Accounting Conservatism and Private Debt Contracting

Jingjing Zhang[†]

Kellogg School of Management

Northwestern University

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Abstract

This paper examines the role of accounting conservatism on the design of private debt contracts. Specifically, I distinguish two arguments that offer different explanations for how accounting conservatism improves debt contracting efficiency. One argument suggests that lenders care about *ex post* timely loss recognition (*income statement argument*), and the other argument contends that lenders care about the cumulative effect of *ex ante* timely loss recognition (*balance sheet argument*). I provide evidence consistent with the *balance sheet argument*. Lenders reward borrowers' timely loss recognition when it leads to more reliable net asset values in the balance sheet by lowering interest rate spreads. In addition, while on average, lenders adversely price the buildup of accounting slack caused by *ex ante* conservative accounting practices, this penalty is absent when the accounting slack is more likely to be caused by *ex ante* timely loss recognition. I also find that lenders are more likely to use collateral and less likely to use financial covenants for firms with high levels of past conservatism, regardless of the source of conservatism. Taken together, the results show that it is important to distinguish the type and source of conservatism. Overall, the results suggest that the role of accounting conservatism in debt contracting is more complex than documented in prior literature.

1. Introduction

There is a growing interest in understanding how accounting attributes, such as conservatism, affect lenders' decisions on debt contract terms (Beatty, Weber and Yu 2007, Frankel and Litov 2007, Nikolaev 2007, Zhang 2008). Part of the reason is that the demand from debt contracting constitutes one of the important explanations for the existence of conservatism (Basu 1997, Watts 2003). This paper examines how lenders structure contracts in reaction to the type and source of conservatism in borrowers' financial statements.

Current literature in this field proposes two theoretical explanations for conservatism's impact on debt contracting. One explanation emphasizes the income statement effect of conservatism (*IS argument*) and the other explanation highlights the balance sheet effect of conservatism (*BS argument*). According to the *IS argument*, conservatism is considered to improve contracting efficiency through ongoing timely recognition of bad news in the income statement (Basu 1997, Ball and Shivakumar 2005). Since lenders particularly care about timely recognition of bad news, they utilize the level of *ex ante* conservatism to infer *ex post* conservatism in earnings. Under the *BS argument*, conservatism is beneficial to lenders through the cumulative effect of timely recognition of losses on asset values reported in the balance sheet (Watts 2003). Therefore, lenders utilize the level of *ex ante* conservatism to evaluate the quality of the balance sheet in providing reliable estimates of net asset values. Both arguments agree that conservatism provides valuable information to lenders, who have an asymmetric exposure to firms' risks. However, these arguments differ with respect to how conservatism affects information used by lenders.

Prior empirical studies in this area do not account for the different implications on debt contracting resulting from the *IS* and *BS argument*s. Thus, the mechanism through which conservatism improves contracting efficiency is not very apparent. My study distinguishes the *IS* and *BS arguments* by examining the interaction of conditional and unconditional conservatism on loan pricing (loan spreads), covenant intensity (number of financial covenants), and the presence of collateral in private debt contracts at the time of loan initiation. Conditional conservatism refers to timely loss recognition with the primary effect on the income statement, while unconditional conservatism is the realized conservatism resulting from past and current application of timely loss recognition and conservative accounting methods (i.e. not related to accounting responses to specific economic shocks).[1]

I examine the effect of the interaction of the two types of conservatism on debt contract terms by dividing sample observations into low, medium, and high groups based on either the level of conditional conservatism or the level of unconditional conservatism. Firms in the high unconditional conservatism group have reported book values that are significantly understated relative to their economic values and this preempts future asset write-downs in response to bad news, i.e. future conditional conservatism. Therefore, I expect that following the *IS argument* the relation between *ex ante* conditional conservatism and loan pricing (covenant intensity) would be driven by the firms whose future conditional conservatism is not constrained, i.e. firms with a low level of current unconditional conservatism. Further, timely loss recognition results in asset values that are more aligned with economic values in contrast to a mechanical application of accounting rules resulting in write-downs or non-creation of assets. Therefore, under the *BS argument,* I expect that the relation between unconditional conservatism and loan pricing (the

[1] Prior studies typically confine their definitions of unconditional conservatism to downward biased asset values due to applying conservative accounting methods. See Section 2.1 for detailed discussions on the definition of unconditional conservatism used in this paper.

presence of collateral) would be driven by the firms with a high level of *ex ante* conditional conservatism.

I find that borrowers with higher levels of *ex ante* observed conditional conservatism are rewarded with lower spreads of interest rates, consistent with prior studies. However, not all firms with high conditional conservatism receive lower spreads. The negative association between conditional conservatism and interest spreads is driven by firms in groups with medium and high levels of unconditional conservatism. This result is inconsistent with the *IS argument* which predicts that *ex ante* conditional conservatism is more likely to be rewarded in conjunction with low level of unconditional conservatism since it would enable firms to sustain *ex post* conditional conservatism. Moreover, I find that borrowers with higher levels of unconditional conservatism resulting from past use of conservative accounting methods are actually charged higher interest spreads. However this effect does not exist when the past unconditional conservatism is driven primarily by timely loss recognition. This is consistent with the argument that unconditional conservatism resulting from use of conservative accounting methods reduces contracting efficiency.

Next, I find that both *ex ante* conditional conservatism and unconditional conservatism reduce covenant intensity. This result is contrary to the positive relation between conditional conservatism and covenant intensity documented in a sample of public debt agreements (Nikolaev 2007). [2] The negative association between *ex ante* conditional conservatism and covenant intensity is primarily driven by the group of firms with high levels of unconditional conservatism. The negative association between unconditional conservatism and covenant intensity is present across all groups irrespective of the level of *ex ante* conditional conservatism.

[2] In a related study, Bharath, Sunder, and Sunder (2008) argue that differences in lender characteristics and institutional features of private and public debt markets explain differences in contract design in response to borrower accounting quality.

Therefore, it is unconditional conservatism that results in fewer covenants in the bank loan contracts. Taken together, the results weakly support the *IS argument* since firms with high unconditional conservatism are less likely to have future timely loss recognition, which is important for effective use of covenants.

One possible explanation for the negative association between covenant intensity and unconditional conservatism is that lenders may be using contracting mechanisms other than covenants to protect their interests. To explore this possibility, I test whether high levels of unconditional conservatism lead to greater presence of collateral. I find a significantly positive relation between the level of unconditional conservatism and the presence of collateral for all groups. This is consistent with the conjecture that lenders are more likely to rely on the use of collateral if conservative financial reporting provides more reliable information on the lower bound of net asset values.

The contributions of this study are twofold. First, I show that conditional conservatism (timely loss recognition) enhances contracting efficiency mainly because it improves the quality of the balance sheet by providing reliable information on net asset values, consistent with Watts (2003). Second, to the best of my knowledge, this is the first paper to empirically decompose the sources of overall balance sheet unconditional conservatism. I find that the composition of unconditional conservatism affects interest charged on bank loans. My results provide some insight on what types of conservatism are valuable to lenders and how lenders respond to choose optimal contracting mechanisms.

One limitation of the study is that I do not fully incorporate the effect of borrowers' growth. Growth can affect my results and inferences in two ways. First, in this paper I assume that a firm is in a steady state without big changes in assets and the control variable measured as

past asset growth rate is a good proxy for future growth rate. When the assumption is not valid, a firm's high unconditional conservatism does not necessarily constrain future timely loss recognition since as long as assets keep growing, it creates new opportunities for recognizing asset write-downs.

The second limitation is that I use the market-to-book ratio as well as an adjusted market-to-book ratio developed by Beaver and Ryan (2000) to proxy for unconditional conservatism. While both measures are consistent with prior literature, they include economic rents. Rents are the difference between the equity (economic) value and the value of separable net assets, representing firm's monopoly power that is generated from past strategic operation and can be employed to yield future positive NPV projects. According to Roychowdhury and Watts (2007), accounting is not supposed to record rents and therefore, accounting conservatism should not include the understatement of reported asset values resulting from rents.[3] As a result, the market-to-book ratio and the adjusted ratio are subject to potential measurement error. However, it is not clear how these rents could be measured.

The next section reviews the related studies and outlines the research hypotheses. Section 3 describes the sample, the variable measurements, and the research design. Section 4 presents the summary statistics and the empirical results. Section 5 concludes the study.

2. Related studies and hypotheses development

2.1 Conditional and unconditional conservatism

Two aspects of conservatism result in understatement of the book values of net assets relative to the economic values. One is defined by Basu (1997) as representing "accountants'

[3] In contrast, Ryan (2006) considers rents as part of unconditional conservatism.

tendency to require a higher degree of verification for recognizing good news than bad news in financial statements" (p. 4). The asymmetric verification leads to timely recognition of economic losses but not economic gains. Examples of this type of conservatism include lower of cost or market accounting for inventories and asset write-downs. Under timely loss recognition, reported earnings are more sensitive to contemporaneous losses, which make the income statement more informative to users who care about firms' downward risks but not the upside potential. The impact on the income statement also flows through to the balance sheet due to the clean surplus relation between the two financial statements. Writing down assets under bad news but not writing up for good news results in persistent understatement of net assets on the balance sheet.

The other aspect of conservatism that causes understatement of assets is "the selection of 'conservative' accounting methods" (Givoly, Hayn, and Natarajan 2007, p. 67). Examples are immediate expensing for R&D costs, the use of accelerated depreciation method, and LIFO inventory valuation. This type of conservatism lowers asset values, and such a balance sheet effect persists over time. However, its income statement effect is reversible, from understating earnings in the early years of an asset's life to eventually overstating earnings in the later years.

Both aspects of conservatism introduce understatement of asset values, but they differ in their potential to convey new information in the financial statements. Timely loss recognition introduces understatement conditional on the type of the news. In contrast, applying conservative accounting methods brings in understatement by systematically allocating the cost over the life of an asset, without reflecting new information about changes in asset values (Basu 2001, p.

1334). Thus, the former is usually labeled as conditional conservatism, whereas the latter is called unconditional conservatism.[4]

The cumulative effect of both types of conservatism is reflected as persistent understatement of net asset values on the balance sheet. Such realized conservatism creates accounting slack[5] that constrains future application of conditional conservatism.[6] This can be illustrated with the following example. Suppose a firm has a very low book value of an asset compared to its economic value, either caused by past asset write-downs or by adopting very conservative accounting methods or both. When there is a negative shock, unless the shock is sufficiently big so that the economic value drops below the book value, the firm will not recognize the bad news in the financial statement. Therefore, over a wide range of economic shocks conditional conservatism would not be observed for a firm. Moreover, even if the negative shock was big enough to trigger a write-down, the magnitude of the write-down for such a firm would be smaller than for firms with less accounting slack.

In the rest of the paper I follow the convention in the literature and use the terms conditional and unconditional conservatism. However, I extend the meaning of unconditional conservatism to include past conditional conservatism. In other words, unconditional conservatism refers to realized conservatism or accounting slack and is used interchangeably with the latter two terms in this study. There are two reasons to expand the scope of the

[4] Other names that have been used to refer to the two types of conservatism include income statement vs. balance sheet conservatism, *ex post* vs. *ex ante* conservatism, news dependent vs. news independent conservatism. See Beaver and Ryan (2005, p. 305) for details.

[5] Accounting slack is usually defined as the difference between economic value and book value. However, according to Roychowdhury and Watts (2007), accounting slack is only the difference between market value of net separable assets and book value of net assets.

[6] The fact that unconditional conservatism preempts conditional conservatism has been analyzed in detail by Beaver and Ryan (2005), and the negative relation between the two types of conservatism has also been documented in prior studies (Givoly, Hayn, and Natarajan 2007, Roychowdhury and Watts 2007). The implication of the interaction between the two types of conservatism on analyst earnings forecast errors has been examined more recently by Louis, Lys, and Sun (2007).

terminology. First, unconditional conservatism caused by applying conservative accounting methods is usually proxied by the market-to-book ratio. But what this measure captures is in fact the level of realized conservatism.[7] Second, once conditional conservatism is realized, it reflects properties that are similar to the conservatism resulted from applying accounting methods. Realized conditional conservatism no longer provides new information to the users of financial statements. Moreover, it even preempts subsequent applications of conditional conservatism in the absence of asset growth, because it resets the value of the asset to a lower amount. To differentiate the sources of unconditional conservatism, in my paper I specifically differentiate whether the conservatism is caused by past conditional conservatism or is a result of conservative accounting methods.

2.2 The role of accounting conservatism in debt contracting

Accounting conservatism has been considered as a reporting mechanism that increases debt contracting efficiency. Two arguments are proposed with different emphases and implications.

Basu (1997) and Ball and Shivakumar (2005) represent the *IS argument* that highlights the news-dependent nature of conditional conservatism. In debt contracting, timely loss recognition affects the effectiveness of financial covenants, which are used to define the property and decision rights between debtholders and shareholders. Once borrower's financial condition deteriorates, timely loss recognition triggers covenant violations more quickly. Therefore, debtholders are able to obtain the control rights in a timely manner and take necessary actions to protect their interests. In contrast, unconditional conservatism does not bring any new information to lenders. It even reduces the likelihood and the magnitude of conditional

[7] An alternative measure is to look at specific accounting methods. But Ahmed et al. (2002) point out that such an aggregate measure is difficult to construct and is unlikely to reflect the magnitude of conservatism (p. 875).

conservatism during the contracting period. Thus, unconditional conservatism is likely to reduce contracting efficiency, or is at best neutral (Ball and Shivakumar 2005).

Following the spirit of this argument, Zhang (2008) provides empirical evidence that conditional conservatism benefits lenders *ex post* through timely signaling of default risks and benefits borrowers *ex ante* in obtaining lower interest rates. Nikolaev (2007) documents a positive association between timely loss recognition and covenant intensity, defined as the number of financial covenants used in a debt contract, in a sample of public debt agreements, suggesting that conditional conservatism increases the effectiveness of the use of covenants. Moerman (2006) finds a negative relation between timely loss recognition and bid-ask spreads charged on the traded loans, suggesting that conditional conservatism reduces information asymmetry by revealing losses in a timely fashion. In addition, both Zhang (2008) and Moerman (2006) test unconditional conservatism in their settings and are unable to document contracting implications. In contrast, Bauwhede (2007) finds a negative relation between unconditional conservatism and credit ratings, implying negative consequences for a firm resulting from unconditional conservatism. These results are consistent with the argument that only conditional conservatism improves debt contracting efficiency.

The *BS argument* represented by Watts (2003) emphasizes the enhanced reliability of financial statements resulting from conditional conservatism. Specifically, the cumulative financial effect of conditional conservatism produces a reliable estimate of the lower bound of net asset value as well as cumulative earnings from the beginning of a firm's operations. Such a valuation approach echoes the orderly liquidation concept of "anticipating all possible losses and no unverifiable gains" (Watts 2003, p. 212). It helps to prevent inappropriate distributions to management and shareholders at the expense of debtholders and assists lenders in assessing

potential borrowers' asset values as collateral, monitoring borrowers' ability to pay, and restricting managers' action to reduce net asset values. In accordance with this argument, Ahmed et al. (2002) find that conservative accounting helps to mitigate shareholder-bondholder conflicts over dividend policy and reduce firm's borrowing costs.

The two arguments are not necessarily inconsistent with each other. In fact, lenders would desire both an informative income statement that signals downward credit risks in a timely manner and an informative balance sheet that provides reliable estimates of net asset values. However, the trade-off between relevance and reliability in financial reporting and the complex relationship between income statement and balance sheet in multiple periods suggest that lenders have to balance between conditional conservatism and unconditional conservatism in deciding contracting terms.

2.3 Hypotheses

A few prior studies have examined the interaction between conditional and unconditional conservatism. Beaver and Ryan (2005) model how on one hand, the level of unconditional conservatism preempts future application of conditional conservatism, and on the other hand, conditional conservatism resets unconditional conservatism.[8] Roychowdhury and Watts (2007) empirically examine the relation of conditional and unconditional conservatism in multiple periods and find a negative association between beginning unconditional conservatism and subsequent conditional conservatism. They also document a positive association between conditional conservatism and end-of-period unconditional conservatism over a period of two years or beyond. These results are consistent with Beaver and Ryan's (2005) conjectures on the

[8] As mentioned in Section 2.1 (see p. 7) I interpret unconditional conservatism to be realized conservatism.

relation between conditional and unconditional conservatism.[9] In a recent study, Louis, Lys, and Sun (2007) document that the effect of conditional conservatism on analyst forecast errors decreases in the level of unconditional conservatism. Such an interaction effect demonstrates the constraining effect of accounting slack on future asymmetric accounting treatment of gains and losses in this applied setting.

In general, however, papers examining the effect of accounting conservatism on debt contracting either ignore the distinction between conditional and unconditional conservatism,[10] or treat the different types of conservatism in isolation.[11] Such analyses overlook the interdependence of components of conservatism in a debt contracting setting, where lenders are trying to anticipate future reporting behaviors.

As mentioned in the last section, Basu (1997) and Ball and Shivakumar (2005) emphasize the news-dependent nature of conditional conservatism and its role in debt contracting. What this argument suggests is that it is the application of conditional conservatism during the contracting period that actually benefits lenders. In other words, what matters for lenders is *ex post* conditional conservatism. However, when entering into debt agreements, lenders cannot observe the realization of *ex post* conditional conservatism. In order to argue that *ex post* conditional conservatism affects debt contracting design, prior studies investigates the relation between *ex ante* conditional conservatism and debt contracting terms, assuming that lenders are able to infer the level of *ex post* conditional conservatism from the level of *ex ante* conditional conservatism.

[9] Even though the results in Roychowdhury and Watts (2007) are consistent with the expected association suggested by Beaver and Ryan's (2005) model, the underlying reasoning is totally different. Roychowdhury and Watts (2007) offer a contracting-based explanation that "the role of accounting is to report the market value of net assets available for interim distributions to claimants, not the EV of the firm" (p. 6), in which EV refers to equity value. Such an argument raises potential questions on the measurement issue of conservatism.

[10] For example, Ahmed, et al. (2002), Beatty, Weber, and Yu (2007).

[11] For example, Vasvari (2006), Moerman (2006), Ball, Robin, and Sadka (2007), Bauwhede (2007), Frankel and Litov (2007), Nikolaev (2007), Zhang (2008).

Both Zhang (2008) and Nikolaev (2007) explicitly address the validity of this assumption in their studies on the effect of *ex ante* conditional conservatism on loan pricing and covenant intensity respectively. They point out that borrowers' reputation effect and other constraints, such as the threat of auditor ligation or using fixed GAAP in computing covenants, would keep borrowers from changing accounting practice.[12] But, even if borrowers would pre-commit to applying the same accounting practice after entering into the debt contracts, it is still unlikely for them to maintain the same level of conditional conservatism, since the likelihood and magnitude of conditional conservatism depend on whether the book values of the assets are close to their economic values or not. As a result, I expect that the relation between *ex ante* conditional conservatism and debt contracting terms documented in prior studies would be driven by the firms with low levels of unconditional conservatism. Specifically, I investigate the interaction effect of *ex ante* conditional and unconditional conservatism on loan pricing and covenant intensity in private debt contracting.

As Zhang (2008) finds that lenders reward more conditionally conservative borrowers by offering lower interest rates, I expect that this negative relation would be driven by firms with less accounting slack that constrains future timely loss recognition. Formally, my first hypothesis on spread is:

H1a: The negative relation between ex ante conditional conservatism and loan pricing is driven by the firms with low levels of unconditional conservatism.

The *IS argument* suggests that *ex post* timely loss recognition accelerates covenant violation and thus makes the use of covenants more effective. Nikolaev (2007) also documents a positive relation between conditional conservatism and covenant intensity, confirming that

[12] Zhang (2008) also points out that the possibility of *ex post* earnings management to avoid debt covenant violations works against the hypotheses on the negative relation between *ex ante* conditional conservatism and loan pricing.

conditional conservatism increases the effectiveness of covenants. Hence, I expect that this positive relation would be driven by firms with low unconditional conservatism. This leads to the hypothesis with respect to covenant intensity:

H1b: The positive relation between ex ante conditional conservatism and covenant intensity is driven by the firms with low levels of unconditional conservatism.

As pointed out in Section 2.2, Watts (2003) emphasizes the property of reliability of financial statements resulting from the cumulative effect of past conditional conservatism. Since applying conservative accounting methods by itself does not guarantee reliability,[13] unconditional conservatism stemming from use of conservative accounting is unlikely to be demanded by lenders.[14] Thus, what matters for lenders is unconditional conservatism resulting from *ex ante* conditional conservatism. This suggests that level of *ex ante* conditional conservatism could serve a different purpose than it does under the *IS argument*. It may be used to assess the quality of the current balance sheet in terms of reliably reflecting the lower bound of net asset values rather than to infer the quality of future income statements in recognizing economic losses on a timely basis. In other words, the higher the level of *ex ante* conditional conservatism, the better is the quality of the balance sheet.

If lenders care about reliability resulting from conservative reporting, we can expect that borrowers with higher unconditional conservatism would be able to obtain lower interest spreads. This relation between unconditional conservatism and loan spreads would be driven by the firms with high levels of *ex ante* conditional conservatism. However, since unconditional

[13] For example, if a firm depreciates fixed assets at a rate exceeding the economic amortization rate, the firm uses a conservative accounting method that understates book value of the corresponding assets. However, if the market value of the assets suddenly drops even below to the book value, applying the same method without accounting for the negative shock overstates the value of the assets on the balance sheet and thus is not reliable.

[14] Since the distinction between conditional conservatism and conservative accounting methods can be blurry, I do not venture into categorizing accounting practices on these lines.

conservatism can also result from use of conservative accounting methods, lenders may penalize borrowers with high levels of unconditional conservatism. This is because applying conservative accounting methods creates accounting slack that can be used to inflate future earnings and thus lower the quality of earnings. Sridharan and Magee (1997) suggest that lenders may even favor adoption of aggressive accounting methods *ex ante* by borrowers to reduce the *ex post* uncertainty in financial reporting. Therefore, I expect borrowers with higher unconditional conservatism to incur higher borrowing costs. Such a relation would be driven by firms with low levels of *ex ante* conditional conservatism. Specifically, I hypothesize that:

H2a: The association between unconditional conservatism and loan spreads becomes less positive or more negative as the level of ex ante conditional conservatism increases.

As seen in H1b, I expect that lenders cannot effectively use covenants for firms with high levels of unconditional conservatism. Therefore they will most likely use alternative contracting mechanisms to protect themselves from the downside risks and one such alternative is the use of collateral. Assets with reliable estimates of the lower bound values are more likely to be used as the collateral in debt contracts. The *BS argument* suggests a positive relation between unconditional conservatism and the presence of collateral. Further, this relation is expected to be driven by firms with high levels of *ex ante* conditional conservatism, which increases the reliability of the asset values through writing down assets in response to economic losses in a timely manner. Formally, the hypothesis on the presence of collateral is:

H2b: The positive association between unconditional conservatism and the presence of collateral is driven by the firms with high levels of ex ante conditional conservatism.

3. Data and research design

3.1 Sample selection

I obtain private debt information from the *Dealscan* database. I focus on dollar denominated loans during the period from 1996 through 2003. I exclude borrowers in financial and regulated utility industries, because the debt contract terms for these industries differ substantially from other industries.

The basic unit in *Dealscan* is a loan, which is also referred to as facility or tranche. A borrower usually enters into multiple loans at the same time with either a single bank or a group of banks. These loans are grouped into a package, which is also named as deal. Because all loans in a package are subject to the same covenants and accounting conservatism measures, the analysis in this paper is based on the package level. However, as the terms of "loan" and "debt" are widely used, I will sometimes use them to denote a package as well. For example, statements about loan/debt characteristics or loan/debt violations refer to the characteristics and violations of packages. When the basic unit of a package is specifically referred to, I use the term "facility" in this paper to avoid confusion.

The sample selection process is presented in Table 1. I start with the loan data from *Dealscan*. Some borrowers may enter into multiple debt agreements in a year and thus have the same conservatism measures and control variables. To avoid the problem over-weighing these observations in the sample, I only keep the package with the largest borrowing amount for each borrower in each year. I then merge the loan data with *Compustat*/*CRSP*. [15] I require that each firm in the sample have necessary accounting information and stock return data to obtain borrower specific control variables and to estimate accounting conservatism. The final sample to

[15] I thank Jayanthi Sunder and Shyam Sunder for providing me the link between *Dealscan* and *Compustat*/*CRSP* based on firm names.

test the spread and collateral hypotheses contains 5,298 packages from 2,758 unique borrowers. When I study financial covenant intensity, I lose observations without data on covenant information, and the sample for these tests includes 3,662 packages from 2,253 firms. Summary statistics for these samples is provided in Table 2.

3.2 Measuring debt contracting terms

The debt contracting terms studied in this paper are loan pricing, covenant intensity, and the use of collateral.

Loan pricing is measured by the all-in-drawn spread (AIS). *Dealscan* computes this figure as the sum of the borrowing spread over the 6-month LIBOR and the related fees for each facility, assuming that the facility is fully used. Such a computation enables comparison of borrowing costs across facilities with different fee structures. Since AIS is computed at facility level, I use an average of AIS weighted by the individual facility amount to proxy for the borrowing cost of a package.

Covenant intensity is measured as the number of financial covenants contained in a debt contract. More financial covenants means that higher restrictions are imposed on borrowers since violating any of the financial covenants constitutes a technical default that leads to the transfer of the control rights to lenders.[16] The measurement of covenant intensity is problematic because of coding errors in *Dealscan*, whereby some loans that actually have financial covenants are misclassified as loans without any financial covenants (See Drucker and Puri, 2007). However, Drucker and Puri (2007) note that as long as *Dealscan* reports the existence of at least one financial covenant for the loan, the information for all financial covenants appears to be correct.

[16] This measure is not without problems since counting the number of covenants results in weighting each financial covenant equally. Demerjian (2007) suggests that certain financial covenants may be used together. In addition, using the number of financial covenants does not account for the tightness of individual covenants, i.e. covenant slack. In future work I plan to extend the analysis to the relation between accounting conservatism and covenant slack.

Therefore to minimize measurement errors, I exclude loans for which *Dealscan* does not report any financial covenants. As a result, in this study the minimum number of financial covenants is one instead of zero. There are 16 different types of financial covenants recorded in *Dealscan*. The maximum number of financial covenants contained in one debt contract is 8 in my sample.

The use of collateral is measured by an indicator variable equal to one if at least one of the facilities in a package is reported in *Dealscan* as secured with collateral and zero otherwise. Some facilities do not have the collateral information in *Dealscan* and are treated as without the collateral requirement. By doing so, 49.81% of packages in this study are secured.

3.3 Measuring conditional conservatism

I use the measure of timely loss recognition developed by Basu (1997) to proxy for conditional conservatism. In Basu's (1997) market-based model (named as the Basu model in the rest of the paper), stock return is used to proxy for contemporaneous economic gains and losses. Due to the GAAP requirement for asymmetric verification to recognize bad news versus good news, earnings are expected to be more sensitive to negative returns than positive returns. Specifically, the model is:

$$E_{it}/P_{t-1} = \alpha + \beta R_{it} + \eta DR_{it} + \gamma R_{it} DR_{it} + \varepsilon_{it}$$

where E_{it} is annual earnings for firm *i* in the fiscal year *t*, $P_{t-1}$is the market value of equity at the beginning of the year, R_{it} is the 12-month return on firm *i* ending three months after the end of the fiscal year less the corresponding CRSP equal-weighted market return, and DR_{it} is an indicator variable equal to one if the firm's market-adjusted return R_{it} is negative and zero otherwise. Observations with the deflated earnings or the returns falling to the top and bottom 1% are excluded. In the above regression, $(\beta + \gamma)$ captures timely loss recognition and is the measure of conditional conservatism in this study. The basic intuition of this measure is that

firms with high levels of timely loss recognition have earnings that are more sensitive to economic shocks conditional on a bad new shock. Firms with low conditional conservatism would either be firms that chose to ignore the economic shock or firms that were already constrained in the past by the prevailing level of unconditional conservatism.

I estimate conditional conservatism at industry level since firm-specific time-series regressions have very few observations for each firm and are likely to result in noisy estimates with a downward bias (Givoly, Hayn, Natarajan 2007). Specifically, I run the regressions by three-digit SIC codes for each year of the sample period of 1996 through 2003 using prior ten years of data. Industries with less than ten firms are excluded to ensure a reliable estimate of conditional conservatism. The corresponding industry-year measure of conditional conservatism is assigned to each sample firm.

Several recent studies point out the limitations using the Basu model to estimate conditional conservatism (Ryan 2006, Dietrich, Muller, and Riedl 2007, Givoly, Hayn, and Natarajan 2007). In particular, Dietrich, Muller, and Riedl (2007) question the validity of the measure from an econometric perspective. In addition, alternative measures have been proposed to assess conditional conservatism, such as the build-up of negative accruals, the variability and skewness of earnings relative to operating cash flow, and a measure estimated through a piecewise-linear regression of accruals on cash flows (Givoly and Hayn 2000, Ball and Shivakumar 2005, 2006). However, in a recent paper Ball and Kothari (2007) provide an analysis justifying the econometrics of the Basu model and argue that the criticism of this model results from a "misconception of research objectives".[17] In addition, Ryan (2006) compares the

[17] Ball and Kothari (2007) point out that "[t]he research objective then is not to estimate the separate causal effects of returns on earnings and of earnings on returns. Rather, the research objective is to estimate how new information about economic gains and losses is incorporated in income, regardless of whether the source of new information is

existing measures and concludes that the measure estimated by the Basu model is still the most direct measure to capture the essence of conditional conservatism. Whether the Basu model is a good model to estimate conditional conservatism is still under the debate and evaluating the measure is out of the scope of this paper. But I am aware of the potential limitation of estimating conditional conservatism using one model. In the future research, I will consider adding other measures to improve the validity of the results.

3.4 Measuring unconditional conservatism

Unconditional conservatism is measured by the market-to-book ratio. The ratio is computed as the market value divided by the book value of shareholders' equity. The observations with negative values of market-to-book ratio are excluded. The market-to book ratio directly captures the understatement of net asset values to economic values and is a natural way to measure cumulative conservatism. As discussed earlier, there is some measurement error in the variable to the extent that the firm enjoys some rents in its current and future projects.

3.5 Research design

First, I examine the relation between both types of conservatism and debt contracting terms by including the measures of conditional conservatism and unconditional conservatism in the model. All the analyses are performed on three contracting terms, interest spreads, covenant intensity, and the use of collateral. Specifically, I estimate the following OLS model:

$$spread\ (intensity, secured) = \alpha + \gamma_1 tloss + \gamma_2 mbe + \delta_1 lmktcap + \delta_2 roa + \delta_3 leverage + \delta_4 grade + \delta_5 rated + \delta_6 std\_r + \delta_7 growth + \delta_8 tangibility + \delta_9 dealsize + \delta_{10} lmaturity + \delta_{11} llenders + \delta_{12} secured^{*} + \delta_{13} pp^{**} + \varepsilon \quad (1)$$

* $secured$ is only included in the regressions testing $spread$ and $intensity$.
** pp is only included in the regression testing $spread$.

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income itself" (p. 32). Therefore, regressing earnings on returns to estimate timely loss recognition or asymmetric timeliness, according to Ball and Kothari (2007), is appropriate, even though returns are caused in part by earnings.

The dependent variables, $spread$, $intensity$ and $secured$, represent loan pricing, covenant intensity, and the presence of collateral respectively. The dependent variables are the debt contracting terms that are hypothesized in this study being affected by the accounting conservatism. See Section 3.2 for the construct of the measures or Appendix for the definitions of these variables.

$tloss$ and mbe are the measures of conditional and unconditional conservatism respectively. $tloss$ is timely loss recognition and mbe is the market-to-book ratio. They are the variables of interest in this model.

I also include a set of control variables to proxy for firm-specific and loan-specific risk that are likely to affect debt contracting terms. Firm-specific controls include $lmktcap$ measured as the log of the market capitalization for each firm, which is a proxy for reputation and information asymmetry. roa is return on assets, representing profitability. $leverage$ is the ratio of long-term debt to total assets, controlling for financial risks. $grade$ is an indicator variable that is one if the borrower has an investment grade credit rating and zero otherwise. $rated$ is an indicator variable indicating whether the borrower has a credit rating. std_r is the measure of the volatility of daily returns. Higher volatility is suggestive of higher default risk (Frankel and Litov, 2007). The variable $growth$ measures the growth in assets. Because the measure of unconditional conservatism, mbe, is also a good proxy for growth options, I use the asset growth rate to address the concern that the results using the measure mbe is caused by growth rather than conservatism. But how the variable $growth$ affects the contracting terms is ambiguous. Firms with more growth opportunities are expected to generate more future cash flows, which lowers interest rates. But at the same time high growth firms have more information asymmetry and thus are more likely to incur higher borrowing costs and more covenant restrictions (Bradley

and Roberts 2004). Finally, growth in assets relaxes the extent to which past conservatism is binding for future loss recognition which enhances contracting efficiency and therefore should result in lower interest. The variable $tangibility$ is the ratio of PPE to assets, which is used to control for the quality of the collateral. Better quality of collateral lowers spreads and reduces the need to use covenants as a monitoring mechanism (Vasvari 2006).

The loan-specific controls include $dealsize$, representing the ratio of the loan amounts to assets. $lmaturity$ is the log of the longest maturity (in months) of facilities in a package, a proxy for the length of the loan. $llenders$ is the log of the number of lenders. These loan characteristics can either convey borrowers' credit risks (Beatty, Weber, and Yu 2007) or represents trade-offs in contracting terms. Therefore, the signs of these control variables can go either way depending on whether debt terms complement or substitute with each other. $secured$ indicates whether any of the facilities in the package is secured with collateral. The use of collateral can reduce interest rates as well as the use of financial covenants. Finally, pp represents performance pricing. Performance pricing ties interest rates to borrowers' performance and thus reduces lenders' risk and lowers initial spreads (Zhang 2008).

To test the first set of hypotheses on the *IS argument*, in which the current level of unconditional conservatism constrains future application of conditional conservatism, I divide the observations into three groups, low, medium, and high, based on the level of unconditional conservatism. I create three indicator variables to represent the corresponding groups and then interact the indicator variables with the measure of conditional conservatism. Specifically, the model is:

$$spread\ (intensity) = \alpha + \beta_1 tloss * mbe\_low + \beta_2 tloss * mbe\_medium + \beta_3 tloss * mbe\_high + \gamma_1 tloss + \gamma_2 mbe + \delta controls + \varepsilon \quad (2)$$

where mbe_low, mbe_medium, and mbe_high are the three indicator variables representing the groups with low, medium, and high levels of unconditional conservatism respectively. The interactions of these indicator variables with conditional conservatism are the primary variables of interest in this model. I use the indicator variables instead of the continuous variable to allow for non-linear relation between the current level of unconditional conservatism and inference on future conditional conservatism (Roychowdhury and Watts 2007). $controls$ refers to the set of control variables that are used in Model (1) and are described above. The first hypothesis predicts that β_1 is the most negative (positive) and significant among three coefficients for the interactions in the spread (intensity) tests. This is because past conditional conservatism is rewarded with lower spreads and makes the use of financial covenants more effective only if such conditional conservatism is expected to persist in the future. No prediction is made for the collateral tests.

To test the second set of hypotheses on how lenders infer the quality of unconditional conservatism based on prior practice of conditional conservatism, I use the level of past conditional conservatism to divide the observations into three groups, low, medium, and high. I create three indicator variables to represent the corresponding groups and interact the indicator variables with the measure of unconditional conservatism. Specifically, the model is:

$$spread\ (secured) = \alpha + \beta_4 mbe * tloss\_low + \beta_5 mbe * tloss\_medium + \beta_6 mbe * tloss\_high + \gamma_1 tloss + \gamma_2 mbe + \delta controls + \varepsilon \quad (3)$$

where *tloss_low*, $tloss\_medium$, and *tloss_high* are the three indicator variables representing the groups with low, medium, and high levels of conditional conservatism respectively. Again, the indicator variables are used to allow for non-linear relation between past conditional conservatism and inference on the quality of unconditional conservatism. The second hypothesis

predicts that β_6 is the most negative (positive) among three coefficients for the interactions in the spread (collateral) tests. This is because unconditional conservatism is rewarded with lower spreads and makes the use of collateral more likely only if unconditional conservatism results from past conditional conservatism that increases the reliability of the lower bound of net asset values. No prediction is made for the covenant intensity tests.

4. Empirical results

This section is organized as follows. Section 4.1 provides summary statistics and correlation matrix for the variables used in the later tests. Section 4.2 reports the results on the relation between accounting conservatism and loan pricing. Section 4.3 presents the results on the relation between accounting conservatism and covenant intensity. The results on the relation between accounting conservatism and the presence of collateral are summarized in Section 4.4. Section 4.5 provides robustness check by employing additional measures of some important variables.

4.1 Summary statistics and correlation

Table 2 provides summary statistics of firm and loan characteristics as well as accounting conservatism. Panel A is for the spread and collateral sample and Panel B is for the intensity sample. The size of the firm is relatively larger in the spread and collateral sample (the average market capitalization is $2,935 million and the median is $369 million) than that in the intensity sample (the average market capitalization is $1,590 million and the median is $256 million). But other characteristics are similar between the two samples. The summary statistics of loan characteristics are close to those in Demiroglu and James (2007), which obtains private debt information from *Dealscan* to study covenant slack. The median spread is 171 and the median

maturity is about three years. The distributions of firm size ($mktcap$), loan maturity ($maturity$), and number of lenders ($lenders$) are skewed. As a result, I transform these variables to their log forms.

Table 3 displays the industry distribution of loans and borrowers for the spread and collateral sample. The industry classification is based on Barth, Beaver, and Landsman (1998). I add one for agriculture and exclude finance and utilities industries. The industry of durable manufacturing comprises more than one fourth of the sample, counting either by the number of loans or by the number of firms. Retail, services, and computers are the next few major industries in the sample. The untabulated results for the covenant sample exhibits the similar pattern.

Pearson correlation statistics are provided in Table 4. Panel A is for the spread and collateral sample and Panel B is for the intensity sample. Both conditional (bs as timely loss recognition) and unconditional conservatism (mbe as the market-to-book ratio) measures are negatively correlated with loan pricing ($spread$), financial covenant intensity ($intensity$), and the use of collateral ($secured$). But the correlation is not significant at 5% level between conditional conservatism and covenant intensity. Among the control variables, firm size ($lmktcap$) is highly correlated with a few other variables, such as number of lenders ($llenders$), credit ratings ($grade$ and $rated$), and collateral ($secured$). The level of correlation ranges from about 50% to higher 60%. Caution is needed to interpret the coefficients of these control variables in the regressions due to the presence of multicollinearity.

4.2 Loan pricing

In this section, I investigate the relation between accounting conservatism and loan pricing. Table 5 summarizes the results using models 1 through 3 accordingly. Model 1 tests

conditional and unconditional conservatism separately. In Model 1, the coefficient $\gamma_1$is significantly negative with a *p*-value of 0.007, suggesting that timely loss recognition reduces interest spreads. Such a result supports the conjecture that conditional conservatism improves debt contract efficiency and is consistent with the findings in prior empirical studies that examine loan spreads (Vasvari 2006, Zhang 2008). The coefficient $\gamma_2$is positive and significant with a *p*-value of 0.002, consistent with the argument that unconditional conservatism reduces debt contracting efficiency (Ball and Shivakumar 2005, Bauwhede 2007).

The coefficients on most of the control variables representing firm characteristics have the expected signs. Larger firms with higher profitability, lower leverage ratio, better credit ratings, less volatile returns, and larger portion of fixed assets tend to incur lower borrowing costs. The coefficient of $growth$ turns out to be insignificant, which may imply the opposite effects of growth on spread are canceled out. The loan characteristics, such as size of loans ($dealsize$) and maturity ($lmaturity$), are not significant, possibly due to simultaneity in determining loan terms. While contrary to the expectation of a trade-off between the use of collateral and loan pricing, the coefficient δ_{12} is significantly positive, such a result is consistent with Bharath, Sunder and Sunder (2008). The coefficient δ_{13} for performance pricing is significantly negative, consistent with what finds in other studies (Vasvari 2006, Zhang 2008) that the use of this provision reduces cost of debt. In short, most control variables behave as expected and the results are similar to those documented in prior studies.

Model 2 tests the *IS argument* stated in H1a. According to the *IS argument*, if it is *ex post* conditional conservatism that benefits lenders, the negative relation between *ex ante* conditional conservatism and loan pricing should be driven by the firms with low levels of unconditional conservatism. Here mbe_low (mbe_high) is the least (most) constrained and past conditional

conservatism is most (least) likely to persistent in the future. The coefficient β_1, representing the slope of past conditional conservatism in the group with low levels of unconditional conservatism, is negative but statistically insignificant. The coefficients β_2 and β_3, representing the slope of past conditional conservatism in the group with medium and high levels of unconditional conservatism, are significantly negative at the 1% level. In addition, the F-tests show that the coefficient β_1 for the low group is significantly different from the coefficients β_2 and β_3 for the other two groups (F=5.06 and F=5.49 respectively). The results suggest that the significance found in Model 1 is mainly driven by the group of firms with medium and high levels of unconditional conservatism. This is contrary to H1a, which predicts that the significance would be driven by the firms in the group with low levels of unconditional conservatism.

While the results using Model 2 provide some evidence that unconditional conservatism affects loan pricing, Model 3 directly tests the *BS argument* in H2a. Since unconditional conservatism increases loan pricing as shown in Model 1, it suggests that lenders do not like the *ex ante* buildup of accounting slack that increases management's *ex post* reporting latitude. According to the *BS argument*, such a positive relation between unconditional conservatism and loan spreads is less likely driven by the group of firms with high levels of *ex ante* conditional conservatism. To examine the hypothesis, I rank the observations by the level of conditional conservatism and create three groups. Here $tloss\_low$ ($tloss\_high$) is the group with the least (most) reliable estimates of net asset values as unconditional conservatism results from conservative accounting methods (past conditional conservatism). The coefficients, β_4 and β_5, representing the slopes of unconditional conservatism in the groups with low and medium levels of *ex ante* conditional conservatism, are statistically positive with *p*-values at 0.005 and 0.000

respectively. Such a result of positive relation between loan spreads and unconditional conservatism resulting from applying conservative accounting methods support Sridharan and Magee's (1997) conjecture that lenders charger higher interest rates to compensate for reporting uncertainties caused by conservative accounting methods. In contrast, the coefficient, β_6, representing the slope in the group with high levels of *ex ante* conditional conservatism, shows a negative sign but is not significant. Further F-tests comparing the coefficients in different groups demonstrate that β_4 and β_5 are significantly different from β_6 (F=6.09 and F=11.54 respectively). The findings are consistent with H2a, which predicts that if the buildup of accounting slack reduces contracting efficiency, lenders would be less likely to "penalize" the borrowers with the accounting slack resulting from past conditional conservatism.

Overall, the evidence supports the *BS argument* rather than the *IS argument*. The results suggest that lenders reward *ex ante* conditionally conservative borrowers because past timely loss recognition increases the reliability of the net asset values. These results challenge the interpretations of the documented negative relation between *ex ante* conditional conservatism and loan spreads in prior studies as the evidence that lenders benefit from *ex post* conditional conservatism and thus reward conservative borrowers *ex ante* (Zhang 2008). To validate the results found in the tests of loan pricing, I further examine financial covenant intensity and the use of collateral in the next two sections, since relevance of income statement and reliability of balance sheet have different implications on the selection of the monitoring mechanisms. Last, the evidence demonstrates that lenders consider the sources of unconditional conservatism in setting interest rates.

4.3 Covenant Intensity

In this section, I explore the relation between accounting conservatism and covenant intensity using a similar research design as in the case of loan pricing. Table 6 Model 1 reports that the coefficients γ_1 and γ_2 for the measures of conditional and unconditional conservatism are significantly negative, suggesting that when an accounting report is conservative, covenant intensity decreases. The result for conditional conservatism is opposite to Nikolaev's (2007) study examining public debt contracts. In that study, Nikolaev documents a positive association between covenant intensity and timely loss recognition, suggesting that a conditionally conservative accounting system makes the use of covenants more effective. The result of a negative relation between conditional conservatism and covenant intensity challenges the argument that conditional conservatism enhances the effectiveness of covenants in private debt contracting. However, as the study by Bharath, Sunder and Sunder (2008) demonstrates, the differences in lender characteristics and institutional features of private and public debt markets cause differences in contract design in response to borrower accounting attributes. Therefore, it is possible to find different results in two debt markets.

Most firm controls exhibit the expected signs, which show that covenants are used when agency costs of debt are high. In particular, smaller firms with higher leverage ratio, lower credit ratings, more growth opportunities, and lower tangibility ratios are likely to have more financial covenants. But roa and std_r have the opposite signs as predicted. The use of financial covenants is positively associated with profitability and negatively associated with return volatility, which is consistent with Nikolaev's (2007) and Frankel and Litov's (2007) findings.[18]

[18] Nikolaev (2007) suggests that borrowers with higher profitability signal their types by choosing more restrictive covenants in exchange for lower borrowing costs. While the signaling story is in a sense plausible, it cannot explain why it is only roa, not other firm characteristics, that presents such a signaling effect.

Most loan characteristics such as loan maturity, number of lenders, and the presence of collateral are positively associated with covenant intensity at the significance level of 1%.

The results from estimating Model 2 demonstrate that the negative association between timely loss recognition and covenant intensity is mainly driven by the group with high levels of unconditional conservatism. The coefficient β_3 is negative and significant at the 10% level. The coefficients, β_1 and β_2, representing the slope on *ex ante* conditional conservatism in the groups with low and medium levels of unconditional conservatism are insignificant. The results weakly supports the *IS argument* in H1b. When the level of unconditional conservatism is high, past timely loss recognition is less likely to be persistent in the future. Therefore, lenders are less likely to use financial covenants to monitor borrowers' credit risk. But when the level of unconditional conservatism is low or medium, the constraining effect of the accounting slack on future asset write-downs is not binding. The reliance on covenants is then independent on the past levels of conditional conservatism.

There is no prediction for the *BS argument* regarding the relation between reliability and the number of covenants. For completeness, I report the results using Model 3. I find that the coefficients of unconditional conservatism across all groups with different levels of past conditional conservatism are significantly negative, suggesting that lenders impose fewer financial covenants in debt contracts for firms with higher unconditional conservatism regardless of the sources of unconditional conservatism.

4.4 Use of Collateral

Collateral is another contracting mechanism that lenders can employ to protect their interests, particularly when covenants are not an effective monitoring device. In this section, I explore the relation between accounting conservatism and the presence of collateral. Since

$secured$ is an indicator variable equal to one if at least one of the facilities in a package is secured with collateral and zero otherwise, I use probit regressions. In Model 1, only unconditional conservatism exhibits a significantly positive association with the presence of collateral at the 1% level, consistent with Watts' view that unconditional conservatism provides a good estimate of collateral value (2003).

The results from Model 2 are provided for completeness, since the *IS argument* has no prediction on how past conditional conservatism affects the use of collateral. I find that none of the interaction coefficients is significant.

Model 3 examines H2b. As outlined in H2b, the positive relation between unconditional conservatism and the presence of collateral is driven by firms with high level of *ex ante* conditional conservatism. The results, however, show that the coefficients for unconditional conservatism across all groups are significantly positive. These results correspond to the results found in the tests of covenant intensity, where the coefficients for unconditional conservatism across groups in Model 3 are significantly negative. The evidence suggests that unconditional conservatism increases the effectiveness of the use of collateral and reduces the effectiveness of covenants, irrespective of the source of unconditional conservatism.

4.5 Robustness Tests

In this section, I employ different measures of a few important variables to verify whether the results are sensitive to the measurement. For conditional conservatism, I use the measure of asymmetric timeliness, which is the coefficient γ on the interaction term in the Basu model. For unconditional conservatism, I use an adjusted market-to-book ratio developed by Beaver and Ryan (2000). Beaver and Ryan (2000) decompose the market-to-book ratio into two components: biased component mainly due to accounting conservatism that results in persistent

undervaluation of the book value relative to the economic value, and lagged component caused by temporal unrecognized market shocks. The biased component is the measure of unconditional conservatism and is estimated by regressing book-to-market ratio on current and lagged stock returns with firm and time fixed effects. The firm fixed effect represents the biased part of the market-to-book ratio.[19] For the use of collateral, since some facilities do not have collateral information reported in *Dealscan*, my original measure is constructed to treat the missing values as the ones without collateral. I also try the other way to exclude the observations with missing values in *Dealscan*. The sample size shrinks to 3,678 packages with 2,355 borrowers. 71.75% packages in this sample are secured with collateral.

The tests using the above alternative measures yield similar results to those reported in Table 5 through Table 7. In future tests, I plan to use alternative measures of conditional conservatism as suggested by Givoly and Hayn (2000) so that I can estimate conditional conservatism at firm level and thus strengthen the validity of the results.

5. Conclusions

In this paper, I compare two arguments that explain how timely loss recognition (conditional conservatism) improves debt contracting efficiency. The *IS argument* suggests that it is ongoing timely loss recognition, which ensures *ex post* that a firm's earnings reflect inherent downward risks. In contrast, the *BS argument* contends that it is the cumulative effect of past

[19] Specifically, I estimate firm fixed effect in the following model using prior ten-year data: $BTM_{it} = \alpha + \alpha_i + \alpha_t + \sum_{k=0}^{6} \beta_k R_{it-k} + \varepsilon_{it}$, where BTM_{it} is the book-to-market ratio for firm *i* at year *t*, and R_{it-k} is the annual return for firm *i* in year *t-k*. I require that firm *i* has the return information for R_{it-0} through R_{it-2}. If other lagged return information is missing, I set it as zero. I also exclude the book-to-market ratios and the returns at the top and bottom 1% level to make the measure comparable with prior studies, which truncate the variables in the same way. The firm fixed effect, α_i, measures the accounting conservatism component of book-to-market ratio. In order to show that the measure is increasing in the level of unconditional conservatism, I multiply α_i by -1 to proxy for unconditional conservatism.

timely loss recognition, which provides reliable estimates of net asset values at the lower end of the distribution (unconditional conservatism).

To distinguish the two arguments in explaining debt contracting design, I examine the interaction effects of *ex ante* conditional conservatism and unconditional conservatism on loan pricing, covenant intensity, and the use of collateral. I find that *ex ante* conditional conservatism reduces interest costs, particularly for firms with medium or high levels of unconditional conservatism, which is inconsistent with the *IS argument*.

Further I find that lenders demand higher interest rates from borrowers with higher unconditional conservatism that results primarily from applying conservative accounting methods. But this penalty effect is no longer significant when conservative accounting methods are not a dominant contributor to the buildup of accounting slack. The evidence supports the *BS argument* and suggests that lenders care about the source of unconditional conservatism.

In addition, regardless of the source of unconditional conservatism, lenders are more likely to use collateral and less likely to use financial covenants as contracting mechanisms to monitor borrowers with high levels of unconditional conservatism.

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Appendix: Variable Definitions

Borrower characteristics

lmktcap	The natural logarithm of the market capitalization.
roa	The ratio of net income to total assets.
leverage	The ratio of total debt to total assets.
grade	An indicator variable taking the value of one if the S&P credit rating is investment grade (i.e. BBB and higher) and zero otherwise.
rated	An indicator variable taking the value of one if the firm has a credit rating and zero otherwise.
std_r	The standard deviation of the daily holding period returns for the prior fiscal year.
growth	The ratio of total assets to the lag of total assets.
tangibility	The ratio of physical plant, property, and equipment to total assets.

Loan characteristics and contracting terms

dealsize	The natural logarithm of the total loan amounts in a package.
lmaturity	The natural logarithm of the maturity measured in months.
llenders	The natural logarithm of the number of lenders.
pp	An indicator variable taking the value of one if at least one of the facilities in a package has a performance pricing option tieing the promised yield to one or more accounting measures of performance and zero otherwise.
spread	The average all-in-drawn spreads (the total borrowing cost of the drawn portion of a loan over and above LIBOR) charged for a package weighted by individual facility amount.
intensity	The number of financial covenants contained in the debt contract.
secured	An indicator variable taking the value of one if at least one of the facilities in a package is secured with collateral and zero otherwise.

Accounting Conservatism

tloss	The timely loss recognition measure in Basu's (1997) market-based model.
asymmetry	The asymmetric timely recognition measure in Basu's (1997) market-based model.
mbe	Market value of shareholders' equity to book-value of shareholders' equity.
be	The firm fixed effect in Beaver and Ryan's (2000) model representing the biased component of the book-to-market ratio.

TABLE 1. Sample Selection

Selection Criteria	Spread and Collateral Sample	Intensity Sample
Packages in *Dealscan*	96,834	13,652
Start year between 1996 and 2003	69,496	12,501
US dollar	48,749	12,328
Matched to *Compustat*	19,167	9,314
Keep one package per year per gvkey based on the largest package size	15,310	7,946
Matched to *CRSP*	11,439	6,363
Non-financial firms	9,993	5,676
Non-regulated firms	8,956	5,244
Prior fiscal year financial statement available	8,933	5,227
Assets and sales information available	8,884	5,192
Measures of conservatism available	7,441	4,340
Control variables available	5,298	3,662

The table reports the number of packages remained in the samples after each selection process.

The intensity sample requires each package contain at least one financial covenant.

The spread and collateral sample has 2,758 firms.

The intensity sample has 2,253 firms.

TABLE 2. Descriptive Statistics

Panel A: Descriptive statistics for the spread and collateral sample

	Mean	Std Dev	Q1	Median	Q3
Firm characteristics					
mktcap	2934.846	10637.727	84.619	369.006	1555.830
roa	0.030	0.139	0.004	0.048	0.091
leverage	0.207	0.171	0.050	0.189	0.322
grade	0.139	0.346			
rated	0.352	0.478			
std_r	0.037	0.019	0.024	0.033	0.045
growth	1.239	0.531	0.991	1.094	1.287
tangibility	0.320	0.238	0.136	0.252	0.455
Loan characteristics and contracting variables					
dealsize	0.355	0.523	0.117	0.247	0.457
maturity	41.425	23.773	23.000	36.000	60.000
lenders	7.115	8.907	1.000	4.000	10.000
secured	0.498	0.500			
spread	170.895	111.571	75.000	150.000	250.000
pp	0.499	0.500			
Accounting conservatism					
tloss	0.218	0.161	0.122	0.188	0.293
asymmetry	0.213	0.195	0.103	0.192	0.291
mbe	2.814	2.617	1.239	2.054	3.393
be*	0.002	0.265	-0.146	0.039	0.189

The natural logarithm forms of *mktcap*, *maturity*, *lenders* are instead used in the actual tests to reduce skewness.

roa, *growth*, *spread*, *bs*, *asymmetry*, and *mbe* are truncated at the top and bottom one percentile to exclude extreme outliers.

Variables are defined in the Appendix.

The number of observations is 5,298.

* The number of observations with *be* measure is 4,276.

TABLE 2. Descriptive Statistics (continued)

Panel B: Descriptive statistics for the intensity sample

	Mean	Std Dev	Q1	Median	Q3
Firm characteristics					
mktcap	1590.001	5930.480	70.898	255.688	944.782
roa	0.032	0.138	0.002	0.049	0.094
leverage	0.203	0.175	0.037	0.178	0.324
grade	0.087	0.281			
rated	0.302	0.459			
std_r	0.038	0.019	0.026	0.034	0.047
growth	1.255	0.544	0.992	1.105	1.308
tangibility	0.317	0.238	0.131	0.247	0.457
Loan characteristics and contracting terms					
dealsize	0.399	0.393	0.159	0.294	0.515
maturity	43.676	22.672	26.000	36.000	60.000
lenders	7.210	9.504	1.000	4.000	10.000
secured	0.622	0.485			
intensity	2.882	1.200	2.000	3.000	4.000
Accounting conservatism					
tloss	0.219	0.157	0.130	0.191	0.293
asymmetry	0.213	0.188	0.107	0.191	0.289
mbe	2.718	2.505	1.214	2.013	3.290
be*	-0.011	0.269	-0.167	0.021	0.174

The natural logarithm forms of *mktcap*, *maturity*, *lenders* are instead used in the actual tests to reduce skewness.
roa, *growth*, *bs*, *asymmetry*, and *mbe* are truncated at the top and bottom one percentile to exclude extreme outliers.
Variables are defined in the Appendix.
The number of observations is 3,058.
* The number of observations with *be* measure is 2,893.

TABLE 3. Industry Distribution

Industry	Number of Packages	Percentage	Number of Firms	Percentage
Agriculture	14	0.26%	9	0.33%
Mining and construction	171	3.23%	83	3.01%
Food	154	2.91%	69	2.50%
Textiles, printing and publishing	374	7.06%	178	6.45%
Chemicals	173	3.27%	79	2.86%
Pharmaceuticals	135	2.55%	88	3.19%
Extractive industries	380	7.17%	170	6.16%
Durable manufacturers	1,392	26.27%	751	27.23%
Computers	615	11.61%	362	13.13%
Transportation	168	3.17%	89	3.23%
Retail	963	18.18%	469	17.01%
Services	735	13.87%	400	14.50%
Others	24	0.45%	11	0.40%
Total	**5,298**	**100.00%**	**2,758**	**100.00%**

The table provides industry distribution of the spread and collateral sample.
The distribution of the intensity sample is similar and thus is not reported here.
The industry classification is based on Barth, Beaver, and Landsman (1998).
Utilities and financial institutions are excluded in the sample.

TABLE 4. Correlations

Panel A: Correlation matrix for the spread and collateral sample

	spread	secured	tloss	asymmetry	mbe	be*	lmktcap	roa	leverage	grade	rated	std_r	growth	tangibility	dealsize	lmaturity	llenders
secured	**0.59**																
tloss	**-0.05**	**-0.02**															
asymmetry	-0.02	-0.01	**0.72**														
mbe	**-0.17**	**-0.12**	**-0.05**	**-0.04**													
be*	**-0.21**	**-0.17**	-0.02	-0.01	0.41												
lmktcap	**-0.66**	**-0.55**	0.01	-0.01	**0.38**	**0.35**											
roa	**-0.37**	**-0.22**	**0.03**	0.02	**0.10**	0.01	**0.26**										
leverage	**0.05**	0.00	0.03	0.02	**-0.08**	**-0.05**	**0.04**	**-0.05**									
grade	**-0.43**	**-0.36**	0.00	-0.02	**0.17**	**0.23**	**0.54**	**0.11**	0.02								
rated	**-0.34**	**-0.31**	0.02	0.00	**0.09**	**0.14**	**0.56**	**0.13**	**0.24**	**0.55**							
std_r	**0.54**	**0.40**	**-0.06**	**-0.03**	**-0.04**	**-0.12**	**-0.51**	**-0.39**	**-0.15**	**-0.27**	**-0.33**						
growth	0.02	**0.07**	**-0.03**	-0.02	**0.13**	**0.05**	0.02	**0.08**	0.02	**-0.07**	**-0.06**	**0.04**					
tangibility	**-0.09**	**-0.06**	**0.06**	**0.04**	**-0.11**	0.00	**0.09**	**0.04**	**0.33**	**0.07**	**0.12**	**-0.18**	**-0.05**				
dealsize	**0.12**	**0.16**	0.01	0.00	-0.02	**-0.05**	**-0.23**	**0.09**	**0.02**	**-0.15**	**-0.10**	**0.04**	**0.08**	0.00			
lmaturity	**0.03**	**0.13**	0.01	**0.03**	**-0.10**	**-0.10**	**-0.08**	**0.11**	**0.18**	**-0.12**	0.01	**-0.12**	0.02	**0.10**	**0.24**		
llenders	**-0.42**	**-0.32**	**0.05**	0.02	**0.08**	**0.12**	**0.64**	**0.19**	**0.29**	**0.35**	**0.49**	**-0.44**	**-0.03**	**0.15**	**0.04**	**0.16**	
pp	**-0.10**	**0.11**	0.02	0.01	**-0.06**	**-0.05**	**0.06**	**0.15**	**0.13**	**-0.06**	**0.09**	**-0.17**	**0.03**	**0.07**	**0.14**	**0.33**	**0.30**

The table presents pair-wise Pearson correlation among variables in the spread and collateral sample.

Correlation coefficients in bold are significant at the 5% level or higher.

Variables are defined in the Appendix.

The number of observations is 5,298.

* The number of observations with be measure is 4,276.

TABLE 4. Correlations (continued)

Panel B: Correlation matrix for the intensity sample

	intensity	tloss	asymmetry	mbe	be*	lmktcap	roa	leverage	grade	rated	std_r	growth	tangibility	dealsize	lmaturity
tloss	-0.02														
asymmetry	0.00	**0.72**													
mbe	**-0.14**	**-0.04**	**-0.03**												
be*	**-0.17**	-0.01	0.00	**0.39**											
lmktcap	**-0.21**	0.01	-0.01	**0.36**	**0.29**										
roa	**0.11**	**0.04**	0.01	**0.09**	-0.01	**0.26**									
leverage	**0.09**	0.03	0.01	**-0.07**	**-0.06**	**0.06**	**-0.06**								
grade	**-0.26**	0.00	-0.01	**0.10**	**0.15**	**0.44**	**0.08**	**0.04**							
rated	**-0.11**	0.02	0.01	**0.06**	**0.09**	**0.52**	**0.10**	**0.26**	**0.47**						
std_r	0.00	**-0.07**	-0.03	-0.03	-0.08	**-0.50**	**-0.37**	**-0.13**	**-0.23**	**-0.30**					
growth	**0.09**	-0.03	-0.03	**0.14**	**0.07**	**0.07**	**0.11**	0.02	**-0.05**	**-0.04**	0.02				
tangibility	-0.02	**0.06**	0.03	**-0.10**	**-0.10**	**0.07**	**0.03**	**0.32**	**0.06**	**0.12**	**-0.16**	**-0.04**			
dealsize	**0.15**	0.02	0.01	0.02	0.02	**-0.21**	**0.15**	**0.06**	**-0.13**	**-0.05**	-0.02	**0.11**	**0.05**		
lmaturity	**0.20**	0.02	0.03	**-0.08**	**-0.08**	**0.04**	**0.15**	**0.22**	-0.02	**0.11**	**-0.21**	0.02	**0.14**	**0.31**	
llenders	**-0.04**	**0.06**	0.03	**0.06**	**0.09**	**0.68**	**0.19**	**0.34**	**0.32**	**0.50**	**-0.45**	0.00	**0.15**	**0.10**	**0.27**

The table presents pair-wise Pearson correlation among variables in the intensity sample.
Correlation coefficients in bold are significant at the 5% level or higher.
Variables are defined in the Appendix.
The number of observations is 3,662.
* The number of observations with be measure is 2,893.

TABLE 5. Accounting Conservatism and Loan Pricing

$spread = \alpha + \beta interactions + \gamma_1 tloss + \gamma_2 mbe + \delta_1 lmktcap + \delta_2 roa + \delta_3 leverage + \delta_4 grade + \delta_5 rated + \delta_6 std\_r + \delta_7 growth + \delta_8 tangibility + \delta_9 dealsize + \delta_{10} lmaturity + \delta_{11} llenders + \delta_{12} secured + \delta_{13} pp$

		1 Basic model	2 Interaction using unconditional conservatism groups	3 Interaction using conditional conservatism groups
Intercept	α	230.1079***	225.5418***	228.9657***
		(0.000)	(0.000)	(0.000)
tloss * mbe_low	β_1		**-1.6117**	
			(0.859)	
tloss * mbe_medium	β_2		**-22.3884*** **	
			(0.003)	
tloss * mbe_high	β_3		**-28.0326*** **	
			(0.001)	
mbe * tloss_low	β_4			**1.9318*** **
				(0.005)
mbe * tloss_medium	β_5			**2.1751*** **
				(0.000)
mbe * tloss_high	β_6			**-0.0035**
				(0.996)
tloss	γ_1	**-16.6465*** **		**-5.5244**
		(0.007)		(0.468)
mbe	γ_2	**1.5450*** **	**1.9408*** **	
		(0.002)	**(0.000)**	
lmktcap	δ_1	-21.6823***	-21.2084***	-21.7133***
		(0.000)	(0.000)	(0.000)
roa	δ_2	-104.4374***	-103.7716***	-104.5103***
		(0.000)	(0.000)	(0.000)
leverage	δ_3	55.6226***	55.0735***	56.2051***
		(0.000)	(0.000)	(0.000)
grade	δ_4	-37.0451***	-36.8346***	-36.8671***
		(0.000)	(0.000)	(0.000)
rated	δ_5	17.9729***	17.8059***	17.8659***
		(0.000)	(0.000)	(0.000)
std_r	δ_6	961.8528***	962.5048***	949.0507***
		(0.000)	(0.000)	(0.000)
growth	δ_7	1.5739	1.9352	1.4406
		(0.481)	(0.387)	(0.519)
tangibility	δ_8	-13.7696***	-13.5960***	-14.1698***
		(0.007)	(0.008)	(0.005)
dealsize	δ_9	-2.4879	-2.0798	-2.4859
		(0.342)	(0.445)	(0.341)
lmaturity	δ_{10}	0.3778	0.5404	0.3409
		(0.835)	(0.765)	(0.851)
llenders	δ_{11}	3.1490**	2.8032*	3.1303
		(0.038)	(0.066)	(0.039)
secured	δ_{12}	64.3647***	64.3727***	64.3261***
		(0.000)	(0.000)	(0.000)
pp	δ_{13}	-20.7410***	-20.5588***	-20.6729***
		(0.000)	(0.000)	(0.000)
Adjusted R^2		0.5916	0.5908	0.5910

Standard errors are clustered at the firm level.

P values are reported in parentheses. ***, **, * denote significance at 1%, 5%, and 10% levels (two-sided tests), respectively.

The dependent variable is *spread*, which is the average all-in-drawn spreads (the total borrowing cost of the drawn portion of a loan over and above LIBOR) charged for a package weighted by the individual facility amounts.

mbe_low, *mbe_medium*, and *mbe_high* are the dichotomous variables indicating the group ranked by the level of unconditional conservatism *mbe* in the ascending order.

tloss_low, *tloss_medium*, and *tloss_high* are the dichotomous variables indicating the group ranked by the level of conditional conservatism *tloss* in the ascending order.

Remaining variables are defined in the Appendix.

The number of observations is 5,298.

TABLE 6. Accounting Conservatism and Covenant Intensity

$intensity = \alpha + \beta interactions + \gamma_1 tloss + \gamma_2 mbe + \delta_1 lmktcap + \delta_2 roa + \delta_3 leverage + \delta_4 grade + \delta_5 rated + \delta_6 std\_r + \delta_7 growth + \delta_8 tangibility + \delta_9 dealsize + \delta_{10} lmaturity + \delta_{11} llenders + \delta_{12} secured$

		1 Basic model	2 Interaction using unconditional conservatism groups	3 Interaction using conditional conservatism groups
Intercept	α	2.4713***	2.4613***	2.4641***
		(0.000)	(0.000)	(0.000)
tloss * mbe_low	β_1		**-0.2005**	
			(0.206)	
tloss * mbe_medium	β_2		**-0.1122**	
			(0.452)	
tloss * mbe_high	β_3		**-0.3465***	
			(0.052)	
mbe * tloss_low	β_4			**-0.0227****
				(0.037)
mbe * tloss_medium	β_5			**-0.0352*****
				(0.000)
mbe * tloss_high	β_6			**-0.0293****
				(0.049)
tloss	γ_1	**-0.2081***		**-0.1802**
		(0.083)		**(0.214)**
mbe	γ_2	**-0.0294*****	**-0.0249*****	
		(0.001)	**(0.007)**	
lmktcap	δ_1	-0.1161***	-0.1156***	-0.1163***
		(0.000)	(0.000)	(0.000)
roa	δ_2	1.3004***	1.3060***	1.3069***
		(0.000)	(0.000)	(0.000)
leverage	δ_3	0.3993**	0.3997***	0.3971***
		(0.004)	(0.004)	(0.004)
grade	δ_4	-0.7733***	-0.7732***	-0.7735***
		(0.000)	(0.000)	(0.000)
rated	δ_5	0.0314	0.0302	0.0307
		(0.615)	(0.629)	(0.623)
std_r	δ_6	-4.1755***	-4.1246***	-4.1360***
		(0.001)	(0.001)	(0.001)
growth	δ_7	0.1673***	0.1676***	0.1674***
		(0.000)	(0.000)	(0.000)
tangibility	δ_8	-0.2609***	-0.2633***	-0.2583***
		(0.006)	(0.005)	(0.006)
dealsize	δ_9	-0.0373	-0.0371	-0.0379
		(0.509)	(0.515)	(0.501)
lmaturity	δ_{10}	0.2340***	0.2328***	0.2340***
		(0.000)	(0.000)	(0.000)
llenders	δ_{11}	0.0824***	0.0823***	0.0823***
		(0.007)	(0.007)	(0.007)
secured	δ_{12}	0.3431***	0.3427***	0.3431***
		(0.000)	(0.000)	(0.000)
Adjusted R^2		0.1730	0.1698	0.1697

Standard errors are clustered at the firm level.

P values are reported in parentheses. ***, **, * denote significance at 1%, 5%, and 10% levels (two-sided tests), respectively.

The dependent variable is *intensity*, which is the number of financial covenants in the debt contract for a package.

mbe_low, *mbe_medium*, and *mbe_high* are the dichotomous variables indicating the group ranked by the level of unconditional conservatism *mbe* in the ascending order.

tloss_low, *tloss_medium*, and *tloss_high* are the dichotomous variables indicating the group ranked by the level of conditional conservatism *tloss* in the ascending order.

Remaining variables are defined in the Appendix.

The number of observations is 3,662.

TABLE 7. Accounting Conservatism and Use of Collateral

$secured = \alpha + \beta interactions + \gamma_1 tloss + \gamma_2 mbe + \delta_1 lmktcap + \delta_2 roa + \delta_3 leverage + \delta_4 grade + \delta_5 rated + \delta_6 std\_r + \delta_7 growth + \delta_8 tangibility + \delta_9 dealsize + \delta_{10} lmaturity + \delta_{11} llenders$

		1 Basic model	2 Interaction using unconditional conservatism groups	3 Interaction using conditional conservatism groups
Intercept	α	0.2614	0.3043	0.2723
		(0.240)	(0.178)	(0.220)
tloss * mbe_low	β_1		**-0.1718**	
			(0.325)	
tloss * mbe_medium	β_2		**-0.0675**	
			(0.671)	
tloss * mbe_high	β_3		**0.1410**	
			(0.489)	
mbe * tloss_low	β_4			**0.0609*** **
				(0.000)
mbe * tloss_medium	β_5			**0.0741*** **
				(0.000)
mbe * tloss_high	β_6			**0.0741*** **
				(0.000)
tloss	γ_1	**-0.0566**		**-0.1179**
		(0.662)		**(0.456)**
mbe	γ_2	**0.0694*** **	**0.0627*** **	
		(0.000)	**(0.000)**	
lmktcap	δ_1	-0.4311***	-0.4352***	-0.4311***
		(0.000)	(0.000)	(0.000)
roa	δ_2	-1.0847***	-1.1054***	-1.0958***
		(0.000)	(0.000)	(0.000)
leverage	δ_3	-0.1236	-0.1189	-0.1236
		(0.417)	(0.435)	(0.417)
grade	δ_4	-0.6814***	-0.6822***	-0.6801***
		(0.000)	(0.000)	(0.000)
rated	δ_5	0.1580***	0.1603***	0.1597***
		(0.010)	(0.009)	(0.009)
std_r	δ_6	18.2265***	18.1932***	18.2214***
		(0.000)	(0.000)	(0.000)
growth	δ_7	0.2083***	0.2058***	0.2088***
		(0.000)	(0.000)	(0.000)
tangibility	δ_8	0.1819*	0.1817*	0.1783*
		(0.082)	(0.082)	(0.089)
dealsize	δ_9	-0.1333	-0.0162	-0.0128
		(0.825)	(0.785)	(0.831)
lmaturity	δ_{10}	0.2847***	0.2841***	0.2853***
		(0.000)	(0.000)	(0.000)
llenders	δ_{11}	0.1413***	0.1439***	0.1414***
		(0.000)	(0.000)	(0.000)
Pseudo R^2		0.3178	0.3180	0.3179

Standard errors are clustered at the firm level.

P values are reported in parentheses. ***, **, * denote significance at 1%, 5%, and 10% levels (two-sided tests), respectively.

The dependent variable is secured, which is an indicator variable equal to one if at least one of the loan facilities in a package is secured with collateral and zero otherwise.

mbe_low, *mbe_medium*, and *mbe_high* are the dichotomous variables indicating the group ranked by the level of unconditional conservatism *mbe* in the ascending order.

tloss_low, *tloss_medium*, and *tloss_high* are the dichotomous variables indicating the group ranked by the level of conditional conservatism *tloss* in the ascending order.

Remaining variables are defined in the Appendix.

The number of observations is 5,298.