Evidence on the role of accounting conservatism in debt contracting

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Abstract

I examine how accounting conservatism relates to the design of private debt contracts with consideration of managerial risk preferences embedded in compensation contracts. Theoretical explanations for conservatism relate to the design of financial covenants or valuation of pledged assets in efficiently resolving asset substitution and incentive conflicts, respectively. I also consider conservatism in earnings in conjunction with other devices in signaling credit risk. I find evidence that accounting conservatism, the presence of financial covenants, and collateral are positively associated with the choice of long-term debt; with short-term debt constituting an alternative form of creditor protection. More notably, I find evidence of a predicted positive association between the use of collateral and conservatism. I fail to find a predicted positive association, however, between the presence of financial covenants and conservatism when managerial incentives indicate greater risk of asset substitution. Finally, I find no evidence of an association between conservatism in conjunction with earnings-based covenants and yield spreads as a measure of signaling content.

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1. Introduction

Recent theoretical models have shown that conservatism may contribute to debt contracting by (1) efficiently resolving moral hazard and adverse selection through values assigned to assets pledged as collateral, (2) efficiently resolving the classic asset substitution problem through covenants based on conservative values, and (3) efficiently resolving adverse selection by enhancing the signaling content of earnings-based covenants given publicly disclosed compensation contracts. The objective of this study is to test predictions based on each of these possible roles for conservatism. In this regard, I examine how conservative accounting affects the choice of non-price (i.e. maturity, collateral and financial covenants) and price terms in loan agreements with consideration of managerial risk preferences embedded in compensation contracts. Below, I elaborate each of the theoretical studies and the principal predictions that follow.

According to Göx and Wagenhofer (2009), conservative accounting is more informative about the lower bound of the expected value of the collateral assets than an accounting system that reports fair values. They show that accounting conservatism may be optimal for lenders to infer that assets pledged as collateral are sufficient valuable to meet its financing conditions when manager's incentives to exert high effort ex-post are perverted[1]. In their model, creditors rationally interpret the information about assets available for pledging; when lenders observe an unimpaired book value from a conservative accounting system, they interpret this as good news. When lenders observed unimpaired book value from a fair value accounting system, however, they cannot make inferences (or they could interpret it as a bad news). Thus, if conservatism has

[1] The value of the collateral reassures creditors against potential moral hazards in that the collateral feature prevents managers from selling the collateral or exchanging the collateral for more risky assets (Jensen and Meckling, 1976; Stulz and Johnson, 1981; Watson, 1984; Boot et al., 1991).

implications in creditors' assessment of collateral assets, I expect the use of collateral on long-term loans to relate to the level of conservatism of the firm.

Caskey and Hughes (2011) demonstrate that accounting conservatism enhances the role of covenants in resolving the asset substitution problem wherein firm managers have incentives to choose risky lower-net present value projects once borrowed funds have been obtained (Jensen and Meckling, 1976). Covenants determine the circumstances under which debt holders are allowed to interfere in management decisions, such as project selection and continuation/abandonment decisions. If the signal threshold that triggers these covenants is based on conservative accounting numbers, it is more likely that covenants are violated and control rights are allocated to creditors who abandon high risk projects.[2] In such cases, the potential transfer of control rights act as a stage-contingent control mechanism that decreases borrowers' incentives ex-ante to engage in asset substitution activities. Hence, I expect that the use of accounting-based covenants in long-term debt is associated with the level of conservatism of the firm when potential asset substitution problems are severe (i.e., compensation contracts that provide the greatest incentive for risky investment).[3]

Levine and Hughes (2005) show that conservatism facilitates the signaling role of earnings-based covenants and avoids the need to costly signal through manager compensation contracts. In their model, firm's owners could sub-optimally design the compensation scheme to convey information to potential creditors about the firm's operating risk. However, earnings-based debt covenants in conjunction with a conservative accounting system efficiently signal

[2] Caskey and Hughes (2011) argue that tightening covenant thresholds alone does not achieve the same efficiency outcomes as covenants based on conservative fair values. Tightening the threshold causes an increase of inefficient abandonment or achievement efficiency after costly renegotiation.

[3] This prediction is valid for accounting-based covenants influenced by accounting conservatism. An alternative form of lender protection against asset substitution that is not at least directly influenced by accounting conservatism is a covenant that restricts future investment.

lower default risk thereby enabling lower risk firms to separate from higher risk firms and eliminate the need to resort to compensation contracts for signaling purposes. Therefore, I expect a positive association between the use earnings-based covenants and the degree of conservatism of the firm. Moreover, I expect the combination of earnings-based covenants and a sufficiently conservative accounting system to lower the interest spread in comparison to a less conservative accounting system given that disclosure of managerial compensation is required of public companies.

The relevance of debt maturity in my study comes from Billet et al. (2007). In effect, they view short-term debt as an alternative costly mechanism to long-term debt accompanied by financial covenants or pledged assets for controlling agency conflicts. Moreover, as argued earlier, conservatism acts upon the efficiency of covenant and the value assigned to pledged assets. It further follows that conservatism is more likely to principally arise in conjunction with long-term debt.

The theoretical models that characterize the role of accounting conservatism on debt contracting do not distinguish between firm owners and managers, where in the usual case, managers are the decision makers. Since managerial behavior is largely shaped by the compensation contracts, explicit consideration of the effect of managerial risk preferences embedded in compensation contracts is relevant to assessing the agency conflict that arises in Caskey and Hughes (2011), or to the dependency on compensation contracts as an alternative signaling device in Levine and Hughes (2005). In particular, I employ a measure of the sensitivity of compensation to risk as a proxy for exposure to asset substitution risk, and as an indication of whether firms are signaling through compensation.

My results are mixed on the role of conservatism. The strongest evidence that conservatism plays a role in debt contracting is a higher likelihood of posting collateral in long-term loan agreements after controlling for firm and loan characteristics. Since collateral provision is usually associated with riskier borrowers (Boot et al., 1991) and accounting conservatism provides a verifiable value for the assets pledged as collateral for the loan, my results suggest that lenders use collateral together with accounting conservatism in addressing agency conflicts.

Pursuant to the predictions with respect to accounting-based covenants, I fail to find that conservatism acts as a complement for financial covenants when lenders anticipate a severe asset substitution problem. I find weak evidence that management incentives for asset substitution are associated with the presence of financial covenants on long-term loans. However, I find that incentive for asset substitution is negatively related to the issuance of long-term loans, suggesting that firms with stronger incentives for asset substitution are more prone to issuing short-term debt. I find that the higher the management incentives for asset substitution, the more likely the inclusion of covenants restricting investments. These findings suggest that controlling asset substitution through debt maturity or investment restrictions may be more efficient.

Lastly, I find no evidence supporting predictions that adoption of conservatism and earnings-based covenants have signaling value based on interest rate spreads.

My results contribute to the academic and regulatory debate on the need for neutrality rather than conservative bias in accounting numbers. Financial Accounting Standard Board (FASB) and the International Accounting Standard Boards (IASB) advocate that neutrality is a desirable qualitative characteristic of accounting numbers. Contrary to this view, academicians argue that accounting conservatism plays an important economic role in debt contracting (Watts,

2003). My evidence, suggesting only that conservatism is related to the valuation of pledged assets, favors the academic view that biased accounting may contribute to debt contracting efficiency. However, given that I fail to find either an effect of conservatism on the reliance of financial covenants to dissuade asset substitution or on the value of earnings-based covenants specifically in signaling a firm's credit risk type, there is doubt that such bias is useful in debt contracting.

This paper proceeds as follows. In Section 2, I review related research. Section 3 describes sample and variable definition. Section 4 presents research design and empirical findings. I conclude in Section 6.

2. Related Research

Despite the large amount of literature on the role of accounting information at debt initiation, few studies have examined the link of collateral and maturity to accounting information. One exception is Barath et al. (2008) who study the role of accrual quality in the design of debt contracts (interests, maturity and collateral). My study adds to this literature by examining a distinctive attribute of accounting information to provide evidence that lenders respond to borrower conservatism when setting those non-price terms.

Empirical research has provided evidence of a direct link between cost of debt and accounting conservatism. Ahmed et al. (2002) shows that conservatism lowers the cost of debt in public debt contracts by reducing the likelihood of a dividend payment out of capital since lower bound of earnings and net asset value are reported under conservative accounting system. Zhang (2008) finds supporting evidence that conservatism lowers cost of debt in private loans because timely loss recognition accelerates covenant violations. Beatty et al. (2008) examine the use of income escalators specified by net-worth covenants and find that they are positively

related to the degree of accounting conservatism. I extend this stream of research by investigating an alternative channel through which conservatism is associated to the cost of debt.

Several other papers have examined how the degree of financial reporting conservatism is related to the reliance on covenant in debt contracts; results, however, are mixed. Vasvari (2006) concludes that ex-ante conservatism is negatively associated with both general and financial covenants in private loan agreements. Frankel and Litov (2007) and Begley and Chamberlain (2009) did not find a clear association between ex-ante conservatism and the use of covenants. Nikolaev (2010) shows that the use of covenants in public debt contracts is positively associated with the degree of timely loss recognition. Similarly, Callen, et al. (2010) show that conservatism complements financial covenants in private loan agreements when the degree of information asymmetry is high. I also expand on this literature by varying the sample and methodology to test how conservatism relates to debt covenants[4].

My study incorporates managerial risk preference primarily as proxy for the conflicts that arise from unobservable managerial actions and non-contractible investment decisions. Guay (1999)[5] presents preliminary evidence that convex incentives schemes influence investing and financing decisions. It is common for firms that want to increase volatility use equity compensation to induce risk taking by managers, debt contracting held aside (Rajgopa and Shevlin, 2002; Coles, Daniel and Naveen, 2006; Low, 2009)[6]. Further, Knopf et al. (2002)

[4] First, most of the extant empirical research has failed to explicitly consider the effect of managerial incentives in lender's response to borrower conservatism (one exception is Vasvari, 2006). Second, some of these studies do not control for loan characteristics and firms characteristics at the same time. Third, most of these studies define their covenant index neglecting whether there is a real influence of conservatism on the number in which these covenants are based.

[5] Guay (1999) finds that vega (executives' portfolio sensitivities to changes in stock returns volatility) is positive associated with firm size, investment opportunities and R&D intensity.

[6] Rajgopal and Shevlin (2002) find a positive association between risk taking incentives (vega) and exploration risk for a small sample of firms in the oil and gas industry. Coles, Daniel and Naveen (2006) document that riskier firms are more likely to increase CEO portfolio delta and vega and increased delta and vega lead to

disentangles two opposite effects of equity-based compensation. They show that large deltas (executives' portfolio sensitivities to changes in stock prices) discourage managerial risk-taking, while large vegas encourage risk-taking.

According to theoretical models, debt holders fully or at least partially anticipate the influence of compensation structure in place and the influence of the debt contracts in manager post-debt contracting behavior (Brander and Poitevin, 1992; John and John, 1993; Douglas, 2003; Levine and Hughes, 2005). Lenders incorporate perceptions in the negotiation of the debt contract terms. Accordingly, empirical studies have found that creditors protects against agency conflicts that arise from compensation risk through price protection (Bagnani, et al.1994; Ortiz-Molina, 2006; Vasvari, 2009)[7], covenants (Begley and Feltham, 1999; Vasvari, 2009; Chava, et al. 2010; Fan, 2010)[8], and maturity (Brockman et al., 2010)[9].

Vasvari (2009) and Fan (2010) arrive at a very different conclusion with respect to the relation between managerial incentives and debt covenants. On one hand, Vasvari (2009) find that manager-shareholder incentive alignment increases the number of covenants required. On the other hand, Fan (2010) finds a negative association between risk incentives and a covenant index. My analysis provides additional evidence for this relation by redefining the sampling method and research design.

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riskier firm policies and higher firm risk using a simultaneous equation approach. Low (2009) shows that companies are likely to increase the convexity in managerial compensation contracts when there is stronger takeover protection.

[7] The evidence with respect to the cost of the debt unequivocally demonstrates lenders' anticipation to ex-post managerial behavior in both public and private debt contracts. The findings suggest cost of debt financing is increasing on management incentives for risk.

[8] Begley and Feltham (1999) and Chava, Kumar and Warga (2010) find that the existence of debt covenants is positively related to stock-based compensation for corporate bonds. For private debt markets, Vasvari (2009) find a positive association between portfolio vega and delta and the use of covenants. However, Fan (2010) concludes differently for both public and private debt contracts. He shows that stock-based compensations have two opposite effects on the use of covenants of debt contracts. Vega (management incentive for risk) is negatively associated with covenant index and delta is positive associated with covenant index.

[9] Brockman, Martin and Unlu (2010) document a positive association between short debt maturity and executive portfolio sensitivity to stock return volatility (vega).

While researchers have argued that the collateral feature prevents managers from selling the collateral or exchanging the collateral for more risky assets (Jensen and Meckling, 1976; Stulz and Johnson, 1985), there is no direct empirical evidence for the association of the collateral provision and management risk preferences. To the best of my knowledge, my study is the first to address the effect of managerial incentives on the use of collateral for the private debt market.

3. Data and Variables

3.1. Data Sources and Sample Selection

I collect loan agreements at the time of their origination from Dealscan provided by Loan Pricing Corporation. I focus the analysis on private loans rather than public bonds under the assumption that banks possess superior abilities in assessing the credibility of accounting information and monitor compliance with debt terms based on that information. Terms stipulated in public bonds are less stringent than those in loans since bondholders are dispersed and monitoring is costly. Casual observations in support of this assumption include the fact that unlike public bonds, private loans commonly include covenants that depend on accounting measures, approximately 80% of firms issuing bonds also have loans from banks, and bonds typically include cross-default acceleration clauses that allow bond holders a free ride on private loan clauses.

Dealscan is constructed at the package and facility level. A borrower may have multiple loan packages and each loan package may have multiple facilities. Package data detail covenant information, total deal amount, and loan purpose. Facility data provide loan characteristics such as collateral, facility amount, loan type (e.g. lines of credit, term loans, etc), maturity and pricing.

I limit the sample to U.S. borrowers in non-financial industries with non-negative common equity before entering into the debt contract. I also remove from the sample loans with missing information in pricing, maturity, and facility amount. Borrower firms must be in the intersection of COMPUSTAT and CRSP databases. I use the link file provided by Chava and Roberts (2008)[10] to match DealScan and COMPUSTAT. The sample of loan agreements includes observations from 1994 to 2010, consisting of 14, 276 deals (19,963 facilities) for 4,011 firms.

Further, I merge loan data with managerial executive compensation ExecuComp from Compustat. I use variables from old format reporting (before FAS 123) to construct risk-taking incentive measures. This matching procedure generates a reduced sample of loan agreements that include observations between 1994 and 2007, consisting of 6,749 deals (9,027 facilities) for 1,616 firms[11].

3.2. Variable Descriptions

3.2.1. Accounting Conservatism.

I use four different metrics of conservatism. I follow Beatty et al. (2008), Zhang (2008), and Callen et al. (2010) in using multiples metrics to assess conservatism because of the potential measurement errors and the different aspects that each measure could capture. I use Basu's (1997) approach to measure the incremental timeliness of earnings with respect to bad news; Penman and Zhang's (2002) c-score to measure the level of estimated reserves created by the conservatism; and Givoly and Hayn's (2000) use of both non-operating accruals to measure the extent to which earnings include the recording of bad news and skewness to measure the degree

[10] I thank Professor Roberts for providing us with the updated linking file.
[11] This is 5,826 firm-year observations.

that firm's earnings incorporate bad news immediately but good news gradually. I rank each of the conservatism measures within a year to minimize the influence of outliers. Finally, I calculate a composite measure of conservatism by adding the firm's rank for each of the four measures. The estimation of these metrics is described in Appendix A.

I measure conservatism shortly before and soon after contract initiation. The assumption is that firms that anticipate borrowing would adopt conservative accounting and have it in force during the contract. While I report results using the first measure in the main body, I also include discussion of the changes in results when the second measure is used.

3.2.2. Managerial Risk Preferences

I follow Guay (199) and Core and Guay (2002) to calculate vega (change in the value of the CEO's option portfolio due to a 1% increase in stock return volatility) and delta (the value of the CEO's stock and option portfolio due to a 1% change in the price of the firm common stock). Calculations are based on Black-Scholes (1973) option valuation model adjusted for dividends by Merton (1973). Consistent with the literature on managerial incentives, I focus my attention particularly on vega because this measure is more likely to capture the incentives to undertake risk-shifting activities. A detailed explanation of the construction of this risk-incentive measure is provided in Appendix A.

I also measure managerial incentives at contract initiation and I assume that managerial incentives are exogenously determined.

3.2.3. Firm Characteristics

I examine several firm characteristics other than managerial incentive measures in my analysis of the debt contract terms. I choose these firm-level variables based on the previous

literature: asset volatility, firm size, leverage, asset maturity, managerial ownership, market-to-book, term spread, a dummy variable for firms from regulated industries, abnormal earnings, a dummy variable for firms with S&P credit ratings, and expected default risk. I define each variable and data source in Appendix B.

3.2.4. Contract Terms

The main contract terms for loans that I analyze in this paper are maturity, whether the loan was collateralized, whether the loan includes financial covenants (earnings-based covenants and an investment covenant, among others), and the interest spread of the debt.

I also include characteristics of the loan as control variables: the size of the deal (facility) measure by the logarithm of the deal (facility); loan maturity measured in number of years; the number of the lenders participating in the arrangement; and dummy variables on whether the deal was issued to finance a determined type of project, there is performance pricing, the loan is syndicated, and the loan is a revolver.

I define each variable and data source in Appendix B.

3.3. Summary Statistics

Table 1, Panel A presents summary statistics for the conservative variables. My statistics are consistent with prior studies. For example, Beatty et al. (2008) report means of 1.25 for skewness and 0.02 for non-operating accruals; my sample reports 1.38 and 0.02, respectively. Callen et al. (2010) report a mean of 0.146 and a median of 0.008 for c-score; my sample reports a mean of 0.10 and a median of 0.02 for the same variable. Also, asymmetric timeliness capture by the Basu measure has the first quartile negative in accord with prior research. Panel A also presents summary statistics for management incentives. The distribution of vega, delta, and the

fraction of managerial ownership are similar to those reported by Coles et al. (2006) and Brockman et al., (2010). The statistics reveal skewness in the compensation data since the medians are lower than the means. The mean change in the option portfolio due to a 1% change in the stock volatility is $142.75 (000) while the mean sensitivity to stock prices is $699.07 (000).

Table 1, Panel B presents descriptive statistics on the price and non-price terms of sample loans at package and facility level. My sample contains in average 66% of long-term loan packages (i.e., deals composed only for long term facilities) and 23% of short-term loan packages (i.e., deals composed only for short-term facilities). Also, 11% of the total sample of loan packages has collateral against a fixed asset, while 22% of the total sample has collateral against any assets (e.g., account receivables, cash and marketable securities, fixed assets, etc). Regarding accounting-based covenants, 47% of the loan sample has at least 2 financial covenants (excluding maximum capital expenditures) and 10% of the sample includes the maximum capital expenditures covenant. I control for the skewness in the loan data by using the logarithm of the debt amount (facility or package) and the number of lenders.

<Insert Table 1>

4. Estimation Methods and Empirical Results

4.1. Non-price Terms

4.1.1. Long-term Versus Short-term Debt

To provide preliminary evidence on the relation between management risk preferences, conservatism, and maturity of loan agreements, I construct three portfolios of loan packages based on the maturity of their facilities. This information describes firm characteristics that may influence the design of loan agreements.

Table 2 shows that 66% of the loan sample corresponds to packages with long-term facilities, 23% to loan packages with short-term facilities and 11% of the loan packages have both short- and long-term facilities.

<Insert Table 2>

Consistent with finance literature that has shown that short-term debt is a mechanism to mitigate potential asset substitution problems (Barnea, Haugen, and Senbet, 1980; Leland and Toft, 1996; Rajan and Witon, 1995; Stulz, 2000; Brockman et al., 2010), I find that the management's portfolio vega is higher for loan packages with short-term facilities. It seems that firms with stronger management incentives for asset substitution are more prone to issuing short-term debt, possibly because lenders require the greater control than financial covenants and/or collateral on long-term debt may convey.

Panel B in Table 2 also shows that conservatism is higher for loan packages with long-term facilities. This suggests that the role conservatism in debt contracting is most likely to arise in conjunction with collateral provisions and/or financial covenants.

The results of Panel C in Table 2 support this conjecture. About 56% of the loan packages with long-term facilities include at least two financial covenants that may be directly influenced by conservatism. Also, about 16% of long-term loan packages have collateral provisions whose underlying security corresponds to fixed assets. This figure increases to 30% when any underlying security for the collateral provision is considered. Loan packages with long-term facilities have on average more covenants than loan packages with short-term facilities.

I estimate the following probit regression (with clustered standard errors at firm and year level) in which the dependent variable equals 1 if all facilities in the loan packages have a maturity longer than twelve months and 0 otherwise:

$$\Pr(Long\ Term) = \alpha_0 + \alpha_1 * LN(Vega) + \alpha_2 * Conservatism + \alpha_3 * Collateral + \alpha_4 * Financial\ Covenants + \sum_j \alpha_j * Control_j$$

where all variables are defined in Appendix A and B.

Brockman et al. (2010) use this specification to test the relation between the maturity of corporate bonds and managerial risk incentives. I replicate their analysis in a sample of private loan agreements. However, I include conservatism metrics and dummy variables for financial covenants and collateral provisions in the regression to test how conservatism and the reliance of creditors on covenants and/or collateral relate to the choice of long-term debt rather than the choice of short-term debt.

<Insert Table 3>

In Table 3, I report the empirical results from the probit model. Consistent with prior literature, I find that greater incentive for risk taking (vega) has a negative effect on the probability of issuing long-term loan packages. Also, conservatism, financial covenants, and collateral provisions are all positively related to the likelihood of issuing long-term facilities. These results suggest that lenders consider conservatism to be a desirable attribute for a firm issuing long-term debt and extend Barath et al. (2008). They document that debt maturity is higher for firms with low ex ante unsigned abnormal accruals (they refer to this as "high accounting quality"). Moreover, the issuance of long-term debt accompanied by collateral provisions and financial covenants provide scope for conservatism to matter in debt contracting.

Consequently, I restrict the analysis on effect of conservatism in the design of loan agreements to a sample of long-term loan facilities.

4.1.2. Collateral Provisions

To test whether conservatism relates to the use of collateral, I run the following probit regression with clustered standard errors at firm and year level in a sample of long-term loan packages:

$$\Pr(Collateral) = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * LN(Vega) + \sum_j \alpha_j * Firm\ control_j + \sum_i \alpha_i * Loan\ control_i$$

Lenders incur costs in the screening and monitoring of the pledged assets. As explained earlier, conservative accounting system may facilitate these tasks by providing lower bound of the expected value of those assets (Göx and Wagenhofer 2009). Thus, I expect α_1 to be positive.

The result in Table 4 shows that the estimated coefficients on conservatism metrics are positive and significant (except for the Basu measure). This suggests that lenders perceive conservatism to be a complementary tool that enhances the role of collateral in reassuring creditors against agency conflicts.

<Insert Table 4>

I don't find evidence, however, that management incentives to undertake risk-shifting activities induce the use of collateral. This finding is counterintuitive since researchers have argued that collateral provisions may partly protect creditors against asset substitution. I find that lenders appear to employ several mechanisms as complements to protect against agency conflicts, because loan spread, financial covenants, and performance-pricing features increase the likelihood of including a collateral provision in the loan agreement. This finding is consistent with Berger and Udell (1990) in that they find a positive correlation between posted collateral and the borrower's risk.

4.1.3. Financial Covenants

One context in which conservatism may serve to enhance the role of covenants is the classic assets asset substitution problem (Caskey and Hughes 2011). In this section, I examine whether the level of conservatism is associated with the use of financial covenants when firms provide high incentives for risk.

Conservatism potentially acts upon most of the financial covenants included in loan agreements. One exception is the maximum capital expenditure covenant. The differential verifiability principle of conservatism is absent in the accounting for investment outlay. Thus, I exclude the maximum capital expenditure from the catalog of financial covenants.

The likelihood of including financial covenants is estimated using a probit model where the dependent variable takes on the value of 1 if the loan includes at least two[12] financial covenants, and 0 otherwise.

$$\Pr(Financial\ covenants) = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * LN(Vega) + \alpha_3 * LN(Vega) * Conservatism + \sum_j \alpha_j * Firm\ control_j + \sum_i \alpha_i * Loan\ control_i$$

The interaction effect α_3 should reflect that, when the expected asset substitution problem is severe (high vega), conservatism and financial covenants are complements (have a positive coefficient). Moreover, if lenders perceive conservatism as a tool that facilitates the monitoring role of covenants, I expect α_1 to be positive. Also, if financial covenants indirect or directly limit managers' ability to undertake risk-shifting activities, I expect α_2 to be positive.

Panel A in Table 5 presents the results for the model. I omit coefficients of the control variables to avoid overloading the reader. I find that conservatism is negatively associated with the likelihood of including financial covenants in loan agreements. A plausible explanation for

[12] I repeat the analysis and define the dependent dichotomous variable equals to one if the loan includes at least one financial covenant. The results are qualitatively the same.

this finding is that, contrary to the perception that conservatism is a source of efficiency, lenders envision that conservatism could increase the probability of "false alarms" (Gigler et al., 2009).[13] Moreover, the interaction effect between conservatism and vega is positive. In other words, when management incentives for asset substitution are high, the negative association between conservatism and financial covenants become less strong (less negative). In any event, I do not find that incentive for asset substitution on a standalone basis affects the likelihood of including financial covenants in private debt contracts.

<Insert Table 5>

The previous results focus on the relation between conservatism and any financial covenant when the incentives for asset substitution are considered. A direct form of protecting against asset substitution is a covenant limiting capital expenditures. Although investment covenants are based on accounting values, they are not directly influenced by accounting conservatism. To supplement the analysis in this section, I test whether conservatism is associated with the inclusion of investment covenants when management risk incentives are considered. I used the following probit model in which the dependent variable equals 1 if the loan includes a maximum capital expenditure covenant:

$$\Pr(Investment\ covenant) = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * LN(Vega) + \alpha_3 * LN(Vega) * Conservatism + \sum_j \alpha_j * Firm\ control_j + \sum_i \alpha_i * Loan\ control_i$$

I expect $\alpha_2$to be positive once again. Contrary to the earlier predictions for $\alpha_1$and α_3, I don't expect any association between conservatism and the likelihood of including investment covenants.

[13] Gigler et al. (2009) conclude that liberal accounting is more efficient regarding continuation decisions for projects that are already in play.

Panel B in Table 5 show the results of this analysis. Coefficient α_2 is positive and significant, which indicates that lenders prefer to protect against asset substitution directly using investment restrictions. Hence, there is weak evidence that conservatism increases the likelihood of including an investment covenants (positive and significant coefficient for Basu and skewness measures). In addition, high management incentives for asset substitution attenuate the positive effects of conservatism on the likelihood of including investment covenants (negative interaction effect).

4.1.4. Accounting Conservatism

I now examine the demand for accounting conservatism.

In order for lenders to hold rational expectations about the effect of conservatism in debt contract efficiency, it should be the case that the accounting system will remain the same before and after the contract terms are set. Thus, anticipating debt financing that involves the use of collateral or financial covenants may be an additional factor in the adoption of a conservative accounting system.

The arguments presented earlier suggest that conservatism may contribute to contracting efficiency in two ways: by providing a verifiable lower bound for collateral assets that insures lenders against the uncertain value of those assets, or by decreasing the implicit cost of inefficient continuation/abandonment decisions (alternatively, by reducing the probability of renegotiation to resolve such inefficiency) through debt covenants. Hence, I expect that the adoption of conservatism is positively associated with the presence of collateral and financial covenants. Since empirical studies have provided evidence on the governance and monitoring role of conservatism regarding agency conflicts arising from managerial incentives[14], I also

[14] Conservatism offsets managers' tendencies to bias net worth upwards (Watts, 2003) and induce the recognition of future losses from unprofitable investment upfront (Ball and Shivakumar, 2006). Based on these

expect managerial risk preferences to be positively associated with the extent to which firms report conservatively.

I estimate the following OLS regression including year and industry effects:

$$\begin{aligned}\text{Conservatism} = {} & \alpha_0 + \alpha_1 * LN(Vega) + \alpha_3 * Financial\ \ Covenant\ dummy + \alpha_4 * LN(Vega) \\ & * Financial\ Covenant\ dummy + \alpha_5 * Collateral + \alpha_6 * Asset\ Volatility + \alpha_7 * LN(Delta) + \alpha_8 \\ & * Managerial\ Ownership + \alpha_9 * Managerial\ Ownership^2 + \alpha_{10} * Institutional\ Ownership + \alpha_9 \\ & * Institutional\ Ownership^2 + \alpha_{10} * Tax\ Rate + \alpha_{11} * Size + \alpha_{12} * M/B + \alpha_{13} * Leverage + \alpha_{14} \\ & * Default\ Risk\end{aligned}$$

The dependent variable is the conservative measure described earlier. Moreover, I consider a unique loan package by firm-year in order to give equal weight to each firm in the sample. I keep the loan package in the sample if its maturity is the longest in a year for a given firm. The control variables are other determinants of the extent to which firms report conservatively (Beatty et al., 2008). Detail definition for the variables and data sources are provided in Appendix B.

<Insert Table 6>

In accordance with my predictions, I expect to find positive values for α_1 , $\alpha_3$and α_5. Table 6 reports the results. I find that management risk incentives are positively associated with the extent to which firms report conservatively. This result is consistent with Ma and Martin (2010) who argue that creditors demand greater asymmetric timely recognition in the presence of high CEO compensation risk. Moreover, I find that the coefficients of financial covenants dummy are negative and statistically significant for Basu, skewness, and the composite conservative

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arguments, Lafond and Roychowdhury (2008) document that high managerial ownership reduces the demand for accounting conservatism. They posit that managerial ownership increases the degree of ex ante alignment between the interest of managers and shareholders so that there is no need of using accounting conservatism as a corporate governance mechanism. Moreover, Ma and Martin (2010) find that managerial compensation risk (vega) is positively associated with asymmetric timeliness loss recognition mainly for firms with high leverage. Also, they report that this positive relation is lessened when firms have a greater proportion of short-term debt in their capital structure and firms enter in debt contracts with covenants and collateral provisions.

measures. These results support Nikolaev's (2011) argument that the scope for conservatism is smaller in private debt contracts. My results suggest that borrowers anticipate less conservatism when financial covenants are present in loan agreements. Additionally, the positive interaction effect between the financial covenants dummy and vega indicates that the negative association between financial covenants and conservatism becomes less negative when management risk incentives are high.

Notably, the coefficients on the collateral variable are all positive. While only the collateral coefficient for skewness is significant, the evidence suggests that borrowers understand the benefit of reporting conservatively valuing the assets. As I report below, when conservatism is measured once the contract is in force, the results on collateral are stronger and add support to this conclusion.

4.1.5. Measuring Conservatism

In all the results presented above, conservatism is measured just before contract initiation. In addition, it is clear that for there to be a benefit to conservatism it must be in play during the course of the contract. Accordingly, it is reasonable to expect that my findings should not be sensitive to the timing of conservatism measurement. In order to assess the robustness of my findings, I repeat previous analysis measuring conservatism shortly after loan initiation.

The results for all specifications presented in Section 4 remain qualitatively similar, with the exception of strengthening the case for collateral enhancing demand for conservatism. Specifically, the signs of the coefficients remain the same in all regressions and there are few changes in the significance of the coefficients. Regarding collateral, the coefficients of the Basu, skewness, and composite rank measures are now all significant. The stronger results are an

indication that lenders correctly anticipate the conditions in force over the contract period for long-term debt.

Tabulated results are presented in Appendix C at the end of the paper.

4.2. Price Terms and Signaling

The studies that have examined the link between cost of debt of conservatism have argued that lenders anticipate the benefit of conservatism in mitigating conflicts of interest over dividend policy (Ahmed et al., 2002) and providing earlier signals of financial distress (Zhang, 2008). I consider an alternative channel through which conservatism may be related to cost of debt: the signaling value of earnings-based covenants given publicly disclosed compensation contracts (Levine and Hughes, 2005).

I proceed in two steps to examine the signaling role of conservatism. If earnings-based covenants in concert with financial reporting conservatism have signaling value, first, I expect to find an association between conservatism and the inclusion of earnings-based covenants, and second, I expect that the use of earnings-based covenants accompanied by sufficient conservatism is associated with a lower interest spread at loan initiation given that disclosure of managerial compensation is required for public companies.

I estimate the two following equations in sequential order.

First, the probit model to analyze the association between conservatism and earnings-based covenants given disclosure of managerial compensation is:

$$\Pr(Earning-based\ covenant) = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * LN(Vega) + \alpha_3 * LN(Vega) * Conservatism + \sum_j \alpha_j * Firm\ control_j + \sum_i \alpha_i * Loan\ control_i$$

I present the results for the probit regression in Panel C of Table 5. Even though consistent with previous results showing that the coefficients on conservatism metrics are

negative, the coefficients are not statistically significant. Hence, I fail to find evidence that conservatism increases the likelihood of including earnings-based covenants given that disclosure of managerial compensation is required. I also fail to find that management risk incentives affect the probability of including those earnings-based covenants.

Next, I estimate an OLS model (industry and year fixed effects) to examine the association between conservatism and cost of debt:

$$\text{Spread} = \alpha_0 + \alpha_1 * Conservatism\ ex-ante + \alpha_2 * Earning\ based\ covenant\ dummy + \alpha_3 * Earning\ based\ covenant\ dummy * Conservatism + \alpha_4 * LN(Vega) + \sum_j \alpha_j * Firm\ control_j + \sum_i \alpha_i * Loan\ control_i$$

In accordance with Ahmed et al. (2002) and Zhang (2008), I expect α_1 to have a negative effect on the spread. Additionally, according to Levine and Hughes (2005) compensation is more convex for bad types than good suggesting that α_4 is positive. Assuming that creditors use price and covenant protection as alternative mechanisms, the coefficient for the earnings-based covenant dummy (α_2) should be negative. Therefore, under the signaling story, the coefficient α_3 should be negative. Earnings-based covenants in tandem with conservatism lessen the need to use compensation to signal; thus, the coefficient for the interaction effect between covenants and conservatism reflects the signaling value of covenants.

<Insert Table 7>

Table 7 reports the results for the OLS pooled regression. I find that the coefficients on conservatism are positive, but not statistically significant for any of the measure (except the composite rank). The positive sign in the conservative measure is consistent with the findings of Callen et al. (2010) who argue that conservatism accounting alone does not lead to a lower cost of debt. The coefficient α_4 is positive and significant, suggesting that creditors incorporate

managerial risk preferences embedded in compensation structure when pricing loans. Also, the coefficient for the dummy variable for earnings-based covenants is positive and significant, suggesting a complementary relation between interest spreads and covenants. Finally, the coefficient of interest α_3 is negative for three of the four measures, but it is not statistically significant. Overall, I don't find support for the signaling story.

5. Conclusion

A prevailing view in the accounting literature is that accounting conservatism contributes to the efficiency of debt contracting. Recent theoretical work points toward three potential ways in which this view might be sustained: First, Göx and Wagenhofer (2009) make a case for conservatism in the valuation of pledged assets as a means of resolving a moral hazard with respect to hidden effort. Second, Caskey and Hughes (2011) show how conservatism in the measures upon which financial covenants are based may mitigate excessive renegotiation or otherwise reduce inefficient asset continuation decisions in the resolution of asset substitution problems. Third, Levine and Hughes (2005) consider the use of earnings-based covenants in conjunction with observable compensation contracts as a device for signaling lower risk on the part of borrowers.

I conduct a series of empirical tests of the predictions from each of these theoretical arguments for conservatism as a factor in the design of debt contracts. My evidence supports the role of conservatism in valuing pledged assets. I find no support, however, for its use in the construction of financial covenants to more efficiently control asset substitution, or in measuring earnings as a part of a signaling device employed by low-risk firms. Some additional aspects of debt contracting that came to light are that short-term debt and restrictions on investment appear

to be more efficient alternatives to financial covenants in allocating greater control to lenders concerned with asset substitution. I also find that the sensitivity of managerial compensation to returns volatility appears to be an indicator of propensity for risk taking and hence the severity of asset substitution problems.

Appendix A

A.1. Managerial Risk Incentives

Guay (1999) and Core and Guay(2002) use Black-Scholes' (1973) Option Valuation Model adjusted for dividends by Merton (1973), as follows:

$$\Delta = e^{-dT} N(Z)$$

$$v = e^{-dT} N'(Z) S\sqrt{T}$$

$$Z = \frac{ln\left[\frac{S}{X}\right] + T\left[r - d + \frac{\sigma^2}{2}\right]}{\sigma\sqrt{T}}$$

where,

N is the cumulative probability function for the normal distribution

N' is the density function for the normal distribution

S is the price of the underlying stock (mktpric or prccf in ExecuComp)

X is the exercise price of the option

σ is the expected stock return volatility over the life of the option (BS_volatility in ExecuComp)

r is the natural logarithm of the risk-free interest rate (from Federal Reserve Bank Reports in WRDS)

T is the time to maturity of the option in years

d is the natural logarithm of the expected dividend yield over the life of the option (BS_YIELD in ExecuComp).

Manager option portfolios are partitioned into three parts: (1) options from new grants, (2) exercisable options from previous grants, and (3) unexercisable options from previous grants. The data X (expric in Execucomp) and T (exdate in ExecuComp) is observable for new grants. For previously granted options, however, this information needs to be estimated. To estimate the exercise price, realizable values (excess of stock price over the exercise price) are used. I calculate how much, on average, the stock price is above the exercise price by dividing the

unexercisable (excluding new grants[15]) and exercisable realizable values by the number of unexercisable and exercisable options[16]. The exercise price is then obtained by subtracting this number from the stock price.

To estimate maturity for previously granted options, the time to maturity of an unexercisable option is assumed to be 1 year less than that of a new grant[17]. Furthermore, the time to maturity of an exercisable option is 3 year less than that of an unexercisable option. Finally, if no options are granted, it is assumed that exercisable options have 6 years to maturity and unexercisable options have 9 years to maturity.

Hence,

$$Delta = \frac{S}{100}(N_{NewGrant} * \Delta_{NewGrant} + N_{Exercisable} * \Delta_{Exercisable} + N_{Unexercisable} * \Delta_{Unexercisable} + N_{Stock} * \Delta_{Stock} + N_{RestStock} * \Delta_{RestStock})$$

$$Vega = \frac{1}{100}(N_{NewGrant} * v_{NewGrant} + N_{Exercisable} * v_{Exercisable} + N_{Unexercisable} * v_{Unexercisable})$$

[15] As in Core and Guay (2002), which report that when the number of new grants exceeds the number of unexercisable options, the excess realizable value and number of option is deducted from number and realizable value of exercisable options.

[16] In accordance with Core and Guay (2002), when the number of new grants exceeds the number of unexercisable options, the excess realizable value and number of option is deducted from the realizable value and number of exercisable options.

[17] If an executive has more than one grant in a year, I calculate the mean of year to expiration of the grants.

A.2. Conservative Measures

Basu (1997)

Following Basu (1997), I run the firm specific regression[18]

$$\frac{E_{it}}{P_{it-1}} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$$

where E_{it} is basic earnings per share excluding extraordinary items (Compustat DATA58); P_{it-1} is the price per share of firm i at the beginning of fiscal year t (Compustat DATA199), R_{it} is the 12-month return of firm i ending 3 months after the end of fiscal year t, and DR_{it} is a dummy variable equal to one if $R_{it} < 0$. In this regression, β_{0i} is the timeliness of earnings with respect to good news, β_{1i} is the incremental timeliness of earnings with respect to bad news, $\beta_{0i} + \beta_{1i}$ is the sensitivity of earnings to bad news, and $(\beta_{0i} + \beta_{1i})/\beta_{0i}$ is the sensitivity of earnings to bad news relative to the sensitivity of earnings to good news. I use β_{1i} as the Basu measure of conservatism. The higher this measure is, the more conservative the firm.

Penman and Zhang (2002)

Following Penman and Zhang (2002), *C-score* is calculated as

$$C_{it} = \frac{INV_{it}^{res} + RD_{it}^{res} + ADV_{it}^{res}}{NOA_{it}}$$

where INV_{it}^{res} is the inventory reserve and equals the LIFO reserve reported in financial statement footnotes (Compustat #240); RD_{it}^{res} is R&D reserve and is calculated as the estimated unamortized portion of R&D if R&D (Compustat #46) had not been expensed using the industry coefficients estimated by Lev and Sougiannis (1996); ADV_{it}^{res} is the advertising reserve and its definition is similar to the R&D reserve, but I use the sum-of-year's digit method over two years to calculate the expenditure of advertising (Compustat #45); and NOA_{it} is net operating asset and equals common equity + financial obligation - financial assets + minority interest[19].

[18] I use 20 years of data for each firm, but we require at least 10 years.

[19] NOA = [Common Equity (#60) + Preferred Treasury Stocks (#227) - Preferred Dividends in Arrears (#242)] + [Debt in Current liabilities (#34) + Total Long term debt (#9) + Preferred Stock (#130) - Preferred Treasury Stock (#227) + Preferred Dividends in Arrears (#242)] - [Cash and Short term Investment (#1) + Other Investment and Advances (#32)] + [Minority Interest (#38)].

Measures Based on Givoly and Hayn (2000)

First, non-operating accruals is calculated as Net Income + Depreciation and Amortization - Operating Cash Flow + Decrease in Account Receivable + Decrease in Inventory + Increase in Account Payable + Increase in Accrued Income Tax, scaled by total assets. This is (#172 + #14 - #308 + #302 + #303 + #304 + #305)/#6. *Non-operating accruals* are defined as minus one time the average of non-operating accruals for 5 years[20].

Second, *Skewness* is the difference between the skewness of cash flow (#308 / #6) and earnings (#18 / #6) and it is measured using all available earnings and cash flows up until the end of each fiscal year. If Compustat #308 is not available, cash flow is calculated as funds from operation (#110) - Δ current asset (#4) - Δ debt (#34) + Δ current liabilities (#5) + Δ cash (#1).

[20] Requiring at least 2 years of data when computing the average.

Appendix B

Variable	Definition and data source
Firm-level variables	
Asset Volatility	I follow Bharath and Shumway (2008)[21] to calculate assets volatility. The estimation for the asset volatility of the firm in their model is calculated as follows: $$Naive\ \sigma_V = \frac{E}{E+F}\ \sigma_E + \frac{F}{E+F}(0.05 + 0.25 * \sigma_E)$$ where E is the market value of equity and is taken from CRSP; F is the face value of debt computed from Compustat (#34 + 0.5* #9); and σ_E is the volatility of firm's equity and it is calculated as the annualized percent standard deviation of returns from the prior year stock return data for each month.
LN(Size)	Size is the market value of equity plus the book value of total assets minus the book value of equity. Compustat #199 * #54 + #6 - #60
Leverage	Long-term debt divided by the market value of the firm. Compustat #9 / (#199 * #54)
Asset Maturity	Book value-weighted average of the maturities of property plant and equipment and current asset computed as (Gross Property, Plant and Equipment/Total Asset)* (Gross Property, Plant and Equipment/Depreciation Expense) + (Current Assets/Total Assets)* (Current Assets/Cost of Goods Sold). Compustat (#7 / #6) * (#7 / 14) + (#4 / #6) * (#4 / #41).
Managerial Ownership	Percentage of total shares outstanding held by the executive, excluding options (if greater than 1%) obtained from Execucomp.
Market-to-Book	Market value of the firm divided by the book value of total assets. Compustat (#199 * #54 + #6 - #60) / #60

[21] The market based approach has been used also by Vassalou and Xing(2004), Fang and Zhong (2004), Larsen (2006)

Term Spread	The difference between the interest rate on the 10-year treasury bond and the 1-year treasury bond at the fiscal year end obtained from Federal Reserve Bank reports.
Regulated Dummy	If firm belongs to industry SIC codes between 4900 and 4939, the dummy variable equals 1.
Abnormal Earnings	(Earnings in year $t+1$ minus earnings in year t) / (Share prices*Outstanding shares in year t). Compustat Δ #20 / (#199 * #54).
Rating Dummy	If firm has an S&P credit rating at loan initiation, the dummy variable equals 1. Mergent FISD provide S&P credit ratings for firms
Default Risk	Following Bharath and Shumway (2008) to calculate the distance to default: $$Naive\ DD = \frac{ln\left[\frac{E+F}{F}\right] + (r_{it-1} - 0.5 * Naive\ \sigma_V)T}{Naive\ \sigma_V\sqrt{T}}$$ where E, F , and $Naive\ \sigma_V$ are equity market value, debt face value and asset volatility respectively. r_{it-1} is the firm's equity return from the previous year which is a proxy for the firm's expected asset returns; and T is the time period. Hence, the naive probability is $\pi_{naive} = N(-NaiveDD)$
Institutional Ownership	The average institutional ownership at the end of the fiscal year calculated from Thomson Reuters Institutional Holdings (13F).
Tax Rate	Corporate marginal tax rate provided by John Graham's website
Loan-level variables	
All-in-Drawn Spread (Package Level)	The facility file from DealScan provides the loan spread. The all-in-drawn spread for a loan package is the average spread among facilities in that package.
All-in-Drawn Spread (Facility Level)	The amount the borrower pays in basis points over LIBOR for each dollar drawn down. It is

	computed as the sum of the spread of the loan with the annual fee paid to the bank.
Financial Covenants (Dichotomous Dependent Variable and Control variable)	I count the number of financial covenants directly influenced by accounting conservatism[22] for each package. I define the variable equal to 1 if the loan package has two or more financial covenants affected by conservatism.
Earnings-based Covenant (Dichotomous Dependent Variable)	I catalog the covenants Max. Debt to EBITDA, Min. Interest Coverage, Min. Fixed Charge Coverage, Min. Debt Service Coverage, Min. EBITDA and Max. Senior Debt to EBITDA as earnings-based covenants. The dummy variable equals 1 if the loan package has at least one earnings-based covenant.
Investment covenant (Dichotomous Dependent Variable)	The most common restriction on investment in loan agreements is Max. Capital Expenditure which limits to some extent the ability of the firm to invest. I define dummy equal to 1 if the loan package includes this covenant.
Collateral (Dichotomous Dependent Variable)	The variables equals 1 if a loan package contains at least one collateralized facility whose underlying security is a tangible asset. The facility security file from DealScan identifies whether the collateral is either "All Assets", "Plan", "Property & Equipment" or "Real Estate".
Collateral (Control Variable)	The facility security file from DealScan describes the type of collateral against the loan for each facility. A loan package is considered to have collateral if at least one of the facilities in that package has the collateral indicator.
Long-Term Package (Dichotomous Dependent Variable)	The variable equals 1 if a loan package corresponds to one or several facilities with maturity greater than twelve months.
Maturity (Control Variable)	The facility file from DealScan presents how long (in years) the facility will be active from signing date to expiration date. The maturity of a loan package is calculated as the average maturity among facilities in that package

[22] The Maximum Capital Expenditure appears as the only covenant not directly affected by accounting conservatism

LN(Deal)	The package file from DealScan provides the total amount that the deal has received commitments for.
LN(Facility)	Facility File from DealScan provides the actual amount of the facility committed by the facility's lender pool.
Project Finance Dummy	If the deal was issued to finance a determined type of project, the dummy variable equals 1. The information is provided by the package file in DealScan.
LN(Number of Lenders)	The number of lenders in each facility from Lender Shares File in DealScan. The number of lenders for a loan package is calculated as the average number of lenders for the facilities in that package.
Performance pricing dummy	If the facility has different pricing levels based on a predefined trigger, the dummy variable equals 1 (Performance Pricing file in DealScan). A loan package is considered to have performance pricing if at least one of the facilities in that package has the pricing indicator.
Syndicate Dummy	If the distribution method of the facility corresponds to Syndication, the dummy variable equals 1 (Facility File in DealScan). A loan package is consider to be syndicated if at least one of the facilities in that package has the syndication indicator.
Revolver dummy	If the facility is of the revolving type, the dummy variable equals 1 (Facility File in DealScan). A loan package is considered to be revolver if at least one of the facilities in that package has the revolver indicator

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Table 1

Descriptive statistics

The overall sample contains 6,749 loan packages (9,027 loan facilities) for 5,826 firm-year observations obtained from DealScan and the intersection of the Compustat and CRSP databases. The sample period begins in 1994 and I use all data available until the change in the reporting format for management compensation became effective in each firm. Panel A presents descriptive statistics for accounting conservatism measures, managerial incentives and firm specific controls. Panel B presents loan characteristics. Firm characteristics are measured prior to the fiscal year in which the loan was obtained. Refer to Appendix A and B for a definition of variables.

Panel A: **Conservatism Proxies, Managerial Incentives and Firm Characteristics**

	Nobs	Mean	Median	STD
Basu	4,174	0.09	-0.10	0.18
C-Score	5,826	0.10	0.00	0.10
Non-operating Accruals	5,826	0.02	0.00	0.03
Skewness	5,826	1.38	0.18	2.75
Vega (Sensitivity to 1% Change in Volatility)	5,826	142.75	21.35	155.63
Delta (Sensitivity to 1% Change in Price)	5,826	699.07	87.65	583.17
Managerial Ownership	5,826	0.02	0.00	0.01
Asset Volatility	5,818	0.33	0.21	0.40
Expected Default Risk	5,607	0.02	0.00	0.00
Size	5,824	8.17	7.02	9.29
Leverage	5,820	0.42	0.07	0.48
Asset Maturity	5,589	10.26	3.71	14.34
Market-to-Book	5,824	1.85	1.20	2.12
Abnormal Earnings	5,821	0.01	-0.01	0.03
Regulated Firm Dummy	5,826	0.04	0.00	0.00
S&P Rating Dummy	5,826	0.42	0.00	1.00
Institutional Ownership	4,654	0.65	0.54	0.77
Tax	4,702	0.24	0.04	0.35
Term Structure bps	5,826	136.05	55.92	243.92

Panel B**: Loan Characteristics**

	Nobs	Mean	Median	STD
Package Level				
Ln(Deal Amount)	6,749	5.79	5.01	6.62
Project Finance Dummy	6,749	0.00	0	0
Number of Financial Covenants (Excluding Max. CAPEX)	6,749	1.38	0	2
Financial Covenants (Dichotomous Variable)	6,749	0.47	0	1
Number of Earnings-Based Covenants	6,749	0.89	0	2
Earnings-Based Covenant (Dichotomous Variable)	6,749	0.51	0	1
Investment Covenant (Dichotomous Variable)	6,749	0.10	0	0
Total Number of Covenants	6,749	3.98	0	6
Collateral Fixed Assets (Dichotomous Variable)	6,749	0.11	0	0
Any Collateral (Dummy Variable)	6,749	0.22	0	0
Long-Term Packages (Dichotomous Variable)	6,749	0.66	0	1
Short-Term Package (Dichotomous Variable)	6,749	0.22	0	0
Long- and Short-Term Package (Dichotomous Variable)	6,749	0.11	0	0
Facility Level				
All-In-Drawn Spread	9,027	125.80	42.50	175.00
LN(Loan Amount)	9,027	5.49	4.61	6.31
Maturity in Year	9,027	3.67	1	5
Collateral Fixed Asset (Dichotomous Variable)	9,027	0.13	0	0
Any Collateral Dummy	9,027	0.25	0	0
Performance Pricing Dummy	9,027	0.55	0	1
Ln(Number of Lender)	9,022	2.01	1.39	2.71
Syndicated Loan Dummy	9,027	0.98	1	1
Revolver Type Dummy	9,027	0.57	0	1

Table 2

Conservatism, Management Risk Incentives and the Maturity of Loan Agreements

The table provides the univariate analysis of conservatism measures, management risk incentives and maturity of loan packages in DealScan. Panel A presents the distribution of loan packages according to the maturity of facilities in the sample. Panel B shows descriptive statistics of management risk incentives, firm characteristics, and conservatism across each type of loan packages. Panel C describes covenants and collateral characteristics for each type of loan packages. P-values are based on mean differences between groups of packages portfolios (assuming unequal variance across group). Appendices A and B provide detailed variable definitions.

Panel A Loan Package Categorized According to Maturity of Facilities

	(1) Firm-Packages with Short-Term Facilities	**(2)** Firm-Packages with Long-Term Facilities	**(3)** Firm-Packages with Both Short-Term and Long-Term Facilities
Number of Observation	1,517	4,467	765
% of Sample	22.48	66.19	11.34

Panel B Conservatism and Management Incentives by Loan Package Maturity

		(1) Firm-Packages with Short-Term Facilities	**(2)** Firm-Packages with Long-Term Facilities	**(3)** Firm-Packages with both Short-Term and Long-term Facilities	Mean Differences Between (1) and (2)	
					Difference	P-Value
Vega	Mean	208.2	118.2	179.9	90.0	0.0000
	Median	106.6	44.6	82.6		
	Std	287.7	211.3	265.5		
Delta	Mean	1,021.7	599.0	841.9	422.7	0.0000
	Median	322.9	192.0	288.9		
	Std	2,455.1	1,496.9	1,893.0		
Asset Volatility	Mean	0.330	0.331	0.299	-0.001	0.8120
	Median	0.295	0.292	0.274		
	Std	0.159	0.169	0.134		
Default Risk	Mean	0.015	0.029	0.009	-0.014	0.0000
	Median	0.000	0.000	0.000		
	Std	0.077	0.123	0.057		
Basu	Mean	0.028	0.114	0.031	-0.086	0.0000
	Median	0.007	0.032	0.017		
	Std	0.479	0.532	0.412		
C-Score	Mean	0.126	0.095	0.121	0.031	0.0002
	Median	0.028	0.015	0.035		
	Std	0.249	0.222	0.223		
Non-Operating Accruals	Mean	0.019	0.023	0.017	-0.004	0.0006
	Median	0.012	0.017	0.014		
	Std	0.035	0.033	0.028		
Skewness	Mean	1.243	1.420	1.422	-0.177	0.0044
	Median	1.184	1.294	1.378		
	Std	1.797	1.816	1.869		

Panel C Loan Characteristics by Loan Package Maturity

	(1) Firm-Packages with Short-Term Facilities	(2) Firm-Packages with Long-Term Facilities	(3) Firm-Packages with both Short-Term and Long-Term Facilities
Average Total Number of Covenants	2.03	4.77	3.22
Average Number of Financial Covenants	0.73	1.78	1.25
% with 2 or more Financial Covenants*	24.52	55.90	42.88
% with 1 or more Earnings-Based Covenants	26.24	59.64	45.88
% with Investment Covenants	1.77	13.52	4.31
% with Collateral Fixed Asset	1.91	15.20	3.40
% with Any Collateral	5.47	29.42	10.85

* excluding Max. Capex

Table 3

Relation Between Loan Package Maturity, Management Incentive for Asset Substitution and Conservatism

This table shows the results of the pooled regression for a probit model to test the relation between loan package maturity, management incentives for asset substitution, conservatism, and the presence of financial covenants, and collateral provision. Specifications are based on a sample of loan packages containing only either short-term or long-term facilities. The dependent variable is a dichotomous variable equal to 1 if the loan package comprises only long-term facilities and 0 if the loan package comprises only short-term facilities. Control variables are based on the previous fiscal year. Coefficients in the control variables are omitted for presentation purposes. T-statistics are reported below the coefficients. Statistical significance is base on firm- and time-clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

$$\Pr[Long\ Term\ Package = 1] = \alpha_0 + \alpha_1 * Ln(Vega) + \alpha_2 * Conservatism + \alpha_3 * Collateral + \alpha_4 * Financial\ Covenants + \alpha_5 * Asset\ Volatility + \alpha_6 * Ln(Delta) + \alpha_7 * Size + \alpha_8 * Leverage + \alpha_9 * Asset\ Maturity + \alpha_{10} * Managerial\ Ownership + \alpha_{11} * M/B + \alpha_{12} * Term\ Spread + \alpha_{13} * Regulated\ Dummy + \alpha_{14} * Abnormal\ Earnings + \alpha_{15} * Rating\ Dummy + \alpha_{16} * Default\ Risk + \alpha_{17} * Ln(Deal\ Amount) + \alpha_{18} * Project\ Finance\ Dummy$$

	Dependent Dichotomous Variable: 1 if Loan Package with Long-Term Facilities only									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Ln(Vega)	-0.122	***	-0.130	***	-0.133	***	-0.135	***	-0.126	***
	-2.829		-3.754		-3.856		-3.935		-3.028	
Conservatism	0.241	***	-0.060		0.069		0.140	*	0.109	***
	3.011		-0.780		0.954		1.741		2.611	
Collateral Dummy	0.870	***	0.870	***	0.866	***	0.859	***	0.858	***
	5.196		6.654		6.617		6.502		4.981	
Financial Covenant Dummy	0.463	***	0.468	***	0.470	***	0.469	***	0.465	***
	5.783		6.598		6.710		6.721		5.763	
Intercept	2.146	***	2.149	***	2.092	***	2.056	***	2.054	***
	5.859		6.391		6.348		6.022		5.530	
Nobs	3,908		5,511		5,511		5,511		3,908	

Table 4

Collateral Provision and Conservatism

This table shows the results of the pooled regression for a probit model to test the relation between recourse against collateral and conservatism. Specifications are based on a sample of loan packages containing only long-term facilities. The dependent variable is a dichotomous variable equals to 1 if the loan packages have the collateral provision and 0 otherwise. Firm control variables are based on the previous fiscal year. Control variables are based on the previous fiscal year. Coefficients in the control variables are omitted for presentation purposes. T-statistics are reported below the coefficients. Statistical significance is based on firm- and time-clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

$$\Pr[Collateral = 1] = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * Ln(Vega) + \alpha_3 * Asset\ Volatility + \alpha_4 * Ln(Delta) + \alpha_5 * Size + \alpha_6 * Leverage + \alpha_7 * Asset\ Maturity + \alpha_8 * Managerial\ Ownership + \alpha_9 * M/B + \alpha_{10} * Term\ Spread + \alpha_{11} * Regulated\ Dummy + \alpha_{12} * Abnormal\ Earnings + \alpha_{13} * Rating\ Dummy + \alpha_{14} * Default\ Risk + \alpha_{15} * LN(Deal\ Amount) + \alpha_{16} * Financial\ Covenants + \alpha_{17} * Spread + \alpha_{18} * Maturity + \alpha_{19} * LN(Number\ of\ Lenders) + \alpha_{20} * Performance\ Pricing\ Dummy + \alpha_{21} * Syndicated\ Dummy + \alpha_{22} * Revolver\ Dummy$$

	Dependent Dichotomous Variable: 1 if Loan Package with Collateral Provision											
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*			
Conservatism	0.077		0.122		0.161	*	0.230	***	0.089	**		
	0.647		1.589		1.716		3.839		1.982			
Ln(Vega)	0.072		0.029		0.033		0.031		0.066			
	1.577		0.728		0.821		0.750		1.422			
Intercept	-3.326	***	-4.282	***	-4.320	***	-4.335	***	-3.461	***		
	-6.472		-6.896		-6.772		-7.044		-6.608			
Nobs	2,801		4,104		4,104		4,104		2,801			

Table 5

Accounting-Based Covenants, Management Incentives for Asset Substitution and Conservatism

This table shows the results of the pooled regression for a probit model to test the relation between the use of accounting-based covenants, management incentives for asset substitution, and conservatism. Specifications are based on a sample of loan packages containing only long-term facilities. The dependent variable in Panel A is a dichotomous variable equals to 1 if the loan package has two or more financial covenants influenced by accounting conservatism and 0 otherwise. The dependent variable in Panel B is a dichotomous variable equals to 1 if the loan packages have a maximum capital expenditure covenant and 0 otherwise. The dependent variable in Panel C is a dichotomous variable equals to 1 if the loan packages have one or more earnings-based covenants and 0 otherwise. Firm control variables are based on the previous fiscal year. Control variables are based on the previous fiscal year. Coefficients in the control variables are omitted for presentation purposes. T-statistics are reported below the coefficients. Statistical significance is base on firm and time clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

$$\Pr[Accounting-based\ covenants = 1] = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * Ln(Vega) + \alpha_3 * Ln(Vega) * Conservatism + \alpha_4 * Asset\ Volatility + \alpha_5 * Ln(Delta) + \alpha_6 * Size + \alpha_7 * Leverage + \alpha_8 * Asset\ Maturity + \alpha_9 * Managerial\ Ownership + \alpha_{10} * M/B + \alpha_{11} * Term\ Spread + \alpha_{12} * Regulated\ Dummy + \alpha_{13} * Abnormal\ Earnings + \alpha_{14} * Rating\ Dummy + \alpha_{15} * Default\ Risk + \alpha_{16} * LN(Deal\ Amount) + \alpha_{17} * Project\ Finance\ Dummy + \alpha_{18} * Collateral + \alpha_{19} * Spread + \alpha_{20} * Maturity + \alpha_{21} * LN(Number\ of\ Lenders) + \alpha_{22} * Performance\ Pricing\ Dummy + \alpha_{23} * Syndicated\ Dummy + \alpha_{24} * Revolver\ Dummy$$

PANEL A

	Dependent Dichotomous Variable: 1 if Loan Package with Two or More Financial Covenants (excluding Max. Capital Expenditure)											
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*			
Conservatism	-0.445	*	-0.218		-0.532	***	-0.625	***	-0.362	***		
	-1.739		-1.007		-2.658		-3.102		-4.228			
Ln(Vega)	0.002		0.012		-0.032		-0.073	*	-0.044			
	0.027		0.316		-0.673		-1.736		-0.668			
Ln(Vega)*Conservatism	0.122	**	-0.013		0.072		0.151	***	0.059	***		
	2.104		-0.250		1.363		2.866		2.818			
Nobs	2,801		4,104		4,104		4,104		2,801			

PANEL B

	Dependent Dichotomous Variable: 1 if Loan Package with Investment Covenant											
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*			
Conservatism	0.919	**	-0.400		0.281		0.509	**	0.175			
	2.263		-1.499		0.989		2.500		1.085			
Ln(Vega)	0.246	***	0.005		0.114	*	0.138	**	0.193	*		
	3.184		0.088		1.810		2.385		1.820			
Ln(Vega)*Conservatism	-0.185		0.151	**	-0.077		-0.123	**	-0.024			
	-1.632		1.997		-0.981		-2.259		-0.622			
Nobs	2,785		4,104		4,104		4,104		2,785			

PANEL C

	Dependent Dichotomous Variable: 1 if Loan Package with One or More Earnings-Based Covenants									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Conservatism	-0.507		-0.271		-0.300		-0.191		-0.330	**
	-1.446		-1.162		-1.460		-0.844		-2.305	
Ln(Vega)	0.049		0.059	*	0.031		0.033		-0.010	
	0.684		1.690		0.632		0.752		-0.124	
Ln(Vega)*Conservatism	0.140	*	0.017		0.064		0.058		0.068	**
	1.723		0.302		1.280		1.271		2.274	
Nobs	2,801		4,104		4,104		4,104		2,801	

Table 6

Relation Between Management Incentives Risk Incentives, Financial Covenants, Collateral and the extent to which firms report conservatively

This table shows results of the OLS pooled regression to test the relation between management risk incentives, financial covenants, collateral provisions and the extent to which firms report conservatively. Specifications are based on a sample of firm-loan packages containing only long-term facilities. The sample only includes one firm-package per year. The dependent variable is the ranking of the conservative measure. Year and industry effects are included. T-statistics are reported below the coefficients. Statistical significance is based on firm clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

$$\text{Conservatism} = \alpha_0 + \alpha_1 * Ln(Vega) + \alpha_3 * Financial\ \ Covenant\ Dummy + \alpha_4 * Ln(Vega) * Financial\ Covenant\ Dummy + \alpha_5 * Collateral + \alpha_6 * Asset\ Volatility + \alpha_7 * Ln(Delta) + \alpha_8 * Managerial\ Ownership + \alpha_9 * Managerial\ Ownership^2 + \alpha_{10} * Institutional\ Ownership + \alpha_9 * Institutional\ Ownership^2 + \alpha_{10} * Tax\ Rate + \alpha_{11} * Size + \alpha_{12} * M/B + \alpha_{13} * Leverage + \alpha_{14} * Default\ Risk$$

	Dependent Variable:									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Ln(Vega)	0.003		0.028	***	0.003		0.015		0.061	*
	0.220		2.812		0.244		1.412		1.893	
Financial Covenant	-0.116	**	-0.028		-0.018		-0.090	**	-0.215	*
	-2.099		-0.746		-0.439		-2.231		-1.701	
Financial Covenant *LN(Vega)	0.024	*	0.005		0.000		0.020	**	0.041	
	1.779		0.538		-0.014		2.065		1.355	
Collateral Dummy	0.026		0.012		0.016		0.078	***	0.066	
	0.868		0.606		0.714		3.468		1.226	
Asset Volatility	0.112		-0.063		0.260	***	0.098	*	0.610	***
	1.401		-1.145		4.321		1.722		3.573	
Ln(Delta)	-0.030	*	-0.031	***	0.001		-0.034	***	-0.126	***
	-1.679		-2.583		0.089		-2.669		-3.328	
Managerial Ownership	1.144		0.335		-0.040		0.835		2.990	
	0.978		0.533		-0.053		1.256		1.283	
Managerial Ownership^2	-2.125		-0.586		-0.729		-3.083		-5.975	
	-0.515		-0.288		-0.266		-1.296		-0.664	
Institutional Ownership	0.266		0.065		-0.245		0.438	*	-0.146	
	0.698		0.269		-1.032		1.818		-0.192	
Institutional Ownership^2	-0.216		-0.113		0.303		-0.273		0.291	
	-0.717		-0.590		1.634		-1.431		0.491	
Tax Rate	-0.033		-0.054		-0.250	***	-0.064		-0.296	**
	-0.442		-1.095		-4.702		-1.214		-1.991	
Size	0.011		0.020	**	-0.014		0.025	**	0.069	**
	0.751		2.025		-1.340		2.398		2.183	
M/B	0.001		0.039	***	0.027	**	-0.017	*	0.063	**
	0.037		4.303		2.474		-1.899		2.308	
Leverage	0.034		-0.036	***	0.008		0.026	*	0.025	
	1.561		-3.231		0.530		1.702		0.620	
Default Risk	0.011		0.121	**	0.088		0.037		0.188	
	0.094		1.968		1.043		0.429		0.806	
Intercept	0.459	***	0.249	***	0.579	***	0.284	***	1.613	***
	3.277		2.773		6.030		2.974		5.863	
R-Squared	10.3%		55.5%		15.1%		11.0%		25.2%	
Nobs	1,691		2,438		2,438		2,438		1,691	

Table 7

Signaling Role of Conservatism

This table shows the results of the OLS pooled regression to test the signal value of the combination of earnings-based covenant and conservative accounting policy. Specifications are based on a sample of long-term facilities. The dependent variable is All-in-drawn spread in basis points. Firm control variables are based on the previous fiscal year. Control variables are based on the previous fiscal year. Coefficients in the control variables are omitted for presentation purposes. Year and industry effects are included. T-statistics are reported below the coefficients. Statistical significance is based on firm and time clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

$$\text{Spread} = \alpha_0 + \alpha_1 * Conservatism + \alpha_2 * Earnings\ based\ covenants + \alpha_3 * Earnings\ based\ covenants * Conservatism + \alpha_4 * Ln(Vega) + \alpha_5 * Asset\ Volatility + \alpha_6 * Ln(Delta) + \alpha_7 * Size + \alpha_8 * Leverage + \alpha_9 * Asset\ Maturity + \alpha_{10} * Managerial\ Ownership + \alpha_{11} * M/B + \alpha_{12} * Term\ Spread + \alpha_{13} * Regulated\ Dummy + \alpha_{14} ** Abnormal\ Earnings + \alpha_{15} * Rating\ Dummy + \alpha_{16} * Default\ Risk + \alpha_{17} * LN(Deal\ Amount) + \alpha_{18} * Project\ Finance\ Dummy + \alpha_{19} * Collateral + \alpha_{20} * Spread + \alpha_{21} * Maturity + \alpha_{22} * LN(Number\ of\ Lenders) + \alpha_{23} * Performance\ Pricing\ Dummy + \alpha_{24} * Syndicated\ Dummy + \alpha_{25} * Revolver\ Dummy$$

	Dependent Variable: All-in-Drawn Spread (basis points)									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Conservatism	15.027		-4.342		12.739		8.707		6.939	*
	1.550		-0.487		1.601		1.100		1.750	
Earnings-based covenant dummy	15.210	**	7.010		13.443	**	12.302	**	13.872	
	2.174		1.349		2.257		2.146		1.462	
Earnings-based covenant dummy*Conservatism	-6.372		10.730		-3.634		-1.448		-0.941	
	-0.551		1.207		-0.396		-0.160		-0.209	
Intercept	258.183	***	283.127	***	275.453	***	277.605	***	254.733	***
	8.713		11.767		11.347		11.244		8.455	
R-squared	52.8%		53.7%		53.7%		53.7%		52.9%	
Nobs	3,602		5,383		5,383		5,383		3,602	

Appendix C

Table C.1

Collateral Provision and Conservatism

This table shows the results of the pooled regression for a probit model to test the relation between recourse against collateral and conservatism. **Conservatism is measured after loan initiation.** Specifications are based on a sample of loan packages containing only long-term facilities. The dependent variable is a dichotomous variable equals to 1 if the loan packages have the collateral provision and 0 otherwise. Firm control variables are based on the previous fiscal year. Control variables are based on the previous fiscal year. Coefficients in the control variables are omitted for presentation purposes. T-statistics are reported below the coefficients. Statistical significance is based on firm and time clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

	Dependent Dichotomous Variable: 1 if Loan Package with Collateral Provision									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Conservatism	0.257	**	0.156	*	0.199	**	0.188	***	0.191	***
	2.076		1.728		2.325		3.081		3.611	
Ln(Vega)	0.061		0.015		0.020		0.019		0.046	
	1.226		0.377		0.494		0.464		0.895	
Intercept	-3.300	***	-4.344	***	-4.402	***	-4.359	***	-3.547	***
	-5.751		-5.829		-5.884		-6.041		-5.930	
Nobs	2,861		3,972		3,972		3,972		2,861	

Table C.2

Accounting-Based Covenants, Management Incentives for Asset Substitution and Conservatism

This table shows the results of the pooled regression for a probit model to test the relation between recourse accounting-based covenants, management incentives for asset substitution, and conservatism. **Conservatism is measured after loan initiation**. Specifications are based on a sample of loan packages containing only long-term facilities. The dependent variable in Panel A is a dichotomous variable equals to 1 if the loan packages have two or more financial covenants influenced by accounting conservatism and 0 otherwise. The dependent variable in Panel B is a dichotomous variable equals to 1 if the loan package have maximum capital expenditure covenant and 0 otherwise. The dependent variable in Panel C is a dichotomous variable equals to 1 if the loan packages have one or more earnings based covenants and 0 otherwise. Firm control variables are based on the previous fiscal year. Control variables are based on the previous fiscal year. Coefficients in the control variables are omitted for presentation purposes. T-statistics are reported below the coefficients. Statistical significance is base on firm- and time-clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

PANEL A	**Dependent Dichotomous Variable:** 1 if Loan Package with Two or More Financial Covenants (excluding Max. Capital Expenditure)									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Conservatism	-0.858	***	-0.114		-0.520	**	-0.414	*	-0.424	***
	-3.576		-0.565		-2.417		-1.770		-3.650	
Ln(Vega)	-0.034		0.017		-0.035		-0.042		-0.056	
	-0.588		0.449		-0.687		-0.861		-0.698	
Ln(Vega)*Conservatism	0.202	***	-0.023		0.080		0.092		0.069	**
	3.786		-0.437		1.528		1.583		2.343	
Nobs	2,861		3,972		3,972		3,972		2,861	
PANEL B	**Dependent Dichotomous Variable:** 1 if Loan Package with Investment Covenant									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Conservatism	0.366		-0.437	*	0.514	**	0.419	*	0.138	
	0.989		-1.842		2.218		1.923		0.883	
Ln(Vega)	0.179	**	-0.029		0.102		0.087		0.175	*
	2.229		-0.513		1.435		1.236		1.764	
Ln(Vega)*Conservatism	-0.056		0.161	**	-0.110	*	-0.082		-0.016	
	-0.549		2.009		-1.803		-1.251		-0.380	
Nobs	2,845		3,972		3,972		3,972		2,845	
PANEL C	**Dependent Dichotomous Variable:** 1 if Loan Package with One or More Earnings-Based Covenants									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Conservatism	-0.946	***	-0.187		-0.149		0.007		-0.366	**
	-2.903		-0.925		-0.703		0.026		-2.387	
Ln(Vega)	0.014		0.064	*	0.055		0.071		0.008	
	0.201		1.788		1.063		1.435		0.085	
Ln(Vega)*Conservatism	0.229	***	0.013		0.026		-0.010		0.066	**
	2.985		0.252		0.535		-0.165		1.981	
Nobs	2,861		3,972		3,972		3,972		2,861	

Table C.3

Relation between Management Risk Incentives, Financial Covenants, Collateral and the Extent to Which Firms Report Conservatively

This table shows the results of the OLS pooled regression to test the relation between management risk incentives, financial covenants, collateral provisions, and the extent to which firms report conservatively. **Conservatism is measured after loan initiation**. Specifications are based on a sample of firm-loan packages containing only long-term facilities. The sample only includes one firm-package per year. The dependent variable is the ranking of the conservative measure. Year and industry effects are included. T-statistics are reported below the coefficients. Statistical significance is based on firm clustered standard errors. ***, **, and * denote significance at the 1%, 5% and 10% levels, respectively. Appendices A and B provide detailed variable definitions.

	Dependent Variable:									
	Basu		*C-score*		*Non-Operating Accruals*		*Skewness*		*All-Rank*	
Ln(Vega)	0.003		0.026	**	-0.005		0.023	**	0.060	**
	0.229		2.465		-0.426		2.073		1.972	
Financial Covenant Dummy	-0.162	***	-0.002		-0.065		-0.060		-0.246	**
	-2.841		-0.039		-1.588		-1.394		-2.067	
Financial Covenant Dummy*Ln(Vega)	0.034	**	0.001		0.012		0.011		0.042	
	2.469		0.081		1.235		1.054		1.479	
Collateral Dummy	0.067	**	0.017		0.034		0.072	***	0.176	***
	2.150		0.899		1.501		3.321		3.552	
Asset Volatility	0.130	*	-0.043		0.300	***	0.126	**	0.598	***
	1.680		-0.749		4.736		2.252		3.869	
Ln(Delta)	-0.040	**	-0.025	**	0.004		-0.035	***	-0.118	***
	-2.349		-1.972		0.327		-2.777		-3.386	
Managerial Ownership	1.324		0.130		-0.639		1.467	**	2.991	
	1.249		0.187		-0.836		2.105		1.453	
Managerial Ownership^2	-2.101		-0.220		1.205		-6.020	**	-7.002	
	-0.572		-0.090		0.433		-2.442		-1.000	
Institutional Ownership	0.511		0.086		-0.111		0.386		0.347	
	1.335		0.353		-0.465		1.633		0.487	
Institutional Ownership^2	-0.406		-0.139		0.162		-0.221		-0.105	
	-1.352		-0.727		0.853		-1.193		-0.188	
Tax Rate	-0.021		-0.055		-0.265	***	-0.093	*	-0.363	***
	-0.292		-1.118		-4.988		-1.766		-2.595	
Size	0.018		0.021	**	-0.012		0.023	**	0.069	**
	1.232		2.065		-1.126		2.153		2.272	
M/B	0.009		0.036	***	0.023	**	-0.023	**	0.058	**
	0.730		3.757		2.094		-2.449		2.158	
Leverage	0.025		-0.030	**	0.004		0.032	*	0.045	
	1.024		-2.298		0.215		1.768		1.052	
Default Risk	0.073		0.064		0.162	*	0.081		0.224	
	0.626		0.872		1.754		0.865		0.958	
Intercept	0.367	**	0.203	**	0.547	***	0.270	***	1.437	***
	2.572		2.252		5.594		2.877		5.464	
R-Squared	11.5%		56.3%		16.5%		12.8%		26.4%	
Nobs	1,743		2,372		2,372		2,372		1,743	