Efficiency Gains from Accounting Conservatism: Benefits to Lenders and Borrowers*

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Abstract

In this paper, I examine the efficiency gains from accounting conservatism in the debt contracting process. Specifically, I analyze the *ex post* and *ex ante* benefits of conservatism to lenders and borrowers. 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 efficiency gains from conservatism. In this paper, I provide evidence on the efficiency gains from 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' limited liability and potential to behave opportunistically add to the downside risk of lenders. 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.

Conservatism means 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 actions that lenders can take are: to 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 to 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. In a competitive lending market, lenders must pass on the entire benefit to borrowers. In a less than perfectly competitive market, the increased firm value is shared among all parties (Watts 2003a). Any lender who resists passing on the related benefits would be outbid by other lenders that offer better terms.

Lenders can share the expected benefits from conservatism by lowering the interest rate, increasing the lending amount, extending the maturity, loosening the covenants, etc. Which option(s) a lender chooses is an empirical question. In this paper, I empirically examine the interest rate option while controlling for other options. I present a qualitative discussion and analysis of lenders choosing other options such as loosening of covenants (see Section 3.2). I predict, *ceteris paribus*, 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, and find the same results.

To address the concern that conservatism is merely a proxy for other earnings attributes, I also examine additional earnings attributes that the literature documents to affect the cost of equity. 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 efficiency gain 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., 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 complete picture of the efficient role that conservatism plays in debt contracting.

Recently the Financial Accounting Standards Board has shown a tendency toward providing fair values in financial statements at the expense of conservatism.[3] If conservatism benefits both lenders and shareholders, diminished conservatism in financial statements might cause an

[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).

[3] "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 Toady Vol. 18, No. 13, July 26, 2004.)

efficiency loss at least from the perspective of debt contracting. The evidence in this study is consistent with the caution in Watts (2003a) that "successful elimination of conservatism will change managerial behavior and impose significant costs on investors and the economy in general." Therefore, it is in the interest of both shareholders and lenders to have conservative financial statements. Given the empirical case for the benefits of conservatism, I suggest that the optimal sets of accounting standards are based on a range of trade-offs, including that between relevance, which favors fair value, and reliability (verifiability), which calls for conservatism. Since such a broad analysis is beyond the scope of this paper, I do not make any specific recommendations about accounting standards.

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.

2. Background literature

Prior research provides strong theoretical guidance on the efficiency gains from conservatism. However, the evidence in this avenue is limited. In this section, I first briefly review the theory and then 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 an efficiency gain 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 ends 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 the borrower's 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. 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 is noisier than the asymmetric timeliness in measuring conservatism (Roychowdhury and Watts, 2004). More importantly, the market-to-book measure does not necessarily reflect

accounting choices.[4] 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. Third, Watts (2003b) points out that Ahmed et al. (2002) 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. Also, the use of actual interest rates rather than credit ratings alleviates the concern of endogeneity in my test of whether conservatism reduces the cost of debt.

In a 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 low costs of debt and mitigated downside risk, respectively.

[4] Different accounting choices can lead to the same market-to-book measure of conservatism. Assume a firm only exists for two periods. Also assume that the firm has a starting book value BV_0= \$100 and a discount rate of 10%. If the firm reports earnings in the first period X_1=\$10 and in the second period X_2=\$11, the market value MV_0 would be \$100 and the market-to-book measure of conservatism (MV_0 / BV_0) would be 1. If the firm instead reports X_1=\$5 and X_2=\$16, the market value MV_0 would still be \$100 and the market-to-book measure of conservatism would still be 1.

[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.

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. The results confirm the accounting theory that conservatism creates an efficiency gain that is 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 of lenders. Accounting conservatism is one such mechanism that borrowers use to mitigate the downside risk of lenders.

3.1. 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 at the principal plus accumulated interest, no matter how diversified their loan portfolio is. The full recovery of other loans cannot make up the loss from a defaulted loan. The potential for opportunistic borrower behavior such as asset substitution and underinvestment adds to the lender's concerns about the recovery rate.

Conservatism is an efficiency-enhancing mechanism that complements debt covenants to mitigate lender's concerns 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 action to reduce their downside risk.[7] For example, lenders can adjust the interest rate to compensate the uncompensated risk. Lenders can also accelerate the debt, reduce the borrowing

[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.

base, and/or enhance the security to reduce the potential loss of principal. I offer examples of lenders' protective action 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 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 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 financial covenants sooner than less conservative borrowers.

Due to the endogeneity of covenants, covenant thresholds may vary across borrowers with different levels of conservatism. I argue that even though lenders may loosen covenants to reward conservatism, lenders will only 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. However, the restrictiveness of covenants does affect the likelihood of covenant violations; therefore, I include covenant slack as a control in testing H1a and H1b.

3.2. 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 is 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, H2 implies that lenders do not share the benefits from conservatism with borrowers exclusively through other channels such as relaxed covenants, borrowers commit to a certain level of conservatism and do not deviate from the committed level after the loan is in place and there is variation in the level of conservatism among borrowers.

To address the first assumption, I argue that lenders are not likely to reward conservatism exclusively by relaxing covenants. Suppose lenders only relax covenants to reward conservatism; conservative borrowers are still more likely to violate their covenants with slack than less conservative borrowers and to alert lenders of the default risk sooner.[8] Given the cost of covenant violations and other costs associated with conservatism, borrowers will not be conservative unless they obtain other forms of compensation such as lower interest rates.

To address the second assumption, I argue first that borrowers have an incentive to maintain their level of conservatism due to the potential reputation cost. Borrowing is a repetitive 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

[8] See the last paragraph in Section 3.1 for the discussion.

of conservatism. An example of such commitment is the use of fixed GAAP in the covenants (Mohrman, 1996; Beatty, Ramesh, and Weber, 2002).[9]

To address the third 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 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 a cross-sectional variation in the reduction of interest rates.

4. Data and research design

4.1. Sample selection

[9] 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).

Table 1 summarizes the sample selection process. 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.[10] The choice of 1999 and 2000 yields both a bounded five-year window (1999 to 2003) with which to search for covenant violations and sufficient room (1994 to 2000) to search for original debt contracts.

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.[11] 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 whether and when these firms violated their financial covenants after the negative shock(s).[12] To include the tightness of covenants as a control, I obtain covenants data from SDC for 221 firms; for the rest, I go to Lexis-Nexis and 10k Wizard to collect the original debt contracts.[13,14] The final sample consists of 339 firms, among which 102 firms disclose violations of financial covenants subsequent to the shock(s).

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

[11] I impose the requirement on the debt/asset ratio as a first-pass selection criterion. This reduces the workload of hand collecting the actual debt contracts.

[12] I use search criteria 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*."

[13] Therefore, caution must be exercised when interpreting the regression with the existence of covenants as the dependent variable, since an absence of covenants in the SDC database does not necessarily mean there are no covenants.

[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

4.2. Research design

4.2.1. Measures of accounting conservatism

I measure the level of accounting conservatism by the ranks of the following four measures, two of which I derive from Basu (1997) and two from Givoly and Hayn (2000): 1) 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); 2) the relative explanatory power of bad news compared to good news: R^2 (bad news)/ R^2 (good news) of Basu's regression; 3) the time-series skewness of earnings relative to the skewness of cash flows (Givoly and Hayn, 2000), where the intuition for the skewness of earnings as a proxy for the level of conservatism is that when bad news is capitalized into earnings, there is a large reduction in earnings;[15] and, 4) the signed accumulation of nonoperating accruals deflated by accumulated total assets (Givoly and Hayn, 2000). Figure 1 provides the timeline for the measurement of conservatism as well as other main variables.

There are pros and cons associated with each of the above sets of measures. Basu's measures capture the essence of accounting conservatism, i.e., how quickly earnings reflect economic bad news relative to economic good news – exactly what lenders care to reduce their default risk. However, the ability of Basu's measure to pick up aggregate conservatism is questionable, especially over short periods of time (Roychowdhury and Watts, 2004). Also, estimates from a firm-specific version of Basu's regression can be noisy due to the limited time series available. I

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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 significant debt contract and then go to the referred report to find the contract.

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

require that at least seven years of data are available and I only use the rank but not the magnitude of the estimates to alleviate these problems.

The two measures based on earnings attributes (skewness of earnings and nonoperating accruals) do not result from estimation, but are still sensitive to the available time series. More importantly, while conservative reporting leads to negatively skewed earnings and accumulation of negative nonoperating accruals, the converse may not hold. Moreover, negatively skewed earnings and accumulation of negative nonoperating accruals are also consistent with a "big bath," which is earnings manipulation rather than accounting conservatism.

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 above pros and cons in mind.

4.2.2. Test of H1

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

$$Violate_i = \alpha_0 + \alpha_1 consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 Rating_i + \beta_6 Numcov_i + \beta_7 Escalate_i + \beta_8 Otherdebt_i + \beta_9 Loansize_i + \beta_{10} Loanmonth_i + \varepsilon_i . \quad (1a)$$

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, is measured using all available data before loan initiation. Control variables are defined as:

Cumret	The size of the negative shock(s) that the firm experienced during 1999 and 2000. If a firm has multiple shocks, *cumret* is the buy-and-hold return of all the shocks.
Size	The natural log of the total assets of the borrower.

Leverage	Long-term debt of the borrower / total assets of the borrower.
ROA	Net income of the borrower / total assets of the borrower.
Rating	Actual S&P debt rating if available; imputed debt rating if actual rating is not available. I calculate the imputed rating by estimating a regression of available S&P ratings on firm size, leverage, ROA, loan size, and loan maturity and then applying the estimated coefficients to the loans where actual ratings are not available. Larger values of *Rating* correspond to worse ratings, actual or imputed.
Numcov	Number of financial covenants contained in the original debt contract.
Escalate	Dichotomous variable equal to one if any part of the covenant is escalating, zero otherwise.
Otherdebt	Dichotomous variable equal to one if the same borrower has other loans, zero otherwise.
Loansize	Principal / total assets of the borrower.
Loanmonth	Length of the loan in months.

To test whether more conservative firms violate their financial covenants sooner (H1b), I estimate the hazard model[16]

$$\ln h_i(t) = \alpha(t) + \alpha_1 consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 Rating_i + \beta_6 Numcov_i + \beta_7 Escalate_i + \beta_8 Otherdebt_i + \beta_9 Loansize_i + \beta_{10} Loanmonth_i + \varepsilon_i . \quad (1b)$$

where $h_i(t)$ represents the hazard, i.e., 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. To test this hazard model, I identify the date of the first covenant violation after the negative shock(s). 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 any covenant violation within the sample period, I define *Num_quarter* as the number of quarters between the first negative shock and the end of the sample period, i.e., December 31, 2003. H1b predicts that $\alpha_1 > 0$, i.e., the hazard of covenant violations increases in borrower conservatism.

4.2.3. 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

[16] I estimate the hazard model using the most widely used partial likelihood (Cox, 1972), where the functional form of baseline hazard is not required. As with most of the hazard models, my sample has right censoring because I restrict the search window for covenant violations ended on 12/31/2003.

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

The dependent variable is the initial LIBOR spread of each loan and the treatment variable is again the level of conservatism. H2 predicts that $\alpha_1 < 0$. The new control variables are

Revolver	Dichotomous variable equal to one for revolving loans, zero otherwise.
PP	Dichotomous variable equal to one for performance pricing loans, zero otherwise.

Performance pricing has become popular 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; therefore, the lender's risk is further reduced. Whether the performance pricing and debt covenants are substitutes or complements is still unknown, thus I include both the indicator variable *PP* to tease out the effect of performance pricing on the cost of debt and the 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 cross-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 three additional analyses. Section 5.4 summarizes the 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 report statistics on the magnitude of four measures of conservatism presented above. However, in all of the following tables, I use the ranks of these four measures to avoid spurious inference. I

also use the average rank of the four ranks to reduce the reliance on one single measure and to mitigate the noise in each estimated measure.

Table 3 Panel A shows the means, medians, first quartiles, third quartiles, and standard deviations of the key variables. The average firm in the negative shock sample experiences a loss in its market capitalization of -54% in two years, and on average it takes the violators five quarters to disclose violations of their covenants. The average firm has total assets of $345 millions, a debt-to-asset ratio of 31%, and a loan-to-asset ratio of 24%. The average maturity for the loans in the sample is four years and the average yield spread is 185 basis points over LIBOR.

Table 3 Panel B presents the Pearson (above the diagonal line) and Spearman (below the diagonal line) correlation matrix of the variables. Table 3 Panel B 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 positively correlates with the size of the shock and the tightness of the covenants, and negatively correlates with borrower size and debt rating. At the same time, the initial spread of the loan is negatively correlated with the four measures of conservatism, consistent with the prediction that conservatism reduces the cost of debt. Two other observations are noteworthy: 1) the initial spread decreases in ROA, firm size, and loan maturity, and increases in leverage and debt rating; and, 2) higher spreads co-exist with tighter covenants as represented by more covenant items and more 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 that more conservative firms

enjoy lower costs 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 (rank of relative coefficients, rank of relative R^2, rank of earnings skewness, rank of accumulated nonoperating accruals, and average rank of the above four), the coefficients on conservatism are consistently 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.[17]

This result obtains after controlling for other factors that affect the likelihood of covenant violations. Those factors include the size of the shock (the sum of all the negative shocks to the same borrower), the tightness of covenants (number of covenants, escalating covenants, the existence of other debt that might create cross-default), the size, leverage, and profitability of the borrower, and the size, maturity, and rating of the loan. Table 4 shows that larger negative shocks, more covenant items, smaller borrower sizes, and smaller loan sizes relative to borrower sizes are associated with a greater likelihood of covenant violation. The pseudo R^2 of the probit regression is 7.3%.

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

[17] The economic significance is evaluated by 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.

signal of the increased default risk because they can take action to reduce their default risk or can require compensation for the increased default risk. Given this is the case, why don't violators report less conservatively when approaching violations to avoid the associated violation cost? First, lenders have 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.

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 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 the rank of earnings skewness and the rank of nonoperating accruals are positive, meaning that the hazard of covenant violations increases with two measures of conservatism. 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 *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.

Then Table 6 provides evidence on whether lenders lower the cost of debt to reward conservative borrowers (H2). I find that for loans without performance pricing, the coefficients are significantly negative for all four measures of conservatism. For example, the coefficient on the rank of relative R^2 from Basu's regression (*Consv_*R^2) is -0.22, significant at the 5% level. Economically, this coefficient means that the cost of debt is 36 basis points lower for the firms in

the first quartile of *Consv_R*^{2} than the firms in the third quartile.[18] Nevertheless, for loans with performance pricing, the initial spread is lower than for loans without performance pricing, which reflects the reduced credit risk by linking the spread to a credit risk measure, and the sensitivity of loan spread to the level of conservatism is lower, indicated by positive coefficients on *PP*conserve* for the two measures of conservatism *Consv_coeff* and *Consv_negskew*, at the 5% and 10% levels respectively. Therefore, there is potentially some substitutability between performance pricing and the debt covenants.

For the firm-specific control variables, the significantly positive coefficient on credit ratings and the significantly negative coefficient on firm size indicate that larger borrowers or borrowers with better ratings enjoy a lower cost of debt. The insignificant coefficients on leverage and ROA are probably due to the multicollinearity among the firm-specific control variables. For the loan-specific control variables, it seems that loans with escalating covenants usually have higher costs of debt and that revolving loans have lower costs of debt.

To summarize, the evidence from the negative shock sample provides a comprehensive picture of the efficient contracting rolethat conservatism plays in the lending process, i.e., more conservative borrowers are more likely to violate their financial covenants, thereby providing lenders a more timely signal of the increase in default risk, and in return lenders reward the conservative borrowers with lower costs of debt up front. Performance pricing, the new contracting feature, complicates the picture by further reducing the credit risk of lenders, and thus to some degree reduces the sensitivity of loan spreads to the level of accounting conservatism.

[18] The economic significance has to be interpreted with caution. The average initial spread of the negative shock sample is 185 basis points, 68 basis points higher than the average initial spread of all loans on SDC.

5.3. Robustness check

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 the SDC sample to test whether conservatism reduces the cost of debt (H2) out of sample.[19]

To provide out-of-sample evidence, I extract from SDC all the syndicated loans (1994 to 2003) with financial covenants.[20] See Figure 2 for the distribution of major types of financial covenants in the sample. As can be seen from Figure 2, net worth and the interest coverage ratio 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. After imposing the data requirement on earnings and returns series, I obtain the final SDC sample of 1,985 loans representing 1,164 borrowers.

Table 7 illustrates both 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, and a less significantly negative relation (only with the *Consv_coeff* measure) between the loan spread and conservatism for loans with performance pricing, which indicates that to some degree performance pricing substitutes debt covenants and conservatism in reducing the credit risk. These findings are consistent with the findings from the negative shock sample.

In addition, Table 7 shows that tighter covenants usually accompany a higher cost of debt, as evidenced by the significantly positive relation between *Numcov* and *Consv*, and between

[19] 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.

[20] 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.

Escalate and *Conserv*. This indicates that lenders use both higher required rates of return and tighter covenants to reduce their credit risk. Consistent with the finding in Table 6, worse debt ratings and higher leverage ratios of borrowers increase the cost of debt. Factors that decrease the cost of debt are high ROA, high ratio of fixed assets to total assets, larger loan size, and longer loan maturity.

The correlation table for the SDC sample (not shown) provides additional information on factors affecting the level of accounting conservatism and the likelihood of performance pricing contracts. The correlations suggest that conservatism increases in firm size, leverage, debt rating, loan size, and loan maturity. It also shows that performance pricing contracts are more likely to exist in smaller borrowers, highly leveraged borrowers, high-yield loans, larger loans, longer maturity loans, badly rated loans, and not surprisingly, loans with financial covenants and loans with escalating covenants.

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 debt holders 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 might also value smoothness, persistence,

and predictability of earnings because a persistent and/or predictable earnings stream facilitates a steady stream of future interest payments and leads to a lower interest default risk, and smooth earnings correlate with a low risk profile. Table 7 shows that out of the seven earnings attributes, conservatism, persistence, and smoothness reduce the cost of debt incrementally to each other.[21] This highlights the incremental importance of accounting conservatism above and beyond the other six earnings attributes.

5.3.3. 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 results remain unchanged.

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

I also use the all-in-drawn spread from SDC to test whether conservatism reduces the cost of debt; the results remain unchanged. 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.

5.3.5. 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. Assuming that lenders have perfect foresight regarding the future level of conservatism, I also test H1 and H2 measuring conservatism up until the covenant violations. The results remained unchanged.

[21] 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.

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 facility 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. Then 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 efficiency gains from 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, where conservatism benefits both lenders and borrowers and thus creates an efficiency gain in 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. Since the initial spreads of loans with performance pricing are already lower than those of loans without

performance pricing, reflecting 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 cannot be generalized 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 the positive accounting theory, conservatism is also likely to reduce litigation costs and scrutiny from the tax authority. 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 100th period from 1,000 simulations looks like

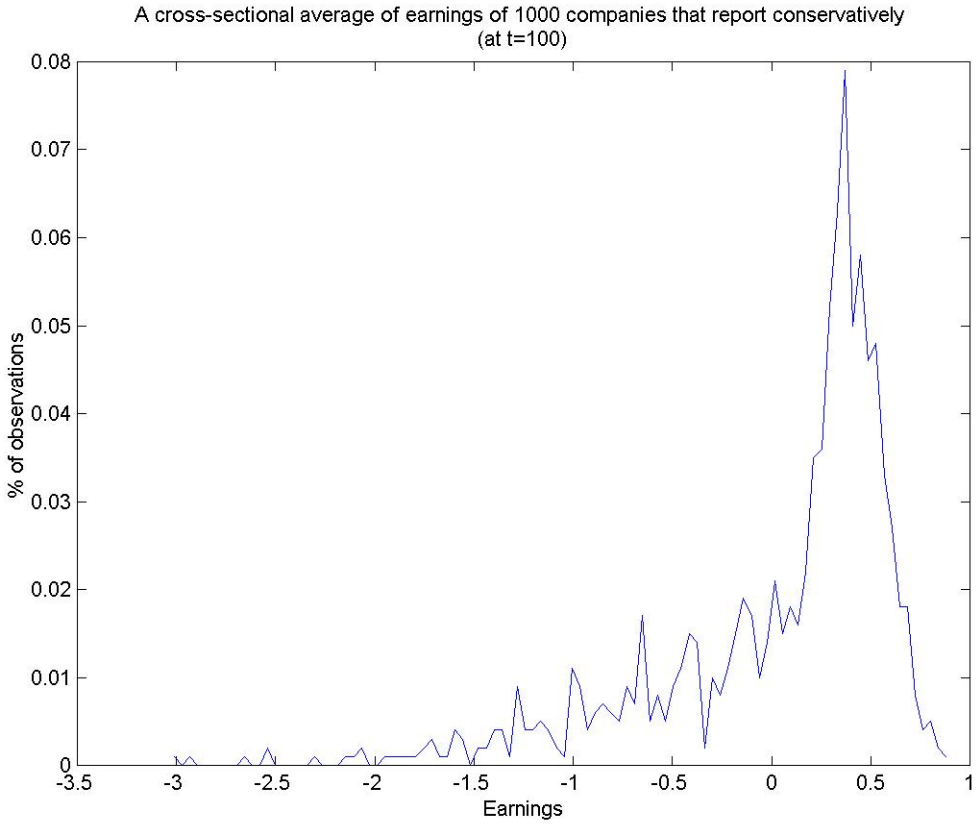

Figure 1. Simulated distribution of earnings of 1,000 conservative firms

(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).

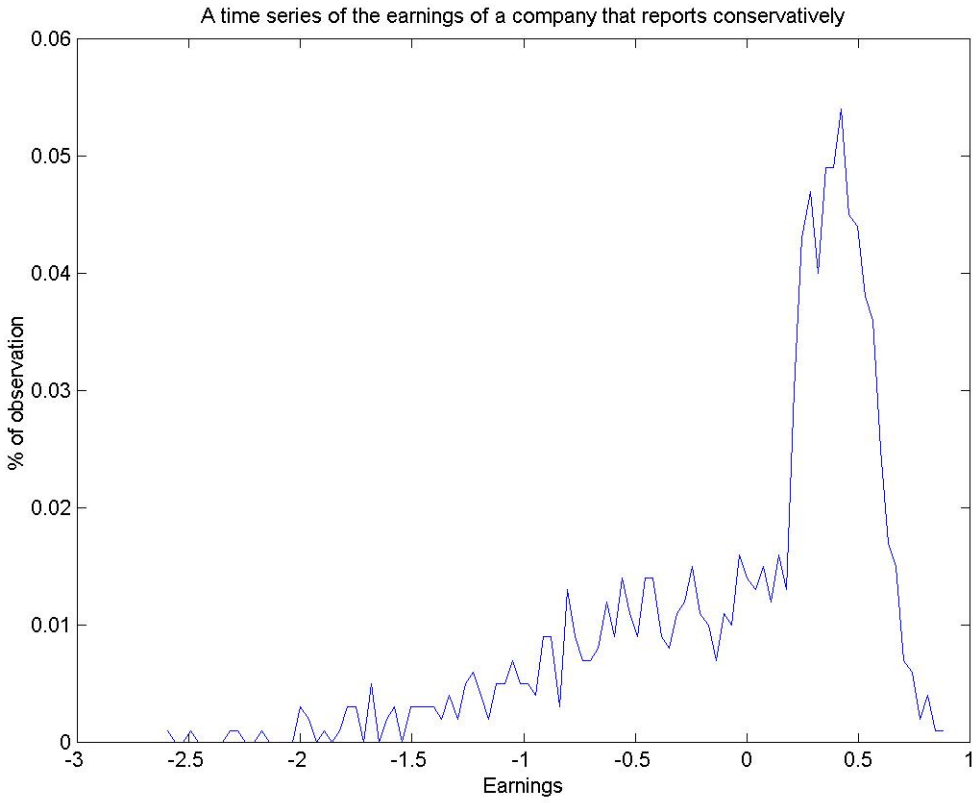

Figure 2. Simulated time series of earnings of one conservative firm
(T =1,000, number of bins = 100, number of simulations = 1)

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, zero otherwise. If negatively skewed earnings reflect bad news more quickly than good news, then I expect β_{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*, zero otherwise. If negative cumulative nonoperating accruals is the result of earnings reflecting bad news more quickly than good news, then I expect γ_{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, zero otherwise.
DR_skew_i	Dummy variable equal to one if firm *i*'s earnings are negatively skewed, zero otherwise.
$DR\_accrual_{it}$	Dummy variable equal to one if firm *i*'s nonoperating accrual is negative in year *t*, zero otherwise.

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Table 1. Sample selection

Panel A. 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 a firm-specific measure of conservatism, I need enough time-series data of earnings and returns. Finally, I need original debt contracts to control for the tightness of covenants 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 enough earnings and return data to calculate the measures of conservatism	515
Exclude firms without original debt contracts to calculate the tightness of covenants	339[1]

Panel B. SDC large sample

I form the SDC sample to provide out-of-sample robustness check to the cost of debt hypothesis (H2). In addition, I test the relation between covenants and conservatism using this sample since the negative shock sample does not provide a match sample without any covenants. 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)	Issues with covenants (number of borrowers)
Syndicated loans from SDC (1994-2003)	72,067 (28,326)	13,227 (5,066)
Issues with financial covenants plus issues without any in-effect covenant from other issues of the same borrower		12,587[2] (4,798)
Issues with initial pricing data	27,489 (16,310)	6,279 (3,900)
Availability of Compustat data		3,992 (2,327)
Requirement of enough earnings and returns data to calculate measures of conservatism and other earnings attributes		1,985 (1,164)

[1] Among the 339 firms in the negative shock sample, 102 firms disclose the violation of covenants afterwards in their 10K, 10Q or 8K filings.

[2] 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.

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, 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 Dec. 31, 2003 if the firm does not violate its covenants
	Spread	The initial spread (basis points over LIBOR) charged for each loan
	Dummy_cov	Dichotomous variable equal to one if the loan has financial covenants, zero otherwise
	Numcov	Number of financial covenants contained in the debt contract
	NWslackratio	(actual net worth before the loan – net worth covenant threshold)/ actual net worth before the 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)
Control variables – loan characteristics	Escalate	Dichotomous variable equal to one if any of the financial covenant is escalating, zero otherwise
	Other debt	Dichotomous variable equal to one if the same borrower has other loans
	PP	Dichotomous variable equal to one if the loan has performance pricing, zero otherwise
	Rating	Actual S&P debt rating if available; imputed debt rating when actual rating is not available
	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, zero otherwise
	Highyield	Dichotomous variable equal to one for high yield loans, 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^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 $R_{j,t} = \lambda_{0,j} + \lambda_{1,j} NI_{j,t} + \lambda_{2,j} \Delta NI_{j,t} + \varepsilon_{j,t}$

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 341 firms among which 102 firms violate their covenants after the shock.

	Negative shock sample					
Variable	N	Mean	Q1	Median	Q3	Std.
Consv_Coeff	339	1.3	-1.3	0.5	3.1	20.6
Consv_R^2	339	8.04	0.2	0.9	4.5	22.9
Consv_negskew	339	0.42	-0.5	-0.6	1.4	1.4
Consv_accrual	339	0.003	0.0001	0.008	0.02	0.05
Cumret	339	-0.54	-0.73	-0.48	-0.35	0.2
Numcov	339	2.84	2	3	3	1.14
Size	339	5.8	4.5	5.7	6.9	1.72
ROA	339	-0.02	-0.04	0.02	0.06	0.19
Leverage	339	0.31	0.17	0.27	0.42	0.2
Loan size	339	0.24	0.09	0.18	0.31	0.27
Loan month	339	48	36	48	60	20.9
Rating	339	12.2	10	12	14	3.3
Num_quarter	76	4.8	1	5	7.5	4.8
Spread	323	185	100	175	250	110

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	Long term debt / total assets (data9/data6)
Leverage	Net income / total assets (data172/data6)
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.
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. Cross correlations

	Violate	Spread	Coeff _rank	Negskew _rank	R^2 _rank	Accrual _rank	Cumret _rank	Numcov	Escalate	Other debt	Size	Lev	ROA	Rating	Loan month	Loan size
Violate			0.07	0.13	0.05	0.16	-0.07	0.09	0.02	0.04	-0.14	-0.04	0.02	0.11	-0.02	-0.02
			0.2	0.02	0.4	0.01	0.18	0.07	0.7	0.4	0.008	0.4	0.7	0.03	0.8	0.7
Spread			-0.06	-0.25	-0.13	-0.13	-0.2	0.14	0.26	-0.11	-0.36	0.18	-0.29	0.56	-0.23	0.34
			0.4	<.001	0.05	0.07	0.001	0.02	<.001	0.08	<.001	<.001	<.001	<.001	<.001	<.001
Coeff	0.07	-0.06		0.12	0.18	0.08	-0.05	0.05	-0.03	-0.04	0.05	-0.03	0.08	-0.11	0.05	0.04
_rank	0.16	0.4		0.03	0.001	0.2	0.3	0.4	0.6	0.5	0.4	0.6	0.1	0.04	0.3	0.5
Negskew	0.08	-0.23	0.11		0.07	0.22	-0.3	0.05	0.16	-0.01	-0.16	0.24	-0.29	0.29	-0.05	0.06
_rank	0.13	<.001	0.03		0.2	<.001	<.001	0.4	0.003	0.8	0.006	<.001	<.001	<.001	0.4	0.3
R^2	0.04	-0.14	0.20	0.07		-0.03	0.02	-0.01	0.04	-0.01	0.24	0.05	0.04	-0.15	0.05	-0.07
_rank	0.4	0.03	<.001	0.2		0.6	0.7	0.8	0.5	0.8	<.001	0.3	0.4	0.005	0.3	0.2
Accrual	0.16	-0.12	0.07	0.22	-0.03		-0.19	0.02	0.03	-0.12	-0.16	0.09	-0.21	0.15	-0.02	0.32
_rank	0.01	0.07	0.2	<.001	0.6		0.002	0.7	0.6	0.05	0.01	0.12	<.001	0.02	0.68	0.67
Cumret	-0.07	-0.2	-0.05	-0.3	0.02	-0.19		-0.04	-0.02	0.05	0.09	-0.21	0.27	-0.25	0.04	-0.01
_rank	0.18	<.001	0.3	<.001	0.7	0.002		0.4	0.7	0.3	0.1	<.001	<.001	<.001	0.5	0.8
Numcov	0.1	0.11	0.03	0.03	-0.003	0.05	-0.01		0.33	0.07	-0.08	-0.02	-0.05	0.08	-0.07	-0.02
	0.06	0.1	0.5	0.5	0.9	0.45	0.8		<.001	0.2	0.15	0.6	0.4	0.15	0.2	0.8
Escalate	0.01	0.23	-0.02	0.16	-0.05	0.03	-0.02	0.32		0.14	0.03	0.05	0.01	0.07	-0.02	-0.02
	0.7	<.001	0.6	0.003	0.3	0.6	0.7	<.0001		0.01	0.5	0.3	0.9	0.17	0.7	0.7
Other	0.04	-0.13	-0.03	-0.01	0.04	-0.11	0.05	0.07	0.14		0.16	-0.04	0.05	-0.05	0.15	-0.02
debt	0.4	0.05	0.5	0.8	0.5	0.05	0.3	0.17	0.01		0.003	0.4	0.3	0.3	0.007	0.8
size	-0.15	-0.33	0.05	-0.15	0.24	-0.15	0.10	-0.08	0.03	0.16		-0.08	0.26	-0.7	0.19	-0.37
	0.005	<.001	0.3	0.004	<.001	0.01	0.05	0.14	0.6	0.004		0.12	<.001	<.001	<.001	<.001
Lev	0.04	0.26	0.04	0.18	0.03	0.11	-0.25	0.02	0.04	-0.06	-0.2		-0.36	0.4	0.08	0.2
	0.4	<.001	0.4	<.001	0.6	0.06	<.001	0.7	0.5	0.25	<.001		<.001	<.001	0.15	0.001
ROA	-0.05	-0.37	0.02	-0.16	0.09	-0.15	0.27	0.005	0.05	0.08	0.33	-0.6		-0.5	0.06	-0.1
	0.4	<.001	0.6	0.003	0.09	0.02	<.001	0.9	0.3	0.13	<.001	<.001		<.001	0.3	0.06
Rating	0.1	0.57	-0.09	0.24	-0.12	0.15	-0.28	0.04	0.01	-0.09	-0.64	0.68	-0.8		-0.09	0.25
	0.07	<.001	0.1	<.001	0.02	0.02	<.001	0.4	0.8	0.09	<.001	<.001	<.001		0.1	<.001
Loan	0.005	-0.16	0.02	-0.04	0.03	-0.02	0.06	-0.04	-0.01	0.12	0.12	-0.005	0.12	-0.09		0.13
month	0.9	0.01	0.6	0.44	0.6	0.8	0.26	0.4	0.8	0.03	0.03	0.9	0.03	0.09		0.02
Loan	-0.03	0.19	0.04	0.07	-0.06	0.01	0.04	0.07	-0.03	-0.004	-0.39	0.27	-0.25	0.34	0.17	
size	0.48	<.001	0.4	0.18	0.3	0.9	0.5	0.16	0.6	0.9	<.001	<.001	<.001	<.001	0.002	

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

$$Violate_i = \alpha_0 + \alpha_1 consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 Rating_i + \beta_6 Numcov_i + \beta_7 Escalate_i + \beta_8 Otherdebt_i + \beta_9 Loansize_i + \beta_{10} Loanmonth_i + \varepsilon_i \quad (1a)$$

	Variables (expected sign)	Consv _coeff	Consv _R^2	Consv _negskew	Consv _accrual	Consv _avgrank
	Intercept	-0.75	-0.28	-0.81	-0.39	-0.53
		(0.50)	(0.07)	(0.58)	(0.10)	(0.19)
Treatment variable	Consv (+)	**0.001**	**0.002**	**0.002**	**0.002**	**0.005**
		(2.55)**	**(3.82)****	**(4.43)****	**(4.10)****	**(8.3)*****
Firm-specific controls	Cumret_rank (-)	-0.001	-0.001	-0.001	-0.003	-0.002
		(2.51)**	(2.23)*	(2.10)*	(7.41)***	(4.66)**
	Size (-)	-0.17	-0.20	-0.18	-0.20	-0.22
		(5.22)***	(6.13)***	(5.67)***	(5.28)***	(6.26)***
	Leverage (?)	-0.30	-0.25	-0.32	-0.33	-0.32
		(1. 68)	(1.20)	(2.11)	(1.91)	(1.49)
	ROA (-)	0.57	0.62	0.57	0.69	0.66
		(0.84)	(0.94)	(0.82)	(0.94)	(0.81)
	Rating (+)	0.03	0.03	0.02	0.01	0.04
		(0.30)	(0.26)	(0.15)	(0.02)	(0.6)
Loan-specific controls	Numcov (+)	0.11	0.10	0.13	0.09	0.07
		(2.56)**	(2.10)*	(3.57)**	(1.33)	(0.70)
	Escalate (+)	-0.09	-0.12	-0.17	-0.02	-0.09
		(0.34)	(0.53)	(1.04)	(0.01)	(0.21)
	Other debt (+)	0.19	0.21	0.17	0.26	0.32
		(1.43)	(1.68)	(1.22)	(2.10)*	(2.85)**
	Loan size (?)	-0.15	-0.16	-0.15	-0.15	-0.20
		(3.80)**	(4.43)**	(3.78) **	(3.02)**	(5.26) **
	Loan month (+)	0.11	0.13	0.13	0.19	0.12
		(0.58)	(0.70)	(0.74)	(1.31)	(0.50)
	N	339	339	339	339	339
	Pseudo R^2	7.4%	7.9%	8.0%	11.2%	13.5%
	Percent Correctly Predicted	67.2	68.2	68.2	70.7	73.2

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). **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, 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, 5 percent and 10 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.

$$\ln h_i(t) = \alpha(t) + \alpha_1 consv_i + \beta_1 Cumret_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 ROA_i + \beta_5 Rating_i + \beta_6 Numcov_i + \beta_7 Escalate_i + \beta_8 Otherdebt_i + \beta_9 Loansize_i + \beta_{10} Loanmonth_i + \varepsilon_i \quad (1b)$$

	Variable (expected sign)	Consv _coeff	Consv _R^2	Consv _negskew	Consv _accrual	Consv _avgrank
Treatment variable	Consv (+)	0.001	0.001	**0.02**	**0.003**	**0.005**
		(0.70)	(0.38)	**(2.42)****	**(2.69)****	**(2.57)****
Firm-specific controls	Cumret_rank (-)	0.0001	0.0003	0.005	-0.002	-0.001
		(0.001)	(0.06)	(0.14)	(1.36)	(0.79)
	Size (-)	-0.31	-0.33	-0.30	-0.30	-0.34
		(4.79)***	(5.12)***	(4.61)**	(3.65)**	(4.96)***
	Leverage (?)	-0.31	-0.32	-0.32	-0.53	-0.47
		(0.67)	(0.67)	(0.68)	(1.39)	(1.01)
	ROA (-)	-0.39	-0.32	-0.27	0.28	-0.18
		(0.12)	(0.08)	(0.06)	(0.05)	(0.02)
	Rating (+)	-0.01	-0.005	-0.02	0.02	-0.01
		(0.01)	(0.003)	(0.03)	(0.02)	(0.01)
Loan-specific controls	Numcov (+)	0.14	0.14	0.16	0.05	0.02
		(1.4)	(1.27)	(1.79)*	(1.16)	(0.01)
	Esclate (+)	-0.006	0.04	-0.09	0.25	0.19
		(0.001)	(0.02)	(0.09)	(0.52)	(0.31)
	Other debt (+)	0.15	0.17	0.12	0.10	0.24
		(0.30)	(0.35)	(0.20)	(0.12)	(0.59)
	Loan size (?)	-0.14	-0.15	-0.13	-0.21	-0.25
		(1.07)	(1.45)	(0.93)	(2.42)**	(3.58)**
	Loan month (?)	0.10	0.05	0.07	0.30	0.24
		(0.15)	(0.04)	(0.07)	(1.08)	(0.74)
	N	289	289	289	289	289
	Pseudo R^2	2.6%	2.7%	2.9%	4.3%	4.6%

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). **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, 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, 5 percent and 10 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)	Consv _coeff	Consv _R^2	Consv _negskew	Consv _accrual	Consv _avgrank
	Intercept	59.1	13.08	66.5	24.01	66.96
		(0.8)	(0.16)	(0.85)	(0.27)	(0.71)
Treatment variable	Consv (-)	**-0.36**	**-0.22**	**-0.36**	**-0.41**	**-0.81**
		(-2.29) ***	**(-2.05)****	**(-2.53)*****	**(-1.96)****	**(-2.65)*****
Firm-specific controls	Size (-)	1.51	1.54	0.88	7.29	6.99
		(0.27)	(0.26)	(0.15)	(1.12)	(1.07)
	Leverage (+)	34.34	41.51	41.94	39.60	39.34
		(1.24)	(1.45)	(1.52)**	(1.20)	(1.30)
	ROA (-)	-16.98	-6.29	-27.47	2.34	23.73
		(-0.30)	(-0.10)	(-0.748	(0.04)	(0.36)
	S&P rating (+)	17.08	17.92	17.72	18.96	19.48
		(4.32)***	(4.40)***	(4.52)***	(4.22)***	(4.33)***
Loan-specific controls	Numcov (?)	2.11	-0.38	1.82	-1.82	-0.27
		(0.41)	(-0.07)	(0.36)	(-0.32)	(-0.05)
	Escalate (?)	34.13	30.94	33.78	30.63	29.83
		(2.89)***	(2.48)***	(2.85)***	(2.31)**	(2.21)**
	Other debt (?)	-12.0	-12.10	-13.82	-4.40	-4.72
		(-1.04)	(-1.01)	(-1.19)	(-0.35)	(-0.36)
	Loan size (?)	-23.21	-26.77	-25.48	-2.49	-8.22
		(-1.18)	(-1.31)	(-1.30)	(-0.09)	(-0.30)
	Loan month (-)	-0.27	-0.29	-0.33	-0.39	-0.41
		(-0.86)	(-0.91)	(-1.06)	(-1.15)	(-1.20)
	Revolver (-)	-55.06	-46.16	-48.18	-50.68	-52.59
		(-2.68)***	(-2.23)**	(-2.39)**	(-2.38)**	(-2.46)**
	PP (-)	-110.10	-53.69	-93.43	-113.04	-153.01
		(-4.40)***	(-2.20)**	(-3.63)***	(-3.94)***	(-3.37)***
	PP*Consv (?)	0.43	-0.05	0.26	0.41	0.76
		(2.35)**	(-0.26)	(1.50)	(1.72)*	(1.99)**
	N	323	323	323	323	323
	Adj_R^2	43.5%	41.0%	43.8	42.8%	43.0%

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 $E_{it} / P_{it-1} = \alpha_{0i} + \alpha_{1i} DR_{it} + \beta_{0i} R_{it} + \beta_{1i} R_{*DR_{it}+\varepsilon_{it}} it$ (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, 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, zero otherwise. **PP,** dichotomous variable equal to one if the loan has performance pricing, zero otherwise.

***, **, and * represent significance at 1 percent, 5 percent and 10 percent level for one-tailed or two-tailed tests as appropriate**.**

Table 7. Large sample evidence on the association between the initial loan spread and conservatism after controlling for the borrowers' other accounting attributes (N=1,985).

$$Spread_i = \alpha_0 + \beta_1 Consv_i + \beta_2 Quality_i + \beta_3 Persistence_i + \beta_3 \Pr edictability_i + \beta_4 Smoothness_i + \beta_5 Timeliness_i + \beta_6 \Re levance_i + \beta_7 Size_i + \beta_8 Leverage_i + \beta_9 ROA_i + \beta_{10} Rating_i + \beta_{11} Numcov_i + \beta_{12} Escalate_i + \beta_{13} Otherdebt_i + \beta_{14} Loansize_i + \beta_{15} Loanmonth_i + \beta_{16} Revolver_i + \beta_{17} PP_i + \beta_{18} PP_i * Consv_i + \varepsilon_i$$

	Variables (expected sign)	Consv _coeff	Consv _R^2	Consv _negskew	Consv _accrual	Consv _avgrank
	Intercept	17.52	34.47	26.44	39.30	28.50
		(0.62)	(1.22)	(0.94)	(1.39)	(1.00)
Earnings' atrributes	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	0.002
		(0.83)	(-0.82)	(1.09)	(0.84)	(0.90)
	Persistence(-)	**-0.01**	**-0.007**	**-0.009**	**-0.009**	**-0.009**
		(-3.77)***	**(-3.0)****	**(-3.11)**	**(-3.44)*****	**(-3.12)**
	Predictability (?)	0.01	0.01	0.01	0.01	0.01
		(2.68)***	(-0.79)	(2.50)**	(2.56)***	(2.79)***
	Smoothness (-)	**-0.01**	**-0.01**	**-0.01**	**-0.01**	**-0.01**
		(-3.14)***	**(-4.0)*****	**(-3.28)*****	**(-3.31)*****	**(-3.13)*****
	Timliness (?)	0.007	0.006	0.006	0.007	0.006
		(2.24)**	(2.26)**	(1.98)**	(2.17)**	(2.06)**
	Relevance(?)	-0.002	-0.001	0.0004	-0.0001	-0.001
		(-0.55)	(-0.51)	(0.1)	(-0.06)	(-0.44)
Firm-specific controls	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)***	(3.78)***	(2.74)***	(2.65)**	(2.80)***
	ROA (-)	-31.15	-88.7	-27.48	-29.85	-26.89
		(-1.60)	(-5.16)***	(-1.40)	(-1.53)	(-1.37)
	S&P rating (+)	13.0	11.5	12.91	12.93	12.83
		(12.0)***	(11.94)***	(11.8)***	(12.17)***	(11.91)***
	Numcov (?)	7.61	5.8	7.55	7.66	6.99
		(4.34)***	(3.64)***	(4.28)***	(4.35)***	(3.85)***
Loan-specific controls	Escalate (?)	43.76	42.3	43.52	43.77	43.03
		(10.85)***	(11.50)***	(10.75)***	(10.83)***	(10.45)***
	Other debt (?)	0.02	0.6	-0.23	0.19	0.09
		(0.01)	(0.20)	(-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)***	(-5.33)***	(-5.90)***	(-5.76)***	(-6.06)***
	Revolver (-)	-66.84	-69.8	-67.06	-67.09	-69.47
		(-11.91)***	(-13.91)***	(-11.92)***	(-11.93)***	(-12.12)***
	PP (?)	-1.5	-21.5	-10.33	-20.90	-11.33
		(-0.2)	(-2.96)***	(-1.19)	(-2.56)***	(-1.35)
	PP*Consv (?)	-0.02	-0.01	-0.01	0.001	-0.01
		(-2.4)**	(-0.21)	(-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%

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 $\frac{TCA_{jt}}{Assets_{jt}} = \alpha_{0,j} + \alpha_{1,j} \frac{CFO_{j,t-1}}{Assets_{j,t}} + \alpha_{2,j} \frac{CFO_{j,t}}{Assets_{j,t}} + \alpha_{3,j} \frac{CFO_{j,t+1}}{Assets_{j,t}} + v_{j,t\ j,t}$. **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 $R_{j,t} = \lambda_{0,j} + \lambda_{1,j} NI_{j,t} + \lambda_{2,j} \Delta NI_{j,t} + \varepsilon_{j,t}$. **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, 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, d**ichotomous variable equal to one for revolving loans, zero otherwise. **PP,** dichotomous variable equal to one if the loan has performance pricing, zero otherwise.

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

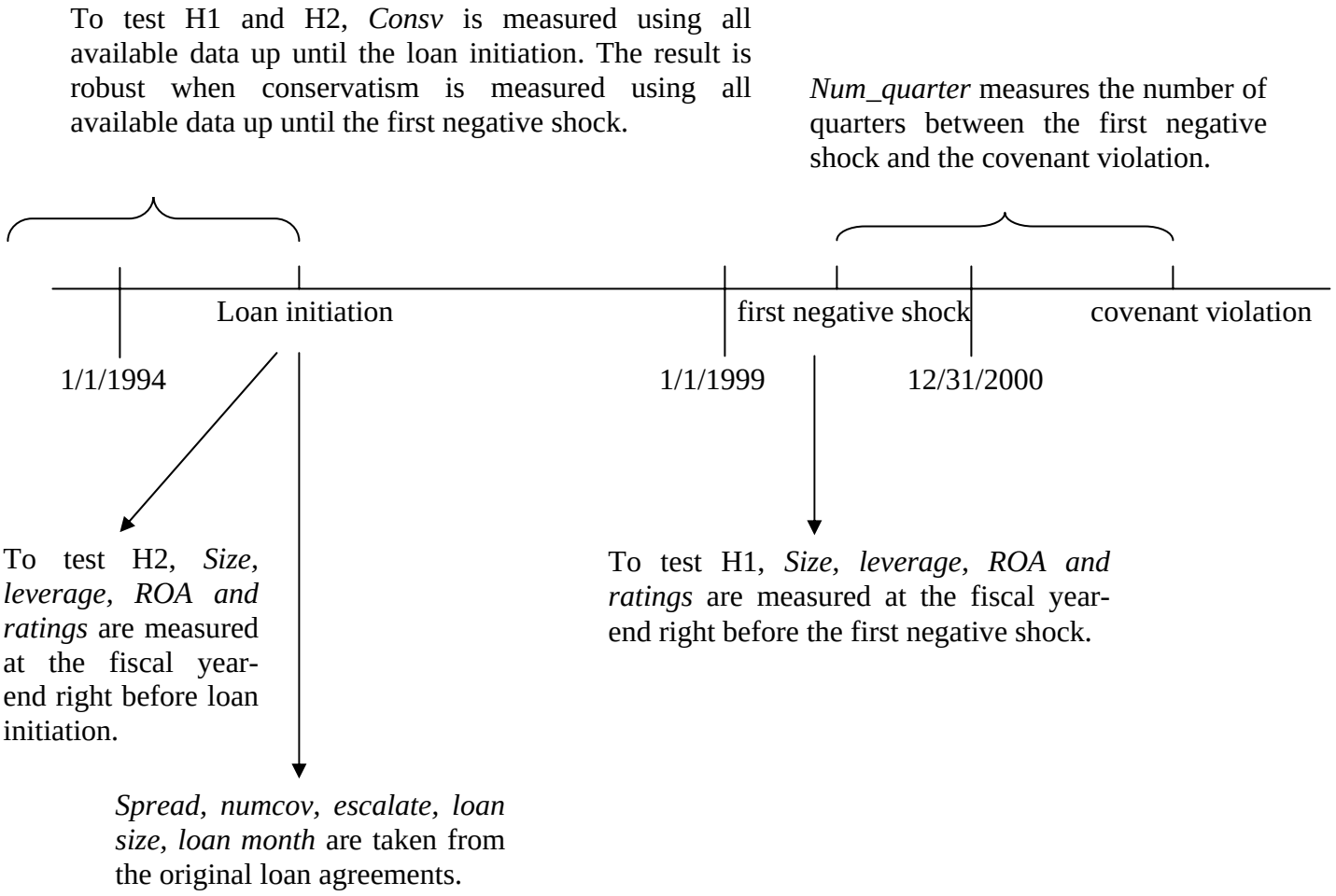

Figure 2: Frequency of financial covenants out of 13,227 SDC loan facilities with covenants