The Contracting Benefits of Accounting Conservatism to Lenders and Borrowers

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ABSTRACT

In this paper, I examine the *ex post* and *ex ante* benefits of conservatism to lenders and borrowers in the debt contracting process. First, I argue that conservatism benefits lenders *ex post* through a timely signal of default risk in the form of accelerated covenant violations by more conservative borrowers. I present evidence that the likelihood of a covenant violation following a negative shock increases in borrower conservatism. Second, I argue that conservatism benefits borrowers *ex ante* through lower initial interest rates. I provide both in-sample and out-of-sample evidence that lenders offer lower interest rates to more conservative borrowers. The result is robust to controlling for a series of other earnings attributes.

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1. Introduction

Positive accounting theory suggests that accounting conservatism plays an efficiency-enhancing role in the debt contracting process (Watts and Zimmerman, 1986; Watts, 2003a, 2003b). However, there is little systematic evidence on the contracting benefits of conservatism. In this paper, I provide evidence on the contracting benefits of conservatism in the debt contracting process. Specifically, I test both the *ex post* and *ex ante* benefits of conservatism to lenders and borrowers. I argue that lenders benefit from conservative reporting *ex post* through a more timely signal of default risk in the form of accelerated covenant violations by more conservative borrowers. In exchange, lenders offer lower initial interest rates *ex ante* to those borrowers who commit to or have a reputation for more conservative reporting.

In the debt contracting process, lenders are less informed than the borrowers, and they face downside risk but no upside potential. A borrower's limited liability and potential to behave opportunistically add to the lender's downside risk. In an efficient lending market, lenders favor mechanisms that mitigate their downside risk. Watts and Zimmerman (1986) suggest that accounting conservatism is one such mechanism.

One important implication of conservatism is that bad news is reported in a more timely fashion than good news in financial reports (Basu, 1997; Watts, 2003a, 2003b). Since lenders and borrowers contract on the financial reports through financial covenants, conservative reports enable lenders to receive a more timely signal of deteriorating financial performance through a tightening of covenants or a triggering of covenant violations. The timely signal of deteriorating financial performance allows lenders to take protective action, thereby reducing their downside risk. Examples of protective action that lenders can take include: accelerate the debt, reduce the borrowing base, enhance the security, and/or adjust the interest rate to reflect the underlying risk.

In the cross-section, each borrower chooses its optimal level of conservatism based on the trade-off of benefits and costs. I expect that lenders of more conservative borrowers receive the signal of deteriorating performance, in the form of covenant violations, sooner than lenders of less conservative firms. Using a sample of 339 firms that experience at least one negative shock in 1999 or 2000, I find consistent results across four measures of conservatism that the likelihood of a covenant violation following a negative shock increases in borrower conservatism. I also find some evidence that more conservative borrowers violate covenants sooner.

Ex ante, in expectation of the benefits from conservative reporting, lenders decide whether to share the benefits with borrowers. I expect lenders to share the benefits from conservatism with conservative borrowers. Any lender who resists passing on the related benefits would be outbid by other lenders that offer better terms.

Lenders can offer different options to share the expected benefits from conservatism, such as lowering the interest rate, increasing the lending amount, extending the maturity, loosening the covenants, etc. Which option(s) end up being used in practice is an empirical question. In this paper, I empirically examine the interest rate option while controlling for other options. I predict, *ceteris paribus*, that the interest rate decreases in the borrower's level of conservatism. The evidence is strong and consistent across different measures of conservatism that lenders lower the interest rate for more conservative borrowers in the negative shock sample. To provide a robustness check, I also test whether conservatism reduces the cost of debt using a broader sample, i.e., all syndicated loans with financial covenants covered by SDC Platinum Global New Issues database, and I find similar results.

To address the concern that conservatism is merely a proxy for other earnings attributes, I also examine additional earnings attributes that can potentially affect the cost of capital. In

addition to conservatism, the attributes are quality, persistence, predictability, smoothness, timeliness, and relevance of earnings. Francis et al. (2004) find that favorable values of each attribute lower the cost of equity individually; however, conservatism does not reduce the cost of equity when all seven attributes are included in the analysis.[1] Based on conservatism's role in mitigating lenders' downside risk, I expect conservatism to reduce the cost of debt after controlling for the other six earnings attributes. I find that conservatism, persistence, and smoothness incrementally reduce the cost of debt.

My paper is the first to test the contracting benefits from conservatism in debt contracting. Prior claims in the literature that conservatism plays an efficient contracting role have yet to be substantiated with supporting evidence. Ahmed et al. (2002) are the first to document the *ex ante* benefit of conservatism to borrowers, i.e., that conservatism reduces the cost of debt.[2] However, my paper tests not only for the *ex ante* benefit of conservatism to borrowers but also for the *ex post* benefit of conservatism to lenders, i.e., a more timely signal of default risk as reflected in quicker triggering of covenant violations. My analysis therefore depicts a broader picture of the efficient role that conservatism plays in debt contracting.

In theory, by restricting the borrowers and their managers from engaging in value-decreasing activities, such as asset substitution and under-investment, conservative reporting creates an efficiency gain by reducing the dead-weight loss from moral hazard and adverse selection. To prove the existence of such an efficiency gain, it has to be shown that the state with conservatism Pareto-dominates the state without conservatism; the benefits and costs of conservatism to all financial statement users have to be weighted. My findings that lenders receive a timely signal of

[1] Francis et al. (2004) do not examine the effect of seven earnings attributes on the cost of debt.

[2] See Section 2 for a detailed discussion of Ahmed et al. (2002).

default risk and that borrowers obtain a lower interest rate from conservative reporting are consistent with the predictions out of the efficiency gain; however, these findings do not directly prove the existence of such an efficiency gain.

In general, the Financial Accounting Standards Board issues accounting standards that are consistent with conservatism principle.[3] However, recently the FASB has shown a tendency toward providing fair values, thus introducing unverifiable estimates in financial statements (Watts 2003 a & b).[4] The evidence in this paper indicates that at least one group of financial statement users, i.e., lenders, value conservatism over value relevance by reducing the interest rates for more conservative borrowers. The evidence in this paper might be of interest to standard setters when they make the tradeoff between relevance, which favors fair value, and reliability (verifiability), which calls for conservatism.

The rest of the paper proceeds as follows. Section 2 reviews the literature. Section 3 develops the hypotheses. Section 4 introduces the sample and research design. Section 5 provides empirical evidence and robustness checks. Section 6 concludes with suggestions for future research.

[3] For example, Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed Of (SFAS 121, 1995), Employer's Accounting for Postretirement Benefits Other Than Pensions (SFAS 106, 1992), Research and Development Arrangements (SFAS 68, 1982).

[4] "Over the past several years, the Financial Accounting Standards Board has been pushing to base accounting on the fair market value of assets and liabilities. Little by little, in statement after statement, the board has required more and more fair market valuation, moving away from historical cost." ("FASB proposes guidance on fair value methodology," Accounting Today Vol. 18, No. 13, July 26, 2004.)

2. Background literature

Prior research provides strong theoretical guidance on the contracting benefits from conservatism. However, the evidence in this avenue is limited. In this section, I first briefly review the theory and then summarize two empirical papers that are closely related to my study.

Watts and Zimmerman (1986) describe the role of accounting information in the debt contracting process. However, the voluminous empirical literature building on Watts and Zimmerman (1986) largely focuses on the use of accounting choices to avoid covenant violations (Press and Weintrop, 1989; Duke and Hunt, 1989; DeAngelo et al., 1994; Sweeney, 1994; Dichev and Skinner, 2002; Beatty and Weber, 2003). Researchers seem to have overlooked the positive role that accounting information plays in debt contracting with only a few exceptions (Asquith, Beatty, and Weber, 2004). In this paper, I provide evidence that accounting conservatism creates some benefits that lenders and borrowers share; therefore, it is to the advantage of both parties to have conservative reporting.

Watts (2003a, 2003b) summarizes the theory and evidence on the debt contracting explanation for accounting conservatism. He points out that lenders are concerned with the downside risk, thus they concentrate on the lower end of the earnings and net asset distributions. With the verifiable measure of net assets that is provided by conservative reporting, lenders can make better lending decisions and effectively monitor borrowers' ability to pay. Watts (2003a) also suggests, "The long survival of conservatism and its apparent resilience to criticism strongly suggests that conservatism's critics overlook its significant benefits." However, the literature provides no evidence on the benefit of conservatism to lenders and presents only limited evidence on the benefit of conservatism to borrowers.

Ahmed et al. (2002) are the first to document that conservatism reduces the cost of debt for borrowers, i.e., more conservative borrowers receive better debt ratings. In addition to examining whether and how conservatism benefits lenders, my paper also improves the test of whether conservatism reduces the cost of debt for borrowers in the following three aspects. First, Ahmed et al. (2002) use debt ratings as the proxy for the cost of debt. I use actual interest rates since the debt rating of a borrower at a random point in time does not necessarily capture the cost of various facilities of the same borrower.

Second, Ahmed et al. (2002) use two measures of conservatism. Their market-to-book measure may be noisier than the asymmetric timeliness measure in capturing conservatism because market value contains rents (Roychowdhury and Watts, 2004). Their accrual-based measure is based on total accruals while accumulated nonoperating accruals better capture a firm's level of conservatism (Givoly and Hayn, 2000). I use two asymmetric timeliness measures from Basu (1997) and two earnings measures (skewness and cumulative nonoperating accruals) from Givoly and Hayn (2000) to proxy for conservatism and obtain consistent results across each measure. In the robustness tests, I also use market-to-book as an additional measure of conservatism and find that even though firms with a higher market-to-book ratio are no more likely to violate their covenants than firms with a low market-to-book ratio, firms with a higher market-to-book ratio receive a lower interest rate upfront. There are two possible explanations: 1) the lower interest rate reflects the higher conservatism as proxied by higher market-to-book, but market-to-book does not predict covenant violations due to the part of the variation in the market value that is irrelevant to conservatism; 2) the lower interest rate reflects the lower risk as proxied by higher market-to-book, not the reward to conservatism.

Third, Watts (2003b) points out that the Ahmed et al. (2002) study suffers from an endogeneity problem, i.e., both the level of conservatism and the debt rating may be affected by the same firm characteristics simultaneously. My test for the benefit of conservatism to lenders is less subject to the endogeneity problem since I measure the benefit as the likelihood of covenant violations as a result of or following an exogenous shock. My test of whether conservatism reduces the cost of debt is not fully immune to the endogeneity problem.

In a second related paper, Ball, Kothari, and Robin (2000) demonstrate that variation in conservatism mimics variation in contracting demands as proxied by the common and code law foundations. However, they do not offer direct evidence on the source (i.e., benefits) of the contracting demand for conservatism. My paper complements their study by providing evidence on why contracting parties demand conservatism. I argue that borrowers with higher levels of conservatism mitigate the lender-borrower conflict of interest to a greater degree.[5] Borrowers and lenders enjoy the benefits from conservatism in the form of a low cost of debt and mitigated downside risk, respectively.

In sum, the existing literature agrees that conservatism plays an efficient role in the debt contracting process (Watts and Zimmerman, 1986; Watts, 2003a, 2003b) and establishes that contracting demand influences the supply of conservatism (Ball et al., 2000). However, there is no empirical evidence on whether and how conservatism benefits lenders. Moreover, there is only weak evidence that conservatism benefits borrowers by reducing the cost of debt (Ahmed et al., 2002). My study adds to the literature by providing evidence on whether and how conservatism benefits lenders, and whether and how lenders share the benefits with borrowers.

[5] Firms supply various levels of conservatism because of the various costs they face. See Section 3 for a detailed explanation on the cost of conservatism.

The results confirm the accounting theory that conservatism creates some benefits that are shared between lenders and borrowers.

3. Hypotheses development

Efficient debt contracting provides an important explanation for conservatism. In the debt contracting process, lenders have an informational disadvantage and bear downside risk with no upside potential. Therefore, lenders refuse to lend or require a high rate of return unless investors/managers can credibly mitigate the downside risk facing the lenders. Accounting conservatism is one such mechanism that borrowers use to mitigate the lenders' downside risk.

3.1 Definition of conservatism

To investigate the role of conservatism in the debt contracting process, I elect to use the empirical definition proposed by Basu (1997) that conservatism requires a higher degree of verification to recognize good news as gains than to recognize bad news as losses. An important implication of the asymmetric verification requirement is the understatement of net assets. Bearing downside risk but no upside potential, lenders prefer to see an understated net asset on the balance sheet and a timely report of bad news on the income statement to protect them from the downside risk.

Statement of Concepts No. 2 of the FASB offers the explanation that "if two estimates of amounts to be received or paid in the future are about equally likely, conservatism dictates using the less optimistic estimate". The definition of asymmetric verification requirement is consistent with the FASB's explanation for conservatism. By requiring a higher degree of verification to recognize good news as gains than to recognize bad news as losses, conservative accounting numbers are less optimistic.

There are other definitions of conservatism. For example, Statement of Concepts No. 2 of the FASB defines conservatism to be "a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered". This official definition of conservatism is vague and hard to be operationalized. Conservatism is also defined as "a selection criterion between accounting principles that leads to the minimization of cumulative reported earnings by slower revenue recognition, faster expense recognition, lower asset valuation, and higher liability valuation" (Wolk et al., 1989; Davidson et al., 1985; Stickney and Weil, 1994). This definition does not specify the benchmarks for "slower, faster, lower, and higher"; the absolute, deliberate, consistent understatement of net assets and profits is unlikely to be demanded by lenders as a precondition for lending money to firms.

3.2. The covenant violation hypothesis: the *ex post* benefit of conservatism to lenders

As an efficient mechanism to reduce lenders' downside risk, conservatism is believed to reduce the cost of debt, thereby providing borrowers an incentive to report conservatively. To understand how conservatism reduces the cost of debt, it is important to examine whether and how conservatism benefits lenders. In other words, the benefit of conservatism to lenders is a necessary condition for lenders to incorporate a borrower's level of conservatism into debt pricing.

Lenders are concerned about two types of potential losses, i.e., uncompensated risk and loss of principal (Watts and Zimmerman, 1986, Chapter 8). First, lenders fear that they might be exposed to greater risk than that for which they are compensated. Without any constraints, after the loan is in place, borrowers have an incentive to engage in asset substitution, i.e., replace low risk projects with high risk projects (especially when equity value approaches zero). Given an

informational disadvantage, lenders may not detect such substitutions in time and thereby bear uncompensated risk. Second, lenders risk the loss of principal. A lender's payoff is bounded from above at the principal plus accumulated interest, no matter the diversification of their loan portfolio. The full recovery of other loans cannot make up for the loss from a defaulted loan. The potential for opportunistic borrower behavior such as asset substitution and underinvestment adds to the lender's concern about the recovery rate.

Conservatism is an efficiency-enhancing mechanism that complements debt covenants to mitigate a lender's concern about uncompensated risk and loss of principal. Holding the debt covenant threshold constant, conservative reporting makes financial covenants more binding by capitalizing bad news. The binding covenants provide lenders with a more timely warning of increased default risk and trigger covenant violations when the risk exceeds the threshold set by lenders. [6] Following the warning in the form of a covenant violation, lenders can take protective actions to reduce their downside risk. [7] For example, lenders can adjust the interest rate to compensate for the uncompensated risk. Lenders can also accelerate the debt, reduce the borrowing base, and/or enhance the security to reduce the potential loss of principal. I offer examples of lenders' protective actions in Appendix 1.

In sum, conservative reporting benefits lenders through quicker triggering of covenant violations. The transfer of control rights from borrowers to lenders after covenant violations enables lenders to reduce their downside risk. I therefore operationalize the benefits of

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[6] Suppose lenders believe that the outcome of a particular project follows an uniform distribution [a,b]. A timely report of a large economic loss c ($c < a$) would inform the lenders that the actual risk of the project is higher than their expectation and would trigger the covenant violation. Notice that this also works if the firm reports good news with less verification: A surprisingly good draw will also make lenders realize that the actual risk of this project is higher than they were promised; however, the outcome is in their interest and in this case, they do not choose to exercise their control rights immediately.

[7] Performance pricing is a mechanism built into many loan contracts to automatically act on changes in the borrowers' risk profile.

conservatism to lenders as accelerated covenant violations. To increase the likelihood of detecting covenant violations, I require the sample firms to experience at least one negative shock. I predict, c*eteris paribus*, after a negative shock, more conservative firms are more likely to violate their financial covenants, and I predict that they violate their covenants sooner.

Hypothesis 1a (H1a). *Ceteris paribus*, the likelihood of a covenant violation following a negative shock increases in borrower conservatism.

Hypothesis 1b (H1b). *Ceteris paribus*, more conservative borrowers violate their covenants sooner than less conservative borrowers.

Due to the endogeneity of covenants, covenant thresholds may vary across borrowers with different levels of conservatism. *Ex ante*, it is not clear whether lenders adjust covenants in response to various accounting choices, especially when accounting choices are contingent in nature and contracting on all the contingencies is difficult, if not impossible. If the timely signal from quicker triggering of covenant violation is the only benefit from conservatism to lenders, lenders might adjust covenants to incorporate conservatism by doing the following. They might loosen covenants to the maximum degree that the likelihood of covenant violations is the same for more conservative and less conservative borrowers. Beyond that point, the net gain to lenders from conservatism is negative, and the lender will not loosen the covenants further. As a result, loose covenants alone will not cause the likelihood of covenant violations of conservative borrowers to be lower than the likelihood of less conservative borrowers. Nevertheless, the restrictiveness of covenants does affect the likelihood of covenant violations; therefore, I include covenant slack as a control in testing H1a and H1b.

I acknowledge that the timely signal from quicker triggering of covenant violation is only one possible benefit conservative reporting provides lenders. By understating net assets,

conservative reporting also provides lenders a measure of the lower bound of the value of the collateral, and the understated collateral might increase the recovery rate in default. This alternative benefit of conservatism may also contribute to the lower interest rates.

3.3. The cost of debt hypothesis: the *ex ante* sharing of the benefit from lenders

If conservative reporting provides lenders a more timely signal of default risk, lenders are likely to reduce the interest rates charged to more conservative borrowers in exchange for the mitigated risk. Moreover, the more conservative the borrower, the greater the benefits to the lenders given greater mitigation of the default risk. Therefore, it should follow that the reduction in the interest rate for conservative borrowers is greater than that for less conservative borrowers.

Hypothesis 2 (H2). *Ceteris paribus*, the cost of debt is lower for more conservative borrowers.

Note, however, four assumptions have to be true for H2 to be true: (i) lenders do not share the benefits from conservatism with borrowers exclusively through other channels such as relaxed covenants, (ii) lenders prefer an earlier default than a later one, (iii) borrowers commit to a certain level of conservatism and do not deviate from the committed level after the loan is in place, and (iv) there is variation in the level of conservatism among borrowers.

To address the first assumption, I acknowledge that lenders are likely to reward conservatism through other channels such as covenants, lending amount, security, etc. Which option(s) lenders choose is an empirical question. The existence of other channels work against H2 and a lower interest for more conservative borrowers only means that the actual sharing of the benefit from conservatism might even be larger.

To address the second assumption, I argue that lenders prefer an early default rather than a later one to a certain degree. A timely default warns a lender about the increased default risk and protects the lender from the downside risk; however, extremely frequent default gives lenders false alarms and increases the monitoring cost and renegotiation cost. Therefore, there exists an optimal frequency of default which minimizes the sum of default cost, monitoring cost, and renegotiation cost. If conservative reporting drives the actual default rate toward this optimal point then lenders value conservatism. On the other hand, if conservative reporting drives the actual default rate away from this optimal point then I should not observe lenders factoring conservatism into their pricing.

To address the third assumption, I argue that borrowers have an incentive to maintain their level of conservatism due to the potential reputation cost. Borrowing is a repeated game in which borrowers have to anticipate the consequences of their actions on their future borrowing terms. Moreover, borrowers have a contracting mechanism to credibly commit to a certain level of conservatism. An example of such commitment is the use of fixed GAAP in the covenants (Mohrman, 1996; Beatty, Ramesh, and Weber, 2002).[8] Both the reputation cost and contracting mechanism help to keep borrowers at the committed level of conservatism.

Prior literature shows that managers have incentives to manipulate accounting numbers to avoid covenant violations (DeFond and Jiambalvo, 1994; Sweeney, 1994). I acknowledge that such opportunistic behavior of management potentially works against H2. Rational lenders should be able to factor the possibility of manipulation into interest rates. The reduction in interest rates for conservatism should be higher if borrowers/managers can commit not to engage in any accounting manipulation.

[8] Fixed GAAP refers to provisions that ensure that the terms of the contract will be unaffected by future mandatory and/or voluntary accounting method changes (Mohrman, 1996).

To address the fourth assumption, I argue that there exists variation in the level of conservatism due to the cost of conservatism. First, conservative firms are more likely to violate their covenants, and the costs associated with covenant violations are economically significant. Beneish and Press (1993) document that "default and renegotiation costs reflected in stock prices represent an average of 1.4% of the market value of equity." Second, conservative earnings understate net assets by recording economic losses more quickly than gains. As a result, conservative earnings are more likely to result in a loss or a decrease in earnings in the year of economic losses. Recent evidence shows that the market rewards firms for gains or increases in earnings but severely punishes those firms for losses or decreases in earnings (Barth, Elliott, and Finn, 1999; Bartov, Givoly, and Hayn, 2001). Third, conservatism imposes costs on managers if their compensation is sensitive to accounting choices or if managers believe there might be adverse consequences to their choices in the labor market. With unclear economic significance, the last two costs affect managers' decisions as long as they believe the costs exist. Envisioning various cost structures, I expect to observe a wide range of conservatism that satisfies the demand of lenders for conservatism to various degrees, leading to cross-sectional variation in the reduction of interest rates.

4. Data and research design

4.1. Measures of conservatism

Following the empirical definition of asymmetric verification requirement, I measure the level of conservatism by the ranks of the following four measures, two of which I derive from Basu (1997) and two from Givoly and Hayn (2000).

The first measure of conservatism is the relative sensitivity of earnings to bad news compared to good news: $\frac{\beta_{0i} + \beta_{1i}}{\beta_{0i}}$ from the firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$ (Basu, 1997), where E_{it} is the earnings per share (Compustat data 58) of firm i in fiscal year t, P_{it-1} is the price per share of firm i at the beginning of fiscal year t, R_{it} is the twelve-month return of firm i ending three months after the end of fiscal year t, and DR_{it} is a dummy variable equal to 1 if $R_{it} < 0$ and 0 otherwise. Under the asymmetric verification requirement, where bad news has a lower verification standard, bad news should be reflected in earnings in a more timely manner than good news. If stock returns summarize the news arrival and positive (negative) returns indicate economic gains (losses) over a specific time period, then earnings of a conservative firm should track negative returns more than positive returns. In an earnings-returns regression, a positive coefficient on the interaction term (negative return dummy interact with the return), β_{1i}, indicates that earnings are more sensitive to bad news (negative returns) than good news (positive returns). To control for the variation in the sensitivity of earnings to good news, I use the relative coefficient $\frac{\beta_{0i} + \beta_{1i}}{\beta_{0i}}$ to measure the degree of conservatism: firm conservatism increases in the magnitude of this ratio.

The second measure of conservatism is the relative explanatory power of bad news compared to good news: R^2 (bad news) / R^2 (good news) of the same regression above. I include this measure to control for the difference in the variance of negative vs. positive returns. Since returns are bounded below, negative returns have a lower variance than positive returns. In an earnings-returns regression, $R^2 = \frac{\text{cov}(E_{it}, R_{it})}{\text{var}(E_{it})\,\text{var}(R_{it})}$, where R_{it} could be positive or negative. The difference in the variance of positive and negative returns is taken care by the $\text{var}(R_{it})$ term in the relative R^2 measure.

The above two measures from Basu (1997) capture the essence of accounting conservatism, i.e., asymmetric verification requirement, which is exactly what lenders care about to reduce their default risk. A high verification standard for gains ensures the gains to be more reliable and less prone to manipulation than losses; at the same time, a low verification standard for losses gives lenders a timely signal of the default risk and a lower bound of the value of the collateral. However, Basu's measures have their limitations. The ability of Basu's measures to pick up aggregate conservatism is questionable, especially over short periods of time (Roychowdhury and Watts, 2004). Also, Basu's measures, when applied to individual firms, are potentially subject to considerable measurement error or a downward bias (Givoly, Hayn, and Natarajan, 2004). Therefore, I use another two earnings-based measures to ensure that the results are not driven by specific measures.

The third measure of conservatism is the time-series skewness of earnings (Compustat data172) relative to the skewness of cash flows (Givoly and Hayn, 2000)[9]. When bad news

[9] If Compustat data308 is available then cash flow equals to data 308. If data 308 is not available, then cash flows are equal to Funds from operations (data110) - Δcurrent assets (data4) - Δdebt (data34) + Δcurrent liabilities (data5)+ Δcash (data1).

requires a lower verification standard, it is usually capitalized into earnings, generating a large reduction in earnings and thus a negatively skewed earnings series.[10] Skewness of earnings also captures the asymmetric verification requirement as reflected in the characteristics of earnings, yet it does not rely on whether stock returns are a good proxy for economic gains or losses.

The fourth measure of conservatism is the signed accumulation of nonoperating accruals deflated by accumulated total assets (Givoly and Hayn, 2000) [11] The accumulation of nonoperating accruals summarizes the actual recording of bad news through accruals. Examples of nonoperating accruals where the bad news is capitalized include restructuring charges and asset write-downs.

The problem with these two earnings-based measures is that while conservative reporting leads to negatively skewed earnings and the accumulation of negative nonoperating accruals, the converse may not hold - negatively skewed earnings and accumulation of negative nonoperating accruals are also consistent with a "big bath," which is earnings manipulation rather than accounting conservatism. Note that although these two measures do not result from estimation, they are still sensitive to the time series available.

Figure 1 provides the timeline for the measures of conservatism as well as other main variables. As can be seen from Figure 1, I measure conservatism for the period up until the loan initiation. When lenders and borrowers negotiate the loan, they can only contract on the historical level of conservatism. I assume that after the loan initiation, firms cannot do either of the following: change their level of conservatism due to the lack of accounting slack or elect not

[10] See Appendix 3 for a simple simulation to quantify the intuition.

[11] Nonoperating accruals are defined as Total accruals – Operating accruals, where Total accruals = Net income (data172) + Depreciation (data14)) – Cash flow from operations(data308), or Total accruals = Net income(data172) + Depreciation(data14))- Funds from operations (data110) + Δcurrent assets (data4)+ Δdebt (data34) - Δcurrent liabilities (data5) - Δcash (data1) and Operating accruals = ΔAccounts receivable (data2) + ΔInventories (data3)+ ΔPrepaid expenses (data160) - ΔAccounts Payable (data70) - ΔTaxes Payable (data71).

to change their level of conservatism due to the reputation cost. I also assume that lenders may employ fixed GAAP in debt contracts to reduce the accounting slack. Under these two assumptions, if a borrower has been conservative before the loan initiation, this borrower is mostly likely to be conservative after the loan initiation and provide lenders a timely signal about the change in the default risk.

[Insert Figure 1 here]

In Appendix 4, I demonstrate the relation between Basu's measures of conservatism and the two earnings measures of conservatism. The empirical evidence in Appendix 4 provides some assurance that the four measures are evaluating a similar underlying construct. Nevertheless, the empirical results on all four measures still need to be interpreted with the pros and cons in mind.

4.2. Sample selection

Table 1 summarizes the sample selection process. I start from the CRSP universe in year 1999 and 2000. The choice of 1999 and 2000 yields both a bounded five-year window (1999 to 2003) over which to search for covenant violations and sufficient room (1994 to 1999) to search for original debt contracts. To provide a powerful test on whether the likelihood of covenant violations increases in conservatism, I require that the sample firms experience at least one negative shock, defined as a significant price drop. Specifically, I extract from CRSP 4,339 firms with at least one monthly return less than –30% during 1999 and 2000. The choice of -30% as the cutoff point yields those firms with one or more monthly returns that are approximately two standard deviations lower than the mean.[12]

[12] The mean and standard deviation of all available monthly returns on CRSP are 0.7% and 15%, respectively.

To avoid including firms with no debt or immaterial debt, I exclude firms with long-term debt of less than 10% of total assets, yielding a sample of 1,786 firms. The sample is further reduced to 515 firms after I require at least seven years of earnings and returns data prior to the shock to calculate firm-specific measures of conservatism. Then I manually collect from firms' 10K, 10Q, and 8K filings in Lexis-Nexis information about whether and when these firms violated their financial covenants after the negative shock(s).[13]

I obtain loan information, including covenants, from SDC, Lexis-Nexis and 10k Wizard.[14] To identify the original debt contract, I require all contracts to start before the negative shock and span the covenant violations for violators. The sample used to test H1a consists of 327 firms, among which 98 firms disclose violations of financial covenants subsequent to the shock(s). To test H1a using $Consv\_R^2$, which requires at least three positive or negative returns to run the regression separately for positive and negative return periods, I exclude 18 firms with less than three positive or negative returns. Test of H1b is based on 279 firms whose covenant violation dates can be identified. Again, to test H1b using $Consv\_R^2$, I exclude 13 firms without enough data to run the regression separately for positive and negative return periods. Test of H2 is based on 314 firms, a sub-sample of the 327 firms, whose initial spread is available. To test H2 using $Consv\_R^2$, I exclude 17 firms with less than three positive or negative returns.

[Insert Table 1 here]

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[13] I use search terms such as "covenant** w/5 violat***," "technical default," "default w/5 covenant*," "not comply w/5 covenant*," and "compl***** w/5 fail w/5 covenant*."

[14] Regulation S-K 601(b) (4) (ii) requires the disclosure of all instruments defining the rights of holders of long-term debt of the registrant and its consolidated subsidiaries with the exception of long-term debt less than 10% of total assets. See Appendix 2 for the detailed disclosure requirement by SEC. To find the covenants, I first run a search with keyword such as "covenant," "financial covenant," "negative covenant," "affirmative covenant," "credit agreement," etc. For those firms whose covenants I cannot locate by keyword search, I go to the Exhibit index contained in their 10K around year 1999 to look for the reference to the existence of any significant debt contract and then go to the referred report to find the contract.

4.3. Research design

4.3.1. Test of H1a

To test whether more conservative firms are more likely to violate their financial covenants (H1a), I estimate the following probit model:

$$Violate_i = \alpha_0 + \alpha_1 Consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 \Delta NW_i + \beta_6 \Delta Lev_i + \beta_7 Rating_i + \beta_8 Numcov_i + \beta_9 Escalate_i + \beta_{10} Otherdebt_i + \beta_{11} Loansize_i + \beta_{12} Month\_to\_maturity_i + \varepsilon_i . \quad (1a)$$

The dependent variable *Violate* equals one if the firm discloses a violation of financial covenants after the negative shock(s) and zero otherwise. H1a predicts that $\alpha_1 > 0$.

The treatment variable, i.e., level of conservatism *Consv*, is measured as one of the following: 1) the relative coefficient $\frac{\beta_{0i} + \beta_{1i}}{\beta_{0i}}$ from the firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$; 2) the relative explanatory power of bad news compared to good news: R^2 (bad news)/ R^2 (good news) from the same regression above; 3) the time-series skewness of earnings relative to the skewness of cash flows; and 4) the signed accumulation of nonoperating accruals deflated by accumulated total assets. The control variables are defined below.

Since the two Basu measures are from estimation of a reverse earnings-returns regression using time-series data, they are potentially noisy and measured with error. To avoid spurious inference from these noisy measures, I use the ranks of each measure instead of the magnitude in all the tests. And each measure is constructed so that a higher rank corresponds to a higher level of conservatism. To further mitigate the noise or measurement error in each single conservatism measure, I also combine these four measures into an aggregate summary measure of

conservatism for each firm. The aggregate conservatism measure is computed as the average rank of the four individual conservatism measures[15].

There are firm-specific and loan-specific variables that also affect the likelihood of covenant violations. The firm-specific variables include the size of the negative shock, the size, the leverage, the financial performance, and the credit worthiness of the firm. The loan-specific variables include the tightness of the covenants, the size of the loan and the maturity of the loan. Table 2 provides the definition of all the variables used in the tests.

[Insert Table 2 here]

The control variables are:

Cumret is the size of the negative shock(s) that a firm experienced during 1999 or 2000. As the covenant violation may be directly related to the shock, the larger the negative shock, the more likely a firm will violate its covenants. *Cumret* is measured as the magnitude of the negative return; the greater the measure, the less negative the return and the smaller the shock. If a firm experienced multiple shocks, *Cumret* is the buy-and-hold return of all the shocks.

Size is the size of the firm prior to the negative shock. A larger firm is usually stronger, able to negotiate looser terms in covenants, and able to build more accounting slack. Therefore, a bigger firm is less likely to violate its covenants, everything else equal. *Size* is measured as the natural log of the total assets (Compustat data6) of the borrower at the fiscal year end right before the negative shock.

Leverage is the leverage ratio of the firm prior to the negative shock. A highly levered firm might have more covenants and tighter covenants so that it is more likely to violate its covenants. However, a highly levered firm also bears a higher cost of covenant violations and may be more

[15] Leuz, Nanda & Wysocki (2003) uses the average rank of four individual earnings management measures to mitigate the noise or measurement error associated with the individual measures.

careful either not to violate its covenant or to obtain a waiver quicker. Therefore, it is a two-sided test. *Leverage* is measured as the long-term debt divided by total assets (data9/data6) of the borrower at the fiscal year end right before the negative shock.

ROA is the return on assets of the firm prior to the negative shock. A firm's ROA summarizes the firm's performance over a fiscal period. A firm with a higher *ROA* is financially sound and less likely to violate its covenants. *ROA* is measured as net income for the fiscal year divided by the total assets of the borrower at the fiscal year end before the shock (data172/data6).

ΔNW is the change in the net worth from the period of loan initiation to the period of the negative shock. I use this variable to capture the net worth covenant slack. An ideal measure of covenant slack is the difference between actual financial and covenant threshold for the most binding covenant. Due to the diversified nature of covenants and the customized definitions of covenants, such an ideal measure is not practical. To control for the covenant slack to some degree, I use the difference between the actual net worth prior to the shock and the actual net worth before loan initiation assuming that the actual net worth before the loan initiation is a good proxy for the net worth covenant threshold. The covenants are more likely to be looser for firms with an increased net worth from loan initiation than those with a decreased net worth. Therefore I predict a negative coefficient on this variable. ΔNW is measured as the net worth before the negative shock minus the net worth before the loan initiation, deflated by the net worth before the loan initiation.

ΔLev is the change in the long-term debt ratio from the period of loan initiation to the period of the negative shock. This is another variable to capture the covenant slack. The covenants are more likely to be more stringent for firms with an increased leverage ratio from loan initiation than those with a decreased one. This is because these firms are closer to their leverage ratio

threshold, ando because these firms have more debt and presumably more covenants. Therefore I predict a positive coefficient on this variable. ΔLev is measured as the leverage before the negative shock minus the leverage before the loan initiation, deflated by the leverage before the loan initiation.

Rating is the credit worthiness of the borrower. A firm's credit rating is a summary statistic offered by the rating agency to evaluate the overall default risk of a firm. The worse the rating, the more likely a firm will violate its covenants. *Rating* is measured as the actual S&P long-term debt rating from COMPSTAT when available. When the actual rating is not available, I calculate an imputed rating by estimating a regression of all available S&P ratings on firm size, leverage, ROA, loan size, and loan maturity and then applying the estimated coefficients to the loans whose actual rating is not available.[16] The Rating is measured right before the loan initiation to reflect the perceived risk of the new loan. The variable is constructed so that larger values of *Rating* correspond to worse credit worthiness.

Numcov is the number of covenants a firm is restricted by. The larger the number of financial covenants is there in the debt agreement, the more likely a firm will violate its covenants. Again, an ideal measure of the tightness of the covenants should be the distance between the actual financial number and the covenant threshold, for the most binding covenant. However, due to the diversified nature of financial covenants and the customized definition of covenants, such an ideal measure is difficult to calculate. *Numcov* is measured as the number of financial covenants in the original debt contract.

[16] The adjusted R^2 of the estimation regression is 44.9%. The imputed rating is calculated as 19.33+ 0 .23*loansize +0.0026*loanmonth-1.4*revolv-7.26*roa+2.57*lev-1.283*size.

Escalate is whether the covenant is escalating or not. An escalating covenant has a moving threshold over time, and usually becomes more binding over time.[17] A firm is more likely to violate an escalating covenant than a non-escalating one. *Escalate* is measured as a dichotomous variable equal to one if any covenant is escalating and zero otherwise.

Otherdebt is whether the same borrower has other outstanding loans. If a firm has multiple loan facilities, or other forms of debt financing, the firm potentially has other financial covenants and/or cross-default clause. Also a firm with other loans might have tighter covenants, and is therefore more likely to violate its covenants. *Otherdebt* is measured as a dichotomous variable equal to one if the same borrower has other loans and zero otherwise. The identification of other debt is the following: if the same borrower has other loan facilities outstanding covering approximately the period between1999 and 2003 in SDC, or if 10K, 10Q or 8K filings from Lexis-Nexis mentions other debt outstanding, then *Otherdebt* is one.

Loansize is the size of the loan relative to the size of the borrower. Lenders might impose closer monitoring and tighter covenants to larger loans relative to the size of the borrower. At the same time, the cost of covenant violation is higher for the borrower, and the borrower tries not to violate the covenants for larger loans. Therefore, it is a two-sided test as to the effect of loan size on the probability of covenant violations. *Loansize* is measured as the principal divided by the total assets of the borrower before the negative shock. Note that the principal for a revolving loan is the committed maximum credit line instead of the actual drawing from the credit line. There are two reasons for using the committed credit line: 1) Even though the interest rates only apply

[17] For example, the loan agreement entered on September 11, 1998 between Metatec Corporation and Bank One requires that the company, on a consolidated basis, shall maintain at all times a ratio of Funded Debt to EBITDA MINUS CAPEX of not more than the following: September 11, 1998 - June 30, 1999: 3.00 to 1.00; July 1, 1999 - December 31, 1999: 2.00 to 1.00; January 1, 2000 - Termination Date: 1.50 to 1.00.

to the used fund, a commitment fee is applied on the unused portion. 2) Covenants are written against the maximum commitment.

Month_to_maturity is the number of months between the negative shock and the maturity of the loan. A firm is more likely to violate its covenants if it has a longer effective period of covenants.

4.3.2 Test of H1b

H1b hypothesizes that more conservative firms violate their financial covenants sooner. In other words, H1b predicts that ceteris paribus, more conservative firms have a shorter duration until covenant violations than less conservative firms. The variable of interest therefore is the following. For violators, it is the duration from the negative shock to the covenant violation. For non-violators, it is the duration of the experiment (from the negative shock to the end of the search for covenant violations) or the duration of the loan (from the negative shock to the loan maturity date), whichever is shorter. Since the dependent variable is time, I use the hazard analysis which treats time explicitly.[18] Specifically, I estimate the widely used Cox proportional hazard model (Cox, 1972), where the hazard rate does not vary over time and the functional form of baseline hazard is not required.

The generic form for a Cox proportional hazard model is $\ln h(t) = \alpha(t) + \beta X$, where $h_i(t)$ represents the hazard, i.e., the instantaneous risk of an event, $\alpha(t)$ is the baseline hazard, and X represents the predictors for the event, time-constant or time-varying. Reorganizing the equation yields another form of the same model: $h(t) = e^{\alpha(t)} e^{\beta X} = h_0(t) e^{\beta X}$. An important feature

[18] Hazard analysis is also known as event history analysis, survival analysis, and duration time analysis. It originates from biostatistics and engineering. It concerns the survival until a non-reversible event occurs. Examples include death from cancer, or light bulb burnout. Explanatory variables for the event occurrence are often called covariates in the hazard analysis. An advantage of hazard model over OLS regression for cross-sectional data is its ability to use time-varying explanatory variables.

of the Cox proportional hazard model is that at any time, the ratios of the hazards of any two observations remain constant: $\frac{h_i(t)}{h_j(t)} = \frac{h_0(t)e^{\beta X_i}}{h_0(t)e^{\beta X_j}} = \frac{e^{\beta X_i}}{e^{\beta X_j}} = C$.

To test H1b, the hazard model is specified as

$$\ln h_i(t) = \alpha(t) + \alpha_1 Consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 \Delta NW_i + \beta_6 \Delta Lev_i + \beta_7 Rating_i + \beta_8 Numcov_i + \beta_9 Escalate_i + \beta_{10} Otherdebt_i + \beta_{11} Loansize_i + \beta_{12} Month\_to\_maturity_i + \varepsilon_i . \quad (1b)$$

where $h_i(t)$ represents the instantaneous risk of covenant violations, at time t for borrower i conditional on i surviving to time t, and $\alpha(t)$ is the baseline hazard. H1b predicts that $\alpha_1 > 0$, i.e., the hazard of covenant violations increases in the borrower's conservatism.

Compared to the probit regression, the hazard model uses the information in the timing of the covenant violations rather than just the occurrence of the violations, providing more insights about the interaction between conservatism and covenant violations. Compared to a regular OLS regression with the time to violation as the dependent variable, the hazard model corrects for the right-censoring problem, yielding unbiased estimates on the covariates.[19]

To test this hazard model, I identify the date of the first covenant violation after the negative shock(s). If the firm reports a covenant vilation, then I define a variable *Num_quarter* as the number of quarters within which the firm reports the covenant violation from the first negative shock. If the firm does not report covenant violation within the search period, I define *Num_quarter* as the number of quarters between the first negative shock and the maturity date, or between the first negative shock and the end of the sample period, i.e., May 31, 2003, whichever is shorter.

[19] Right censoring occurs when some observations may have an event after the data collection period.

4.3.3. Test of H2

To test whether the cost of debt decreases in the level of borrower conservatism (H2), I estimate the loan-specific OLS regression

$$Spread_i = \alpha_0 + \beta_1 Consv_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 Rating_i + \beta_6 Numcov_i + \beta_7 Escalate_i + \beta_8 Otherdebt_i + \beta_9 Loansize_i + \beta_{10} Loanmonth_i + \beta_{11} Revolver_i + \beta_{12} PP_i + \beta_{13} PP_i * Consv_i + \varepsilon_i . \quad (2)$$

The dependent variable is the initial LIBOR spread of each loan and the treatment variable is again the level of conservatism. H2 predicts that $\beta_1 < 0$.

In determining the price, lenders consider the firm-specific risk and loan-specific risk. I use *Size, Leverage, ROA, Rating* to proxy for firm-specific risk, where these variables are measured right before loan initiation. I use *Numcov, Escalate, Otherdebt, Loansize, Loanmonth, Revolver, PP* to proxy for the loan-specific risk. *Numcov, Escalate, Otherdebt, Loansize* are defined the same as in the probit regression above. *Loanmonth*, *Revolver* and *PP* are three new control variables I obtain from either SDC or 10K, 10Q or 8K filings that further describe the characteristics of the loan.

Loanmonth is the length of loan in months. The effect of loan maturity on loan pricing is an unsettled issue. There are two competing hypotheses: the tradeoff hypothesis and the credit quality hypothesis. Under the tradeoff hypothesis, lenders are willing to offer long-term loans to risky borrowers at higher spreads. Under the credit quality hypothesis, less risky borrowers signal their credit quality by taking long-term loans, suggesting a negative relation between spreads and maturity. Due to the offsetting effect of these two hypotheses, I do not predict the sign on the variable.

Revolver is a dichotomous variable equal to one for revolving loans and zero otherwise. There are two types of loans in the sample: revolving loans and term loans. For each firm, I

choose the revolving loan facility covering the most part of 1999 to 2003, if there is a revolving loan. If not, I take the term loan covering the similar period.

PP is a dichotomous variable equal to one for performance pricing loans and zero otherwise. Performance pricing has become a popular feature in corporate loans since the 1990s (Asquith, Beatty, and Weber, 2004). Under performance pricing, the cost of debt is directly tied to a pre-specified measure of the borrower's credit risk. As a result, the lender's risk is further reduced. It is still unknown whether the performance pricing and debt covenants are substitutes or complements. I include an indicator variable *PP* to tease out the effect of performance pricing on the cost of debt. I also include an interaction term *PP*consv* to provide additional evidence on how performance pricing affects the sensitivity of the cost of debt to conservatism.

5. Empirical results

This section is organized as follows. Section 5.1 provides the descriptive statistics and simple correlations among variables. Section 5.2 presents the test results for the covenant violation hypothesis (H1a and H1b) and the cost of debt hypothesis (H2). Section 5.3 provides six robustness checks.

5.1. Descriptive statistics and simple correlations

Table 3 reports descriptive statistics on the negative shock sample. In Table 3 Panel A, I present statistics on the magnitude of four measures of conservatism. However, I use the ranks of these four measures to test all hypotheses to avoid spurious inferences. I also use the average rank of the four ranks in all of the tests to reduce the reliance on individual measures and to mitigate the noise in individual measure.

[Insert Table 3 here]

Table 3 Panel A shows the mean, median, first quartile, third quartile, and standard deviation of the key variables. The average firm in the negative shock sample has total assets of $348.31 million, a long-term debt ratio of 33%, and an ROA of 2%. In contrast, the average firm on Compustat in fiscal year 1998 has total assets of $126.75 million, a long-term debt ratio of 10.4%, and an ROA of 1.1%. Compared to the average firm on Compustat, the average firm in my sample is slightly larger, more profitable and more levered. It is not surprising that my sample firms are more levered since I impose a 10% lower bound on the leverage ratio.

To reconcile the fact that the firms which experience an average of -54% loss in market capitalization in two years appear larger and more profitable than the Compustat population, I argue that and find evidence that accounting measures lag behind the stock returns. One year after the negative shock, the median size of my sample firms drops to $329.4 million, and the median ROA drops to 1.4%. Two years after the negative shock, the median size of my sample firms goes up to $355.45 million, and the median ROA drops to 0.57%. Three years after the negative shock, the median size of my sample firms goes up to $395.56 million, and the median ROA further drops to -1.1%. It seems that ROA catches up with the shock slowly in several years.

On average, the loan in my sample has a principal of $50 million, about 17% of the average borrower's total assets. Note that in the case of a revolving loan, the principal is not necessarily the amount a borrower draws down. The average maturity of the loans in the sample is four years, longer than the average maturity of the loans in the SDC database. The average spread of the loans in the sample is 150 basis points over LIBOR, which is 45 basis points higher than the

average spread of the loans in SDC. The higher spread indicates that my sample loans might be riskier than the loans on SDC.

The variable *month_to_maturity* has a median of 23 months, indicating that on average the negative shock occurs in the middle of the loan maturity, which has a median of 48 months. On average it takes a violator five quarters to disclose a covenant violation.

Table 3 Panel B lists the industry composition of the negative shock sample. The sample firms cover all industries, with 29.7% in the Plastic, Glass and Metal industry, 18.4% in the Wholesale and Retail industry, and 15.9% in the Computers and Electronics Industry.

Table 3 Panel C presents the Pearson correlation matrix of the variables. Table 3 Panel C reveals positive correlations between each measure of conservatism and the likelihood of covenant violations, indicating that more conservative firms are more likely to violate their covenants. In addition, the likelihood of covenant violation is positively correlated with the size of the shock and the tightness of the covenants, and it is negatively correlated with the size of the borrower and the debt rating of the borrower.

Some measures of conservatism correlate with others significantly, and some do not. For example, *Coeff_rank* is significantly correlated with R^2*_rank* and *Negskew_rank*, and *Negskew_rank* is significantly correlated with *Accrual_rank*. However, the correlations between *Coeff_rank* and *Accrual_rank*, between *Negskew_rank* and R^2*_rank*, and between *Accrual_rank* and R^2*_rank* are not significant. I have three reasons to still believe that these four measures capture a similar underlying construct. First of all, these four measures fall into two groups, one group depending on the earnings-returns relation and the other depending on the earnings properties. The two measures under each group significantly correlate with each other. Second, even though the individual measures in each group do not correlate with all measures in the other

group, the average rank of each group is significantly correlated with the other. Third, Appendix 4 shows that firms with negatively skewed earnings report bad news more timely. Also firms with negative accumulated non-operating accruals also report bad news more timely. The evidence in Appendix 4 provides some reassurance that these four measures are in line with each other, at least at a group level.

The initial spread is significantly negatively correlated with three measures of conservatism: *R^2_rank*, *Negskew_rank*, and *Accrual_rank*. In terms of borrower characteristics, the initial spread decreases in ROA and firm size and increases in leverage and debt rating. In terms of loan characteristics, the initial spread decreases in loan maturity and increases in the number of covenant items and escalating covenants.

In sum, descriptive statistics provide preliminary evidence that more conservative firms are more likely to violate their covenants after a negative shock and more conservative firms enjoy a lower cost of debt. These findings are consistent with the predictions in H1 and H2, but a more definitive analysis requires a multivariate regression approach.

5.2. Multivariate testing results

Table 4 presents a probit regression of the likelihood of covenant violations on the level of conservatism and other control variables (Eq. (1a)). The five columns only differ in the proxy for conservatism. For all five measures (*Coeff_rank*, *R^2_rank*, *Negskew_rank*, *Accrual_rank*, *Avgrank*), the coefficients on conservatism are significantly positive, indicating that more conservative firms are more likely to violate their covenants after a negative shock. As to the

economic significance of the result, the firms in the third quartile of the relative R^2 ($Consv\_R^2$) are 9.89% more likely to violate covenants than the firms in the first quartile.[20]

This result obtains after controlling for other factors that affect the likelihood of covenant violations. Those factors include the size of the shock, the tightness of covenants (change in net worth, change in leverage, number of covenants, escalating covenants, the existence of other debt), size, leverage, profitability, debt rating of the borrower, loan size, and loan maturity. Table 4 shows that larger negative shocks, more covenant items, smaller size of the borrower, and smaller loan sizes are associated with a greater likelihood of covenant violation. The pseudo R^2 of the probit regression is 12.2% when conservatism is measured by the average rank of the four measures.

Table 4 therefore provides evidence that conservatism benefits lenders by providing a timely signal of the increased default risk as indicated by covenant violations. Lenders value the timely signal of the increased default risk because they can either take action to reduce their default risk or require compensation for the increased default risk. To entertain the possibility that violators report less conservatively when approaching violations to avoid the associated violation cost, I argue the following. First, lenders have a contracting mechanism, such as fixed GAAP, to maintain conservatism at a certain level. Second, borrowers would like to sustain the reputation of being conservative to facilitate future debt financing. Third, accounting changes to avoid covenant violations can be detected. Nevertheless, I acknowledge that possible earnings management to avoid covenant violations works against finding the results summarized in Table 4.

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[20] The economic significance is evaluated by the marginal probability, calculated as the parameter estimate multiplied by a standardization factor $\frac{1}{\sqrt{2\pi}} e^{-\frac{(\alpha+X\beta)}{2}}$, where $\alpha + X\beta$ is the predicted probabilities from the probit regression.

[Insert Table 4 here]

Taking the prediction of H1a one step further, I predict that more conservative borrowers violate their financial covenants sooner (H1b). Since the variable of interest is the time until "failure", i.e., covenant violations, I use the hazard model approach. Table 5 reports the results from the hazard model estimation. The coefficients on *Negskew_rank* and *Accrual_rank* are positive, meaning that the hazard of a covenant violation increases with these two measures of conservatism. In this hazard regression, the only significant control variable is borrower size; larger borrowers have smaller hazard of violating their covenants.

The evidence on H1b is not particularly strong in the sense that the two other measures of conservatism fail to yield significant results. One possible reason for the weak results is that the dependent variable *Num_quarter* is measured with noise; a firm only discloses the violation at the fiscal quarter-end while it may have violated its covenants at the beginning of the fiscal quarter.

[Insert Table 5 here]

Table 6 provides evidence on whether lenders lower the cost of debt to reward conservative borrowers (H2). I find that the coefficients are significantly negative for all four measures of conservatism. For example, the coefficient on R^2*_rank* is -0.23, significant at the 5% level. Economically, this coefficient means that the cost of debt is 38 basis points lower for the firms in the first quartile of R^2*_rank* than the firms in the third quartile.[21] Meanwhile, the initial spread for loans with performance pricing is lower than that of loans without performance pricing, because performance pricing reduces credit risk by linking the spread to a pre-specified credit risk measure. And the relation between the loan spread and the level of conservatism is marginally

[21] The economic significance has to be interpreted with caution. The average initial spread of the negative shock sample is 150 basis points, 45 basis points higher than the average initial spread of all loans on SDC.

less negative for loans with performance pricing, indicated by positive coefficients on *PP*consv* for the three measures of conservatism *Coeff_rank, Negskew_rank*, and *Accrual_rank* at the 5%, 10%, and 10% level respectively. Therefore, there is potentially some substitutability between performance pricing and the debt covenants, in the sense that lenders do not lower the interest rate for more conservative firms as much if there is performance pricing in the debt contract.

For the firm-specific control variables, the significantly positive coefficient on credit ratings indicates that borrowers with better ratings enjoy a lower cost of debt. For the loan-specific control variables, loans with escalating covenants usually have a higher cost of debt and that revolving loans have a lower cost of debt.

[Insert Table 6 here]

Collectively, the evidence from the negative shock sample demonstrates a comprehensive picture of the efficient contracting role that conservatism plays in the lending process. More conservative borrowers are more likely to violate their financial covenants, thereby providing lenders a more timely signal of the increase in default risk; in return, lenders reward more conservative borrowers with a lower interest rate up front. Performance pricing, the new contracting feature, complicates the picture by further reducing the credit risk of lenders and the sensitivity of loan spreads to the level of accounting conservatism.

5.3. Robustness checks

5.3.1. Out-of-sample evidence on whether conservatism reduces the cost of debt

One caveat with respect to the negative shock sample is the generalizability of the inference. To provide a robustness check on the result from the negative shock sample, I use a larger sample to test whether conservatism reduces the cost of debt (H2).[22]

Table 7 provides the sample selection process. I start from all the syndicated loans on SDC from 1994 to 2003. I argue that conservatism benefits lenders through timely covenant violations that provide lenders a timely signal of default. Therefore I exclude loans without any financial covenants. Out of 72,067 loan issues on SDC from 1994 to 2003, 8,055 issues have financial covenants.[23] The sample size drops to 6,279 issues after I exclude issues without initial spread over LIBOR. After imposing the data requirement on earnings and returns series, I obtain the final SDC sample of 1,974 loans representing 1,156 borrowers.

[Insert Table 7 here]

Figure 2 presents the distribution of major types of financial covenants in the sample. As can be seen from Figure 2, the net worth and the interest coverage ratios are the two most frequently used financial covenants. Out of 13,227 loan facilities with covenants, 6,113 (46.2%) loans have net worth covenants and 6,109 (46.2%) loans have interest coverage covenants.

[Insert Figure 2 here]

Table 8 provides the descriptive statistics, industry composition, and correlations of the SDC sample. Table 8 Panel A indicates that on average, lenders charge 125 basis points over LIBOR

[22] The SDC sample provides an opportunity to test the relation between the cost of debt and the level of conservatism out of sample. However, I cannot replicate the violation test on the SDC sample due to the lack of covenant violation data.

[23] SDC starts offering detailed information on debt covenants as of 1994. Also, credit agreements prior to 1994 are not available on Lexis-Nexis or 10K Wizard.

on loan issues from 1994 to 2003, which is lower than the initial spread of the negative shock sample. It shows that loan issues in the negative shock sample might be riskier than the SDC sample. Table 8 Panel A also reveals that borrowers in SDC sample are relatively larger and more profitable than those in the negative shock sample and that loans in SDC sample have longer maturity than those in the negative shock sample.

Table 8 Panel B shows that the SDC sample has a similar industry composition as the negative shock sample: 23.7% of the issues in the Plastic, Glass and Metal industry, 15.6% in the Wholesale and Retail industry, and 10.4% in the Textile, Furniture, Printing & Publishing industry. The two samples only differ in that the Computer and Electronics industry is more represented in the negative shock sample than in the SDC sample. Due to the economic downturn in the Computer & Electronics industry, it is not surprising that more firms in that industry incur a negative shock during 1999 and 2000. Since the Computer & Electronics industry does not dominate the negative shock sample, I do not foresee any bias induced by this difference on the tests using the negative shock sample.

Table 8 Panel C, the correlation table, indicates that the initial spread is negatively correlated with all four measures of conservatism. Also, the spread is lower for borrowers with a larger size, a lower leverage, a higher ROA, and a better debt rating. The spread is also lower for revolving loans, shorter loans, and loans with performance pricing terms. In addition, high spread loans come with more financial covenants and escalating covenants; therefore, the spread and covenants seem to be compliments rather than substitutes.

The correlation table also indicates that the number of financial covenants is higher for borrowers or loans with the following characteristics: larger borrowers, less levered borrowers, borrowers with better ratings, shorter loans, smaller loans, revolving loans, and loans with

performance pricing. At the same time, performance pricing appears more often for borrowers or loans with the following characteristics: larger borrowers, borrowers with higher ROAs, borrowers with better ratings, longer loans, larger loans, and revolving loans.

[Insert Table 8 here]

Table 9 provides the multivariate regression of loan spread on conservatism and other controls. Table 9 illustrates a significantly negative relation between the loan spread and the level of borrower conservatism, which indicates that conservatism reduces the cost of debt in general. These findings are consistent with the findings from the negative shock sample. Additionally, Table 9 shows that tighter covenants usually accompany a higher interest rate, as evidenced by the significantly positive relation between *Numcov* and *Spread*, and between *Escalate* and *Spread*. This indicates that lenders use both a higher required rate of return and tighter covenants to reduce their credit risk. Consistent with the finding from the negative shock sample, worse debt ratings and higher leverage ratios increase the interest rate. Factors that decrease the interest rate are high ROA, larger loan size, and longer loan maturity.

[Insert Table 9 here]

5.3.2. The relation between the cost of debt and conservatism after controlling for other earnings attributes

Francis et al. (2004) document that each of the seven accounting attributes (quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism) is significantly related to the cost of equity capital. However, after adding all seven attributes to the regression, conservatism does not reduce the cost of equity capital. Their result is not surprising because shareholders do not value accounting conservatism as much as debtholders do. I predict that out of the seven accounting attributes, conservatism, smoothness, and persistence are

important to lenders in determining the cost of debt. I conjecture that lenders value conservatism because conservative financials provide a timely signal of changes in default risk and mitigate the downside risk of lenders. I also argue that lenders value smoothness, persistence, and predictability of earnings for the following reasons. Persistent and/or predictable earnings series facilitate a steady stream of future interest payments and lead to a lower default risk. Smooth earnings series correlate with a low risk profile. I run the following regression to test the effect of all seven earnings attributes on the cost of debt:

$$Spread_i = \alpha_0 + \beta_1 Consv_i + \beta_2 Quality_i + \beta_3 Persistence_i + \beta_3 Predictability_i + \beta_4 Smoothness_i + \beta_5 Timeliness_i + \beta_6 \text{Relevance}_i + \beta_7 Size_i + \beta_8 Leverage_i + \beta_9 ROA_i + \beta_{10} Rating_i + \beta_{11} Numcov_i + \beta_{12} Escalate_i + \beta_{13} Otherdebt_i + \beta_{14} Loansize_i + \beta_{15} Loanmonth_i + \beta_{16} Revolver_i + \beta_{17} PP_i + \beta_{18} PP_i * Consv_i + \varepsilon_i \quad (3)$$

Earnings quality is measured as the mapping of current accruals into cash flows of the current period, the previous period, and the next period, as in Dechow and Dichev (2002). Specifically, I measure earnings quality as the negative standard deviation of the residuals, i.e., $-\sigma(\hat{v}_{jt})$ from the regression $\frac{TCA_{jt}}{Assets_{jt}} = \alpha_{0,j} + \alpha_{1,j}\frac{CFO_{j,t-1}}{Assets_{j,t}} + \alpha_{2,j}\frac{CFO_{j,t}}{Assets_{j,t}} + \alpha_{3,j}\frac{CFO_{j,t+1}}{Assets_{j,t}} + v_{j,t}$. TCA_{jt} is firm j's total current accruals in year t. Specifically, $TCA_{jt} = \Delta CA_{jt} - \Delta CL_{jt} - \Delta Cash_{jt} + \Delta STDDEBT_{jt}$.[24] $Assets_{jt}$ is firm j's average total assets in year t and t-1. $CFO_{j,t}$ is defined in footnote 14. If the standard deviation of the residuals from this regression is high, it means that accruals do not map into cash flows very well, and the earnings quality is low.

[24] ΔCA_{jt}, change in current assets (Compustat data 4). ΔCL_{jt}, change in current liabilities (Compustat data 5). $\Delta Cash_{jt}$, change in cash (Compustat data 1). $\Delta STDDEBT_{jt}$, change in debt in current liabilities (Compustat data 34).

Earnings persistence is measured as the slope coefficient $\hat{\phi}_{1,j}$ from an autoregressive model for earnings: $E_{j,t} = \phi_{0,j} + \phi_{1,j} E_{j,t-1} + \nu_{j,t}$. $E_{j,t}$ is earnings before extraordinary items (Compustat data 18). If the auto-coefficient from this regression is high, it means that earnings are persistent.

Earnings predictability is measured as the negative standard deviation of the residuals, i.e., $-\sigma(\hat{v}_{jt})$ from the same autoregressive regression above: $E_{j,t} = \phi_{0,j} + \phi_{1,j} E_{j,t-1} + \nu_{j,t}$. If the standard deviation of the residuals from this regression is high, it means that earnings are less predictable.

Earnings smoothness is measured as the negative standard deviation of net income before extraordinary items (Compustat data 18) divided by the standard deviation of cash flows from operations, i.e., $-\sigma(NI_{j,t}) / \sigma(CFO_{j,t})$. If the standard deviation of earnings is high relative to the standard deviation of cash flows, it means that earnings are not smooth.

Earnings timeliness is measured as the adjusted R^2 from the Basu's regression: $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$. If the R^2 from an earnings-returns regression is high, it means that earnings are timely in reflecting the information in returns.

Earnings value relevance is measured as the R^2 from a returns-earnings regression: $R_{j,t} = \lambda_{0,j} + \lambda_{1,j} NI_{j,t} + \lambda_{2,j} \Delta NI_{j,t} + \varepsilon_{j,t}$. $NI_{j,t}$ is firm *j*'s earnings before extraordinary items in year *t* (Compustat data 58), scaled by price at the end of year *t-1*. If the R^2 from the returns-earnings regression is high, it means that earnings are value-relevant.

All seven earnings attributes are measured using all available time-series up until the loan initiation. All measures are adjusted so that the same ordering of values across each attribute is preserved. Also, to avoid spurious inference from the measurement error and noise, I use the rank of each measure in the regression instead of the magnitude.

Table 9 shows that out of the seven earnings attributes, conservatism, persistence, and smoothness reduce the cost of debt incrementally to each other.[25] This highlights the incremental importance of accounting conservatism above and beyond the other six earnings attributes. The evidence from this test indicates that lenders prefer a set of earnings attributes that reduce their downside risk.

5.3.3. Market-to-book as another measure of conservatism

Market-to-book is a commonly used measure of conservatism in the accounting literature (Beaver & Ryan, 2000; Ahmed et al., 2002; Pae et al., 2005). It originates from Felthan & Ohlson (1995), which defines a firm to be conservative if the expected difference between market value and book value at time $t+\tau$ is greater than zero as τ approaches infinity. Mathematically, $E_t[\widetilde{g}_{t+\tau}] > 0$ as $\tau \to \infty$, where $g_t = P_t - bv_t$. It follows naturally to measure conservatism as the market-to-book ratio, and a market-to-book ratio larger than one indicates conservatism.

Market-to-book captures the understatement of net assets relative to the market value, which equals the sum of separable net assets and rents. An ideal proxy of conservatism should measure the understatement of net assets relative to the value of separable net assets, since accounting is not designed to record rents. In this sense, market-to-book is a noisy measure of conservatism. More importantly, rents cannot reduce a lender's downside risk in liquidation; therefore, lenders do not value a high level of conservatism resulting only from high rents.

Based on the above reasons, I do not use market-to-book in my main tests. However, I use market-to-book as an additional proxy for conservatism in the robustness check, to reconcile with the existing literature. To be consistent with the main tests, I test H1 & H2 using the rank of

[25] Earnings' quality reduces the cost of debt in the simple correlation table (not tabulated). However, earnings quality loses its significance in the multiple regression when all other attributes are included.

market-to-book as the proxy for conservatism. Market-to-book is calculated as the market value of equity divided by the book value of equity before loan initiation (Compustat data199*data25/data60). I do not assign a predicted sign for market-to-book in all three regressions, because the rents in the market value make market-to-book less predictive of the covenant violation, and lenders do not value higher conservatism only resulting from the rents.

Table 10 Panel A presents the probit regression, hazard model regression, and OLS regression to test H1a, H1b, and H2 correspondingly. *Mb_rank* is not significant in the probit regression, indicating that borrowers with higher market-to-book ratio are no more likely to violate covenants than those with lower market-to-book. *Mb_rank* is marginally significant in the hazard model regression with a negative sign, indicating that borrowers with higher market-to-book have a lower instantaneous risk of violating covenants. *Mb_rank* is also marginally significant in the spread regression with a negative sign, indicating that higher market-to-book firms have a lower cost of debt. Other than market-to-book proxying for conservatism, an alternative explanation is that market-to-book proxies for risk, and higher market-to-book borrowers have lower risk, which translates into a lower interest rate.

Existing literature sometimes classifies conservatism into balance-sheet conservatism and income-statement conservatism. [26] Balance-sheet conservatism refers to the cumulative understatement of net assets in the balance sheet, and income-statement conservatism refers to the asymmetric treatment of bad news and good news. While my paper does not intend to distinguish between the two types of conservatism, my four measures especially the two measures from Basu (1997) capture more of the income-statement conservatism than the

[26] There is another classification of conservatism: *ex-ante* (or news-independent) conservatism and *ex-post* (or news-dependent) conservatism. R&D expensing is one example of ex-ante conservatism, where the expensing is mandated by GAAP and does not depend on the news arrival. Basu's asymmetric timeliness falls into the ex-post conservatism category. One example of the *ex post* conservatism is writing down inventory to record the bad news associated with the value of inventory.

balance-sheet conservatism. It is argued that balance-sheet conservatism negatively correlates with income-statement conservatism since the understatement of net assets in the early periods leads to the overstatement of earnings in later periods due to the understatement of future expenses. To address this negative correlation, I include market-to-book as a proxy for balance-sheet conservatism to test the robustness of the results.

Table 10 Panel B shows that after including market-to-book as a control for the balance sheet conservatism, *Coeff_rank*, R^2*_rank*, *Negskew_rank*, *Accrual_rank*, and *Avgrank* are still significant in explaining the likelihood of covenant violation. And market-to-book does not seem to affect covenant violation at all.

Table 10 Panel C shows that both the original four measures of conservatism and market-to-book explain the spread. Comparing Table 6 to Table 10 Panel C, I find that including market-to-book in the regression only reduces the significance of the original four measures slightly. It seems that lenders reward both balance-sheet conservatism and income-statement conservatism.

[Insert Table 10 here]

5.3.4. Requirement of seven years of data to calculate the measures of conservatism

Increasing the time requirement on the time series reduces the noise in the measure but reduces the sample size at the same time. I try series ranges of both five years and nine years and the main results remain unchanged.

5.3.5. Use of initial spread as the measure of the cost of debt

In my test of H2 using the negative shock sample, the dependent variable Spread is the initial spread of each loan, not including any fees. The all-in-drawn spread offered by SDC actually includes all the fees associated with each loan; however, for the negative shock sample, I do not have the all-in-drawn spread for the manually collected loans. To provide evidence on the impact

of conservatism on a different measure of spread, I use the all-in-drawn spread from SDC to test whether conservatism reduces the cost of debt; the results remain the same. In addition, in the case of performance pricing loans, I use both the maximum spread and the minimum spread as the dependent variable and find that a high level of conservatism corresponds to both a lower maximum spread and a lower minimum spread. However, conservatism does not relate to the performance pricing spread (maximum minus minimum) at all.

5.3.6. The intertemporal variation in the level of conservatism

To test H1 and H2 in the negative shock sample, I measure conservatism up until the loan initiation. I also test H1 and H2 measuring conservatism up until the covenant violations and the results remained unchanged.

To test H2 using the SDC sample, I measure conservatism as the historical level of conservatism before the loan initiation. The use of the historical level of conservatism assumes no change in the accounting policy after the facility is in place. If borrowers change their accounting policy when the benefit from changing exceeds the cost of doing so, the historical level of conservatism may understate or overstate the actual level. Assuming lenders have perfect foresight regarding all incentives after the loan is in place, I use all available data to calculate the measures of conservatism rather than only the earnings and returns before the loan initiation. I compare the new measures with the historical measures and find that there are no significant differences for all four measures of conservatism. With the new measures of conservatism calculated using all the data available, all the results remain unchanged.

6. Conclusions

This paper investigates the contracting benefits of accounting conservatism in the debt contracting process. I find that the likelihood of covenant violations after negative shock(s) increases in borrower conservatism, and more conservative borrowers violate covenants sooner. I also find that lenders reduce the cost of debt to conservative borrowers. The more rapid violation of covenants and lower up-front cost of debt depict an efficient contracting picture; conservatism benefits both lenders and borrowers, and thus it likely enhances the efficiency of the debt contracting process.

I find some evidence that performance pricing, a popular feature of recent debt contracts, interacts with the sensitivity of the cost of debt to the level of conservatism. That is, for loans without performance pricing, conservatism reduces the cost of debt more significantly. The initial spreads of loans with performance pricing are already lower than those of loans without performance pricing; since this reflects the increased flexibility in adjusting interest rates according to changes in default risk, it is reasonable that the spreads are not further reduced by a higher level of conservatism.

Additional tests reveal that out of seven earnings attributes (quality, persistence, predictability, smoothness, timeliness, relevance, and conservatism), conservatism, in addition to persistence and smoothness, incrementally reduces the cost of debt. In contrast to Francis et al.'s (2004) finding that conservatism does not reduce the cost of equity, the evidence in my paper shows that lenders have a different demand than shareholders regarding financial reports.

I emphasize that the debt examined in this paper is restricted to bank loans, rather than public debt or private placements. Therefore, the results herein may not be generalizable to all forms of debt. However, since accounting conservatism works directly through financial covenants and

covenants are few in public debt and private placements, I believe that bank loans are the appropriate sample to test the role of conservatism. I conclude that conservatism benefits both lenders and borrowers when accounting numbers are used in covenants.

One potential avenue for future research is to examine the factors that determine the optimal level of conservatism for each firm. In this paper, I document one benefit that conservatism generates, namely, the reduction in the cost of debt. According to positive accounting theory, conservatism is also likely to reduce both litigation costs and scrutiny from the tax authorities. At the same time, conservatism is associated with costs. Understanding the determinants of conservatism will help us understand the benefit-cost trade-offs that firms face in determining their accounting policies.

Appendix 1. Examples of the protective actions lenders take after covenant violations.

1.1. Protective actions written in the debt contract

1) Conseco Inc. 10-k Exhibit 10, 2003

"Default Interest. ..., effective immediately upon the occurrence of an Event of Default, and for as long thereafter as such Event of Default shall be continuing, the principal balance of all Loans and the amount of all other Obligations shall bear interest at a rate which is 2.00% per annum in excess of the rate of interest applicable to such Loans or such other Obligations from time to time."

2) Oriole Homes Corp. 10-k Exhibit 10, 1999

"Upon occurrence of any Event of Default, the Loan shall, at the option of Bank and without any further notice or demand not expressly required herein, become immediately due and payable, and shall thereafter bear interest at the Default Rate, and at all times thereafter Bank shall have all rights, privileges, powers and remedies provided by law or equity and this agreement, the Mortgage and any other Loan Document, and which it may otherwise have against the Borrower, the Collateral, or otherwise."

"Default Rate means a rate of interest that is five percent (5%) per annum in excess of the rate of interest otherwise applicable to Line Advances."

2.2. Protective actions taken by lenders after a violation of financial covenants

AEP Industries Inc. 10-k, 1998

"In October 1997, the Company received a waiver relating to certain financial ratios contained in the Credit Agreement and entered into an amendment to the Credit Agreement (the "Amendment"). The principle effects of the Amendment relate to the interest rate applicable to the Credit Agreement. The interest rate margins which determine the interest rates applicable to the loans under the Credit Agreement increased as follows: the margin applicable to Base Rate loans (formerly 0%) increased to a range from 0% to .75% and the margin applicable to LIBOR Rate loans (formerly .25% to .625%) increased to a range from .45% to 1.75%. "

Appendix 2. The disclosure requirement of debt contracts by the SEC.

Regulation S-K item 601 (b) (4): *Instruments Defining the Rights of Security Holders, Including Indentures.*

(i) All instruments defining the rights of holders of the equity or debt securities being registered including, where applicable, the relevant portion of the articles of incorporation or by-laws of the registrant.

(ii) Except as set forth in (iii) below, for filings on Forms S-1, S-4, S-11, S-14 and F-4 under the Securities Act and Form 10, Form 10-SB, Form 10-K and Form 10KSB under the Exchange Act, all instruments defining the rights of holders of long-term debt of the registrant and its consolidated subsidiaries and for any of its unconsolidated subsidiaries for which financial statements are required to be filed.

(iii) Where the instrument defines the rights of holders of long-term debt of the registrant and its consolidated subsidiaries and for any of its unconsolidated subsidiaries for which financial statements are required to be filed, there need not be filed:

(A) any instrument with respect to long-term debt not being registered if the total amount of securities authorized thereunder does not exceed 10 percent of the total assets of the registrant and its subsidiaries on a consolidated basis and if there is filed an agreement to furnish a copy of such agreement to the Commission upon request;

(B) any instrument with respect to any class of securities if appropriate steps to assure the redemption or retirement of such class will be taken prior to or upon delivery by the registrant of the securities being registered; or

(C) copies of instruments evidencing scrip certificates for fractions of shares.

(iv) If any of the securities being registered are, or will be, issued under an indenture to be qualified under the Trust Indenture Act, the copy of such indenture which is filed as an exhibit shall include or be accompanied by:
(A) a reasonably itemized and informative table of contents; and
(B) a cross-reference sheet showing the location in the indenture of the provisions inserted pursuant to Sections 310 through 318(a) inclusive of the Trust Indenture Act of 1939.

(v) With respect to Form 8-K, Form 10-Q and Form 10-QSB under the Exchange Act which are filed and which disclose, in the text of the Form 10-Q and Form 10QSB, the interim financial statements, or the footnotes thereto, the creation of a new class of securities or indebtedness or the modification of existing rights of security holders, file all instruments defining the rights of holders of these securities or indebtedness. However, there need not be filed any instrument with respect to long-term debt not being registered which meets the exclusion set forth above in paragraph (iii)(A).

Appendix 3. A simple simulation to illustrate the intuition of using skewness of earnings as a proxy for the level of conservatism.

Conservatism is defined as reporting bad news more timely than good news, as in Basu (1997) and Watts (2003a and 2003b). In the simulation, I take this definition to an extreme: Bad news is fully capitalized immediately into earnings and good news is disclosed gradually over ten periods including the current period.

I assume that every period the firm receives a shock drawn from a normal (0,1) distribution. If the shock is negative, it impacts earnings immediately. If the shock is positive, only one-tenth of it impacts earnings this period and the rest of the shock impacts earnings evenly over the next nine periods. This pattern continues for 100 periods. The average earnings in the 100^{th} period from 1,000 simulations looks like

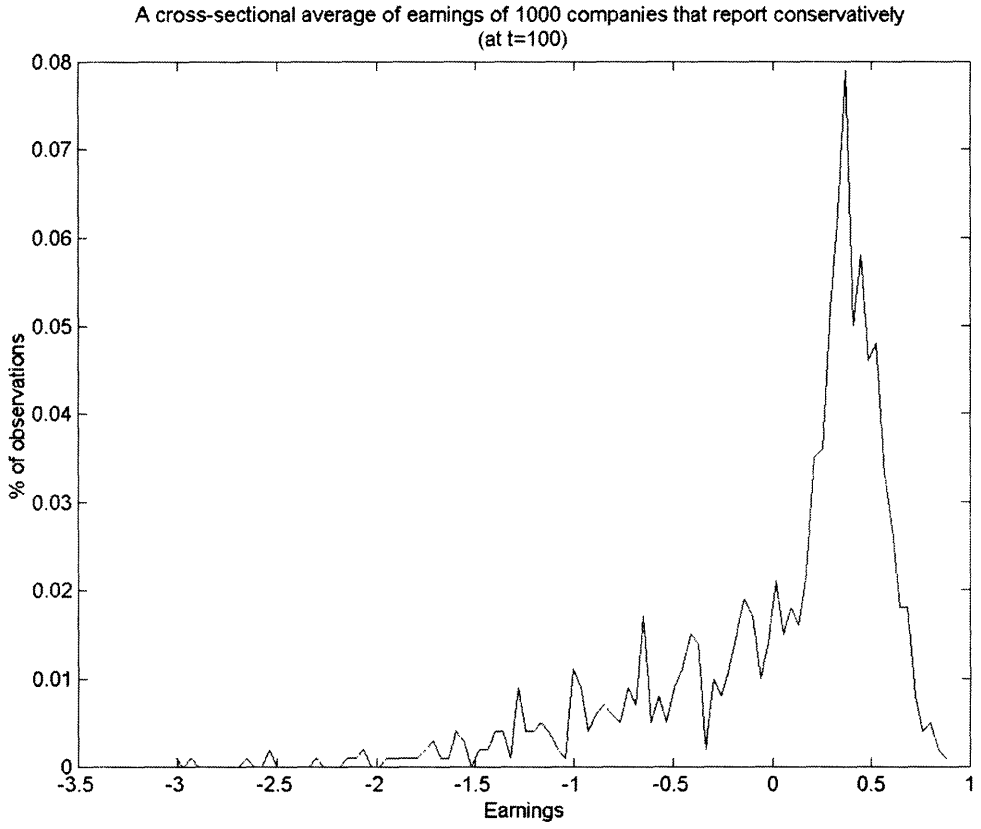

Figure 1. Simulated distribution of earnings of 1,000 conservative firms
(T = 100, number of bins = 100, number of simulations =1,000)

The empirical distribution of the earnings time series of one company that reports conservatively looks similar to the distribution above if the process is ergodic (James. D. Hamilton, "Time Series Analysis," p46-47).

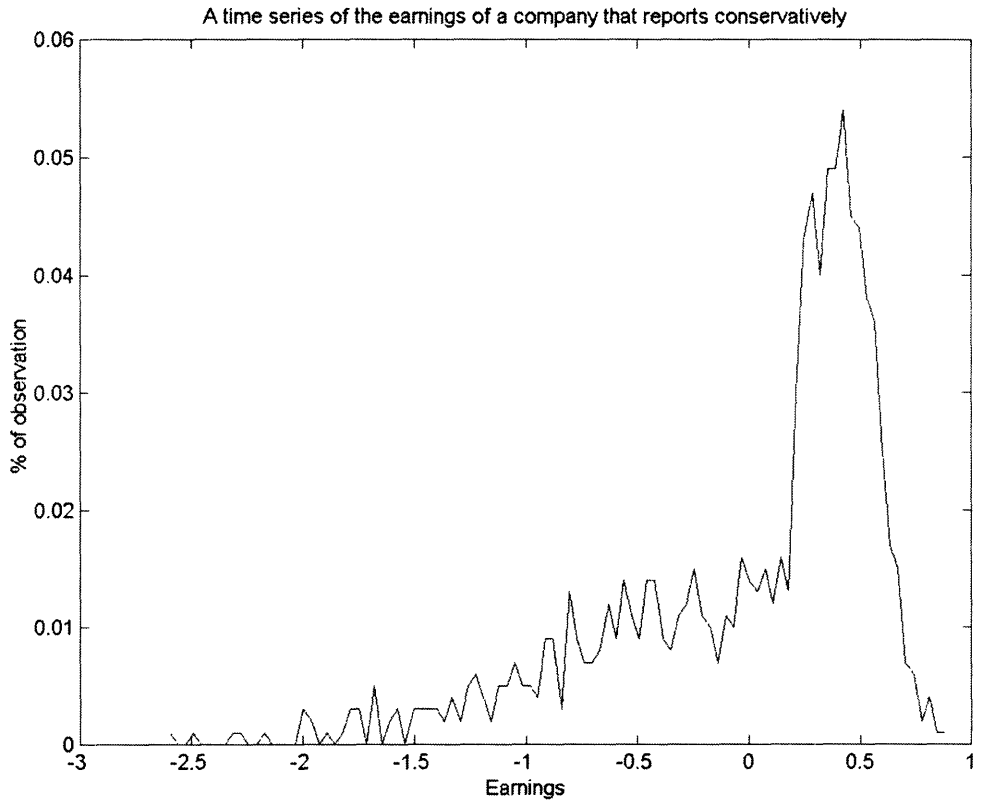

Figure 2. Simulated time series of earnings of one conservative firm
(T =1,000, number of bins = 100, number of simulations = 1)

Appendix 4. The relation between Basu's measure of conservatism and two earnings measures of conservatism from Givoly & Hayn (2000).

To connect the skewness of earnings and negative accumulation of nonoperating accruals with Basu's measure of conservatism, I add one more interaction term in Basu's original regression. I define DR_skew_i as a dummy variable equal to one if firm i's earnings are negatively skewed and zero otherwise. If negatively skewed earnings reflect bad news more quickly than good news, then I expect $\beta_{2i}>0$. I define $DR\_accrual_{it}$ as a dummy variable equal to one if firm i's cumulative nonoperating accrual is negative in year t and zero otherwise. If negative cumulative nonoperating accruals is the result of earnings reflecting bad news more quickly than good news, then I expect $\gamma_{2i}>0$. Using all the data available from Compustat and CRSP, I obtain the following results.

$E_{it}/P_{it-1}=\alpha_{0i}+\alpha_{1i}DR_{it}+\beta_{0i}R_{it}+\beta_{1i}R_{it}$ $*DR_{it}+\beta_{2i}R_{it}*DR_{it}*DR\_skew_i+\varepsilon_{it}$		$E_{it}/P_{it-1}=\alpha_{0i}+\alpha_{1i}DR_{it}+\gamma_{0i}R_{it}+\gamma_{1i}R_{it}$ $*DR_{it}+\gamma_{2i}R_{it}*DR_{it}*DR\_accrual_{it}+\varepsilon_{it}$	
Variables (expected sign)	Coefficient estimates	Variables (expected sign)	Coefficient estimates
Intercept	0.07 (98.5)***	Intercept	0.06 (101.4)***
DR	-0.007 (-5.4)***	DR	-0.005 (-3.9)***
R	-0.007 (-5.8)***	R	-0.02 (-15.8)***
R*DR (+)	0.14 (28.7)***	R*DR (+)	0.26 (52.2)***
R*DR*DR_skew (+)	**0.14 (31.4)*****	R*DR*DR_accrual (+)	**0.03 (6.1)*****
R^2	11.8%	R^2	13.2%

E_{it}	EPS for firm i in fiscal year t.
P_{it-1}	Price per share at the beginning of the fiscal year.
R_{it}	Annual return on firm i ending three months after fiscal year-end t.
DR_{it}	Dummy variable equal to one if $R_{it}<0$ and zero otherwise.
DR_skew_i	Dummy variable equal to one if firm i's earnings are negatively skewed and zero otherwise.
$DR\_accrual_{it}$	Dummy variable equal to one if firm i's nonoperating accrual is negative in year t and zero otherwise.

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Table 1. Sample selection of the negative shock sample

I form the negative shock sample to test the covenant violation hypothesis (H1a & b)) and the cost of debt hypothesis (H2). The requirement on the negative shock(s) increases the power of the test. The exclusion of low debt firms reduces the possibility that the sample firm has no covenants to violate. To calculate firm-specific measures of conservatism, I need enough time-series data of earnings and returns. Finally, I need original debt contracts to control for the loan characteristics in the covenant violation test.

Selection criteria	Number of firms left in the sample
Firms with at least one monthly return less than -30% during year 1999 or 2000	4,339
Exclude firms with long-term debt less than 10% of total assets	1,786
Exclude firms without seven years of earnings and return data to calculate the measures of conservatism	515
Exclude firms without original debt contracts to calculate the tightness of covenants	327 *
Exclude firms without initial spread to test H2	314 **

* Among the 327 firms in the negative shock sample, 98 firms disclose the violation of covenants afterwards in their 10K, 10Q or 8K filings. Test of H1a is based on these 327 firms for Consv_coeff, Consv_negskew, and Consv_accrual. Test of H1a for Consv_R2 is based on 309 firms with at least three positive annual returns and at least three negative annual returns.
Test of H1b is based on 279 firms whose covenant violation dates can be identified. To test H1b using Consv_R2, 13 firms are excluded due to less than three positive or negative annual returns.

** Test of H2 is based on these 314 firms for Consv_coeff, Consv_negskew, and Consv_accrual. Test of H2 for Consv_R^2 is based on 297 firms with at least three positive annual returns and at least three negative annual returns.

Table 2. Variable definitions

Variable	Definition
Dependent variables	
Violate	Dichotomous variable equal to one if the sample firm violated its covenants after the negative shock and zero otherwise.
Num_quarter	Number of quarters between the negative shock and the first covenant violation if the firm violates its covenants, number of quarters between the negative shock and May 31, 2003 or loan maturity, whichever is shorter, if the firm does not violate its covenants
Spread	The initial spread (basis points over LIBOR) charged for each loan
Treatment variables	
Consv_coeff	$\frac{\beta_{0i}+\beta_{1i}}{\beta_{0i}}$ from firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$ (Basu, 1997). It measures the relative sensitivity of earnings to bad news compared to good news
Consv_R^2	R^2_{bad} / R^2_{good} where R^2_{bad} (R^2_{good}) comes from the same Basu's regression above but applied only to the negative (positive) return period
Consv_negskew	- (skewness of earnings / skewness of cash flow from operations)
Consv_accrual	- (accumulated nonoperating accruals / accumulated total assets)
Consv_avgrank	Average rank of the four measures of conservatism above
Control variables – borrower characteristics	
Cumret	The size of the negative shock(s) firms experienced during 1999 and 2000. If a firm has multiple monthly returns less than -30%, cumret equals the buy-and-hold return for those months.
Size	The natural log of the total assets of the borrower (log(data6))
Leverage	Long term debt / total assets (data9/data6)
ROA	Net income / total assets (data172/data6)
ΔNW	Change in net worth (data60) from loan initiation to the negative shock, deflated by the net worth prior to loan initiation
ΔLev	Change in leverage (data9/data6) from loan initiation to the negative shock, deflated by the leverage prior to loan initiation
Rating	Actual S&P debt rating if available; imputed debt rating when actual rating is not available
Control variables – loan characteristics	
Numcov	Number of financial covenants contained in the debt contract
Escalate	Dichotomous variable equal to one if any of the financial covenant is escalating and zero otherwise
Other debt	Dichotomous variable equal to one if the same borrower has other loans and zero otherwise
Loan size	Principal / total assets of the borrower
Loan month	Length of the loan in months
Month_to_maturity	Number of months from the negative shock to the maturity of the loan

PP	Dichotomous variable equal to one if the loan has performance pricing and zero otherwise
Revolver	Dichotomous variable equal to one for revolving loans and zero otherwise
Other earnings attributes	
Quality	$-\sigma(\hat{v}_{jt})$ from the regression $\frac{TCA_{jt}}{Assets_{jt}} = \alpha_{0,j} + \alpha_{1,j}\frac{CFO_{j,t-1}}{Assets_{j,t}} + \alpha_{2,j}\frac{CFO_{j,t}}{Assets_{j,t}} + \alpha_{3,j}\frac{CFO_{j,t+1}}{Assets_{j,t}} + v_{j,t}$
Persistence	The slope coefficient $\hat{\phi}_{1,j}$ from the regression $E_{j,t} = \phi_{0,j} + \phi_{1,j}E_{j,t-1} + v_{j,t}$
Predictability	$-\sigma(\hat{v}_{jt})$ from the regression $E_{j,t} = \phi_{0,j} + \phi_{1,j}E_{j,t-1} + v_{j,t}$
Smoothness	$-\sigma(NI_{j,t})/\sigma(CFO_{j,t})$ where NI is net income before extraordinary items
Timeliness	R_j^2 from the regression $E_{it}/P_{it-1} = \alpha_{0i} + \alpha_{1i}DR_{it} + \beta_{0i}R_{it} + \beta_{1i}R_{it} * DR_{it} + \varepsilon_{it}$
Value relevance	R_j^2 from the regression $R_{j,t} = \lambda_{0,j} + \lambda_{1,j}NI_{j,t} + \lambda_{2,j}\Delta NI_{j,t} + \varepsilon_{j,t}$

Table 3 Descriptive statistics

Panel A. Descriptive Statistics

This table provides descriptive statistics for the negative shock sample. The negative shock sample is comprised of firms that a) experienced at least one negative monthly return less than –30% during year 1999 and 2000; b) have enough earnings and return data to calculate the measures of accounting conservatism; c) have original loan contracts available. The sample size is 339 firms among which 102 firms violate their covenants after the shock.

	Negative shock sample					
Variable	N	Mean	Q1	Median	Q3	Std.
Consv_Coeff	327	1.30	-1.52	0.62	3.24	13.68
Consv_R^2	309	8.01	0.21	0.92	4.56	22.9
Consv_negskew	327	0.42	-0.5	-0.6	1.4	1.4
Consv_accrual	327	-0.002	-0.02	-0.01	0.00	0.06
Cumret	327	-0.54	-0.71	-0.48	-0.36	0.21
Numcov	327	2.83	2	3	3	1.15
Size	327	5.82	4.47	5.85	6.95	1.75
ROA	327	-0.04	-0.04	0.02	0.05	0.25
Leverage	327	0.33	0.17	0.27	0.42	0.22
ΔNW	327	0.17	-0.08	0.00	0.40	2.72
ΔLev	327	0.85	0.00	0.14	0.95	1.65
Loan size	327	0.25	0.08	0.17	0.33	0.31
Loan month	327	48.2	36	48	60	20.9
Rating	327	12.73	10	12	14	4.03
Month_to_maturity	327	25.51	11	23	37	18.53
Num_quarter	71	5.48	3	5	7	4.8
Spread	314	172.2	95	150	250	107

Consv_Coeff	$\frac{\beta_{0i}+\beta_{1i}}{\beta_{0i}}$ from firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$ (Basu, 1997).
Consv_R^2	R^2_{bad} / R^2_{good} where R^2_{bad} (R^2_{good}) comes from the same Basu's regression above but applied only to the negative (positive) return period.
Consv_negskew	- (skewness of earnings / skewness of cash flow from operations)
Consv_accrual	- (accumulated nonoperating accruals / accumulated total assets)
Cumret	The size of the negative shock(s) firms experienced during 1999 and 2000. If a firm has multiple monthly returns less than -30%, cumret equals the buy-and-hold return for those months.
Numcov	Number of financial covenants contained in the debt contract
Size	The natural log of the total assets of the borrower (log(data6))
ROA	Net income / total assets (data172/data6)
Leverage	Long term debt / total assets (data9/data6)
ΔNW	Change in net worth (data60) from loan initiation to the negative shock, deflated by the net worth prior to loan initiation
ΔLev	Change in leverage (data9/data6) from loan initiation to the negative shock, deflated by the leverage ratio prior to loan initiation
Loan size	Principal / total assets of the borrower
Loan month	Length of the loan in months
Rating	Actual S&P debt rating if available; imputed debt rating when actual rating is not available.
Month_to_maturity	Number of months from the negative shock to the maturity of the loan
Num_quarter	Number of quarters between the negative shock and the first covenant violation
Spread	The initial spread (basis points over LIBOR) charged for each loan

Consv_coeff, *Consv_R^2*, *Consv_accrual* are truncated at top and bottom one percentile in both samples to exclude the influence of outliers from estimation. The results are robust including or excluding the outliers.

Panel B. Industry composition of the negative shock sample

Industry	Number of firms	Percentage
Mining	3	0.92%
Food, Beverage, Tobacco	3	0.92%
Textile, Wood, Furniture, Paper, Printing and Publishing	25	7.65%
Chemicals and Allied Products, Plastic Material	7	2.14%
Medicinal Chemicals, Pharmaceutical Preparations	16	4.89%
Oil and Gas Extractions, Petroleum Refining and Related	11	3.36%
Plastic, Leather, Glass, Concrete Products, Metal, Fabricated Metal Products	97	29.66%
Computers, Electronics, Computer Services	52	15.90%
Transportation, Communication	8	2.45%
Electric, Gas and Sanitary Services	4	1.22%
Wholesale and Retail	60	18.35%
Services	28	8.56%
Banks, Financial Institutions, Real Estate	13	3.98%
Total	327	100.00%

Panel C. Cross correlations (correlation coefficients in bold are significant at 5% level or higher)

	Violate	Spread	Coeff_rank	Negskew_rank	R^2_rank	Accrual_rank	Cumret_rank	Numcov	Escalate	Other debt	Size	Lev	ROA	ΔNW	ΔLev	Rating	M_to_M	Loan month
Coeff_rank	0.08	-0.04																
Negskew_rank	**0.12**	**-0.23**	**0.11**															
R^2_rank	0.04	**-0.15**	**0.22**	0.07														
Accrual_rank	**0.16**	-0.12	0.07	**0.22**	-0.03													
Cumret_rank	-0.07	**-0.19**	-0.05	**-0.33**	0.03	**-0.18**												
Numcov	**0.11**	0.11	0.04	0.02	0.03	0.05	-0.02											
Escalate	0.02	**0.24**	-0.04	**0.15**	-0.05	0.02	-0.02	**0.32**										
Other debt	0.05	**-0.12**	-0.03	-0.01	0.04	**-0.11**	0.04	0.07	**0.14**									
size	**-0.15**	**-0.33**	0.05	**-0.21**	**0.24**	**-0.15**	**0.10**	-0.08	0.04	**0.16**								
Lev	0.04	**0.26**	0.03	**0.22**	0.03	**0.11**	**-0.25**	-0.02	-0.02	-0.06	**-0.20**							
ROA	0.03	**-0.37**	0.02	**-0.18**	0.08	**-0.15**	**0.27**	0.004	0.05	0.08	**0.33**	**-0.6**						
ΔNW	0.04	N/A	-0.05	-0.04	0.03	0.02	-0.10	0.05	-0.05	0.06	0.01	**-0.11**	0.02					
ΔLev	-0.01	N/A	0.06	0.07	0.01	-0.08	**-0.15**	0.07	0.06	0.06	-0.01	0.07	-0.01	0.06				
Rating	0.05	**0.57**	-0.09	**0.25**	**-0.12**	**0.14**	**-0.28**	0.04	0.01	-0.09	**-0.68**	**0.67**	**-0.80**	-0.01	0.01			
M_to_M	-0.03	N/A	-0.07	0.06	-0.10	0.09	-0.02	-0.04	**-0.13**	-0.07	**-0.13**	**0.16**	**-0.14**	0.01	**0.21**	**0.15**		
Loan month	0.005	**-0.16**	0.02	-0.04	0.02	-0.02	0.06	-0.05	-0.01	**0.12**	**0.12**	-0.01	**0.12**	-0.02	**0.15**	-0.09	0.05	
Loan size	-0.03	-0.08	0.04	0.09	**-0.10**	0.01	0.04	0.08	-0.02	-0.01	**-0.39**	**0.27**	**-0.25**	-0.08	-0.08	**0.34**	-0.04	**0.17**

Table 4. Probit regression of the likelihood of covenant violations on the level of conservatism

$$Violate_i = \alpha_0 + \alpha_1 Consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 \Delta NW_i + \beta_6 \Delta Lev_i + \beta_7 Rating_i + \beta_8 Numcov_i + \beta_9 Escalate_i + \beta_{10} Otherdebt_i + \beta_{11} Loansize_i + \beta_{12} Month\_to\_maturity_i + \varepsilon_i \text{ .} \quad (1a)$$

Variables	Expected sign	Coeff _rank	R^2 _rank	Negskew _rank	Accrual _rank	Avgrank
Intercept		-0.33	-0.11	-0.37	0.23	-0.03
		(1.57)	(1.93)	(1.53)	(2.41)	(0.00)
Consv	+	**0.001**	**0.002**	**0.002**	**0.003**	**0.004**
		(2.00)	**(3.46)***	**(3.95)***	**(4.68)****	**(4.28)****
Firm-specific control variables						
Cumret_rank	-	-0.001	-0.001	-0.001	-0.002	-0.002
		(2.04)	(2.08)	(2.11)	(5.04)**	(4.97)**
Size	-	-0.17	-0.22	-0.17	-0.20	-0.19
		(5.45)**	(6.87)**	(5.61)**	(5.28)**	(5.22)**
Leverage	?	-0.24	-0.26	-0.26	-0.33	-0.33
		(1. 19)	(0.45)	(1.35)	(1.91)	(1.73)
ROA	-	0.63	0.66	0.64	0.69	0.68
		(1.06)	(0.91)	(1.04)	(0.94)	(0.90)
ΔNW	-	0.01	0.02	0.01	0.02	0.02
		(0.08)	(0.15)	(0.07)	(0.19)	(0.18)
ΔLev	+	-0.24	-0.02	-0.02	0.03	0.02
		(1.19)	(0.28)	(0.22)	(0.33)	(0.09)
Rating	+	0.03	0.01	0.02	0.01	0.02
		(0.31)	(0.07)	(0.19)	(0.04)	(0.16)
Loan-specific control variables						
Numcov	+	0.12	0.12	0.14	0.08	0.08
		(2.66)*	(2.64)*	(3.62)*	(1.13)	(0.99)
Escalate	+	-0.10	-0.15	-0.17	-0.06	-0.05
		(0.35)	(0.69)	(0.99)	(0.10)	(0.06)
Other debt	+	0.20	0.24	0.20	0.28	0.31
		(1.67)	(1.96)	(1.57)	(2.39)	(2.79)*
Loan size	?	-0.14	-0.16	-0.14	-0.14	-0.17
		(3.56)*	(3.71)*	(3.50)*	(2.78)*	(4.08)*
Month_to _maturity	+	-0.01	-0.01	-0.01	-0.01	-0.01
		(0.11)	(0.24)	(0.31)	(2.19)	(1.92)
N		327	309	327	327	309
Pseudo R^2		7.4%	8.5%	8.0%	11.7%	12.2%
Percent Correctly Predicted		67.7	68.4	68.3	71.3	72.8

Consv_Coeff, $\frac{\beta_{0i}+\beta_{1i}}{\beta_{0i}}$ from firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$ (Basu, 1997). **Consv_R²**, R^2_{bad} / R^2_{good} where R^2_{bad} (R^2_{good}) comes from the same Basu's regression above but applied only to the negative (positive) return period. **Consv_negskew**, - (skewness of earnings / skewness of cash flow from operations). **Consv_accrual**, - (accumulated nonoperating accruals / accumulated total assets). **Consv_avgrank**, average rank of the four measures of conservatism above. **Cumret**, The size of the negative shock(s) firms experienced during 1999 and 2000. If a firm has multiple monthly returns less than -30%, cumret equals the buy-and-hold return for those months. **Size**, the natural log of the total assets of the borrower (log(data6)). **Leverage**, long term debt / total assets (data9/data6). **ROA**, net income / total assets (data172/data6). **ΔNW**, Change in net worth (data60) from loan initiation to the negative shock, deflated by the net worth prior to loan initiation. **ΔLev**, Change in leverage (data9/data6) from loan initiation to the negative shock, deflated by the leverage ratio prior to loan initiation. **Rating**, actual S&P debt rating if available; imputed debt rating when actual rating is not available. **Numcov**, number of financial covenants contained in the debt contract. **Escalate**, dichotomous variable equal to one if any of the financial covenant is escalating and zero otherwise. **Other debt**, dichotomous variable equal to one if the same borrower has other loans. **Loan size**, principal / total assets of the borrower. **Loan month**, length of the loan in months.

Chi-Square statistics are presented in the parentheses.

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Pseudo R^2 = [log likelihood (intercept only) - log likelihood (intercept and covariate)] / log likelihood (intercept and covariate)

Table 5. Hazard model regression of the instantaneous risk of covenant violations on the level of conservatism and other covariates.

$$\ln h_i(t) = \alpha(t) + \alpha_1 Consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 \Delta NW_i + \beta_6 \Delta Lev_i + \beta_7 Rating_i + \beta_8 Numcov_i + \beta_9 Escalate_i + \beta_{10} Otherdebt_i + \beta_{11} Loansize_i + \beta_{12} Month\_to\_maturity_i + \varepsilon_i . \quad (1b)$$

Variable	Expected sign	Coeff _rank	R^2 _rank	Negskew _rank	Accrual _rank	Avgrank
Consv	+	0.001	0.001	0.002	**0.003**	0.004
		(0.53)	(0.52)	(2.12)	**(2.56)***	(1.64)
Firm-specific control variables						
Cumret_rank	-	-0.001	-0.001	-0.001	-0.002	-0.002
		(0.18)	(0.04)	(0.13)	(1.94)	(1.78)
Size	-	-0.33	-0.42	-0.33	-0.30	-0.30
		(5.18)**	(6.14)**	(5.14)**	(3.70)*	(3.60)*
Leverage	?	-0.22	-0.21	-0.22	-0.50	-0.57
		(0.22)	(0.18)	(0.21)	(0.86)	(1.06)
ROA	-	0.65	0.72	0.72	1.09	0.85
		(0.35)	(0.32)	(0.42)	(0.74)	(0.48)
ΔNW	-	0.01	0.03	0.01	0.03	0.03
		(0.07)	(0.11)	(0.07)	(0.12)	(0.11)
ΔLev	+	-0.02	-0.03	-0.02	0.03	0.02
		(0.08)	(0.17)	(0.10)	(0.10)	(0.06)
Rating	+	0.002	0.05	-0.01	0.03	0.03
		(0.01)	(0.19)	(0.01)	(0.05)	(0.07)
Loan-specific control variables						
Numcov	+	0.15	0.17	0.17	0.61	0.02
		(1.50)	(1.89)	(1.95)	(0.20)	(0.02)
Esclate	+	0.02	0.09	-0.07	0.28	0.32
		(0.003)	(0.08)	(0.05)	(0.65)	(0.81)
Other debt	+	0.23	0.29	0.23	0.20	0.27
		(0.66)	(0.90)	(0.66)	(0.41)	(0.72)
Loan size	?	-0.13	-0.15	-0.12	-0.16	-0.18
		(0.99)	(1.20)	(0.77)	(1.22)	(1.49)
Month_to _maturity	+	-0.01	-0.01	-0.01	-0.01	-0.01
		(0.35)	(0.33)	(0.45)	(1.00)	(0.84)
N		279	266	279	279	266
Pseudo R^2		3.0%	3.7%	3.3%	4.7%	4.7%

Consv_Coeff , $\frac{\beta_{0i}+\beta_{1i}}{\beta_{0i}}$ from firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$ (Basu, 1997). **Consv_R^2**, R^2_{bad} / R^2_{good} where R^2_{bad} (R^2_{good}) comes from the same Basu's regression above but applied only to the negative (positive) return period. **Consv_negskew**, - (skewness of earnings / skewness of cash flow from operations). **Consv_accrual**, - (accumulated nonoperating accruals / accumulated total assets). **Consv_avgrank**, average rank of the four measures of conservatism above. **Cumret**, The size of the negative shock(s) firms experienced during 1999 and 2000. If a firm has multiple monthly returns less than -30%, cumret equals the buy-and-hold return for those months. **Size**, the natural log of the total assets of the borrower (log(data6)). **Leverage**, long term debt / total assets (data9/data6). **ROA**, net income / total assets (data172/data6). **ΔNW**, Change in net worth (data60) from loan initiation to the negative shock, deflated by the net worth prior to loan initiation. **ΔLev**, Change in leverage (data9/data6) from loan initiation to the negative shock, deflated by the leverage ratio prior to loan initiation. **Rating**, actual S&P debt rating if available; imputed debt rating when actual rating is not available. **Numcov**, number of financial covenants contained in the debt contract. **Escalate**, dichotomous variable equal to one if any of the financial covenant is escalating and zero otherwise. **Other debt**, dichotomous variable equal to one if the same borrower has other loans. **Loan size**, principal / total assets of the borrower. **Loan month**, length of the loan in months.

Chi-Square statistics are presented in the parentheses.

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Table 6. OLS Regression of the loan spread on the level of conservatism of the firm.

$$Spread_i = \alpha_0 + \beta_1 Consv_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 Rating_i + \beta_6 Numcov_i + \beta_7 Escalate_i + \beta_8 Otherdebt_i + \beta_9 Loansize_i + \beta_{10} Loanmonth_i + \beta_{11} Revolver_i + \beta_{12} PP_i + \beta_{13} PP_i * Consv_i + \varepsilon_i \quad (2)$$

Variables	Expected sign	Coeff rank	R^2 rank	Negskew rank	Accrual rank	Avgrank
Intercept		66.58	17.53	70.88	46.35	95.63
		(0.84)	(0.16)	(0.92)	(0.55)	(1.08)
Consv	-	**-0.32**	**-0.23**	**-0.40**	**-0.41**	**-0.86**
		(-1.98)*	**(-2.15)***	**(-2.84)****	**(-2.07)***	**(-2.75)****
Firm-specific control variables						
Size	-	1.24	1.56	0.55	5.12	5.44
		(0.22)	(0.25)	(0.10)	(0.83)	(0.88)
Leverage	+	34.57	41.35	41.98	44.73	43.22
		(1.25)	(2.15)*	(1.53)	(1.50)	(1.45)
ROA	-	-20.39	-13.72	-35.15	-29.50	-23.73
		(-0.35)	(-0.22)	(-0.61)	(-0.47)	(-0.36)
S&P rating	+	16.90	17.25	17.59	17.70	17.84
		(4.27)**	(4.10)**	(4.52)**	(4.25)**	(4.27)**
Loan-specific control variables						
Numcov	?	2.17	-1.91	2.40	-1.52	-0.34
		(0.43)	(-0.34)	(0.48)	(-0.27)	(-0.06)
Escalate	?	35.17	38.20	35.39	32.08	33.05
		(2.97)**	(2.94)**	(3.00)**	(2.43)*	(2.45)**
Other debt	?	-11.33	-4.99	-13.13	-4.71	-3.07
		(-0.98)	(-0.90)	(-1.14)	(-0.37)	(-0.24)
Loan size	?	-23.90	-27.72	-26.03	-4.39	-7.27
		(-1.21)	(-1.35)	(-1.33)	(-0.16)	(-0.27)
Loan month	-	-0.25	-0.33	-0.32	-0.36	-0.43
		(-0.82)	(-0.99)	(-1.04)	(-1.09)	(-1.27)
Revolver	-	-55.07	-42.19	-49.40	-53.10	-55.70
		(-2.69)**	(-2.28)**	(-2.47)**	(-2.53)**	(-2.64)**
PP	-	-104.07	-56.40	-93.43	-108.24	-161.21
		(-4.10)**	(-2.20)*	(-3.70)**	(-3.92)**	(-3.56)**
PP*Consv	?	0.40	-0.03	0.29	0.39	0.85
		(2.12)*	(-0.06)	(1.67)	(1.67)	(2.22)*
N		314	297	314	314	297
Adj_R^2		43.3%	41.6%	44.4%	43.0%	43.2%

Spread, the initial spread (basis points over LIBOR) charged for each loan. **Consv_Coeff** , $\frac{\beta_{0i}+\beta_{1i}}{\beta_{0i}}$ from firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{*DR_{it}} + \varepsilon_{it}$ (Basu, 1997). **Consv_R^2**, R^2_{bad} / R^2_{good} where R^2_{bad} (R^2_{good}) comes from the same Basu's regression above but applied only to the negative (positive) return period. **Consv_negskew**, - (skewness of earnings / skewness of cash flow from operations). **Consv_accrual**, - (accumulated nonoperating accruals / accumulated total assets). **Consv_avgrank**, average rank of the four measures of conservatism above. **Size**, the natural log of the total assets of the borrower (log(data6)). **Leverage**, long term debt / total assets (data9/data6). **ROA**, net income / total assets (data172/data6). **Rating**, actual S&P debt rating if available; imputed debt rating when actual rating is not available. **Numcov**, number of financial covenants contained in the debt contract. **Escalate**, dichotomous variable equal to one if any of the financial covenant is escalating and zero otherwise. **Other debt**, dichotomous variable equal to one if the same borrower has other loans. **Loan size**, principal / total assets of the borrower. **Loan month**, length of the loan in months. **Revolver,** dichotomous variable equal to one for revolving loans and zero otherwise. **PP,** dichotomous variable equal to one if the loan has performance pricing and zero otherwise.

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Table 7 Sample selection of the SDC large sample

I form the SDC sample to provide out-of-sample robustness check to the cost of debt hypothesis (H2). Notice that SDC has comprehensive coverage on loan issues but not necessarily on covenants. Therefore, issues without covenants may actually have covenants not covered by SDC. Caution must be exerted when interpreting the numbers below.

Selection criteria	Total issues (number of borrowers)
Syndicated loans from SDC (1994-2003)	72,067 (28,446)
Issues with covenants	13,227 (5,066)
Issues with financial covenants	8,055 (4,798) *
Issues with initial spread over LIBOR	6,279 (3,915)
Availability of Compustat data	3,992 (2,327)
Requirement of enough earnings and returns data to calculate measures of conservatism and other earnings attributes	1,974 (1,156) **

* See figure 2 for the frequency distribution of the financial covenants. Debt-related, net worth and interest coverage are the most frequently used financial covenants. Among 12,587 issues with financial covenants 6,113 issues (2,746 borrowers) have net worth covenant.

** The table below shows the frequency of issues of individual borrowers.

Number of issue on SDC over 1994-2003	Number of borrowers correspondingly	Total issues
1	667	667
2	284	568
3	138	414
4	36	144
5	16	80
6	9	54
7	4	28
8	1	8
11	1	11
Total issues	1156	1974

Table 8 Descriptive statistics of the SDC large sample

Panel A. Descriptive Statistics of SDC sample

Variable	Mean	Q1	Median	Q3	Std.
Spread	143.10	60	125	200	102.83
Consv_coeff	1.20	-1.24	0.88	2.83	15.11
Consv_R^2	8.92	0.38	1.33	5.54	23.02
Consv_negskew	1.41	-0.57	0.26	1.48	14.50
Consv_accrual	0.0004	0.001	0.008	0.02	0.14
Quality	1.23	0.95	1.05	1.27	0.68
Persistence	0.61	0.33	0.65	0.95	0.44
Predictability	-38.34	-39.23	-15.19	-6.44	58.01
Smoothness	-0.14	-0.06	-0.03	-0.01	1.92
Timliness	0.38	0.16	0.32	0.57	0.27
Relevance	0.33	0.12	0.27	0.48	0.25
Size	6.87	5.78	6.78	7.84	1.53
Leverage	0.26	0.12	0.25	0.38	0.19
ROA	0.03	0.01	0.04	0.07	0.10
Rating	10.26	9	10	12	2.57
Loan size	0.26	0.11	0.20	0.35	0.20
Loan month	41.23	24	37	60	21.63
Numcov	2.81	2	3	4	1.20
Escalate	0.46	0	0	1	0.50
Otherdebt	0.78	1	1	1	0.41
Revolver	0.86	1	1	1	0.35
PP	0.79	1	1	1	0.41

Panel B. Industry composition of the SDC sample

Industry	Number of firms	Percentage
Agriculture, Forestry and Fishing	4	0.20%
Mining, Oil & Gas	60	3.04%
Food, Beverage, Tobacco	44	2.23%
Textile, Wood, Furniture, Paper, Printing and Publishing	206	10.44%
Chemicals and Allied Products, Plastic Material	56	2.84%
Medicinal Chemicals, Pharmaceutical Preparations	19	0.96%
Oil and Gas Extractions, Petroleum Refining and Related	118	5.98%
Plastic, Leather, Glass, Concrete Products, Metal, Fabricated Metal Products	467	23.66%
Computers, Electronics, Computer Services	136	6.89%
Transportation, Communication	88	4.46%
Electric, Gas and Sanitary Services	99	5.02%
Wholesale and Retail	307	15.55%
Services	186	9.42%
Banks, Financial Institutions, Real Estate	184	9.32%
Total	1,974	100%

Panel C. Correlation table of SDC sample (correlation coefficients in bold are significant at 5% or higher)

	Spread	Coeff_rank	R^2_rank	Skew_rank	Accrual_rank	Num cov	Escalate	Other debt	Size	Lev	ROA	Rating	Loan month	Loan size	Revol_ver
Coeff_rank	**-0.05**														
R^2_rank	**-0.07**	**0.15**													
Skew_rank	**-0.09**	0.01	-0.02												
Accrual_rank	**-0.06**	**-0.08**	-0.03	**0.11**											
Num cov	**0.35**	-0.02	0.00	**0.05**	-0.04										
Escalate	**0.45**	0.02	-0.03	**0.13**	-0.01	**0.31**									
Other debt	0.02	0.03	0.03	0.01	0.06	**0.06**	0.04								
size	**-0.33**	0.004	**0.12**	-0.03	0.04	**-0.43**	**-0.22**	**0.10**							
Lev	**0.28**	0.02	-0.002	0.001	**0.06**	**0.10**	**0.24**	**0.14**	**0.11**						
ROA	**-0.26**	-0.02	0.003	**-0.13**	-0.03	-0.02	**-0.16**	-0.002	0.00	**-0.19**					
Rating	**0.60**	0.03	-0.04	**0.11**	-0.03	**0.41**	**0.40**	0.01	**-0.54**	**0.33**	**-0.34**				
Loan month	**0.10**	0.03	-0.005	0.01	**0.05**	**0.12**	**0.25**	**-0.07**	**-0.18**	**0.12**	0.05	**0.23**			
Loan size	**0.09**	0.02	**-0.07**	-0.01	**0.06**	**0.17**	**0.15**	0.001	**-0.43**	0.04	**0.06**	**0.26**	**0.24**		
Revol_ver	**-0.39**	-0.03	-0.03	-0.06	0.03	**-0.14**	**-0.23**	0.02	**0.11**	**-0.12**	0.03	**-0.30**	**-0.30**	**-0.07**	
PP	**-0.17**	0.01	**0.06**	**0.01**	0.03	-0.03	0.04	**0.09**	**0.12**	0.02	**0.06**	**-0.13**	**0.11**	**0.05**	**0.15**

Table 9. Large sample evidence on the association between the initial loan spread and conservatism after controlling for the borrowers' other accounting attributes (N=1,974).[27]

Variables	Expected sign	Coeff_rank	R^2_rank	Negskew_rank	Accrual_rank	Avgrank
Intercept		17.52	34.47	26.44	39.30	28.50
		(0.62)	(1.22)	(0.94)	(1.39)	(1.00)
Earnings attributes						
Consv	-	**-0.009**	**-0.006**	**-0.005**	**-0.008**	**-0.006**
		(-3.76)**	**(-2.41)****	**(-1.95)***	**(-2.47)****	**(-4.37)****
Quality	?	0.002	0.01	0.003	0.002	0.01
		(0.83)	(2.12)*	(1.09)	(0.84)	(2.10)*
Persistence	-	**-0.01**	**-0.005**	**-0.009**	**-0.009**	**-0.009**
		(-3.77)**	**(-3.02)****	**(-3.11)****	**(-3.44)****	**(-3.12)****
Predictability	?	0.01	0.01	0.01	0.01	0.01
		(2.68)**	(-0.89)	(2.50)*	(2.56)**	(2.79)**
Smoothness	-	**-0.01**	**-0.01**	**-0.01**	**-0.01**	**-0.01**
		(-3.14)**	**(-4.00)****	**(-3.28)****	**(-3.31)****	**(-3.13)****
Timeliness	?	0.007	0.01	0.006	0.007	0.006
		(2.24)*	(1.95)*	(1.98)*	(2.17)*	(2.06)*
Relevance	?	-0.002	0.005	0.0004	-0.0001	-0.001
		(-0.55)	(0.74)	(0.10)	(-0.06)	(-0.44)
Firm-specific control variables						
Size	-	-5.37	-8.3	-4.95	-5.13	-6.55
		(-2.07)*	(-3.20)**	(-1.91)*	(-1.98)*	(-2.45)**
Leverage	+	26.14	36.2	29.29	28.25	30.66
		(2.46)**	(3.69)**	(2.74)**	(2.65)**	(2.80)**
ROA	-	-31.15	-35.44	-27.48	-29.85	-26.89
		(-1.60)	(-1.30)	(-1.40)	(-1.53)	(-1.37)
S&P rating	+	13.0	11.98	12.91	12.93	12.83
		(12.0)**	(9.09)**	(11.80)**	(12.17)**	(11.91)**
Loan-specific control variables						
Numcov	?	7.61	7.18	7.55	7.66	6.99
		(4.34)**	(3.12)**	(4.28)**	(4.35)**	(3.85)**
Escalate	?	43.76	45.28	43.52	43.77	43.03
		(10.85)**	(8.71)**	(10.75)**	(10.83)**	(10.45)**
Other debt	?	0.02	0.6	-0.23	0.19	0.09
		(0.01)	(0.87)	(-0.06)	(0.05)	(0.02)
Loan size	?	-15.42	-14.1	-15.63	-15.08	-14.44
		(-2.77)**	(-2.82)**	(-2.80)**	(-2.70)**	(-2.55)**
Loan month	-	-0.51	-0.4	-0.51	-0.50	-0.53
		(-5.94)**	(-5.25)**	(-5.90)**	(-5.76)**	(-6.06)**
Revolver	-	-66.84	-69.8	-67.06	-67.09	-69.47
		(-11.91)**	(-11.14)**	(-11.92)**	(-11.93)**	(-12.12)**
PP	?	-1.5	-21.5	-10.33	-20.90	-11.33
		(-0.20)	(-2.96)**	(-1.19)	(-2.56)**	(-1.35)
PP*Consv	?	-0.02	-0.02	-0.01	0.001	-0.01
		(-2.40)*	(-1.41)	(-1.26)	(0.26)	(-1.12)
Industry dummies		Included	Included	Included	Included	Included
Adj_R^2		47.3%	45.9%	47.0%	47.2%	47.4%

[27] I exclude firms with less than three positive or negative returns to calculate Consv_R^2, therefore, N=1,679 for Consv_R^2 measure.

Spread, The initial spread (basis points over LIBOR) charged for each loan. **Consv_Coeff** , $\frac{\beta_{0i}+\beta_{1i}}{\beta_{0i}}$ from firm-specific earnings-returns regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$ (Basu, 1997). **Consv_R^2,** R^2_{bad} / R^2_{good} where R^2_{bad} (R^2_{good}) comes from the same Basu's regression above but applied only to the negative (positive) return period. **Consv_negskew,** - (skewness of earnings / skewness of cash flow from operations). **Consv_accrual,** - (accumulated nonoperating accruals / accumulated total assets). **Consv_avgrank,** average rank of the four measures of conservatism above.

Quality, - $\sigma(\hat{v}_{jt})$ from the regression $\frac{TCA_{jt}}{Assets_{jt}} = \alpha_{0,j} + \alpha_{1,j} \frac{CFO_{j,t-1}}{Assets_{j,t}} + \alpha_{2,j} \frac{CFO_{j,t}}{Assets_{j,t}} + \alpha_{3,j} \frac{CFO_{j,t+1}}{Assets_{j,t}} + v_{j,t}$. **Persistence,** The slope coefficient $\hat{\phi}_{1,j}$ from the regression $E_{j,t} = \phi_{0,j} + \phi_{1,j} E_{j,t-1} + v_{j,t}$. **Predictability,** - $\sigma(\hat{v}_{jt})$ from the regression $E_{j,t} = \phi_{0,j} + \phi_{1,j} E_{j,t-1} + v_{j,t}$. **Smoothness,** - $\sigma(NI_{j,t}) / \sigma(CFO_{j,t})$ where NI is net income before extraordinary items. **Timeliness,** R^2_j from the regression $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{it} * DR_{it} + \varepsilon_{it}$. **Value relevance,** R^2_j from the regression $R_{j,t} = \lambda_{0,j} + \lambda_{1,j} NI_{j,t} + \lambda_{2,j} \Delta NI_{j,t} + \varepsilon_{j,t}$. **Size,** the natural log of the total assets of the borrower (log(data6)). **Leverage,** net income / total assets (data172/data6). **ROA,** long term debt / total assets (data9/data6). **Rating,** actual S&P debt rating if available; imputed debt rating when actual rating is not available. **Numcov,** number of financial covenants contained in the debt contract. **Escalate,** dichotomous variable equal to one if any of the financial covenant is escalating and zero otherwise. **Other debt,** dichotomous variable equal to one if the same borrower has other loans. **Loan size,** principal / total assets of the borrower. **Loan month,** length of the loan in months. **Revolver,** dichotomous variable equal to one for revolving loans and zero otherwise. **PP,** dichotomous variable equal to one if the loan has performance pricing and zero otherwise.

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Table 10 Market-to-book as another measure of conservatism

Panel A. Test H1 a & b and H2 using the market-to-book as a measure of conservatism

Variables (expected sign)	Test of H1a with Violat as dependent variable	Test of H1b with ln(T) as dependent variable	Variables (expected sign)	Test of H2 with spread as dependent variable
Intercept	0.04	N/A	Intercept	49.81
	(0.00)			(0.63)
Mb_rank (?)	-0.001	-0.002	Mb_rank (?)	-0.22
	(0.60)	(2.15)		(-1.56)
Cumret_rank (-)	-0.001	-0.001	Size (-)	1.76
	(2.91)*	(0.71)		(0.31)
Size (-)	-0.17	-0.31	Leverage (+)	33.92
	(5.14)**	(4.60)**		(1.23)
Leverage (?)	-0.24	-0.25	ROA (-)	1.77
	(1.17)	(0.27)		(0.03)
ROA (-)	0.58	0.63	S&P rating	17.43
	(0.91)	(0.33)	(+)	(4.43)**
ΔNW (-)	0.01	0.01	Numcov (?)	-1.02
	(0.07)	(0.06)		(-0.20)
ΔLev (+)	-0.01	-0.003	Escalate (?)	34.70
	(0.10)	(0.003)		(2.92)**
Rating (+)	0.03	0.004	Other debt (?)	-8.50
	(0.26)	(0.002)		(-0.73)
Numcov (+)	0.12	0.16	Loan size (?)	-27.26
	(2.85)*	(1.74)		(-1.38)
Escalate (+)	-0.12	-0.04	Loan month	-0.28
	(0.53)	(0.02)	(-)	(-0.90)
Other debt (+)	0.19	0.20	Revolver (-)	-45.20
	(1.48)	(0.53)		(-2.37)**
Loan size (?)	-0.14	-0.16	PP (-)	-65.91
	(3.45)*	(1.49)		(-2.83)**
Month_to	-0.002	-0.004	PP*Consv (?)	0.08
maturity (?)	(0.19)	(0.34)		(0.47)
N	327	279	N	314
Pseudo R^2	7.3%	3.2%	Adj_R^2	43.2%

Mb_rank, the rank of market-to-book ratio (Compustat data199*data25/data60) before loan initiation. Other variables are defined the same as before.

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Panel B. Test of H1a using market-to-book as a control for balance-sheet conservatism in addition to four main measures of conservatism.

Variables	Expected sign	Coeff_rank	R^2_rank	Negskew_rank	Accrual_rank	Avgrank
Intercept		-0.25	-0.09	-0.26	-0.11	-0.32
		(1.66)	(0.01)	(0.07)	(0.01)	(0.08)
Consv	+	**0.001**	**0.002**	**0.002**	**0.003**	**0.004**
		(1.88)	**(2.84)***	**(3.69)***	**(4.88)****	**(4.90)****
Market-to-book as an additional control						
Mb_rank	?	-0.001	-0.001	-0.001	-0.001	-0.001
		(0.60)	(0.96)	(0.81)	(0.53)	(0.67)
Other control variables						
Cumret_rank	-	-0.001	-0.001	-0.001	-0.002	-0.002
		(2.04)*	(1.60)	(0.96)	(6.29)**	(5.75)**
Size	-	-0.16	-0.19	-0.16	-0.14	-0.16
		(4.89)**	(5.53)**	(4.78)**	(2.79)*	(3.47)*
Leverage	?	-0.24	-0.26	-0.34	-0.48	-0.47
		(1. 18)	(0.89)	(1.68)	(2.80)	(2.61)
ROA	-	0.57	0.58	0.61	0.97	0.84
		(0.87)	(0.78)	(0.91)	(1.76)	(1.32)
ΔNW	-	0.02	0.03	0.01	0.03	0.03
		(0.15)	(0.29)	(0.07)	(0.34)	(0.29)
ΔLev	+	-0.02	0.03	0.04	0.07	0.04
		(0.20)	(0.13)	(0.24)	(0.62)	(0.18)
Rating	+	0.03	0.03	0.02	0.04	0.04
		(0.31)	(0.24)	(0.18)	(0.46)	(0.45)
Numcov	+	0.11	0.11	0.13	0.08	0.08
		(2.58)*	(2.09)	(3.49)*	(1.10)	(1.05)
Escalate	+	-0.11	-0.14	-0.17	-0.07	-0.07
		(0.40)	(0.63)	(1.08)	(0.15)	(0.13)
Other debt	+	0.21	0.23	0.21	0.29	0.32
		(1.80)	(1.99)	(1.66)	(2.51)*	(3.05)*
Loan size	?	-0.15	-0.18	-0.15	-0.15	-0.19
		(3.83)*	(5.11)**	(3.77) *	(3.26)*	(4.58)**
Month_to_maturity	?	-0.01	-0.01	-0.01	-0.01	-0.01
		(0.19)	(0.96)	(0.56)	(2.14)	(1.91)
N		327	309	327	327	309
Pseudo R^2		7.6%	8.5%	8.2%	12.3%	13.3%
Percent Correctly Predicted		67.7	68.5	68.4	72.1	73.8

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Panel C. Test of H2 using market-to-book as a control for balance-sheet conservatism in addition to four main measures of conservatism.

Variables	Expected sign	Coeff _rank	R^2 _rank	Negskew _rank	Accrual _rank	Avgrank
Intercept		77.82	42.38	90.98	61.69	112.18
		(0.98)	(0.52)	(1.18)	(0.74)	(1.28)
Consv	-	**-0.27**	**-0.21**	**-0.39**	**-0.36**	**-0.82**
		(-1.69)*	**(-2.00)***	**(-2.74)****	**(-1.85)**	**(-2.68)****
Market-to-book as an additional control variable						
Mb_rank	?	**-0.14**	**-0.18**	**-0.17**	**-0.20**	**-0.22**
		(-1.68)*	**(-2.04)***	**(-2.04)***	**(-2.21)***	**(-2.38)***
Other control variables						
Size	-	1.70	1.53	0.72	6.09	6.54
		(0.30)	(0.26)	(0.13)	(0.99)	(1.06)
Leverage	+	31.73	37.70	38.86	38.65	38.26
		(1.15)	(1.45)	(1.43)	(1.31)	(1.30)
ROA	-	-6.00	-6.54	-19.93	-6.34	30.11
		(-0.10)	(-0.48)	(-0.35)	(-0.10)	(0.47)
S&P rating	+	17.12	17.92	17.81	18.12	18.34
		(4.35)**	(4.44)**	(4.61)**	(4.39)**	(4.45)**
Numcov	?	0.44	-0.38	0.49	-3.37	-1.78
		(0.09)	(-0.39)	(0.10)	(-0.60)	(-0.31)
Escalate	?	35.83	33.84	36.75	33.83	34.65
		(3.03)**	(2.73)**	(3.13)**	(2.59)**	(2.60)**
Other debt	?	-8.58	-7.76	-10.38	0.13	2.05
		(-0.74)	(-0.65)	(-0.90)	(0.01)	(0.16)
Loan size	?	-25.57	-30.33	-28.06	-0.19	-3.12
		(-1.30)	(-1.49)	(-1.45)	(-0.01)	(-0.11)
Loan month	?	-0.28	-0.32	-0.35	-0.41	-0.48
		(-0.90)	(-0.99)	(-1.14)	(-1.25)	(-1.46)
Revolver	-	-53.71	-46.47	-48.71	-52.76	-55.51
		(-2.63)**	(-2.27)**	(-2.46)**	(-2.54)**	(-2.67)**
PP	-	-97.55	-59.49	-87.19	-102.28	-155.14
		(-3.82)**	(-2.44)**	(-3.40)**	(-3.72)**	(-3.47)**
PP*Consv	?	0.35	0.03	0.24	0.34	0.80
		(1.85)	(0.18)	(1.38)	(1.48)	(2.14)*
N		314	297	314	314	297
Adj_R^2		43.8%	42.0%	45.2%	44.2%	44.7%

** and * represent significance at 1 percent and 5 percent level for one-tailed or two-tailed tests as appropriate.

Figure 1: Timeline of the measurement period for the variables in the negative shock sample

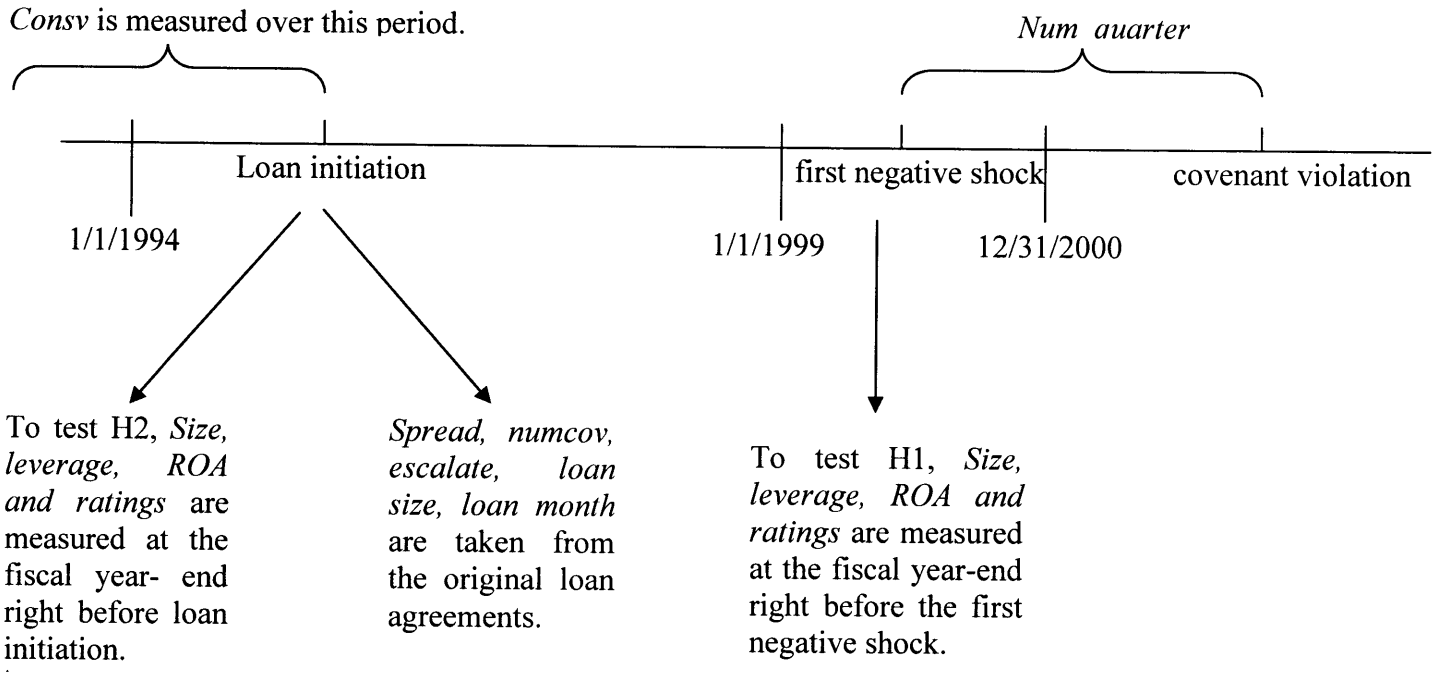

Figure 2: Frequency of financial covenants out of 13,227 SDC loan facilities with covenants