with GAAP; provided that: (i) the net income (but not loss) of any Person that is not a Subsidiary or that is accounted for by the equity method of accounting shall be included only to the extent of the amount of dividends or distributions paid in cash to the Company or a wholly-owned Subsidiary, **provided, further, that the non-cash charges associated with losses attributable to the PartsAmerica Investment shall be excluded,** (ii) the net income of any Person acquired in a pooling of interests transaction for any period prior to the date of such acquisition shall be excluded and (iii) net income of any Subsidiary shall be excluded to the extent that the declaration or payment of dividends or similar distributions by that Subsidiary of that net income is prohibited or not permitted at the date of determination.

The corresponding part from the original contract
"Consolidated Net Income": for any period, net income of the Company and its Subsidiaries, determined on a consolidated basis in accordance with GAAP; provided that: (i) the net income (but not loss) of any Person that is not a Subsidiary or that is accounted for by the equity method of accounting shall be included only to the extent of the amount of dividends or distributions paid in cash to the Company or a wholly-owned Subsidiary, (ii) the net income of any Person acquired in a pooling of interests transaction for any period prior to the date of such acquisition shall be excluded and (iii) net income of any Subsidiary shall be excluded to the extent that the declaration or payment of dividends or similar distributions by that Subsidiary of that net income is prohibited or not permitted at the date of determination.

Example 2: Heidrick & Struggles International Inc Renegotiation on March 25, 2002

1.10. Section 6.12.1 of the Credit Agreement is amended and restated to read as set forth below:

SECTION 6.12.1. Minimum Consolidated EBITDA. The Borrower will not permit at any time Consolidated EBITDA, determined as of the end of each of its fiscal quarters set forth below for the applicable measurement period set forth below ending with the end of such fiscal quarter to be less than the applicable amount set forth below:

FISCAL QUARTER ENDING	MEASUREMENT PERIOD THEN ENDING	CONSOLIDATED EBITDA SHALL NOT BE LESS THAN:
March 31, 2002	**1 fiscal quarter**	$ **(4,000,000)**
June 30, 2002	**1 fiscal quarter**	$ **4,000,000**
September 30, 2002	**2 fiscal quarters**	$ **12,000,000**
December 31, 2002	**3 fiscal quarters**	$ **17,000,000**

FISCAL QUARTER ENDING	MEASUREMENT PERIOD THEN ENDING	CONSOLIDATED EBITDA SHALL NOT BE LESS THAN:
March 31, 2003	4 fiscal quarters	$ 25,000,000
June 30, 2003	4 fiscal quarters	$ 25,000,000
September 30, 2003	4 fiscal quarters	$ 35,000,000
December 31, 2003	4 fiscal quarters	$ 35,000,000
March 31, 2004 and each fiscal quarter thereafter	4 fiscal quarters	$ 45,000,000

The corresponding part from the original contract

SECTION 6.12.1. Minimum Consolidated EBITDA. The Borrower will not permit at any time Consolidated EBITDA, determined as of the end of each of its fiscal quarters set forth below for the applicable measurement period set forth below ending with the end of such fiscal quarter to be less than the applicable amount set forth below:

FISCAL QUARTER ENDING	MEASUREMENT PERIOD THEN ENDING	CONSOLIDATED EBITDA SHALL NOT BE LESS THAN:
December 31, 2001	**4 fiscal quarters**	$**20,000,000**
March 31, 2002	**1 fiscal quarter**	$**4,000,000**
June 30, 2002	**2 fiscal quarters**	$**8,000,000**
September 30, 2002	**3 fiscal quarters**	$**16,000,000**
December 31, 2002	**4 fiscal quarters**	$**20,000,000**
March 31, 2003	4 fiscal quarters	$ 25,000,000
June 30, 2003	4 fiscal quarters	$ 25,000,000
September 30, 2003	4 fiscal quarters	$ 35,000,000
December 31, 2003	4 fiscal quarters	$ 35,000,000
March 31, 2004 and each fiscal quarter thereafter	4 fiscal quarters	$ 45,000,000

Example 3: Fleetwood Enterprises Inc Renegotiation on December 4, 2001

1.5 AMENDMENT TO SECTION 7.24 SECTION 7.24 of the Credit Agreement is deleted in its entirety and replaced with the following:

7.24 FREE CASH FLOW. On a consolidated basis, Fleetwood shall have Free Cash Flow, calculated for the periods set forth below, of at least the amounts set forth below opposite each such Fiscal Quarter:

PERIOD	FREE CASH FLOW
Fiscal Quarter ended on the last Sunday in October 2001	$(5,000,000)
Two Fiscal Quarters ended on the last Sunday in January 2002	$(21,000,000)
Three Fiscal Quarters ended on the last Sunday in April 2002	$(14,000,000)
Four Fiscal Quarters ended on the last Sunday in July 2002	$(3,000,000)

"FREE CASH FLOW" means, with respect to any fiscal period for Fleetwood on a consolidated basis, (a) EBITDA; PLUS (b) any New Capital Proceeds Amount; plus (c) an amount of not more than

$7,350,000 paid or accrued prior to the end of the January 2002 Fiscal Quarter in connection with the settlement of the class action lawsuit BRISTOW ET. AL V. FLEETWOOD ENTERPRISES, INC.; LESS (d) the sum of (i) the difference (but in no event less than zero) of (x) Federal, state, local and foreign income taxes paid in cash MINUS (y) to the extent such amounts are included in clause (x), taxes paid in cash as a result of any gain recognized in connection with the Subordinated Debt Exchange and any cash tax refunds received in respect of Federal, state, local and foreign taxes previously paid; (ii) interest expense paid in cash; (iii) Capital Expenditures (excluding Capital Expenditures funded with Debt other than the Revolving Loans); (iv) scheduled principal payments of Debt; (v) Distributions paid in cash by Fleetwood or the Fleetwood Trust; and (vi) without duplication of clause (v), payments made in cash on the Subordinated Debt.

The corresponding part from the original contract

7.24 EBITDA.

(a) On a consolidated basis, Fleetwood shall have EBITDA for the portion of the Fiscal Year 2002 then elapsed of not less than the amount set forth below opposite each such Fiscal Quarter:

PERIOD ENDING	EBITDA
On the last Sunday in October 2001	$15,000,000
On the last Sunday in January 2002	$25,000,000
On the last Sunday in April 2002	$55,000,000

"EBITDA" means, with respect to any fiscal period, Adjusted Net Earnings from Operations, PLUS, to the extent deducted in the determination of Adjusted Net Earnings from Operations for that fiscal period, interest expenses, Federal, state, local and foreign income taxes, depreciation and amortization.

Example 4: Warnaco Inc Renegotiation on September 15, 2005

Amendment to the definition of "Applicable Margin" in Article I (Definitions, Interpretation and Accounting Terms). The definition of "Applicable Margin" is hereby amended by deleting the table set forth therein and inserting the following new table in its place:

LEVERAGE RATIO	BASE RATE LOANS	EURODOLLAR RATE LOANS
Greater than or equal to 1.5 to 1	0.75%	1.75%
Less than 1.5 to 1 and equal to or greater than 1.25 to 1	0.50%	1.50%
Less than 1.25 to 1 and equal to or greater than 1.00 to 1	0.50%	1.50%
Less than 1.0 to 1	0.25%	1.25%

The corresponding part from the original contract

LEVERAGE RATIO	BASE RATE LOANS	EURODOLLAR RATE LOANS
Greater than or equal to 1.5 to 1		
In the event no Margin Reduction Event has occured	1.50%	2.50%
From and after the occurence of the Margin Reduction Event	1.25%	2.25%
Less than 1.5 to 1 and equal to or greater than 1.0 to 1	1.25%	2.25%
Less than 1.0 to 1	1.00%	2.00%

Example 5: Encore Medical Corp Renegotiation on May 7, 2002

Section 3.2 Amendment to Annex A of the Credit Agreement. Effective as of the Amendment Date, the definition of "Borrowing Base" in Annex A of the Credit Agreement is hereby amended and restated in its entirety to read as follows:

"Borrowing Base" means, at any time, an amount equal to (a) the sum of (i) eighty-five percent (85.0%) of the Net Amount of Eligible Accounts; plus (ii) (A) prior to August 7, 2002, sixty percent (60.0%) of the lower of cost (on a first-in, first-out basis) or market value of Eligible Finished Goods Inventory and **(B) from August 7, 2002 and thereafter the lesser of (1) sixty percent (60.0%) of the lower of cost (on a first-in, first-out basis) or market value of Eligible Finished Goods Inventory or (2)** seventy-five percent (75.0%) of the Orderly Liquidation Value of Finished Goods Inventory plus (iii) **(A) prior to August 7, 2002,** thirty-five percent (35.0%) of the lower of cost (on a first-in, first-out basis) or market value of Eligible Generic Raw Materials Inventory and (B) from August 7, 2002 and thereafter the lesser of (1) thirty-five percent (35.0%) of the lower of cost (on a first-in, first-out basis) or market value of Eligible Generic Raw Materials Inventory or (2) seventy-five percent (75.0%) of the Orderly Liquidation Value of Generic Raw Materials Inventory, minus **(b) from August 7, 2002 and thereafter,** $500,000, minus (c) Reserves from time to time established by the Agent in its reasonable credit judgment.

The corresponding part from the original contract
"Borrowing Base" means, at any time, an amount equal to (a) the sum of (i) eighty-five percent (85.0%) of the Net Amount of Eligible Accounts; plus (ii) the lesser of (A) sixty percent (60.0%) of the lower of cost (on a first-in, first-out basis) or market value of Eligible Finished Goods Inventory or (B) seventy-five percent (75.0%) of the Orderly Liquidation Value of Finished Goods Inventory plus (iii) the lesser of (A) thirty five percent (35%) of the lower of cost (on a "first-in, first-out" basis) or market value of Eligible Generic Raw Materials Inventory or (B) seventy-five percent (75.0%) of the Orderly Liquidation Value of Generic Raw Materials Inventory, minus (b) $500,000, minus (c) Reserves from time to time established by the Agent in its reasonable credit judgment.

Appendix IV: Variable Definition and Data Source

Variable	Description	Data Source
Dependent Variables		
RENEG	An indicator variable that takes the value of one if any major contracting term is renegotiated before maturity. Major contracting terms include principal, interest, maturity, and accounting-based contractual features (i.e., financial covenants, accounting-based performance pricing, and accounting-based borrowing bases)	SEC Edgar Filings
INVEST	The average of quarterly capital expenditures (#CAPXQ) plus R&D (#XRDQ) scaled by total assets (#ATQ) starting from the quarter after signing the debt contract and ending with the quarter containing renegotiation for renegotiation cases or maturity date for non-renegotiation cases.	Compustat
ROAn	Average ROA over the next n years.	Compustat
Test Variables		
DCV	The debt-contracting value of accounting numbers. For any given year, I estimate an Ordered Probit Model using quarterly data in the past 5 years for each Fama-French industry (48 categories): $$P(Rating_{t,i} \leq N) = \Phi(\sum_{n=1}^{N} \mu_n + \sum_{k=1}^{4} \alpha_k E_{it-k} + \sum_{k=1}^{4} \beta_k COV_{it-k} + \sum_{k=1}^{4} \gamma_k LEV_{it-k} + \sum_{k=1}^{4} \delta_k NW_{it-k})$$ where $Rating_{t,i}$ is assigned 1 to companies with the highest S&P credit rating in quarter t, 2 to companies with the second-highest credit rating, and so on. E_{it-k} is EBITDA divided by total assets ((#IBQ+#XINTQ+#TXTQ+#DPQ)/#ATQ) in quarter $t-k$. COV_{it-k} is interest coverage (EBITDA (#IBQ+#XINTQ+#TXTQ+#DPQ) divided by total interest expense (#XINTQ)).LEV_{it-k} is long-term debt divided by total assets (#DLTTQ/#ATQ) in quarter $t-k$. NW_{it-k} is net worth divided by total assets (#CEQQ/#ATQ). Each regression requires at least 100 firm-quarter observations. Specifically, *DCV* is measured as Somers' D, a goodness-of-fit statistics.	Compustat
RENEGDCV	One minus the predicted probability of renegotiation by imputing *DCV* and the means of other independent variables using the coefficient from column (2) of Table 5.	Table 5
Firm Characteristics Variables		
LNASSET	The average of natural log of book assets (#ATQ) over quarter $t-3$ to t.	Compustat

Variable	Description	Data Source
DTE	The average of debt (#DLCQ+#DLTTQ) to EBITDA (#OIBDPQ) ratio over quarter $t-3$ to t.	Compustat
LEV	The average of debt (#DLCQ+#DLTTQ) to book assets (#ATQ) ratio over quarter $t-3$ to t.	Compustat
ROA	The average of EBITDA (#OIBDPQ) to book assets (#ATQ) ratio over quarter $t-3$ to t.	Compustat
MTB	The average of (#LTQ+#PSTKL-#TXDITCQ+#PRCCQ*#CSHOQ/#ATQ) market-to-book over quarter $t-3$ to t.	Compustat
ZSCORE	The average of zscore over quarter $t-3$ to t. zscore=1.2*((#ACTQ-#LCTQ)/#ATQ)+1.4*(#REQ/#ATQ)+3.3*(#PIQ/#ATQ) +0.6*(#PRCCQ*#CSHOQ/#LTQ)+0.999*(#SALEQ/#ATQ).	Compustat
STDROA	The standard deviation of EBITDA (#OIBDPQ) to book assets (#ATQ) ratio over the past eight quarters.	Compustat
Q	The ratio of market value (#AT+#PRCC_F*#CSHO-#CEQ-#TXDB) to book assets (#AT).	Compustat
CF	The cash flow (#IB+#DP) scaled by total assets (#AT).	Compustat
RK	Debt overhang correction defined as in Hennessy et al. (2007). More precisely this measure is the product of long-term debt scaled by the capital stock, recovery ratio, and the value of the claim paying one dollar at default.	Compustat/CRSP /Moody's
KZIND	The financial constraint index from Kaplan and Zingales (1997).	Compustat
TANG	The liquidation value from Berger et al. (1996).	Compustat
LEASE	The capitalized lease expenditure (lagged #MRC1 *10) scaled by total assets (#AT).	Compustat
LAGROA	Past *ROA* average over the same horizon as the dependent variables.	Compustat
STDINVEST	The standard deviation of investment (#CAPX+#XRD) scaled by total assets (#AT) over past five years.	Compustat
AGE	The number of years since IPO.	Compustat
SALEG	The growth of sales (#SALE) relative to last year.	Compustat
Lender Characteristics Variables		
INSTLP	The fraction of Type B, Type C, or Type D loans in the portfolio of the lead lender over past five years, multiplied by -1.	DealScan
FLENDER	the proportion of a syndicated loan deal held by foreign lenders, multiplied by -1	DealScan
Loan Characteristics Variables		
LNMATURITY	The natural log of the average maturity of all tranches in the deal, weighted by the amount of each tranche.	DealScan
DAMOUNT	The natural log of the sum of the amounts of all tranches in each deal scaled by total assets.	DealScan

Variable	Description	Data Source
SPREAD	The average all-in-drawn spread over LIBOR of all tranches in the deal, weighted by the amount of each tranche.	DealScan
NLENDER	The number of lenders in the lending deal (including the lead lenders)	DealScan
REVLV	The average of indicators for all tranches in the deal, weighted by the amount of each tranche. For each tranche, the indicator is equal to one if the tranche is a revolving line of credit	DealScan
PG	The average of indicators for all tranches in the deal, weighted by the amount of each tranche. For each tranche, the indicator is equal to one if the tranche contains performance pricing	DealScan
BOWBASE	The average of indicators for all tranches in the deal, weighted by the amount of each tranche. For each tranche, the indicator is equal to one if the tranche contains a borrowing base	DealScan
COVIS	An indicator variable that takes the value of one if there is any income statement-based covenant including debt to cash flow/earnings ratio, fixed charge coverage, interest coverage, cash flow/earnings, senior debt to cash flow/earnings ratio, other coverage, and debt service coverage.	Sufi's Website
COVBS	An indicator variable that takes the value of one if there is any balance sheet-based covenant, including net worth, tangible net worth, debt to capitalization, debt to net worth, current ratio, quick ratio, working capital, shareholder's equity, other liquidity, and other balance sheet ratio.	Sufi's Website
COLL	The average of indicators for all tranches in the deal, weighted by the amount of each tranche. For each tranche, the indicator is equal to one if the tranche is secured	DealScan
RELINT	The average relationship intensity with the current lead lenders of all tranches in the deal, weighted by the amount of each tranche. Relationship intensity is the dollar value of prior tranches lent by the current lead lenders divided by the maximum dollar value of loans observed for the borrowing firms in past 5 years.	DealScan
Governance Variables		
INSTHOLD	The percentage of firm shares held by institutional investors.	Reuters
ANALYF	The number of analysts following the firm.	I/B/E/S
INVGS	The measure of anti-takeover protection created by Gompers et al. (2003).	Metrick's Website
GSCORED	An indicator variable that takes the value of one if *INVGS* is missing.	
CAPEXREST	An indicator variable that takes the value of one if the contract contains a *CAPEX* covenant.	Sufi's Website

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Table 1 Descriptive Statistics

This table presents summary statistics for firm and loan characteristics and distribution of contracts across years and industries for the sample of 3,720 private loan agreements for 1,939 borrowers from Nini et al. (2009a), which are collected from the SEC's Edgar electronic filing system over the period 1996-2005. All borrower characteristics are measured for the fiscal year prior to the agreement date.

Panel A: Firm Characteristics

	N	Mean	Std	P25	Median	P75
Total Assets ($ Millions)	3,720	3268.246	10157.080	208.383	675.942	2154.118
Market Value of Equity ($ Millions)	3,671	2918.772	9172.949	166.714	608.742	1955.200
Sales ($ Millions)	3,720	2609.524	6262.945	203.971	643.457	2126.455
Net Income ($ Millions)	3,720	48.638	1718.828	0.072	17.755	80.272
Loss Indicator	3,720	0.249	0.432	0.000	0.000	0.000
Capital Expenditure ($ Millions)	3,720	177.711	584.483	8.614	34.069	122.937
Research and Development ($ Millions)	3,720	33.922	195.026	0.000	0.000	5.254
Investment (R&D + Capex) ($ Millions)	3,720	211.632	656.275	11.513	42.528	154.387

Panel B: Loan Characteristics

	N	Mean	Std	P25	Median	P75
Deal Amount ($ Millions)	3,682	441.373	967.449	69.500	190.000	450.000
Maturity (month)	3,682	43.786	20.418	33.000	42.000	60.000
Interest Spread (basis points above LIBOR)	3,682	169.208	116.552	75.000	150.000	240.625
Line of Credit Indicator	3,682	0.871	0.335	1.000	1.000	1.000
Secured Debt Indicator	3,682	0.544	0.498	0.000	1.000	1.000
Number of Lenders	3,682	8.211	8.309	2.000	6.000	12.000
Accounting-Based Performance Pricing Indicator	3,682	0.501	0.500	0.000	1.000	1.000
Accounting-Based Borrowing Base Indicator	3,682	0.197	0.398	0.000	0.000	0.000
Number of Financial Covenants	3,720	2.557	1.253	2.000	3.000	3.000
Financial Covenant Indicator	3,720	0.958	0.200	1.000	1.000	1.000
Income Statement based Covenant Indicator	3,720	0.844	0.363	1.000	1.000	1.000
Balance Sheet based Covenant Indicator	3,720	0.667	0.471	0.000	1.000	1.000

Panel C: Deal Distribution By Initiation Years

	Freq.	Percent
1996	111	2.98
1997	441	11.85
1998	403	10.83
1999	390	10.48
2000	361	9.7
2001	361	9.7
2002	419	11.26
2003	399	10.73
2004	473	12.72
2005	362	9.73

Panel D: Deal Distribution By Fama-French 12 Industries

	Freq.	Percent
Consumer Nondurables	276	7.42
Consumer Durables	108	2.9
Manufacturing	593	15.94
Oil, Gas, and Coal Extraction and Products	307	8.25
Chemicals and Allied Products	125	3.36
Business Equipment	454	12.2
Telephone and Television Transmission	192	5.16
Utilities	226	6.08
Wholesale, Retail, and Some Services	533	14.33
Healthcare, Medical Equipment, and Drugs	255	6.85
Other	651	17.5

Table 2 Composition of Renegotiation Cases

This table presents the percentages of renegotiations related to accounting-based terms. Major terms include principal, interest, maturity, and accounting-based contractual terms. Panel A breaks down the renegotiations by provision (i.e., covenants, performance pricing, and borrowing base). Panel B breaks down the renegotiations of financial covenants by type. Panel C breaks down the renegotiations of accounting-based contractual terms by action.

Event A: Any Major Terms Being Renegotiated
Event B: Any Accounting-based Terms Being Renegotiated
Event C: Existence of the Accounting-based Term in the Corresponding Row

Panel A: Renegotiations of Accounting-based Contractual Terms

	Full Sample (N=3,720)			
	Pr(.)	*Pr(. | A)*	*Pr(. | B)*	*Pr(. | C)*
Any Major Terms Renegotiated (Event A)	0.758	1		
Any Accounting-based Terms Renegotiated (Event B)	0.566	0.747	1	
Accounting-based Covenant	0.513	0.678	0.907	0.529
Accounting-based Performance Pricing	0.197	0.260	0.348	0.365
Accounting-based Borrowing Base	0.059	0.078	0.104	0.301

Panel B: Renegotiations of Accounting-based Covenants by Type

		Pr(.)	*Pr(. | A)*	*Pr(. | B)*	*Pr(. | C)*
IS Covenants:	Debt to Cash Flow/Earnings	0.281	0.370	0.495	0.446
	Fixed Charge Coverage	0.164	0.216	0.289	0.378
	Interest Coverage	0.151	0.199	0.267	0.331
	Cash Flow/Earnings	0.089	0.117	0.157	0.444
	Senior Debt to Cash Flow/Earnings	0.055	0.072	0.097	0.419
	Other Coverage	0.026	0.034	0.046	0.291
	Debt Service Coverage	0.013	0.017	0.023	0.228
BS Covenants:	Net Worth	0.108	0.143	0.191	0.344
	Tangible Net Worth	0.071	0.093	0.125	0.329
	Debt to Capitalization	0.060	0.079	0.105	0.233
	Debt to Net Worth	0.020	0.027	0.035	0.211
	Other Liquidity	0.016	0.021	0.028	0.183
	Current Ratio	0.014	0.018	0.024	0.133
	Other BS Ratio	0.010	0.013	0.018	0.129
	Quick Ratio	0.006	0.009	0.011	0.225
	Working Capital	0.005	0.007	0.009	0.232
	Shareholder's Equity	0.004	0.005	0.007	0.250
Other Covenants:	Capital Expenditure	0.112	0.148	0.197	0.283

Panel C: Renegotiations of Accounting-based Contractual Terms by Action

	Pr(.)	*Pr(. | A)*	*Pr(. | B)*	*Pr(. | C)*
Threshold Renegotiated			0.724	
Redefining Accounting Terms			0.419	
Adding Accounting-based Covenants			0.211	
Deleting Accounting-based Covenants			0.193	

Table 3 Summary Statistics for Multivariate Analyses

This table presents summary statistics for multivariate analyses. Variables are defined in the Appendix IV.

Variable	N	Mean	Std	P10	P25	Median	P75	P90
Panel A: Dependent and Test Variables								
DCV	3,625	0.572	0.068	0.488	0.506	0.562	0.650	0.665
INVEST	3,700	0.020	0.018	0.004	0.008	0.014	0.027	0.050
Panel B: Firm Characteristics								
LNASSET	3,720	6.574	1.732	4.402	5.357	6.510	7.679	8.926
DTE	3,718	7.849	95.079	0.000	2.707	7.655	14.641	24.255
LEV	3,720	0.305	0.208	0.042	0.154	0.288	0.423	0.556
ROA	3,720	0.034	0.029	0.008	0.021	0.033	0.046	0.063
MTB	3,719	1.784	1.389	0.941	1.112	1.422	1.987	2.914
ZSCORE	3,719	2.852	10.324	0.330	0.892	1.700	3.019	5.620
STDROA	3,719	0.018	0.024	0.004	0.006	0.011	0.021	0.036
Q	3,671	1.778	1.580	0.919	1.095	1.411	1.968	2.915
CF	3,720	0.071	0.134	-0.013	0.044	0.080	0.121	0.170
RK	3,576	0.114	0.246	0.000	0.006	0.029	0.127	0.328
KZIND	3,671	-21.271	4.975	-27.574	-26.491	-21.349	-16.116	-14.913
TANG	3,720	0.452	0.122	0.279	0.374	0.470	0.536	0.587
LEASE	3,715	0.204	0.391	0.000	0.029	0.090	0.216	0.491
STDINVEST	3,409	0.161	0.462	0.008	0.015	0.031	0.080	0.244
AGE	3,720	20.361	15.957	5.000	7.000	14.000	32.000	47.500
SALEG	3,697	0.517	10.357	-0.112	0.005	0.106	0.286	0.659
Panel C: Lender Characteristics								
INSTLP	3,564	-0.049	0.053	-0.101	-0.067	-0.039	-0.017	-0.001
FLENDER	3,682	-0.206	0.229	-0.524	-0.375	-0.143	0.000	0.000
Panel D: Loan Characteristics								
RELINT	3,564	0.754	0.273	0.318	0.556	0.848	1.000	1.000
LNMATURITY	3,682	3.628	0.621	2.485	3.497	3.738	4.094	4.174
SPREAD	3,682	169.208	116.552	42.000	75.000	150.000	240.625	318.421
NLENDER	3,682	8.211	8.309	1.000	2.000	6.000	12.000	18.000
DAMOUNT	3,682	-1.435	1.000	-2.722	-2.057	-1.367	-0.741	-0.245
REVLV	3,682	0.710	0.375	0.000	0.426	1.000	1.000	1.000
PG	3,682	0.723	0.430	0.000	0.254	1.000	1.000	1.000
BOWBASE	3,682	0.144	0.331	0.000	0.000	0.000	0.000	1.000
COVIS	3,720	0.844	0.363	0.000	1.000	1.000	1.000	1.000
COVBS	3,720	0.667	0.471	0.000	0.000	1.000	1.000	1.000
COLL	3,682	0.538	0.496	0.000	0.000	1.000	1.000	1.000
Panel E: Governance Variables								
INSTHOLD	3,720	0.488	0.274	0.058	0.266	0.528	0.713	0.828
ANALYF	3,720	7.899	8.065	0.000	1.000	6.000	12.000	19.000
INVGS	3,720	-0.025	0.128	-0.076	-0.054	-0.028	0.000	0.017
GSCORED	3,720	0.065	0.247	0.000	0.000	0.000	0.000	0.000
CAPEXREST	3,720	0.326	0.469	0.000	0.000	0.000	1.000	1.000

Table 4 Loan-Quarter Level Incidence of Renegotiation Analyses across Debt-Contracting Value of Accounting Numbers and Shocks

This table presents the results on the interaction effect between *DCV* and shocks on the probability of renegotiation. The sample consists of 21,412 loan-quarter observations. The first observation for each loan corresponds to the quarter of origination and the last observation corresponds to the ultimate outcome of the loan (mature, renegotiation, or stopping filings). *RENEGQ* is an indicator variable, which equals one if there is any renegotiation during that loan-quarter. Shocks are measured as the absolute value of changes in Altman's zscore in quarter *q+1* for any particular quarter *q* relative to the quarter prior to origination. Negative (positive) shocks mean negative (positive) changes. High and Low of *DCV* and shocks are partitioned by their medians.

Shock = $|\Delta zscore_{q+1}|$

Variable = *RENEGQ*

Panel A:		Full Sample		
		High Shock	Low Shock	Diff.
Low *DCV*	Mean	0.137	0.120	0.017***
		(N=5282)	(N=5404)	(t=2.596)
High *DCV*	Mean	0.118	0.116	-0.003
		(N=5514)	(N=5212)	(t=-0.519)
	Diff.	0.018***	0.004	.
		(t=2.876)	(t=0.613)	.
Panel B:		Negative Shocks Sample		
		High Shock	Low Shock	Diff.
Low *DCV*	Mean	0.129	0.114	0.015*
		(N=2593)	(N=2672)	(t=1.713)
High *DCV*	Mean	0.114	0.108	0.006
		(N=2642)	(N=2490)	(t=0.675)
	Diff.	0.016*	0.006	.
		(t=1.734)	(t=0.702)	.
Panel C:		Positive Shocks Sample		
		High Shock	Low Shock	Diff.
Low *DCV*	Mean	0.144	0.126	0.018*
		(N=2689)	(N=2732)	(t=1.942)
High *DCV*	Mean	0.122	0.123	-0.001
		(N=2872)	(N=2722)	(t=-0.139)
	Diff.	0.021**	0.002	.
		(t=2.345)	(t=0.236)	.

Table 5 *Ex Ante* Determinants of Probability of Renegotiation

This table presents estimation results of pooled Probit regressions for the full sample and the sample after deleting renegotiations not involving changes in accounting based terms'. The dependent variable in all regressions is an indicator variable (*RENEG*) that equals one if the contract is renegotiated before maturity. Deal purpose fixed effects correspond to four categories (general corporate purpose, recapitalization, acquisition, and others). Year fixed effects correspond to the loan initiation years. Credit rating fixed effects have six categories (A-rated or better, BAA-rated, BA-rated, B-rated, CAA-rated, and unrated firms). Variables are defined in the Appendix IV, and continuous variables are winsorized at the 1st and 99th percentile. Clustered z-statistics by firm are presented in parentheses. * Significant at 0.10; ** Significant at 0.05; *** Significant at 0.01 (two-sided test).

		Full Sample			After Deleting Renegotiations Not Involving Changes in Accounting-based Terms		
	Pred.	(1)	(2)	(3)	(4)	(5)	(6)
Test Variables							
DCV	**-(H1)**	-0.209**	-0.316***	-0.337***	-0.213*	-0.328**	-0.343**
		(1.97)	(2.82)	(2.93)	(1.67)	(2.38)	(2.42)
Firm Characteristics							
LNASSET		-0.014*	0.006	0.002	-0.017**	0.016	0.014
		(1.92)	(0.58)	(0.17)	(1.99)	(1.32)	(1.03)
DTE		-0.001	-0.001	-0.001	-0.000	-0.000	-0.000
		(0.63)	(0.52)	(0.70)	(0.13)	(0.08)	(0.15)
LEV		0.014	-0.015	-0.030	0.033	-0.008	-0.004
		(0.30)	(0.33)	(0.54)	(0.62)	(0.13)	(0.05)
ROA		0.662*	-0.183	-0.064	0.675	-0.354	-0.174
		(1.66)	(0.40)	(0.14)	(1.42)	(0.65)	(0.31)
MTB		-0.015***	-0.009*	-0.013**	-0.019***	-0.010	-0.013
		(2.59)	(1.72)	(2.21)	(2.58)	(1.52)	(1.43)
STDROA		-0.329	-0.286	-0.318	-0.482	-0.355	-0.386
		(1.12)	(1.01)	(1.07)	(1.24)	(0.95)	(1.00)
Loan Characteristics							
LNMATURITY			0.074***	0.069***		0.089***	0.082***
			(4.88)	(4.40)		(5.02)	(4.51)
SPREAD			0.000	0.000		0.000*	0.000
			(1.13)	(0.82)		(1.95)	(1.60)
NLENDER			0.002	0.002		0.002	0.002
			(1.58)	(1.61)		(1.21)	(1.22)
DAMOUNT			0.058***	0.054***		0.076***	0.071***
			(5.10)	(4.52)		(5.51)	(4.88)
REVLV			0.062***	0.064***		0.094***	0.098***
			(2.62)	(2.65)		(3.35)	(3.42)
PG			0.049***	0.057***		0.067***	0.077***
			(2.61)	(3.00)		(2.98)	(3.33)
BOWBASE			0.040	0.053*		0.065**	0.078**
			(1.52)	(1.88)		(2.06)	(2.29)
COVIS			-0.006	0.001		0.069**	0.076**
			(0.28)	(0.06)		(2.36)	(2.52)

Additional Controls						
COVBS			0.004			0.024
			(0.24)			(1.14)
ZSCORE			0.001*			0.001
			(1.65)			(0.55)
TANG			-0.093			-0.119
			(1.33)			(1.41)
KZIND			-0.002			-0.001
			(0.71)			(0.33)
COLL			0.009			0.028
			(0.43)			(1.11)
RELINT			0.021			0.038
			(0.70)			(1.05)
INSTLP			-0.253			-0.302
			(1.50)			(1.41)
FLENDER			0.037			0.045
			(0.93)			(0.92)
Deal Purpose FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Credit Rating FE	YES	YES	YES	YES	YES	YES
Observations	3585	3585	3431	2894	2894	2767
Log Likelihood	-1952.622	-1873.619	-1778.989	-1701.853	-1607.646	-1523.830

Table 6 Underinvestment between Deal Initiation and Renegotiation

This table shows evidence of the underinvestment problem. The investment *INVEST* is the average of quarterly capital expenditures plus R&D scaled by total assets starting from the quarter after signing the debt contract and ending with the quarter containing the renegotiation for renegotiation cases or maturity date for non-renegotiation cases. For each sample firm, I calculate *INVEST* in the same period as the sample firm for the other Compustat firms in the same year and 2-digit SIC industry. I then pool the sample firm with the Compustat firms together and regress *INVEST* on *Q* and *CF* to obtain the residuals as abnormal investment. Panel A columns (1) and (2) present the mean and median of abnormal investment for my sample firms. The remaining four columns of Panel A present the mean and median of my sample firms' investment, less matched firms' investment. I select the matched firms in two ways: (1) I use the same firm in the same period the previous year; (2) I choose the firms in the same year and 2-digit SIC industry with the closest sales growth. Panel B deletes the sample firms with CAPEX covenants. Panel C presents the results of OLS regressions of average ROA over the next one, two or three years on *INVEST* controlling other determinants. Industry fixed effects correspond to the Fama and French 12-industry classification. Year fixed effects correspond to the loan initiation years. Control variables are defined in the Appendix IV, and continuous variables are winsorized at the 1st and 99th percentile. For mean tests, clustered t-statistics by firm are presented in parentheses. For median tests, z-statistics are presented in parentheses. * Significant at 0.10; ** Significant at 0.05; *** Significant at 0.01 (two-sided test).

Panel A: Full Sample

			Matched-Pair Difference of the Investment			
			Same Firm Same Period In Year t-1		Same Year-Industry With Closest Sales Growth	
	Abnormal Investment					
	Mean	Median	Mean	Median	Mean	Median
	(1)	(2)	(3)	(4)	(5)	(6)
Diff	-0.00591***	-0.00577***	-0.00156***	-0.00038***	-0.00568***	-0.00107***
Statistics	(12.41)	(26.60)	(8.37)	(4.92)	(9.11)	(3.69)
N	3503	3503	3696	3696	3672	3672

Panel B: Sample After Deleting Sample Firms with CAPEX Covenants

			Matched-Pair Difference of the Investment			
			Same Firm Same Period In Year t-1		Same Year-Industry With Closest Sales Growth	
	Abnormal Investment					
	Mean	Median	Mean	Median	Mean	Median
Diff	-0.00512***	-0.00523***	-0.00106***	-0.00030***	-0.00437***	-0.00070*
Statistics	(8.91)	(18.27)	(4.59)	(3.36)	(5.78)	(1.88)
N	2383	2383	2490	2490	2479	2479

Panel C: Impact on Future Operating Performance

	ROA1	*ROA2*	*ROA3*
INVEST	0.457***	0.463**	0.439**
	(3.25)	(2.24)	(2.13)
Q	-0.004	-0.008	-0.008
	(1.22)	(1.16)	(1.19)
CF	0.014	0.041	0.023
	(0.41)	(1.09)	(0.66)
STDROA	0.018	-0.094	-0.508***
	(0.13)	(0.70)	(2.58)
LNASSET	0.004***	0.002*	0.004***
	(3.24)	(1.73)	(2.83)
LAGROA	0.681***	0.608***	0.680***
	(5.50)	(4.73)	(6.37)
Constant	0.005	0.019	-0.002
	(0.28)	(1.17)	(0.10)
Industry FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	2950	2705	2384
Adj. R-squared	0.404	0.440	0.453

Table 7 Impact of Debt-Contracting Value of Accounting Numbers on Investment

This table presents estimation results of OLS regressions of *INVEST* on perceived probability of renegotiation due to low *DCV* interacting with bargaining power variables. *INVEST* is the average of quarterly capital expenditures plus R&D scaled by total assets starting from the quarter after signing the debt contract and ending with the quarter containing renegotiation for renegotiation cases or maturity date for non-renegotiation cases. *RENEGDCV* is one minus the predicted probability of renegotiation by imputing *DCV* and the means of other independent variables using the coefficient from column (2) of Table 5. *INSTLP* is the fraction of Type B, Type C, or Type D loans in the portfolio of the lead lender in past five years, multiplied by -1. *FLENDER* is the proportion of a syndicated loan held by foreign (i.e., non-US) lenders, multiplied by -1. *KZIND* is the financial constraint index from Kaplan and Zingales (1997). *TANG* is the liquidation value from Berger et al. (1996). Deal purpose fixed effects correspond to four categories (general corporate purpose, recapitalization, acquisition, and others). Year fixed effects correspond to the loan initiation years. Credit rating fixed effects have six categories (A-rated or better, BAA-rated, BA-rated, B-rated, CAA-rated, and unrated firms). Control variables are defined in the Appendix IV, and continuous variables are winsorized at the 1st and 99th percentile. Clustered t-statistics by firm are presented in parentheses. * Significant at 0.10; ** Significant at 0.05; *** Significant at 0.01 (two-sided test).

				BARGPOW=			
				INSTLP	*FLENDER*	*KZIND*	*TANG*
	Pred.	(1)	(2)	(3)	(4)	(5)	(6)
Test Variables							
RENEGDCV	**+(H2a)**	0.040**	0.029*	0.055**	0.058***	0.142**	-0.054
		(2.44)	(1.82)	(2.44)	(2.72)	(1.97)	(1.08)
RENEGDCV	**+(H2b)**			0.530*	0.144**	0.005*	0.261**
×*BARGPOW*				(1.81)	(2.12)	(1.73)	(2.12)
BARGPOW				-0.123*	-0.044***	-0.001	-0.021
				(1.77)	(2.70)	(1.30)	(0.71)
Traditional Controls							
Q		0.002***	0.002**	0.002**	0.002**	0.002***	0.002***
		(3.38)	(2.55)	(2.32)	(2.55)	(2.94)	(3.00)
CF		0.012***	0.014***	0.014***	0.013***	0.013***	0.013***
		(2.70)	(3.23)	(3.06)	(3.15)	(3.17)	(3.00)
Governance Variables							
INSTHOLD			-0.002	-0.001	-0.002	-0.002	-0.001
			(0.96)	(0.87)	(1.01)	(1.22)	(0.87)
ANALYF			0.001***	0.001***	0.001***	0.001***	0.001***
			(9.61)	(9.66)	(9.43)	(9.34)	(8.33)
INVGS			0.003**	0.003**	0.003**	0.003**	0.003***
			(2.36)	(2.40)	(2.42)	(2.48)	(3.35)
GSCORED			0.001	0.001	0.000	0.002	0.001
			(0.40)	(0.31)	(0.21)	(0.90)	(0.33)
CAPEXREST			-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
			(5.07)	(4.78)	(5.08)	(4.92)	(4.87)
Firm Characteristics							
LNASSET			-0.003***	-0.003***	-0.003***	-0.002***	-0.002***
			(5.92)	(5.91)	(6.99)	(5.32)	(3.62)
LEASE			-0.001	-0.001	-0.000	-0.001	-0.001
			(0.83)	(1.00)	(0.37)	(0.87)	(0.95)
STDROA			0.080**	0.070**	0.079**	0.080**	0.049*

		(2.37)	(2.09)	(2.40)	(2.41)	(1.72)
STDINVEST		0.004***	0.004***	0.004***	0.004***	0.004***
		(5.32)	(5.34)	(5.46)	(5.20)	(5.05)
ZSCORE		0.000	0.000	0.000	-0.000	-0.000
		(0.32)	(0.38)	(0.33)	(0.53)	(0.93)
AGE		-0.000	0.000	0.000	0.000	-0.000
		(0.01)	(0.05)	(0.34)	(0.31)	(1.43)
SALEG		0.000	0.000	0.000	0.000	0.000*
		(1.08)	(1.00)	(0.90)	(1.14)	(1.83)
RK		0.000	-0.000	-0.000	0.001	0.001
		(0.01)	(0.19)	(0.05)	(0.54)	(0.33)
Constant	0.002	0.019***	0.013**	0.014**	-0.003	0.016
	(0.38)	(3.45)	(1.99)	(2.16)	(0.16)	(1.32)
Deal Purpose FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Credit Rating FE	YES	YES	YES	YES	YES	YES
Observations	3526	3164	3071	3164	3164	3164
Adj. R-squared	0.118	0.208	0.204	0.220	0.212	0.267

Table 8 Additional Analyses on Renegotiation

Column (1) presents a negative binomial regression of the Intensity of accounting-related renegotiation on *DCV*. Column (2) shows the result of Probit estimation in a sample with debt to earnings covenants where earnings used in debt to earnings covenants are equivalent to EBITDA. The dependent variable is an indicator variable that equals one if the debt to earnings covenant is renegotiated. Column (3) presents the estimation using *SRD* as an instrument variable and in column (4) the predicted *DCV* from column (3) is used as an explanatory variable. *SRD* is supplier industries R&D using U.S. input-output table (Raman and Shahrur 2008). Column (5) presents the result of a survival analysis of how *DCV* affects hazard ratio of renegotiation for each day. Deal purpose fixed effects correspond to four categories (general corporate purpose, recapitalization, acquisition, and others). Year fixed effects correspond to the loan initiation years. Credit rating fixed effects have six categories (A-rated or better, BAA-rated, BA-rated, B-rated, CAA-rated, and unrated firms). Control variables are defined in the Appendix IV, and continuous variables are winsorized at the 1st and 99th percentile. * Significant at 0.10; ** Significant at 0.05; *** Significant at 0.01 (two-sided test).

	Number of Accounting Related Renegotiations	*Debt to Earnings Renegotiation*	*IV Approach*		*Hazard Ratio*
			DCV	*RENEG*	
	(1)	(2)	(3)	(4)	(5)
DCV	-0.590**	-0.437**		-0.367***	-1.115***
	(2.54)	(2.34)		(2.80)	(3.65)
LNASSET	0.054*	0.035*	0.001	0.004	0.046
	(1.79)	(1.69)	(0.88)	(0.12)	(1.52)
DTE	0.004*	-0.001	-0.000	-0.003	-0.002
	(1.77)	(0.42)	(0.91)	(0.95)	(0.70)
LEV	-0.009	0.163	0.038***	-0.029	0.136
	(0.06)	(1.38)	(4.44)	(0.16)	(0.76)
ROA	-1.793	0.038	0.098	-0.052	-2.156
	(1.47)	(0.04)	(1.44)	(0.03)	(1.60)
MTB	-0.004	-0.022	0.000	-0.035	-0.030
	(0.20)	(1.34)	(0.27)	(1.61)	(1.53)
STDROA	-0.997	-0.712	-0.011	-1.158	-0.716
	(1.03)	(1.02)	(0.23)	(1.11)	(0.65)
LNMATURITY	0.084*	0.080**	0.007***	0.243***	-0.251***
	(1.74)	(2.56)	(3.08)	(5.03)	(5.50)
SPREAD	0.001**	0.000	-0.000	0.000	0.001**
	(2.16)	(1.16)	(0.19)	(0.75)	(2.42)
NLENDER	-0.001	0.001	0.000	0.008*	0.001
	(0.28)	(0.50)	(0.04)	(1.74)	(0.18)
DAMOUNT	0.138***	0.068***	0.005**	0.183***	0.204***
	(3.76)	(2.89)	(2.53)	(4.74)	(5.80)
REVLV	0.212***	0.055	-0.005	0.190**	0.058
	(2.94)	(1.28)	(1.50)	(2.49)	(0.85)
PG	0.085	0.080**	0.005*	0.194***	0.119**
	(1.54)	(2.15)	(1.69)	(3.11)	(2.15)
BOWBASE	0.101	0.049	-0.006	0.162*	0.142**
	(1.44)	(0.90)	(1.52)	(1.78)	(2.04)
COVIS	0.210**		-0.005	-0.003	0.063
	(2.31)		(1.49)	(0.04)	(1.02)
COVBS	0.046	-0.012	-0.008***	-0.010	0.017

	(0.88)	(0.39)	(3.16)	(0.17)	(0.37)
ZSCORE	-0.000	0.008	0.000*	0.004	0.002**
	(0.06)	(1.52)	(1.91)	(1.09)	(2.12)
TANG	-0.201	0.020	-0.060***	-0.452*	-0.284
	(1.11)	(0.18)	(5.90)	(1.92)	(1.51)
KZIND	0.005	-0.004	0.002***	-0.002	-0.006
	(0.76)	(0.99)	(4.66)	(0.24)	(0.98)
COLL	0.127**	0.035	0.000	0.029	0.125**
	(2.26)	(1.10)	(0.04)	(0.43)	(2.27)
RELINT	0.148*	0.062	-0.007	0.047	0.084
	(1.79)	(1.14)	(1.63)	(0.49)	(1.04)
INSTLP	-0.186	0.357	0.028	-0.716	-0.840*
	(0.42)	(1.11)	(1.09)	(1.19)	(1.90)
FLENDER	0.075	-0.065	0.005	0.122	0.042
	(0.63)	(0.85)	(0.91)	(0.95)	(0.38)
FCOVNUM	0.180***				
	(8.28)				
SRD			5.362***		
			(15.84)		
Deal Purpose FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Credit Rating FE	YES	YES	YES	YES	YES
Observations	3431	1058	3431		3431
Log Likelihood	-5393.665	-496.555	-2811.904		-19091.283