A Framework for Conservatism and Measurement in Financial Reporting

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There is controversy regarding the role of conservatism in financial reporting. Watts (2003) argues that conservatism is an important mechanism the resolves conflicts between owners and managers in a firm. However, in the current Exposure Draft on the Conceptual Framework for Financial Reporting, conservatism is not considered a desired characteristic. I present a framework for the demand for conservatism, based on the model of income measurement by Demski and Sappington (1990). In this framework, unbiased income measurement can be fully revealing. However, if unbiased information disclosure is inadequate, a conservative transformation is a cost effective adjustment to income measurement with preservation of full revelation. Conservatism is thus considered to be a link between the measurement approach and the information approach to income measurement. I empirically test the framework for the agency cost related to debt contracts as a specific setting that isolates the demand for conservatism in financial reporting. Debt holders can engage in firm specific contract, and therefore may not require firms to be conservative with respect to the recognition of good news relative to bad news. Results show that high agency cost related to debt contracts result in higher demand for conservative information. This results hold after controlling for other incentives for conservatism. Results suggest that conservatism is a cost-effective contracting mechanism, and contrast the position of the IASB that conservatism is an undesirable characteristic in financial reporting.

Key Words: Conservatism; Contracting; Debt Contracts; Measurement perspective

Conservatism as a desirable characteristic in financial reporting

Accounting conservatism has historically been one of the most influential principals in financial reporting (Sterling, 1967; Basu, 1997; Givoly and Hayn, 2000; Watts, 2003; Ball and Shivakumar, 2005; Grambovas *et al*, 2006). However, in the current Exposure Draft on the Conceptual Framework for Financial Reporting developed by the International Accounting Standards Board (IASB) and the Financial Accounting Standard Board (FASB), prudence and conservatism are not considered desirable qualities of financial reporting information (IASB, 2008, BC2.21). Rather, the IASB/FASB adopt a measurement perspective on financial reporting (Whittington, 2010), and suggest that the primary purpose of accounting, decision usefulness, is fundamentally enhanced by qualitative characteristics of relevance and representational faithfulness, indicating that neutrality over prudence is required (IASB, 2008, OB2). Yet, empirically, conservatism continues to be found in financial reports. For instance, the adoption of International Financial Reporting Standards (IFRS) has been accompanied by increased conservatism (Barth *et al*, 2008). In this paper, I attempt to further enhance the understanding of the role of conservatism in international financial reporting by presenting a framework for the demand for conservatism given the measurement perspective of financial reporting.

Demand for financial reporting follows from the agency cost of resolving uncertainty in the principal-agent setting. Conservatism is argued to be an important mechanism that resolves agency cost (Watts, 2003).[1] At the same time, conservatism is argued to be accompanied by undesirable characteristics, leading to unfaithful

representations.[2] Penman en Zhang (2002) provide empirical evidence that conservatism leads to lower quality earnings, when of the creation of hidden reserves is used to mask true performance.

Positive Accounting Theory (PAT) suggests that the agency cost related to debt represent a specific setting that highlights the ambiguity about the role of conservatism is (Watts and Zimmerman, 1986). Agency conflicts can exist between managers/shareholders and creditors that give rise to actions by firms that cause creditors some concern. These concerns are broadly categorized as actions by firms that increase the risk or probability that the creditors will not see their investment returned. For instance, agency theory suggests that fixed and residual claimants in a firm have conflicting interests over dividend policy (Jensen and Meckling, 1976).[3] These concerns are mitigated through contracts between parties to the firm that use accounting numbers to reduce agency costs (Watts and Zimmerman, 1986). Debt contracts are primarily concerned with allocating decision rights to creditors in states of the world where managers have other incentives than to maximize firm value.[4]

A firm and its debt-contracting parties can accommodate demands for relatively greater or lesser conservatism in at least two ways. First, discretion within Generally Accepted Accounting Principles (GAAP) allows managers to choose financial reporting policies that incorporate relatively more or less conservatism. Second, managers and contracting parties can make adjustments to reported accounting numbers within individual contracts to better meet their needs (Guay, 2008). It is argued that firms with debt covenant do not require financial statements to be conservative with respect to the recognition of good news relative to bad news,

since debt holders have specialized demands for information, and can therefore engage in firm specific contract (Guay and Verrechia, 2006; Schipper 2005). Yet, empirical evidence suggest that GAAP regulated monitoring of debt contracts is considered cost effective (Ahmed *et al*., 2002; Ball *et al.,* 2008a; Beatty *et al*., 2008; Wittenberg-Moerman, 2008; Zhang, 2008; Nikolaev, 2010). Thus, a better understanding of debt contracting and conservatism can contribute to the discussion surrounding the desirability of prudence as a qualitative characteristic of international financial reporting.

Theoretically, the efficiency of contracts is enhanced by a conservative bias in accounting (Chen *et al*., 2007). This bias increases efficiency by reducing the incentive to manage earnings upward.[5] However, the IASB seems to argue that "conservatism as a desirable quality or response to uncertainty would conflict with the quality of neutrality (IASB, 2008)". Concurring with this notion, Gigler *et al*. (2009) suggest that conservatism actually decreases the efficiency of debt contracts, contrary to the suggestions of Watts (2003).[6]

Recent empirical studies that further examine this apparent theoretical conundrum test whether conservatism is beneficial for debt contracting. These studies show that conservatism reduces the cost of debt (Ahmed *et al*., 2002; Zhang, 2008), the degree of information asymmetry in debt markets (Ball *et al*., 2008a; Wittenberg-Moerman, 2008), as well as facilitates early transfer of control rights trough debt covenants (Beatty *et al*., 2008; Zhang, 2008). Furthermore, firms in which public debt covenants is a relatively more important part of financing exhibit higher levels of conditional conservatism (Nikolaev, 2010). It appears that empirically, the degree of

conservatism in financial reports is associated with the extent of the agency problem that arises from debt financing. GAAP accounting choices made by firms counter the position by the IASB/FASB that neutral financial reports are preferred over conservative reports for optimal decision making.

This paper further examines the association between accounting conservatism and debt contracts to examine the demand for conservative financial reporting. I first present a framework for the demand for conservatism, based on the model of income measurement by Demski and Sappington (1990). In this framework, unbiased income measurement can be fully revealing in an exogenous stream of net cash flows and a formative random variable generated by a firm's production plan. However, if this information disclosure is inadequate, a conservative transformation can be applied with preservation of full revelation. This framework suggests that conservatism is a link between the measurement approach to financial reporting of the IASB/FASB (Whittington, 2010), and the information approach to income measurement (Holthausen and Watts, 2001). The framework suggests that in the case of debt contracts, asymmetric loss functions may result in demand for conservative information. However, as suggested by the framework, conservative income and neutral income measurement are informationally equivalent, and are therefore an indication of the demand for the approach to accounting that is most decision useful.

I empirically evaluate the framework's properties and its effectiveness in explaining observed accounting conservatism. If conservatism through GAAP earnings rather than through firm-specific contract is a cost-effective contracting mechanism, there should be a positive relation between conservatism and debt contracts. I examine

conservatism in Australia, which provides an optimal research setting to test the framework. Conservatism is considered a pervasive characteristic of Australian GAAP (Balakrishnan *et al.*, 2008; Lai and Taylor, 2008). Furthermore, Australia was considered a leader in adopting IFRS and had already established a system of accounting aimed at investor decision making prior to IFRS (Barth, 2000; Collett *et al.,* 2001). In addition, Australia was an early leader in harmonization, had strong institutions and low manipulation incentives (Leuz *et al*., 2003; Bushman and Piotroski, 2006), and strong enforcement (Jones and Wolnizer, 2003).

I employ a measure of conservatism using the approach of Basu (1997) who regresses earnings on returns and allows the return coefficient to vary with the sign of the return to capture the differential timeliness with which earnings reflect good versus bad economic news (i.e. the asymmetrical timeliness of earnings in reflecting economic news). The estimated incremental coefficient on negative returns (incremental to the coefficient on positive returns), the Basu coefficient, is my conservatism measure. I find that in Australia, there is a positive relation between the cost of debt contracting and accounting conservatism. This relationship is robust for controlling for other incentives for conservatism. This article suggests that the preference of the IASB/FASB for neutral accounting is not necessarily substantiated, as conservatism is considered a cost-effective contracting mechanism in a financial reporting environment that adopted the measurement perspective in an early stage. This is an important issue because of the recent discussion on the use of fair value measures in financial reporting (Laux and Leuz, 2009), and the historical prevalence of conservatism in accounting.

Conceptual Framework

Accounting conservatism plays an important role in mitigating agency cost related to bondholder-shareholder conflicts over dividend policy, and in reducing firms' debt costs (Ahmed *et al.,* 2002).[7] Watts (2003) argues that conservatism in financial reporting arises for a number of economic reasons. The common attribute in these economic determinants is that there is an asymmetric loss function involved (Roychowdury and Watts, 2007).

Investors in the firm's debt have an asymmetric payoff with respect to net assets. Debt holders do not share in the gain in net asset value above the face value of the debt. However, they risk receiving less than the contracted sum if actions by managers reduce the value of net assets available to cover the loans. Consequently, debt holders are concerned with the lower ends of the earnings and net asset distributions. Shareholders have an asymmetric loss function due to their limited liability and so have incentives to transfer wealth from debt-holders by overstating earnings and net assets.

Further, managers are expected to have asymmetric incentives to be less forthcoming with bad news about firm performance relative to good news (Basu, 1997; Ball and Shivakumar, 2005). Efficient contracting theory suggests that it is in the interests of all parties to mitigate these conflicts. Therefore, given that creditors are relatively more concerned about poor firm performance, and that managers are

expected to be relatively less forthcoming about poor firm performance, creditors are expected to demand conservative financial accounting reports.[8]

A framework for the demand for conservatism

The importance of dividend covenants in debt agreements illustrates conservatism's function. These covenants limit dividend payments to "unrestricted" retained earnings calculated on conservative accounting principles. Thus those restrictions force management to protect debt holders by maintaining, within the firm, assets with a given lower bound value.[9]

Demski and Sappington (1990) present a model which can be employed to further examine the conservative accounting choices by managers. This model is adopted in this paper for a framework for debt contracting and conservatism. In the model, the accounting system produces a periodic measure of expected present value of future net cash flows from an exogenous stream of net cash flows and realizations of some (informative) random variable generated by a production plan. Income is generated by the accounting information system, and is defined as the sum of net cash flow and the change in expected present value. In the model, income is fully revealing, if it fully discloses the information contained in the original stream of net cash flows and realizations of the random variable.[10] This is consistent with the measurement accounting perspective of the IASB/FASB (Whittington, 2010).

The income number produced by the accounting information system is used by stakeholders of the firm, who use accounting information in contracts between

parties of the firm or for valuation purposes. To maximize the wealth of the stakeholders, accounting is to be decision useful, that is, “to provide financial information about the reporting entity that is useful to present and potential equity investors, lenders, and other creditors in making decisions in their capacity as capital providers (IASB 2008, S2.)

However, as first discussed by Beaver and Demski (1979), there are heterogeneous demands for income measurement, and as a result, the cost of information may fall differently across users. Beaver and Demski (1979) argue that because of the difference in the cost of information, income measurement becomes subjective, and thus does not enjoy the supposed objectivity of neutral accounting. In the case of debt, asymmetric loss functions involve agency cost. The lack of unanimous ranking of the mappings of exogenous stream of net cash flows and realizations of some (informative) random variable generated by a production plan into a periodic measure of income reduces income measurement to a cost-effective communication procedure (Beaver and Demski, 1979). Demski and Sappington (1990) show that a conservative treatment of income measurement is essentially a costless disclosure policy, leading to informationally equivalent income relative to fully revealing income. Hence, conservatism is a cost-effective communication procedure that links neutral accounting measurement to the contracts required to mitigate the agency cost associated with debt. Figure 1 presents the framework for debt contracts and conservatism, based on the model by Demski and Sappington (1990).

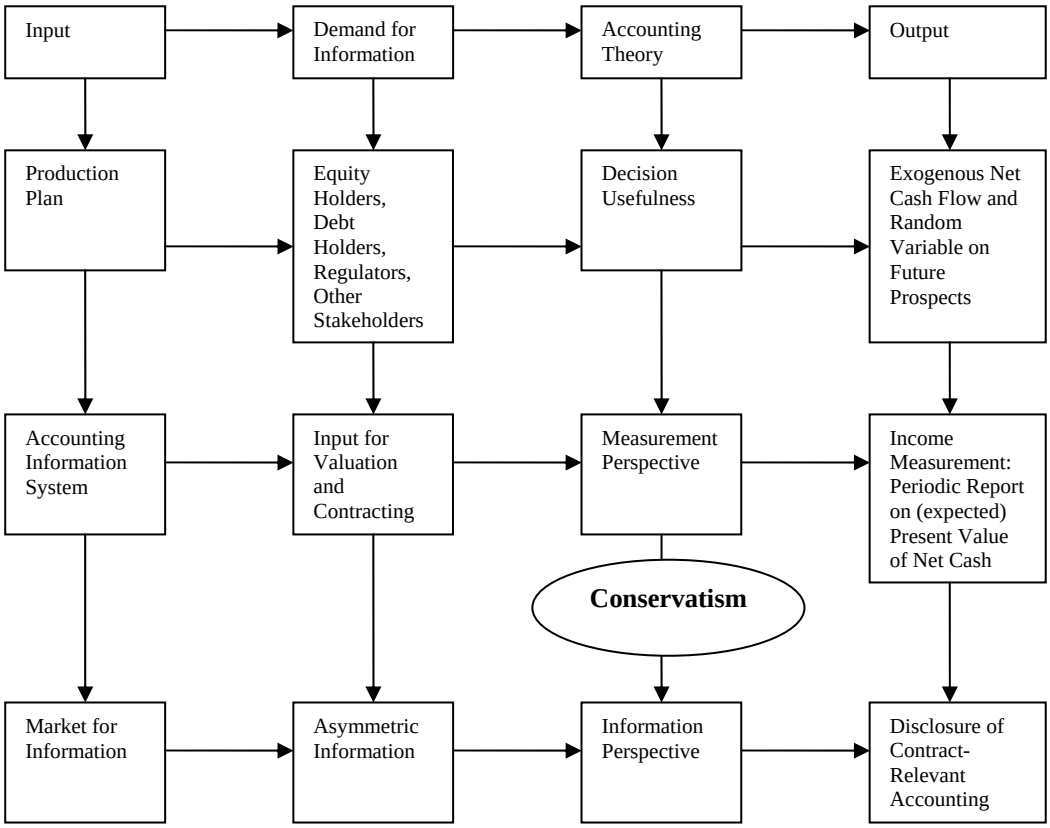
In this framework, measurement of accounting numbers used in specifying restrictions in debt contracts plays an important role. Debt contracts could be based on

neutral accounting numbers, assuming fully revealing accounting numbers without a conservative accounting treatment, as suggested by the IASB/FASB (2008). However, if income does not fully fulfill the information needs of debt contracting parties, a conservative accounting treatment could be chosen.[11] Demski and Sappington (1990) show that conservatively biased income is informationally equivalent to neutral income, and therefore fully revealing.

Based on this framework, the extent of conservatism in debt contracts is a proxy for the informativeness of financial reporting, I next test the implications of the framework empirically.

Figure 1

Framework for Conservatism



Research Design

To empirically test the link between the measurement approach and the information approach in financial reporting in our framework, I examine a setting where demand for conservatism is likely to be high. To examine the role of debt in resolving agency problems between firms and lenders, I focus on the debt setting characterized by a substantial probability of distress, where there is a high likelihood managers may make decisions that are advantageous to shareholders to the detriment of creditors (Nikolaev, 2010). Parties require greater conservatism to resolve agency problems in their debt contracting relationships via conservative adjustments to both financial statements and debt covenants. I rank firms on the debt-to-equity ratio, and assign firms in the top decile as firms where demand for conservatism is expected to be the highest, since these firms are likely to have the highest agency cost. I also look at size of debt as an alternative indicator for the demand for conservative accounting (Beatty *et al*., 2008). I expect that if income is fully revealing, firms in the top debt decile are not expected to be more conservative that other firms. However, if the debt-contracting parties' information needs for decision making are not met, I expect a more conservative treatment of income measurement for the high agency-cost firms, consistent with the framework.

Conservatism measure

To measure conservatism, I follow Basu (1997).[12] He shows that, because of the conservative bias in accounting, negative stock returns, reflecting a downward adjustment in expectations of future cash flows, will have a higher association with earnings than positive stock returns, which reflect an upward adjustment in expectations of future cash flows. Stock prices and earnings can be viewed as joint realizations from a state generating process. The realization between prices and earnings will depend in part upon the nature of the two mappings and other information available to market participants. In an efficient market, stock returns reflect all information affecting the market value of the firm in the fiscal period. Therefore, the information in prices should be reflected in accounting income, and stock returns can be used as an explanatory variable to examine the properties of reported earnings. More specifically, I run the following cross-sectional pooled regression:

$$\begin{aligned} Earnings = \alpha_0 + \beta_1 DR + \beta_2 \operatorname{Re}t + \beta_3 \operatorname{Re}t * DR + \beta_4 Debt + \beta_5 DR * Debt + \\ \beta_6 Debt * \operatorname{Re}t + \beta_7 DR * Debt * \operatorname{Re}t + \varepsilon \end{aligned} \quad (1)$$

where firm and time subscripts are omitted. All data is taken from the Worldscope Database for Australia in the period 2001-2008. Earnings is net income (Worldscope data item WC01751) divided by beginning of fiscal period market value of equity (Worldscope data item WC08001). *Ret* is the buy-and-hold return including dividends over the 12-month period starting 4 months after the fiscal year-end, adjusted for the market- return in the same period. *DR* is equal to 1 if *Ret* is negative, and 0 otherwise.

Debt denotes a high demand for conservatism, indicated by either the Debt/Equity ratio (Worldscope data item WC03255/ Worldscope data item WC03501) or the size of Debt relative to Total Assets (WC03255/WC02999) as an alternative measure. *Debt* is equal to 1 if the debt variable is in the top decile of the Debt variable of all firms, and 0 otherwise.

The analysis is primarily focused on coefficient β_7, which is positive if debt contracting parties demand more conservatism for income to be fully revealing.

Control Variables

It is important to recognize that higher conservatism in financial reports in relation to debt contracts may reflect lenders' demand for conservatism, or it may reflect a demand for conservatism because of equity investors' concerns, or litigation, tax or regulation. Australian firms that follow GAAP may have or demand the different degrees of conservatism in their financial reports. Accounting rules have evolved endogenously over time to meet the needs of various market participants and contracting parties. It is likely that that observed accounting rules conform to the weighted average demands of users of financial statements, where the weighting is based on the relative importance of certain types of contracting parties (Guay, 2008). Watts (2003) distinguishes four alternative explanations for conservatism: contracting, litigation, taxation and regulation. The marginal costs associated with preparing conservative reports to meet lenders' demands is expected to be relatively low, if the demands of other constituents cause the firm to report conservatively. Therefore, the

conservative treatment of income for debt contracting is expected to be mitigated if there is high demand for reporting conservatism from other stakeholders. I therefore control for alternative demands for conservatism by examining the following model:

$$\begin{aligned} Earnings = \alpha_0 + \beta_1 DR + \beta_2 \mathrm{Re}t + \beta_3 \mathrm{Re}t * DR + \beta_4 Debt + \beta_5 DR * Debt + \\ \beta_6 Debt * \mathrm{Re}t + \beta_7 DR * Debt * \mathrm{Re}t + \beta_8 * Control + \beta_9 Control * DR * \mathrm{Re}t + \varepsilon \end{aligned} \quad (2)$$

In this model, the alternative demand factors are added to model (1) to control for confounding effects. In model (2), the control variables for joint determination of conservatism are not interacted with all variables presented in model (1). The reason for this omission is that the less parsimonious specification can lead to overparameterization, and possibly lower efficiency of estimates (Nikolaev, 2010).[13] The control variables are *Equity* contracting, measured by the amount of closely held shares, *Litigation*, where the risk of litigation is higher for Big-Four audit firms, *Regulation*, measured by the degree of market-concentration at the industry-level, and *Taxation*, measured by the book-tax difference.

Empirical results

Panel A of Table 1 provides descriptive statistics of the variables used. Panel B presents correlation analysis. Income measurement is significantly associated with all contracting determinants for demand for conservative reporting. Table 2 presents the regression results of parameter estimates of the Basu model on debt contracting.

Model 1 is the base-line model for conditional conservatism in Australia for the entire period. The coefficient β_3 has a positive and significant value of 0.285, consistent with the Basu (1997) model, and with Balakrishna *et al*. (2007) and Bai and Taylor (2008), who show that conservatism is a pervasive characteristic of Australian GAAP.

Model 2 indicates that timely recognition of losses increases with the cost of debt contracting. The coefficient β_7 is significantly positive at the 5% level with a value of 0.273.[14] This result suggests that having high debt contracting cost more than doubles timely loss recognition (at 107% of β_3). This result is consistent with Ahmed *et al*., (2002), Beatty *et al*.(2008), Wittenberg-Moerman, (2008), Zhang (2008) and Nikolaev (2010), and shows that when debt contracting cost are high, firms respond with a more conservative treatment of income measurement. Based on the framework for conservatism, this result indicates that contracting parties require a conservative treatment of income measurement in case of high debt contract cost to meet their demand for informative accounting information that is fully disclosing. This result contrasts with the assessment that debt holders will meet their specialized demands for information by making contract specific adjustments (Guay and Verrechia, 2006; Schipper, 2005). Rather, it appears that the conservative treatment of income measurement is the most cost-effective accounting treatment to meet the demands for information by debt contracting parties.

The magnitude of increased timely loss recognition for debt contracting parties is larger when controls for other determinants of conservatism are introduced in model 3. In this model, the litigation and regulation are significant determinants of conservatism in Australia, while equity contracts and taxation are not significantly

associated with timely loss recognition. When controlling for other determinants of conservatism, debt contracting is still significantly associated with higher conservatism (at 128% of β_3). This result suggests that conservatism is debt contracting specific. The magnitude and significance of β_7 does not change when using the size of debt as an alternative measure of debt contracting in models 4 and 5. Overall, the evidence suggests that conservatism is a cost-effective communication mechanism, that increases the informativeness of financial reporting.

Implications and Concluding remarks

The current project of the IASB and the FASB to develop the joint CF emphasizes a measurement perspective of financial reporting (Whittington, 2010). In doing so, standard setters aim to identify a measurement basis that best conforms with the criteria of relevance and representational faithfulness, with a preference for fair value as the measurement basis (Barth, 2006).

The qualitative characteristics of financial reporting are the attributes that make financial information useful. Conservatism has traditionally been a fundamental characteristic of financial reporting (Sterling, 1967) and had gained in importance in recent years (Basu, 1997; Givoly and Hyan, 2000; Watts, 2003; Ball and Shivakumar, 2005; Grambovas *et al*, 2006). In the Exposure Draft of the improved Conceptual Framework for Financial Reporting of the IASB/FASB (2008), neutrality is preferred over prudence, suggesting that conservatism is no longer a desired attribute of financial reporting. It can be argued that improved measurement of net assets

mitigates the demand for conservatism (Barth, 2006), and with the focus on measurement by the IASB/FASB (Whittington, 2010), demand for conservatism may decrease. This is inconsistent with empirical evidence on the demand for conservatism

This paper examines conservatism in debt contracting as a setting where demand for conservatism can be isolated. Creditors can arrange for contract-specific provisions rather than require conservatism in financial reports. A conservative treatment of income measurement is informationally equivalent, and preferred if cost effective (Demski and Sappington, 1990). The results in this paper show that debt contracting is associated with higher levels of conservatism.

If demand for conservatism for debt contracts indeed increases with the agency cost related to debt, does this suggest that the preference for neutrality is leads to less effective contracting? The results from this paper do not support the notions that prudence is an undesired characteristic of financial reporting. From the empirical examination of Positive Accounting Theory (Watts and Zimmerman, 1986) in this paper, it can be concluded that a contract with a conservative bias is considered more effective. However, the empirical examination in the paper is just a start. To reach such a powerful conclusion, a more sophisticated investigation should control for institutional factors, and measure debt contracting more directly. Given the historical importance of conservatism, such research is warranted.

Notes

[1] Ball and Shivakumar (2005) note two distinct concepts of conservatism. Unconditional conservatism results in a downward bias on reported net worth so as to offset managers' tendencies to bias net worth upwards, conditional conservatism commits managers to recognizing bad news in a timely manner. Ball and Shivakumar (2005) specify that conditional conservatism improves contracting efficiency. This form constrains negative net present value (NPV) projects, thereby improving the efficiency of equity contracting, and it quickly triggers debt covenant violations, thereby enhancing the efficiency of debt contracting. Unconditional conservatism, which lowers equity book value and earnings as well, can also constrain negative NPV projects and quickly trigger debt covenant violations. However, Basu (2005) notes that this form does not utilize new information, and Ball and Shivakumar (2005) argue that this form adds noise to payoffs to contracting parties and thus could reduce contracting efficiency. Furthermore, contracting parties are expected to be able to readily contract around bias. Thus, efficiency of contracting is expected to improve through the conditional form only (Qiang, 2007; Guay, 2008).

[2] In the IASB/FASB conceptual framework (2008, B2.20), the notion of conservatism is defined as 'the inclusion of a degree of caution in the exercise of the judgments needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities and expenses are not understated. However, the exercise of prudence does not allow, for example, the creation of hidden reserves or excessive provisions.'

[3] For example, manager can increase firm leverage by making cash payouts to shareholders in the form of dividends or share repurchases. Overpayment of dividends essentially transfer wealth from bondholders to shareholders by reducing the assets available for meeting bondholders' fixed claims and hence increasing the default risk for bondholders.

[4] Decision usefulness by equity and debt holders can be enhanced by efficient contracting using accounting numbers: To effectively monitor their investments, creditors require: (1) contracting information that allows them to determine when managers/shareholders might take actions that are not in creditors' best interests, and (2) valuation information that gives investors the ability to have some decision rights over the firm when such circumstances arise (Guay, 2008). Debt contracts use lower bound measures of net assets to trigger technical default that allows the loan to be called and to restrict managerial actions that reduce the value of net assets or otherwise reduce the value of the loan. These include dividends and acquisitions that increase the firm's risk (Smith and Warner, 1979).

[5] Chen *et al.* (2007) show that risk sharing, and hence contract efficiency, can be improved under a conservative accounting standard where, absent earnings management, accounting earnings represent true economic earnings with a downward bias, compared with under an unbiased standard where, absent earnings management, accounting earnings represent true economic earnings without bias.

[6] Gigler *et al*. (2009) argue that due to differential verification, the disclosure of income increasing events will occur less frequently, but when they do occur, such reports will have high information content because the strict verifiability standards for making such a disclosure conveys that the probability of occurrence of the increased income is very high. Reports of income decreasing events would occur more frequently, but such reports would have lower information content because the lax verifiability standards for making such a disclosure means that it conveys less information about the probability of the loss actually occurring (p.769).

[7] Agency costs arise when managers and other parties to the firm maximize their own welfare instead of firm value. They include costs incurred to align parties' incentives with firm value maximization and the negative firm value effect caused by the remaining lack of alignment. Reducing agency costs increases the firm value to be shared among the various parties to the firm. Agency cost-reducing

contracts include debt contracts between the firm and holders of the firm's debt, management compensation contracts, employment contracts, and cost-plus sales contracts (Watts, 2003, p.211).

[8] Conservatism may result in firms retaining unnecessary capital, thereby reducing contracting efficiency. When the return on equity provided by a firm is lower than the return on alternative investments, paying dividends is of the best interests of shareholders. However, conservative accounting understates equity book value and earnings, reducing the ability of the firm to pay dividends. As a result, conservative firms may not be allowed to pay dividends when it is efficient to do so. Watts (2003) argues that for debt holders with asymmetric loss functions, the benefits of preventing excessive dividends outweigh the costs of retaining unnecessary capital, resulting in a net increase in contracting efficiency.

[9] The use of conservative accounting in debt agreements is extremely old and dates back to the 1620s in the U.K. (Watts, 2003, p. 212).

[10] Fully revealing connotes exclusively the ability of the accounting income to convey the exogenously specified information (Demski and Sappington, 1990).

[11] Conservative accounting measurement would directly affect the earnings and retained earnings amounts, since conservative accounting leads to lower (cumulative) reported earnings. Similarly, conservative accounting implies tighter restrictions on dividend policy by reducing the measures of assets in various balance sheet ratios that appear in debt contracts to constrain dividends.

[12] The Basu (1997) model is a commonly used model to measure accounting conservatism in accounting income, and is used by Ball *et al*. (2008a, 2008b), Beatty *et al*. (2008), Wittenberg-Moerman (2008), Zhang (2008) and Nikolaev (2010) to measure conservatism in relation to debt. The

Basu model uses returns, *RET*, as a proxy for news, where positive returns proxy for good news and negative returns proxy for bad news. By allowing differential sensitivity of net income to negative returns, *RET* * *DR*, the Basu model captures the differential verifiability required for the recognition of gains versus losses, also known as conditional conservatism. See Ball, Kothari and Nikolaev (2010) for an elaborate explanation of the Basu (1997) model. Ball et al. (2008b) argue that debt markets rather than equity markets are the primary influence on the Basu (1997) measure of conservatism.

[13] I check for robustness of the fully parameterized model with interactions with all variables of the baseline model, and find similar results.

[14] Significance is based on standard errors that are robust to both cross-sectional and time-series correlation, clustered by firm and year. Petersen (2009) suggest that correcting for time-series dependence is not necessary. However, Gow *et al*. (2010) indicate that in studies of conservatism, two-way clustered standards errors are recommended, especially when there are overlapping observations.

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Table 1
Descriptive Statistics and Correlation Analysis

Panel A: Descriptive statistics

variable	Mean	Standard Deviation	Percentiles 25	50	75
Earnings	-0.034	0.243	-0.098	0.035	0.089
D/E	1.746	68.685	0.000	0.194	0.627
Size of debt	0.166	0.181	0.000	0.110	0.286
Debt contract	0.099	0.299	0.000	0.000	0.000
Equity contract	0.379	0.259	0.156	0.367	0.568
Litigation	0.679	0.467	0.000	1.000	1.000
Regulation	0.259	0.438	0.000	0.000	1.000
Taxation	0.004	0.041	-0.003	0.000	0.004

Panel B:Correlation Matrix

	Earnings	D/E	Debt Size	Debt Contract	Equity Contract	Litigation	Regulation	Taxation
Earnings		0.2366	0.2346	0.0101	0.0632	0.2147	0.3037	0.0515
		(0.0000)	(0.0000)	(0.4396)	(0.0000)	(0.0000)	(0.0000)	(0.0001)
D/E	-0.0301		0.9728	0.5225	0.0123	0.1913	0.3870	0.0456
	(0.0211)		(0.0000)	(0.0000)	(0.3464)	(0.0000)	(0.0000)	(0.0005)
Debt Size	0.0985	0.0639		0.4648	0.0252	0.1922	0.3412	0.0597
	(0.0000)	(0.0000)		(0.0000)	(0.0538)	(0.0000)	(0.0000)	(0.0000)
Debt Contract	-0.0338	0.0645	0.6094		-0.0344	0.0363	0.1009	0.0555
	(0.0097)	(0.0000)	(0.0000)		(0.0083)	(0.0055)	(0.0000)	(0.0000)
Equity Contract	0.0406	-0.0013	0.0073	-0.0290		-0.0900	-0.0808	-0.0482
	(0.0019)	(0.9190)	(0.5766)	(0.0262)		(0.0000)	(0.0000)	(0.0002)
Litigation	0.2057	0.0126	0.1585	0.0363	-0.0876		0.2749	0.0319
	(0.0000)	(0.3355)	(0.0000)	(0.0055)	(0.0000)		(0.0000)	(0.0146)
Regulation	0.2409	-0.0061	0.2654	0.1009	-0.0802	0.2749		0.0042
	(0.0000)	(0.6405)	(0.0000)	(0.0000)	(0.0000)	(0.0000)		(0.7481)
Taxation	0.0795	-0.0015	0.0398	0.0149	-0.0360	0.0441	0.0261	
	(0.0000)	(0.9103)	(0.0023)	(0.2534)	(0.0058)	(0.0007)	(0.0452)	

Variables Measurement: Earnings is Net Income (*Worldscope* data item WC01751) deflated by market value of equity (*Worldscope* data item WC08001); The extreme 1% is deleted on either side of the distribution. Debt Contract is an indicator variable equal to 1 if the debt variable is in the top decile of all firms, and 0 otherwise. Debt is measured as by either the Debt/Equity ratio (*Worldscope* data item WC03255/ *Worldscope* data item WC03501) in model 2 and 3, or the size of Debt relative to Total Assets (WC03255/WC02999) in model 4 and 5. Equity Contract is the percentage of closely-held shares (*Worldscope* data item WC08021). Litigation is an indicator variable equal to 1 if the audit firm is a Big-Four firm, and 0 otherwise. Regulation is an indicator variable equal to 1 if industry concentration measured by revenue is high, and 0 otherwise. Taxation is deferred tax (*Worldscope* data item WC03263). Spearman and Pearson correlations are above and below the diagonal, respectively. Two-tailed p-values are reported in parentheses below the correlation coefficients.

Table 2
Piece-wise linear regression of earnings on returns and incentives for conservatism

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Constant	0.038***	0.034***	-0.060**	0.035***	-0.060**
	(3.66)	(2.90)	(-2.10)	(2.89)	(-2.13)
DR	0.026***	0.022**	0.024***	0.021**	0.024***
	(3.38)	(2.55)	(3.69)	(2.50)	(3.47)
Ret	0.036	0.042	0.058**	0.040	0.057**
	(1.45)	(1.55)	(2.14)	(1.53)	(2.17)
*DR*Ret*	0.285***	0.253***	0.198***	0.261***	0.201***
	(11.59)	(8.27)	(5.34)	(9.21)	(5.75)
Debt		0.037*	0.022	0.036*	0.029
		(1.93)	(1.14)	(1.71)	(1.36)
*Debt*Ret*		-0.056	-0.036	-0.039	-0.027
		(-0.68)	(-0.52)	(-0.66)	(-0.45)
*Debt*DR*		0.016	0.014	0.032*	0.032*
		(1.09)	(1.05)	(1.79)	(1.87)
*Debt*DR*Ret*		0.273**	0.254**	0.219**	0.219**
		(2.35)	(2.39)	(2.33)	(2.33)
Control Variables					
Equity			0.000**		0.000**
			(2.47)		(2.43)
*Equity*Ret*			-0.001		-0.001
			(-1.21)		(-1.24)
Litigation			0.071***		0.071***
			(4.78)		(4.88)
*Litigation*Ret*			0.051**		0.052***
			(2.55)		(2.64)
Regulation			0.056***		0.057***
			(4.22)		(4.04)
*Regulation*Ret*			-0.105***		-0.095***
			(-6.60)		(-4.56)
Taxation			0.364***		0.360***
			(2.84)		(2.89)
*Taxation*Ret*			0.306		0.304
			(0.72)		(0.74)
Adj. R2	0.171	0.178	0.219	0.174	0.214
N	5,867	5,867	5,867	5,867	5,867

Variables Measurement: Earnings is Net Income (*Worldscope* data item WC01751) deflated by market value of equity (*Worldscope* data item WC08001); Ret = the annual return measured over the period starting 4 months after the fiscal year-end, corrected for the ASX market return measured over the same period as Ret. For each variable, the extreme 1% is deleted on either side of the distribution for every year. Debt is an indicator variable equal to 1 if the debt variable is in the top decile of all firms, and 0 otherwise. Debt is measured as by either the Debt/Equity ratio (*Worldscope* data item WC03255/ *Worldscope* data item WC03501) in model 2 and 3, or the size of Debt relative to Total Assets (WC03255/WC02999) in model 4 and 5. Equity is the percentage of closely-held shares (*Worldscope* data item WC08021). Litigation is an indicator variable equal to 1 if the audit firm is a Big-Four firm, and 0 otherwise. Regulation is an indicator variable equal to 1 if industry concentration measured by revenue is high, and 0 otherwise. Taxation is deferred tax (*Worldscope* data item WC03263). Coefficients and t-statistics from two-way corrected standard errors by year and firm. *** (**, *) Significant at the 0.01 (0.05, 0.10) level (two-tailed test).