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Abstract: Extant research suggests that conditional conservatism reduces information asymmetry between a firm and its shareholders as well as its debtholders. However, there is little evidence on whether conditional conservatism reduces information asymmetry differentially for shareholders and debtholders. We use the setting of a firm's choice between equity and debt when it seeks a significant amount of external financing to examine this research question. We find that when firms raise a significant amount of external financing, the use of equity (versus debt) increases with the level of conservatism. We also find that the reduction in cost of equity associated with conservatism is greater for equity issuers than for debt issuers, but find no such difference when we examine cost of debt. In addition, we find that the positive effect of conservatism on the choice of equity issuance (versus debt issuance) is accentuated when the information asymmetry between the firm and its shareholders is more severe. Overall, our results suggest that conservatism reduces information asymmetry more between firms and shareholders than between firms and debtholders.

Keywords: conditional conservatism; financing policy; cost of equity; cost of debt; information asymmetry

JEL Descriptors: G32; M41

1. Introduction

Conditional conservatism (hereafter, we use the terms "conditional conservatism" and "conservatism" interchangeably), imposes stronger verification requirements for the recognition of gains than for the recognition of losses, thereby speeding up the reporting of losses relative to gains (Basu 1997; Holthausen and Watts 2001).[1] Existing theories suggest several informational benefits of conservatism (e.g., Bagnoli and Watts 2005; Guay and Verrecchia 2007; Fan and Zhang 2012).[2] Several studies document that conservatism is associated with lower information asymmetry between outside equity investors and the firm (LaFond and Watts 2008; Garcia Lara, Garcia Osma, and Penalva 2011, 2014; Kim and Zhang 2015). However, several other studies emphasize the informational role of conservative reporting in debt contracting (Zhang 2008; Wittenberg-Moerman 2008; Beatty, Weber, and Yu 2008; Ball, Bushman, and Vasvari 2008; Ball, Robin, and Sadka 2008; Li 2010; Nikolaev 2010). Given the existing findings that conservatism is associated with both lower cost of equity and lower cost of debt (Li 2014), it is unclear *a priori* whether conservatism is associated with a greater reduction in the cost of debt or the cost of equity, and what might cause this difference.

We use the setting of a firm's decision to issue equity versus debt when it seeks a significant amount of external financing to shed light on whether conservatism is associated with this choice. Specifically, if conservatism is associated with a relatively lower cost of equity (debt), we expect the likelihood of equity versus debt issuance to be greater (less) for firms with higher conservatism when they raise external financing. Following prior studies (Hovakimian 2004; Chang, Dasgupta, and Hilary 2006, 2009), we use a logistic model with debt-equity choice as the dependent variable to examine the association between conservatism and debt versus equity issuance. To triangulate our inferences, we use three firm-year measures of conservatism: (1) conservatism ratio developed by

[1] We focus on the informational benefits of conditional conservatism, i.e., reporting lower book values and lower net income when firms experience contemporaneous economic losses, but not symmetrically increasing book values and net income when firms experience economic gains. This definition is in contrast to that of unconditional conservatism, which is an accounting bias toward reporting lower book values of stockholder equity. Unconditional conservatism can simply be satisfied by expensing early, deferring revenue, or under-reporting income or book values on a regular basis, none of which is correlated with contemporaneous real income (Basu 1997; Ball and Shivakumar 2005).

[2] Conservatism is an important principle that has influenced financial reporting for a long time. Citing Penndorf (1933) and Littleton (1941), Basu (2009) indicates that conservatism has influenced financial accounting since the early fifteenth century. Holthausen and Watts (2001) provide evidence that conservatism existed prior to formal standard setting and regulation in the United States, which suggests that managers of U.S. firms have incentives to report conservatively even in the absence of mandated rules and regulations. Despite criticism of conservatism, there is evidence that U.S. financial reporting not only is conservative but has become increasingly conservative (Basu 1997; Pope and Walker 1999; Givoly and Hayn 2000; Holthausen and Watts 2001; Ryan and Zarowin 2003; Shroff, Venkataraman, and Zhang 2012). This longstanding resilience of conservatism suggests that U.S. firms may derive significant economic and informational benefits from conservative reporting.

Callen, Segal, and Hope (2010), (2) conservatism score developed by Khan and Watts (2009), and (3) cumulative non-operating accruals proposed by Givoly and Hayn (2000).

Using a sample of firms that issued a significant amount of either debt or equity during the period 1994 through 2010, we find for all three measures of conservatism that firms with higher levels of conservatism in the current period are more likely to issue equity versus debt in the following period. A shift in the three conservatism measures from the lowest to the highest decile increases the probability of equity (versus debt) financing by an average of 11 percent, which is economically non-trivial. In addition, using a change specification, we find that an increase in conservatism is associated with a greater likelihood of equity (versus debt) issuance, consistent with the findings using the level of conservatism. Based on changes in conservatism using all three measures, we find that a shift from the lowest to the highest decile increases the probability of equity (versus debt) financing by an average of 6 percent. To complement our main findings based on firm-year conservatism measures, we also use Basu's (1997) asymmetric timeliness measure and find that prior to capital issuance, firms that issue equity exhibit greater conservatism compared to firms that issue debt.

To explore whether conservatism reduces information asymmetry between firms and shareholders more than that between firms and debtholders, we conduct two additional sets of empirical tests. First, we examine changes in cost of equity and cost of debt surrounding issuances of equity and debt. We find that the reduction in cost of equity associated with conservatism is greater for equity issuers than for debt issuers, but do not find such a difference for cost of debt. This result is consistent with conservatism reducing information asymmetry more for shareholders than for debtholders. Second, using analyst following, analyst forecast dispersion, dedicated institutional ownership, growth opportunities, stock illiquidity, and probability of informed trade as proxies for information asymmetry, we find that the positive association between conservatism and equity issuance is more pronounced when the information asymmetry between the firm and shareholders is more severe. This result suggests that information asymmetry is one channel through which conservatism is associated with firms' financing choice.

Lastly, we find that our main results are robust to several sensitivity checks, which include using alternative cut-offs and limits for our measure of debt-equity choice, excluding firms with mergers and acquisitions, ruling out the confounding effect of debt capacity, including firms that issue both equity and debt, and using a pure cross-sectional approach to deal with serial dependence.

Overall, our results suggest that a higher level of conservatism is associated with a greater reduction in cost of equity than cost of debt, and this differential cost reduction increases the likelihood of firms raising external capital through equity than through debt. One possible explanation for this result is that debtholders have alternative mechanisms to protect themselves from the costs of adverse selection and moral hazard. For example, debt contracts include covenants to aid in monitoring managerial behavior. Another possible explanation is that part of a firm's debt may have very low risk because it is collateralized and offers downside protection to debtholders. Because this low-risk portion of debt is less sensitive to changes in information, it mutes the informational benefits of conservatism for debt compared to equity.

Our study makes several contributions to the extant literature. First, we extend the literature on the influence of financial reporting on external financing decisions (e.g., Bharath, Sunder, and Sunder 2008; Chang et al. 2009) by examining how conservatism, an important attribute of financial reporting, relates to a firm's decision to issue equity versus debt. Second, we extend the literature on the economic implications of conservatism by documenting that conservatism is correlated with a firm's financing choice.[3] Third, we further inform the debate on the informational role of conservatism by documenting that conservatism in U.S. capital markets is associated with a greater reduction in cost of equity than cost of debt. This result contrasts with the evidence in Ball et al. (2008b) that the demand for conservatism across international capital markets is driven mainly by debt rather than by equity.[4] Our evidence also contrasts with that of prior studies that document a positive relation between conservatism and leverage (e.g., Callen et al. 2010; Khan and Watts 2009). One possible reason is that we use a restricted sample of firms with relatively large amounts of equity and debt issuances, and hence our results may not generalize to all firms. However, the evidence in our study is consistent with that documented by Ball and Shivakumar (2008), who find that U.K. firms report more conservatively prior to initial public offerings of equity capital, and Givoly, Hayn,

[3] Prior research on the economic implications of accounting conservatism examines issues such as corporate governance, agency conflicts, cost of capital, and investment efficiency (e.g. Beekes, Pope, and Young 2004; Ahmed and Duellman 2007; Garcia Lara, Garcia Osma, and Penalva 2009a, 2009b; Francis and Martin 2010; Bushman, Piotroski, and Smith 2011; Ahmed and Duellman 2011; Li 2014).

[4] One possible reason for this difference in findings between our study and Ball et al. (2008b) is that the level of sophistication and development of capital markets in the U.S. is different from that in other countries. In countries where the debt market is smaller and debtholders are less protected by securities regulation, there may be a higher demand by creditors for conservatism to improve contracting efficiency. Relative to the demand for conservatism by debtholders in these countries, the same demand in the U.S. may be weaker (and perhaps also weaker than the demand for conservatism by U.S. shareholders) because the U.S. debt market is more developed and creditor protection is stronger. Hence, our results based on U.S. data may not generalize to other countries, especially bank-centered, code law countries (see Ali and Hwang 2000; Ball, Kothari, and Robin 2000).

and Katz (2010), who find that firms with public equity report more conservatively than firms with only public debt.[5]

We discuss the prior literature and develop our main hypothesis in Section 2, outline the measurement of conservatism and describe the empirical tests in Section 3, discuss the sample and the data in Section 4, detail the results of our main analyses and of additional analyses that strengthen our inferences on the association between conservatism and financing choice in Section 5, discuss sensitivity analyses in Section 6, and present our conclusions in Section 7.

2. Prior literature and hypothesis development

Financial statements are the primary source of information available to outside investors about a firm's financial performance. Hence, financial reporting affects the level of information asymmetry between managers and investors about a firm's underlying fundamentals and has important economic consequences. For example, Aboody, Hughes, and Liu (2005) conjecture that better financial reporting quality mitigates the exploitation of private information by informed traders, and find that firms with better reporting quality have lower cost of capital and less profitable insider trades. Biddle, Hillary, and Verdi (2009) document a positive association between financial reporting quality and investment efficiency, and argue that their results are consistent with a reduction in information asymmetry between firms and external suppliers of capital when firms have higher reporting quality.

Conservatism increases the usefulness of financial statements because it imposes stronger verification requirements for the recognition of unrealized gains than unrealized losses, which increases the timeliness of loss versus gain recognition (Basu 1997; Holthausen and Watts 2001; Ball and Shivakumar 2005). Existing theories suggest that conservatism mitigates information asymmetry between firm managers and outside investors, either by reducing the costs of adverse selection or moral hazard or both, and leads to informational benefits.[6] For example, conservatism improves debt and compensation contracting efficiency (Göx and Wagenhofer 2009), safeguards against ex post opportunistic influence on accounting measurement by managers (Gao 2013), enhances information

[5] However, using Korean data, Haw, Lee, and Lee (2014) find that private firms, but not public firms, report more conservatively when they issue public bonds for the first time.

[6] We view information asymmetry, which can be modeled either as adverse selection or moral hazard, as the root of the agency problems associated with the issuance of external financing. Because tracing out the exact path through which conservatism affects information asymmetry is beyond the scope of our study, we do not distinguish between the adverse selection and moral hazard aspects of information asymmetry. Rather, in the development of our hypotheses, we simply rely on the argument that conservatism reduces information asymmetry as a whole (either through mitigation of costs associated with moral hazard or adverse selection), and examine the differential effects of conservatism on information asymmetry reduction for shareholders versus debtholders.

quality (Fan and Zhang 2012), helps signal managerial private information (Bagnoli and Watts 2005), reduces investors' uncertainty about firm value (Guay and Verrecchia 2007), and mitigates bankruptcy and operating cash flow downside risks (Biddle, Ma, and Song 2012a, b). Despite our understanding of the role conservatism plays in reducing information asymmetry between the firm and outside investors, an unaddressed issue in the extant literature is whether conservatism reduces information asymmetry more (or less) between firms and shareholders than between firms and debtholders. Using the setting of a firm's decision to issue debt versus equity, we investigate the effects of conservatism on the differential reduction in information asymmetry between the firm and its shareholders and debtholders.

One stream of literature suggests that conservatism reduces the information asymmetry associated with equity. LaFond and Watts (2008) argue that firm managers have strong incentives to transfer wealth from investors to themselves by inflating firms' financial performance (and consequently stock prices). In the presence of information asymmetry between firm managers and outside equity investors, the markets recognize these incentives and impose a cost by reducing their bid prices for shares. LaFond and Watts (2008) contend that conservatism helps alleviate this cost of information asymmetry because it requires higher verification standards on gains, which curb managers' propensity to overstate unverifiable gains, and lower verification standards on losses, which curb managers' reluctance to report less verifiable losses. The net result under conservatism is to produce more and harder information than would be provided by accounting practices that apply equally strong verification standards to both gains and losses. In addition, because conservatism limits managers' ability to overstate earnings and resources available to the firm, the resulting hard information serves as a benchmark for competing and softer information sources. LaFond and Watts (2008) report that conservatism increases following increases in information asymmetry between managers and outside shareholders, which supports their contention that shareholders demand and firms supply conservative reporting because it helps mitigate information asymmetry.

Consistent with the finding of LaFond and Watts (2008), Garcia Lara et al. (2014) document that conservatism leads to a decrease in information asymmetry and a decrease in stock return volatility. In addition, Garcia Lara et al. (2011) find a significant negative relation between conservatism and the cost of equity capital. They argue that shareholders benefit from conservatism because it mitigates uncertainty about the amount and distribution of future cash flows as well as the volatility of future stock prices, which leads to increased information

precision and reduced cost of equity. Furthermore, Kim and Zhang (2015) show that conservatism is predictive of the risk of future stock price crash, which suggests that conservatism matters to outside shareholders.

Another stream of literature emphasizes the role of conservatism in debt contracting and suggests that debtholders have a strong demand for conservatism. For example, Zhang (2008) presents evidence consistent with conservatism benefiting lenders *ex post* through the timely signalling of default risk (manifested through accelerated covenant violations), and benefiting borrowers *ex ante* through lower initial interest rates charged by lenders. Wittenberg-Moerman (2008) examines whether conservatism decreases information asymmetry for borrowers and finds that the bid-ask spread in the secondary loan market is lower for firms with higher conservatism. Consistent with the usefulness of conservatism in debt contracting, several studies document that conservatism plays an important role in shaping debt contracts (Beatty, Weber, and Yu 2008; Ball et al. 2008a; Li 2010; Nikolaev 2010).[7]

Ball et al. (2008b) document that the demand for conservatism is primarily driven by debt rather than by equity markets. Their study, using an international setting, provides important insights into why debtholders may demand conservatism more than shareholders. First, timely recognition is more important for debtholders than for shareholders because many of the post-issuance contractual rights of lenders are couched in terms of financial variables that are based solely on reported financial statements (Smith and Warner 1979). Therefore, any information that is not reflected in the financial statements does not affect those rights. In contrast, shareholders are comparatively indifferent to whether gain and loss information is directly reflected in the financial statements or received via other sources, so long as they ultimately receive the information. Second, debt contract effectiveness increases with timely accounting recognition of economic losses as it leads to timelier revision of earnings and net worth, which in turn results in timelier violation of debt covenants. This process allows the efficient transfer of important decision rights from loss-making managers to lenders, making conservatism relatively more important to debt versus equity investors. Third, debt and equity investors' demands for financial reporting differ with respect to the interaction between financial reporting and other forms of disclosures. To the extent that managers are disciplined to provide non-financial disclosures that are unbiased and informative, shareholders can gain from

[7] For example, Beatty et al. (2008) find that firms make modifications to debt covenants in response to debtholders' demand for conservatism, and that these modifications are less likely to be made when alternative demands for conservatism arising from litigation, tax, and equity are strong. Ball et al. (2008a) document that when a borrower's accounting information possesses higher debt-contracting value, defined as the inherent ability of accounting numbers to capture credit quality deterioration in a timely fashion, information asymmetry between the lead arranger and other syndicate participants is lower. This lower information asymmetry allows lead arrangers to hold a smaller proportion of new loan deals.

sacrificing financial reporting timeliness for non-financial disclosure informativeness if such an approach leads to a net increase in total information.[8] Thus, compared to debtholders, shareholders have less demand for conservatism.

In summary, existing findings suggest that conservatism is valuable to both shareholders and debtholders because it mitigates either adverse selection or moral hazard by reducing information asymmetry between firm managers and outside investors.[9] It is therefore difficult to determine *a priori* whether conservatism reduces information asymmetry more (or less) between firms and shareholders than between firms and debtholders. In other words, it is difficult to predict whether shareholders or debtholders demand conservatism more, and whether such differential demands affect the likelihood of a firm's decision to issue equity versus debt when the need for external financing arises.[10] Therefore, we state our hypothesis in null form:

H1: Ceteris paribus, conditional conservatism is unrelated to a firm's choice between equity and debt when the firm raises external capital.

Note that in developing our hypothesis, we mostly rely on theories and empirical evidence that speak to the information benefits of conservatism for issuance of public debt and equity. In private issuances of capital, financiers such as venture capitalists (or other types of private shareholders) and banks (or other types of private lenders) are likely to have alternative information sources and hence face less information asymmetry problems than public investors. In our research design and empirical tests to be discussed in the following section, we do not distinguish between private and public sources of external financing because of data availability. However, as our sample is restricted to issuances of significant debt and equity, our data likely capture public rather than private issuances of capital.

3. Research Design

[8] Gigler and Hemmer (1998) and Ball (2001) argue that managers are committed to accurate public disclosures about expected outcomes because managers know that they will ultimately be held more accountable for the disclosed information.

[9] In the development of Hypothesis 1, we rely on the premise that conservatism is beneficial because it reduces information asymmetry. However, there are financial reporting costs associated with reporting lower earnings and/or net worth (Shackelford and Shevlin 2001). For example, Zhang (2008) finds that conservatism increases the probability and the expected costs of debt covenant violations.

[10] Pecking Order Theory (POT) (Donaldson 1961, 1969; Myers 1984; Myers and Majluf 1984) is a well-known theory of the choice of corporate financing that relies on the idea of information asymmetry. POT predicts that firms prefer internal to external financing, and when external financing is required, firms prefer debt to equity. However, some studies suggest that POT is not descriptive of firms' financing policies. For example, Frank and Goyal (2003) show that over the period from 1971 to 1998, U.S. firms tend to fund their financing deficits using equity rather than debt. They also document that smaller firms, which are expected to have higher information asymmetry, issue relatively more equity than larger firms. Consequently, we do not rely on POT to make our predictions on how conservatism affects the choice of debt versus equity financing but instead focus on the differential effects of conservatism on information asymmetry reduction for shareholders versus debtholders.

In this section, we first discuss the three firm-year measures of conservatism used in our main empirical analyses. We then detail the empirical models that we use to test the association between conservatism and firms' financing choice.

Firm-year proxies for conditional conservatism

We use three firm-year proxies for conditional conservatism that reflect the firm's commitment to conservative reporting. Our first measure is the conservatism ratio developed by Callen et al. (2010), which is based on the variance decomposition methodology of Vuolteenaho (2002). Callen et al. (2010) define conservatism ratio as the ratio of the current earnings shock to total earnings news, which measures the proportion of the total shock to expected current and future earnings that is recognized in current year unexpected earnings. They show that firms with higher conservatism ratio have more leverage, higher volatility of returns, greater incidence of losses, more negative accruals, and higher volatility of earnings and accruals, consistent with prior evidence on the effects of conservative reporting on these firm characteristics. Following Garcia Lara et al. (2011), we use the three-year average of the conservatism ratio (*CR*) as our measure of conservatism in order to capture the persistence and commitment in a firm's reporting practices.

Our second conservatism measure is based on Khan and Watts' (2009) conservatism score, which relies on Basu's (1997) measure of asymmetric earnings timeliness. Khan and Watts (2009) find that their conservatism measure is positively associated with firm age, length of investment cycle, and idiosyncratic uncertainty. They also show that their measure increases in response to the level of information asymmetry and the probability of litigation, consistent with prior studies that examine these associations (Basu 1997; Holthausen and Watts 2001; LaFond and Watts 2008). Khan and Watts' (2009) conservatism score does not require a firm to have sufficient negative annual returns to proxy for negative information or a sufficiently long time series for firm-level conservatism estimation. In order to capture a firm's commitment to conservative reporting, we use the three-year average of conservatism score (*Cscore*) as our second proxy for conservatism.

Our third measure of conservatism is based on non-operating accruals as used by Givoly and Hayn (2000). A conservative accounting policy leads to more frequent and negative non-operating accounting accruals such as bad debt provisions, restructuring charges, and asset write-downs. Although some of these non-operating accrual items are dictated by GAAP, Givoly and Hayn (2000) argue that the timing or amount of most non-operating accrual items is subject to management discretion. Chen, Chen, and Cheng (2014) also make similar arguments about non-

operating accruals and suggest that these accruals capture conditional conservatism. To mitigate the effect of temporary non-operating accruals that reverse in subsequent years and to capture persistence in a firm's conservative reporting choices, we use the three-year average of non-operating accruals (*NOPA*) to measure conservatism. We multiply the non-operating accruals by negative one so that its value increases with the level of conservatism.

We provide details on the computation of these three firm-year measures of conservatism in Appendix 1. Following prior studies (Garcia Lara et al. 2011; Louis, Sun, and Urcan 2012), we use the annual decile ranks of each of the three conservatism measures to reduce noise in the estimates and to mitigate concerns with non-linearity. We standardize these decile ranks to range between zero and one, with observations in the bottom decile taking the value of zero and observations in the top decile taking the value of one. We denote these standardized rank-transformed variables as *Rank_CR*, *Rank_Cscore*, and *Rank_NOPA*. The estimated coefficients on these standardized rank-transformed variables in a regression model can be interpreted as the differential effects of conservatism between the top and bottom conservatism deciles.

Logistic analysis of the likelihood of debt versus equity issuance

We use logistic analysis to examine the relation between conservatism on the probability of a firm issuing debt versus equity. We set the dependent variable (*DISSUE*) equal to one if a firm's net debt issue constitutes *more* than five percent of total assets and any net equity issue is *less* than five percent, and we set *DISSUE* equal to zero if a firm's net equity issue constitutes *more* than five percent of total assets and any net debt issue is *less* than five percent.[11] The logistic regression is as follows:

$$DISSUE_{i,t} = \alpha + \beta_1 CON_{i,t-1} + \sum_{n=2}^{N} \beta_n Controls_{i,t-1} + IND + YEAR + \varepsilon_{i,t} \quad (1)$$

In Appendix 2, we provide detailed descriptions of the variables used in equation (1). *CON* is *Rank_CR*, *Rank_Cscore*, or *Rank_NOPA*. The conservatism measures, as well as the control variables, are lagged one period with respect to the year of capital issuance. Using lagged variables is consistent with our expectation that the mitigating effects of reporting conservatism on information asymmetry precede the actual issuance of external

[11] Following prior studies (e.g., Hovakimian et al. 2001; Korajczyk and Levy 2003; Leary and Roberts 2005; Chang, Dasgupta, and Hilary 2006, 2009), we use the five percent threshold to isolate *significant* debt or equity issuances that are most likely related to the need for external funding of intended corporate investment. We examine the sensitivity of our results to using alternative cut-offs and discuss the findings in Section 6.

financing.[12] If higher conservatism is associated with a greater (lower) likelihood of equity than debt issuance, we expect a negative (positive) coefficient on *CON*.

We estimate equation (1) and calculate two-way clustered (by firm and year) standard errors to account for cross-sectional and serial dependence (Petersen 2009). Besides industry (*IND*) and year (*YEAR*) fixed effects, we also include several control variables that prior studies claim to affect the issuance of debt or equity. Prior studies document that unconditional conservatism is valued by debtholders (e.g., Ahmed, Billings, Morton, and Harris 2002; Watts 2003), and this effect may influence firms' financing choice. We control for unconditional conservatism using a measure developed by Penman and Zhang (2002) that is based on LIFO reserve, R&D expenses, and advertising expenses measured over a five-year period. We include the standard deviation of the firm's stock returns (*STDRET*) to control for risk. In addition, we control for industry-adjusted median level of leverage (*TARGET_GAP*) because extant research documents that firms strive to maintain a target capital structure (Rajan and Zingales 1995; Hovakimian, Opler, and Titman 2001; Frank and Goyal 2009). Prior studies document that larger firms are more likely to use debt, while growth firms are less likely to do so (Myers 1977; Fama and French 2002; Frank and Goyal 2003). Therefore, we include firm size measured as the natural logarithm of the book value of total assets (*LNASSET*) and growth measured as the market-to-book ratio (*MB*)[13] to control for these effects.

We include stock returns (*RET*) one year prior to the issue year because firms are more likely to issue equity when their stock prices are rising, indicating overvaluation (Taggart 1977; Marsh 1982; Lucas and McDonald 1990; Chang et al. 2006). We also include return on assets (*ROA*) and the presence of an accounting loss (*LOSS*) because theories on the trade-off between debt and bankruptcy risk suggest that leverage increases with profitability (DeAngelo and Masulis 1980; Hovakimian et al. 2001; Fama and French 2002). In addition, we include the level of cash (*CASH*) and the presence of credit rating (*CRATE*) because Hovakimian (2004) finds that firms with more cash are more likely to rely on equity financing, while Halov, Heider, and John (2009) find that firms with credit ratings

[12] Note that we measure financing choice on an *ex post* basis, i.e., we measure the actual issuance of capital but do not ascertain when the *decision* to issue capital takes place. Using lagged values of conservatism in equation (1) simply allows for the informational benefits of conservatism to be realized before the actual issuance of debt or equity, which in turn allows us to examine the differential effects of conservatism on information asymmetry reduction for shareholders versus debtholders. Therefore, our empirical tests cannot distinguish between the scenario where managers vary the level of conservatism in anticipation of capital issuance, and the scenario where managers take as given the level of conservatism before deciding on debt versus equity issuance. However, in both scenarios, we expect that if the conservatism reduces information asymmetry more between firms and shareholders than between firms and debtholders, firms are more likely to issue equity (versus debt).

[13] As a robustness check, we also use sales growth as an alternative proxy for growth and obtain qualitatively similar results.

rely more on debt financing.[14] We also include bankruptcy risk measured by the modified Altman Z-Score (*ZSCORE*) (Altman 1968; MacKie-Mason 1990) because firms with higher risk of default are less likely to use debt financing (Myers 1977; Chang et al. 2006; Frank and Goyal 2009).[15]

We include firm age (*AGE*) to control for firm maturity because more mature firms raise more debt (Chang et al. 2009). We also control for assets-in-place by including tangible assets (*TANG*) because tangible assets can be used as collateral in debt financing. We include the ratio of research and development expenses to sales (*R&D*) because firms with greater intangible assets arising from research and development are less likely to use debt (Myers 1977; Frank and Goyal 2009). Based on the tradeoff theory of capital structure, sizable tax loss carry forwards induce debt financing (Mackie-Mason 1990; Johnson 2003). Therefore, we include tax loss carry forwards scaled by total assets (*TLCF*). Finally, we control for corporate dividend payout policy (*DIVIDEND*) and auditor quality (*BIG6*) because Chang et al. (2009) find that firms with lower dividend payout ratio and Big-6 auditors are more likely to issue equity versus debt.

4. Sample and Data

Sample selection

We obtain the samples for our empirical analyses from the Compustat database for the period 1994 to 2010 and extract data on stock returns from the CRSP database. As we require three years of data to estimate *CR*, *Cscore*, and *NOPA*, the period used in estimating our conservatism measures actually starts in 1991. We exclude firms in regulated industries (i.e., SIC codes 4900 to 4999) and financial industries (i.e., SIC codes 6000 to 6999). As discussed earlier, the dependent variable in the logistic regression, *DISSUE*, is a binary variable that equals one if a firm's net debt issue constitutes more than five percent of total assets and any net equity issue is less than five percent (debt issuers). *DISSUE* equals zero if a firm's net equity issue constitutes more than five percent of total

[14] Consistent with prior studies, we use an indicator variable to capture whether the firm has a long-term debt rating assigned by Standard & Poor's. As a robustness check, we follow Ashbaugh, Collins, and LaFond (2006) and code credit rating (*RATING*) from 1 to 7, with higher values indicating better investment grade, and use an indicator variable to capture missing data for credit rating (*Dummy_RATING*). Our results remain qualitatively similar when we replace *CRATE* with both *RATING* and *Dummy_RATING*.

[15] As a sensitivity check, we use Hillegeist, Keating, Cram, and Lundstedt's (2004) Black-Scholes market-based approach to construct a proxy for bankruptcy risk. When we replace the modified Altman Z-Score with this alternative measure, we find qualitatively similar results to those reported in Table 3 and our inferences remain unchanged.

assets and any net debt issue is less than five percent (equity issuers).[16] This means that observations for which both net debt and net equity issues are greater than five percent (dual issuers) or for which neither is above five percent of total assets (non-issuers) are excluded from our main samples.

Table 1 Panel A describes our sample selection procedure. For the sample based on the *CR* (*Cscore*; *NOPA*) measure, we begin with 24,987 (31,131; 44,803) firm-year observations with available data to calculate conservatism and the control variables. We then delete 19,875 (23,883; 33,101) firm-year observations that are non-issuers, and 214 (564; 1,261) firm-year observations that are dual issuers. The resulting samples consist of 4,898 firm-year observations (2,521 unique firms) when the conservatism measure is *CR*; 6,684 firm-year observations (3,280 unique firms) when the conservatism measure is *Cscore*; and 10,441 firm-year observations (4,845 unique firms) when the conservatism measure is *NOPA.* The sample size for the *NOPA* measure is much larger because of the less stringent data requirements for estimating conservatism.

Panel B reports the distribution of our samples by industry based on the classification in Frankel, Johnson, and Nelson (2002). As shown in the panel, the industry distribution in our samples does not differ significantly from that of the Compustat population. For example, firms in Computers, Durable Manufacturers, Retail, and Services constitute a greater proportion of our sample, similar to the proportions exhibited in the overall Compustat population.

Construct validity of conservatism measures

We perform several tests to check the construct validity of our conservatism measures. First, we sort the sample into deciles based on the conservatism ratio (*CR*), and compute the median values of *Cscore* and *NOPA* in each *CR* decile. Untabulated results indicate that the median values of *Cscore* and *NOPA* exhibit a generally increasing, albeit not monotonic, trend across the *CR* deciles. Second, we calculate the rank correlations among the three conservatism proxies (i.e., *CR*, *Cscore*, and *NOPA*) using the median values of each proxy in each *CR* decile. The correlation between *CR* and *Cscore* is 0.76; between *CR* and *NOPA* is 0.67; and between *Cscore* and *NOPA* is 0.60, and all

[16] Note that our dependent variable (*DISSUE*) is defined based on *net* equity (and debt) issue. That is, for equity issuance we subtract the sale of common and preferred stock from the repurchase of common and preferred stock, and for debt issuance we subtract the amount of debt reduction from the amount of debt issuance. As a sensitivity analysis, based on the samples with *CR*, *Cscore*, and *NOPA* as the dependent variable, we find that 44 percent, 40 percent, and 32 percent of the firm-year observations have share repurchases respectively. When we exclude these firm-year observations that have share repurchases from our analyses, we find qualitatively similar results.

correlations are significant at p <0.10. These results suggest that while the three measures may be capturing different aspects of conditional conservatism, they are largely measuring the same underlying construct.

Third, we estimate the Basu (1997) measure of conditional conservatism using the observations in each *CR* decile portfolio.[17] We then estimate the rank correlation between the median value of *CR* and the estimated Basu (1997) measure of conservatism in each decile, and find that the correlation is 0.66 and significant at p <0.05. Fourth, we calculate the difference in the Basu (1997) measure of conditional conservatism for the highest and lowest *CR* decile portfolios and find that the difference is significantly positive at p <0.01. These results suggest that *CR* and the Basu (1997) measure of conservatism capture a similar underlying construct. We repeat both analyses using decile portfolios separately constructed based on *Cscore* and *NOPA* to establish their association with the Basu (1997) measure of conservatism and find similar results.[18] In summary, the results from our construct validity tests lend support to the validity of our three proxies in distinguishing between firms with varying degrees of conservatism.

5. Association between Conservatism and Financing Choice: Main Analyses

Descriptive statistics

Table 2 reports descriptive statistics (mean and median values) of the conservatism measures and firm characteristics for debt versus equity issuers. Note that, except for the variables *CR* and *Cscore* (and *Rank_CR* and *Rank_Cscore*), we report descriptive statistics for all variables using the largest sample that is based on *NOPA* (10,441 firm-year observations). As reported in the table, all the raw and ranked measures of conditional conservatism are significantly higher for equity issuers relative to debt issuers. These univariate results are consistent with more conservative firms issuing equity rather than debt when external financing is required. The univariate results show that unconditional conservatism, measured by *PZ_score* is also significantly higher for equity relative to debt issuers. The differences in other firm characteristics between equity and debt issuers captured by the control variables are all significant, suggesting that controlling for these firm characteristics is important in our multivariate analyses.

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[17] The Basu (1997) model is: $X_{i;t} = \beta_1 + \beta_2 D_{i;t} + \beta_3 Ret_{i;t} + \beta_4 D_{i;t}*Ret_{i;t} + e_{i;t}$, where X is earnings scaled by lagged market value of equity, *Ret* is fiscal year returns, *D* is an indicator variable that equals one if *Ret* is negative, and zero if *Ret* is positive. The coefficient on the interaction term (*D*Ret*) is the Basu (1997) measure of conditional conservatism (i.e., asymmetric timeliness).

[18] Specifically, the rank correlation between the median value of *Cscore* (*NOPA*) and the estimated Basu (1997) measure of conditional conservatism in each decile is 0.77 (0.75) and is significant at p <0.01. The difference between the Basu (1997) measure of conditional conservatism between the highest and lowest *Cscore* (*NOPA*) decile portfolios is statistically significant at p <0.01.

Conservatism and the likelihood of debt versus equity issuance

Table 3 reports the results of estimating equation (1).[19] The coefficients on the proxies for conservatism, *Rank_CR* (-0.383), *Rank_Cscore* (-0.993), and *Rank_NOPA* (-0.205), are all negative and significant at $p < 0.05$, indicating that firms with greater conservatism in the current period are more likely to issue equity than debt when they require external financing in the next period.[20] To assess economic significance, we calculate the marginal change in the probability of debt issuance when the conservatism variable shifts from zero to one, i.e., from the bottom decile to the top decile, holding other independent variables at their respective means. Based on the estimated coefficients on *Rank_CR*, *Rank_Cscore*, and *Rank_NOPA*, we find that the probability of debt issuance decreases by 6.78 percent, 21.24 percent, and 4.88 percent, respectively, and each decrease is statistically significant at $p < 0.05$.[21] These changes in probability indicate that the relation between conservatism and debt (versus equity) issuance is economically nontrivial.

Turning to the control variables, we find that unlike the conditional conservatism measures, unconditional conservatism (*PZ_score*) is not significantly associated with the choice between debt and equity issuance. The coefficients on the other control variables are mostly consistent with evidence from prior studies. For example, the coefficient on growth opportunities (*MB*) indicates a negative association with the issuance of debt and the coefficient on industry-adjusted median leverage (*TARGET_GAP*) shows that firms strive to maintain a target capital structure. The negative coefficient on the loss dummy variable (*LOSS*) indicates that profitable firms are more likely to issue debt, consistent with the impact of profitability on debt versus equity financing. Firms with more cash (*CASH*), firms with greater stock returns (*RET*), and firms with greater R&D expenditure (*R&D*) rely more on equity financing, and mature firms (*AGE*) and firms with high dividend payout policy (*DIVIDEND*) are more likely to issue debt. However, the coefficients on *STDRET*, *LNASSET*, *ROA*, *ZSCORE*, and *TANG* have the

[19] We find that all the variance-inflation factors are below 10 in the estimation of equation (1), which suggests that multicollinearity is unlikely to influence the results reported in Table 3 (Neter, Kutner, Nachtsheim, and Wasserman 1996).
[20] We measure *DISSUE* based on *net* debt and *net* equity issuances. This measure takes into account debt reductions and share repurchases and is conceptually a measure of incremental external financing. Thus, the positive association between conservatism and *incremental* equity financing documented in this study does not necessarily contradict the positive association between conservatism and the level of debt (or leverage) documented in prior studies (e.g., Callen et al. 2010; Khan and Watts 2009). This is because a firm is likely to have an optimal or target leverage ratio that is determined by various factors, including conservatism, and will strive to maintain this optimal ratio over time despite incremental external financing that moves the firm towards or away from the optimum.
[21] The marginal effect of a one unit increase in each conservatism measure is computed as $p \times (1-p) \times b$ (Liao 1994), where p is the base rate (77 percent, 68 percent, 60 percent for the models using *Rank_CR*, *Rank_Cscore*, and *Rank_NOPA*, respectively) and b is the estimated coefficient on the conservatism measure in equation (1).We use the "*mfx*" command in *STATA* to assess the statistical significance of the marginal effects.

predicted sign and are significant in only two out of the three regressions. In addition, we do not find a robust association between financing decisions and credit ratings (*CRATE*), tax loss carried forward (*TLCF*), and auditor quality (*BIG6*).

Overall, our findings in Table 3 indicate that conservatism is associated with greater probability of equity versus debt issuance. This greater probability of equity versus debt issuance suggests that conservatism reduces information asymmetry more between firms and shareholders than between firms and debtholders. Unlike shareholders, debtholders may have other means to protect themselves from the costs of adverse selection and moral hazard and may have alternative mechanisms in place to mitigate such information asymmetry. For example, covenants are included in debt contracts to aid in monitoring managerial behavior, including managers' reporting and disclosure practices that reduce the information asymmetry between debtholders and the firm. Moreover, collateralized debt can offer downside protection to debtholders.

Changes in conservatism and the likelihood of debt versus equity issuance

Conservatism reflects accounting practices that firms have adopted as a matter of policy, and is unlikely to vary significantly from year to year.[22] Therefore, we use three-year averages of *CR*, *Cscore*, and *NOPA* in our analyses to capture the persistence and commitment in a firm's reporting choices. Although conceptually we do not expect conservatism to vary significantly from year to year, an advantage of using a change test is that each firm serves as its own control. This test relies on the assumption that unobservable underlying firm characteristics associated with financing choice remain constant over time. Therefore, as an alternative approach to deal with concerns about omitted correlated variables, we re-estimate equation (1) using lagged change in conservatism (*ΔCON*) instead of lagged level of conservatism (*CON*). We measure *ΔCON* as the difference in *CON* (i.e., *CR*, *Cscore*, and *NOPA*), which is based on three-year averages, between year *t* and *t-1*.[23] We then transform *ΔCON* into decile ranks that range between zero and one (*Rank_ΔCON*), with a value of one (zero) for *Rank_ΔCON* indicating the decile with the

[22] We assess the persistence of our three measures of conservatism. Specifically, for each conservatism proxy, we regress the current decile rank on the lagged decile rank of conservatism in a pooled regression. The closer the coefficient estimate on the lag conservatism measure is to one, the more persistent or stable the measure is over time. We find that the coefficient estimates on lagged *Rank_CR*, *Rank_Cscore*, and *Rank_NOPA* are 0.63, 0.97, and 0.69, respectively. These results suggest that the conservatism measures are fairly stable over time.

[23] Note that in essence, the difference in *CON* (a three-year average) between year *t* and *t-1* is the difference in the *annual* measure of conservatism in year *t* and in year *t-3* for a firm. Therefore, *ΔCON* captures the difference in conservatism for a firm over a three-year period, which is a measurement that is more consistent with the expectation that conservatism is not likely to vary much from year to year, but may vary more over a longer period of time.

largest (smallest) increase in conservatism. All the control variables are also measured as differences between year *t* and *t-1* and are lagged one period from the period of measurement of capital issuance.

Table 4 reports the regression results using changes in conservatism, *Rank_ΔCON*. The coefficients on *Rank_ΔCscore* and *Rank_ΔNOPA* are negative and significant at p <0.05 and the coefficient on *Rank_ΔCR* is negative but insignificant. We calculate the marginal change in the probability of debt issuance when the change in conservatism moves from the bottom to the top decile (i.e., when *Rank_ΔCON* increases from zero to one), while holding the other independent variables at their respective means. Based on the estimated coefficients reported in Table 4, the largest observed increase (i.e., a change from the lowest to the highest decile) in *Rank_ΔCR*, *Rank_ΔCscore*, and *Rank_ΔNOPA* decreases the probability of debt issuance by 1.51 percent, 9.64 percent, and 6.20 percent (the last two percentages are statistically significant at p <0.05), respectively. The signs of the coefficients on the control variables are generally consistent with predictions, except for *ΔROA*, which has a predicted positive sign but negative coefficient estimates. Overall, these results indicate that increases in conservatism are associated with greater likelihood of equity (versus debt) issuance, consistent with our inferences based on the level of conservatism, and indicate that our results are robust to using a change specification that further addresses concerns about stationary omitted correlated variables.[24]

Basu's (1997) measure of conservatism

To further triangulate our findings and inferences based on the three firm-year measures of conservatism, we examine the differential level of conservatism between the sample of equity issuers and the sample of debt issuers using Basu's (1997) measure of conservatism in a single pooled regression. We modify Basu's (1997) regression using the dummy variable *DISSUE* as defined in equation (1), which distinguishes between firms that issue equity and firms that issue debt. For each firm that issues equity (i.e., $DISSUE_{i,T} = 0$) or debt (i.e., $DISSUE_{i,T} = 1$) in year *T*, we use three years of prior data (i.e., year *T-3* to *T-1*) to estimate the Basu (1997) regression. We use three years of prior data because we are interested in examining the level of conservatism before the capital issuance in year *T*. In order to ensure a cleaner test of the association between conservatism and debt versus equity issuance, for each firm identified as either an equity issuer or a debt issuer in year *T*, we require that the firm does not issue *any* significant

[24] As a sensitivity check, we also estimate a change specification using a dummy variable to indicate observations in just the two extreme deciles of change in conservatism (i.e., a dummy variable indicating observations with *Rank_ΔCON* equal to 0 and with *Rank_ΔCON* equal to 1). Using this restricted sample, we find qualitatively similar results (untabulated) to those reported in Table 4.

equity or debt during the period *T-3* to *T-1*. As a result, we use a restricted sample of debt and equity issuers constructed from the samples we use to estimate equation (1) because we eliminate any firms that issue capital more than once within a 4-year window (i.e., *T-3* to *T*).

Specifically, we estimate the following pooled regression using three years of data (*T-3* to *T-1*) for each firm *i* that issues equity or debt in year *T*:[25]

$$X_{i,T} = \beta_1 + \beta_2 D_{i,T} + \beta_3 Ret_{i,T} + \beta_4 D_{i,T} * Ret_{i,T} + \beta_5 DISSUE_{i,T} + \beta_6 D_{i,T} * DISSUE_{i,T} + \beta_7 Ret_{i,T} * DISSUE_{i,T} + \beta_8 D_{i,T} * Ret_{i,T} * DISSUE_{i,T} + \beta_9 SIZE_{i,T} + \beta_{10} D_{i,T} * SIZE_{i,T} + \beta_{11} Ret_{i,T} * SIZE_{i,T} + \beta_{12} D_{i,T} * Ret_{i,T} * SIZE_{i,T} + \beta_{13} LEV_{i,T} + \beta_{14} D_{i,T} * LEV_{i,T} + \beta_{15} Ret_{i,T} * LEV_{i,T} + \beta_{16} D_{i,T} * Ret_{i,T} * LEV_{i,T} + \beta_{17} MB_{i,T} + \beta_{18} D_{i,T} * MB_{i,T} + \beta_{19} Ret_{i,T} * MB_{i,T} + \beta_{20} D_{i,T} * Ret_{i,T} * MB_{i,T} + IND + YEAR + e_{i,T} \quad (2)$$

X is earnings scaled by lagged market value and *Ret* is fiscal year return, *D* is a dummy variable that equals one if *Ret* is negative, and zero if *Ret* is positive, and *DISSUE* is a dummy variable that equals one if a firm issues debt, and zero if a firm issues equity in the year of capital issuance. We include firm size (*SIZE*), leverage (*LEV*), and market-to-book ratio (*MB*) in equation (2) to control for the effects of these firm characteristics on conservatism. We also include controls for industry (*IND*) and year (*YEAR*). Of interest is the coefficient on *D*Ret*DISSUE*, which indicates the incremental degree of conservatism associated with the capital issuance. If prior to capital issuance, debt (equity) issuers are more timely in recognizing losses relative to gains compared to equity (debt) issuers, we expect the coefficient on *D*Ret*DISSUE* to be positive (negative).

We report the results of estimating equation (2) in Table 5. In Column 1, we report the results using only the *DISSUE* variable without any control variables. The coefficient on *D*Ret* is positive and significant at p <0.01, which indicates that equity issuers report conservatively before the capital issuance. Similarly, the sum of the coefficients on *D*Ret* and *D*Ret*DISSUE* is positive and significant at p <0.01, indicating that debt issuers also report conservatively before the capital issuance. More importantly, we find that the coefficient on *D*Ret*DISSUE* is negative and significant at p <0.01. For comparison, in Column 2 we report the results using only the control variables, while in Column 3 we report the results using the full specification of equation (2). In Column (3), we find that the coefficient on *D*Ret*DISSUE* remains negative and significant at p <0.01.[26] Finally, we compare the

[25] *DISSUE* in equation (2) takes on the same value over the period from *T-3* to *T-1* because for each firm *i* identified as a capital issuer in year *T* ($DISSUE_{i,T}$), we align the observation with firm *i*'s data on returns, earnings and other control variables for the prior three years (e.g., $X_{i,t}$ and $Ret_{i,t}$ for year *T-3* to *T-1*).

[26] Although our focus is on timely loss recognition, we note that the coefficients on *Ret*DISSUE* in Columns (1) and (3) are positive and significant at p <0.01, indicating that debt issuers exhibit more timely gain recognition than equity issuers prior to capital issuances.

regression specification in Column (2) to that in Column (3) and find an increase in adjusted R^2 of 4.82 percent, which indicates that *DISSUE* has incremental explanatory power to firm size, leverage, and market-to-book ratio for explaining conservatism. Overall, these results indicate that while both debt and equity issuers exhibit conservatism prior to capital issuances, equity issuers exhibit relatively greater conservatism. The results are consistent with those obtained using the logistic specification based on firm-year measures of conservatism, and suggest that more conservatism is associated with greater likelihood of equity (versus debt) issuance.[27]

Conservatism and costs of equity and debt

Prior studies (Garcia Lara et al. 2011; Zhang 2008) provide evidence that conservatism benefits firms because it is associated with lower costs of equity and debt, while our finding indicates that higher levels of conservatism are associated with greater likelihood of equity (versus debt) issuances. To further explore our finding, we examine changes in the costs of equity and debt surrounding issuances of debt and equity.

We use the following regressions to examine costs of equity and debt:

$$COE_{i,t} = a_0 + a_1 CON_{i,t-1} + a_2\, DISSUE_{i,t} + a_3 CON_{i,t-1} * DISSUE_{i,t} + IND + YEAR + e \qquad (3a)$$

$$COD_{i,t} = b_0 + b_1 CON_{i,t-1} + b_2\, DISSUE_{i,t} + b_3 CON_{i,t-1} * DISSUE_{i,t} + IND + YEAR + e \qquad (3b)$$

COE is cost of equity and *COD* is cost of debt. *DISSUE* is as defined in equation (1), i.e., an indicator variable that equals one if the firm issues debt and zero otherwise. *CON* is our decile rank proxy for conservatism. We measure *ex ante* cost of equity (*COE*) capital based on Easton (2004) and Botosan and Plumlee (2005), who use the PEG ratio to estimate implied cost of equity.[28] We measure cost of debt (*COD*) as total interest expense divided by short-term plus long-term debt. For an issuer to be included in the estimation of equations (3a) and (3b), we require the firm to have data to compute both the cost of equity and the cost of debt, which reduces our original sample size.

In equations (3a) and (3b), we expect the coefficients on *CON* and the sum of the coefficients on *CON* and *CON*DISSUE* to be negative. That is, for both equity (coefficients a_1 and b_1) and debt (coefficients $a_1 + a_3$ and $b_1 + b_3$) issuers, a higher level of conservatism is associated with a lower cost of equity (*COE*) and a lower cost of debt (*COD*). The coefficient a_3 in equation (3a) is the incremental effect of conservatism on cost of equity for debt

[27] Instead of using a pooled regression with three years of data for each debt and equity issuer, we also estimate equation (2) annually for each year for the period *T*-3 to *T*-1. Based on untabulated annual regressions, the coefficient on *D*Ret*DISSUE* is negative and significant at p <0.01 in year *T*-1 and year *T*-2, and significant at p <0.10 in year *T*-3. Thus, we obtain qualitatively similar results to those reported in Table 5.

[28] We use the PEG measure because Botosan and Plumlee (2005) and Botosan, Plumlee, and Wen (2011) suggest that this measure performs better as a proxy for cost of equity relative to other measures used in prior literature.

(versus equity) issuers, while b_3 in equation (3b) is the incremental effect of conservatism on cost of debt for debt (versus equity) issuers.

In Table 6 Panel A, we first report the descriptive statistics for cost of equity (*COE*) and cost of debt (*COD*) for each sample based on the three conservatism measures. In Panels B and C, we report the results of estimating equations (3a) and (3b), respectively. The coefficients on *CON* are significantly negative in five out of the six regressions, consistent with equity issuers benefiting from lower cost of capital with increasing conservatism. In both panels, the sums of coefficients on *CON* and *CON*DISSUE* are negative and significant in four out of the six specifications, which indicates that debt issuers also benefit from lower cost of capital with increasing conservatism. These results are consistent with prior studies that document the mitigating effects of conservatism on costs of capital (Garcia Lara et al. 2011; Zhang 2008).

In Table 6 Panel B, when the dependent variable is *COE*, the coefficients on the interaction term *CON*DISSUE* are all significantly positive. Thus, for a similar level of conservatism, equity issuers exhibit a greater decline in cost of equity than debt issuers. In Panel C when the dependent variable is *COD*, we find that the coefficients on the interaction term *CON*DISSUE* are all insignificant. This result suggests that the decline in the cost of debt associated with conservatism is not significantly different between debt and equity issuers. Thus, the results in Panel C suggest that while conservatism reduces the cost of debt for equity and debt issuers, conservatism does not lower the cost of debt for one type of issuer incrementally more than the other.

In summary, the overall evidence in Table 6 suggests that the mitigating impact of conservatism on cost of debt applies equally to both debt and equity issuers. However, the mitigating impact of conservatism on cost of equity is more pronounced for equity issuers. Overall, the results suggest that the reduction in cost of equity associated with an increase in conservatism is greater than the reduction in cost of debt, consistent with the notion that conservatism reduces information asymmetry more for shareholders than for debtholders.

Cross-sectional effects of information asymmetry

In the development of H1, we rely on the premise that information asymmetry reduction is one channel through which conservatism affects financing decisions. Unlike shareholders, debtholders have alternative mechanisms (e.g., debt covenants, collaterals, etc.) to protect themselves from the costs of adverse selection and moral hazard. Consequently the informational benefits of conservatism are likely to be greater for shareholders than for debtholders, and we find that the likelihood of a firm raising external capital through equity rather than through debt

increases with the firm's conservatism. To lend support to this premise, we examine settings in which the informational advantage of conservatism is most likely to be accentuated for shareholders versus debtholders. If conservatism reduces information asymmetry more between firms and shareholders than between firms and debtholders, we expect the positive association between conservatism and equity financing to be stronger in poorer information environments where shareholders would have greater potential for information gains from conservatism.

We use several proxies to measure information asymmetry between the firm and shareholders. First, we rely on measures based on financial intermediaries. Prior studies find that analyst coverage is positively and analyst forecast dispersion is negatively associated with information asymmetry (e.g., Alford and Berger 1999; Hong et al. 2000; Barron 1995; Barron, Kim, Lim, and Stevens 1998; Diether, Malloy, and Scherbina 2002). Therefore, we use the number of equity analysts following a firm in each fiscal year (*ANALYST*) and analyst forecast dispersion (*DISP*) as proxies for information asymmetry (Bhushan 1989, 1994; Bhushan and O'Brien 1990; Ho, Liu, and Ramanan 1997). Prior studies (e.g., Grossman and Hart 1980; Shleifer and Vishny 1986; Huddart 1993) suggest that because of the magnitude of wealth invested, large shareholders such as institutions are likely to actively monitor firms' corporate activities and financial reporting quality (Velury and Jenkins 2006). In particular, dedicated institutions, are likely to be the type of large shareholders that seek to reduce information asymmetry between themselves and the firms through active monitoring because of their longer investment horizon (Bushee 1998; Chen, Hartford, and Li 2007). Hence we use the level of dedicated institutional ownership (*DEDINST*) as a proxy for information asymmetry between firms and shareholders.

Second, we rely on growth opportunities to capture the quality of a firm's information environment. Growth opportunities induce information asymmetry because the payoffs from potential investments in new technology or new markets are highly uncertain, but managers have incentives to overstate the benefits from such investments in order to attract additional capital and to possibly obtain private benefits. We capture growth opportunities based on a firm's research and development expenditure (*HIGH_R&D*) because an asset created from R&D expenditures is likely to be more unique than a tangible asset, and can lead to greater information asymmetry (Aboody and Lev 2000). In addition, we use an *inverse* proxy for growth opportunities measured as the amount of tangible assets scaled by total assets (*TANG*).

Third, we use two proxies from market microstructure to measure information asymmetry. The first is Amihud's illiquidity ratio (*ILLIQ*), which is a volume-based liquidity indicator that reflects the response of share

price to order flow (Amihud 2002). A higher illiquidity ratio indicates lower liquidity, which reflects greater information asymmetry between the firm and outside shareholders. The second proxy is the probability of informed trade (*PIN*), which reflects the difference in information asymmetry between informed and uninformed investors (Easley, Kiefer, and O'Hara 1997; Brown and Hillegeist 2007).[29]

To examine the effects of information asymmetry on the association between conservatism and financing choice, we modify equation (1) by interacting the proxies for information asymmetry (*IA*) with the measures of conservatism (*CON*) as follows:

$$DISSUE_{i,t} = \alpha + \beta_1 CON_{i,t-1} + \beta_2 IA_{i,t-1} + \beta_3 CON_{i,t-1} * IA_{i,t-1} + \sum_{n=4}^{N} \beta_n Controls_{i,t-1} + IND + YEAR + \varepsilon_{i,t} \quad (4)$$

Panels A, B, and C of Table 7 report the results of estimating equation (4) using proxies for information asymmetry based on financial intermediaries, growth opportunities, and market microstructure, respectively. For expositional convenience, we report only the coefficient estimates and significance levels for key variables. In Panel A, we find that the coefficients on *CON* are negative and significant in six (out of the nine) empirical specifications. More importantly, we find that the coefficients on *CON*ANALYST* and *CON*DEDINST* are positive and significant at p <0.10 in all empirical specifications, while the coefficients on *CON*DISP* are negative and significant at p <0.05 in two out of the three empirical specifications. These results indicate that firms with higher conservatism are increasingly more likely to issue equity (versus debt) when the information asymmetry between the firm and its shareholders, as measured by analyst coverage, forecast dispersion and dedicated institutional ownership, is greater.

Turning to the results using growth opportunities, Panel B reveals that the coefficients on *CON* continue to be negative and significant in five (out of six) empirical specifications. Panel B also reveals that all the coefficients on *CON*HIGH_R&D* (*CON*TANG*) are negative (positive) and significant at p <0.10, which indicates that the positive association between conservatism and the likelihood of equity issuance (versus debt issuance) is stronger for firms with higher R&D expenditures and lower tangible assets. Panel C reports that the coefficients on *CON* remain negative and significant in four out of the six empirical specifications. The coefficients on *CON*ILLIQ* and

[29] Note that the information asymmetry proxies we use are intended to capture the extent of information asymmetry that affects shareholders (rather than debtholders). This is because our purpose is to identify settings where the information asymmetry between the firm and outside equity investors is the most severe and where equity investors have the most to gain from the informational benefits of conservatism.

*CON*PIN* are all negative and significant at p <0.10, which is consistent with the inference that the likelihood of equity issuance by firms with higher conservatism is accentuated when information asymmetry is higher.

Overall, the results in this section indicate that the reduction in information asymmetry associated with conservatism for shareholders (versus debtholders) is accentuated when the information asymmetry between the firm and shareholders is more severe.[30] Consequently, the positive association between conservatism and equity (versus debt) issuance is greater because equity becomes relatively more attractive than debt. These findings lend further credence to our argument that conservatism reduces information asymmetry more for shareholders than for debtholders, and help strengthen our inference that information asymmetry reduction is one channel through which conservatism relates to financing choice.

6. Association between Conservatism and Financing Choice: Sensitivity Analyses

We discuss the results of several sensitivity tests in this section. For brevity, we do not tabulate the results.

- Our results are robust to using three percent and one percent cutoffs (instead of five percent) to define *DISSUE*, implying that our earlier inferences are not restricted solely to firms with larger capital issuances. In addition, to increase the power of our tests by increasing the distinction between debt and equity issuers, we set *DISSUE* equal to one if a firm's net debt (equity) issue constitutes more (less) than five percent of total assets *and* only if the difference between the debt and equity issues is *more* than three percent of total assets. Similarly, we set *DISSUE* equal to zero if a firm's net equity (debt) issue constitutes more (less) than five percent of total assets *and* only if the difference between the equity and debt issues is *more* than three percent of total assets. Using this restricted sample, we find qualitatively similar results.
- In order to mitigate concerns that our results may be affected by firms engaging in mergers and acquisitions, we exclude such firms from the analyses and find that our results remain qualitatively similar to those reported in the tables.

[30] Ai and Norton (2003) argue that the interaction effect in a non-linear model, such as the logistic specification of equation (4), cannot be evaluated and interpreted simply by looking at the sign, magnitude, and statistical significance of the coefficient on the interaction term. Rather, interpreting the interaction effect requires computation of modified statistics based on cross-derivatives or cross-differences. However, Greene (2010) contends that the modified statistics proposed by Ai and Norton (2003) do not provide meaningful interpretations and statistical inferences. In addition, Kolasinski and Siegel (2011) draw on the extant statistics literature (e.g., Le 1998) and show that the interaction coefficient and test statistic in a standard logistic specification are appropriate for research dealing with non-extreme probabilities and are economically meaningful. Therefore, we continue to estimate and interpret the interaction effects in equation (4). However, as a further robustness check, we calculate the modified statistics output, as suggested by Ai and Norton (2003), based on the "*inteff*" procedure in *STATA*. We find that the results and inferences based on the test statistic estimates output by the "*inteff*" procedure remain similar to those reported in Table 7.

- Firms with debt capacity are more likely to issue debt than equity, and it is possible that the positive association between the use of equity and conservatism is simply driven by conservative firms having no debt capacity. In order to mitigate this concern, we first sort our sample into terciles based on leverage (*LEV*) and asset tangibility (*TANG*). We classify observations in the bottom (top) tercile of leverage (asset tangibility) as firms with debt capacity. We then separately re-estimate equation (1) using these two subsamples of firms with debt capacity and find qualitatively similar results to those reported in Table 3.
- In our main analyses, we exclude dual issuers (firms that have significant debt and equity issuances that constitute more than five percent of total assets) from our sample. As a robustness check, we include dual issuers in our sample and estimate a multinomial logistic regression where the dependent variable is a three-level indicator variable denoting equity issuers, debt issuers, and dual issuers. With equity issuers as the base group for comparison, we continue to find that conservatism significantly increases the likelihood of equity relative to debt issuance after including dual issuers.
- In our analyses so far, we rely on panel data and use two-way clustered standard errors to correct for serial dependence.[31] As an alternative approach to deal with serial dependence, we conduct a pure cross-sectional analysis by keeping only the first debt or equity issuance observation per firm and re-estimating equation (1). We continue to find that the coefficient on conservatism in equation (1) is negative and significant, indicating that our results are robust to this alternative approach to dealing with serial dependence.

7. Summary and Conclusions

Prior research suggests that conservatism reduces the information asymmetry between the firm and its shareholders as well as its debtholders. However, little is known about whether conservatism reduces information asymmetry more (or less) between firms and shareholders than between firms and debtholders. We examine this research question by analyzing firms' decisions to issue equity versus debt.

We use three measures of conditional conservatism based on Callen et al. (2010), Khan and Watts (2009), and Givoly and Hayn (2000) and find that the use of equity (versus debt) increases with the level of conservatism when firms raise a significant amount of external financing. Our findings are robust to a battery of sensitivity

[31] In our sample, there are 3,825 (2,738) unique debt (equity) issuers that raise debt (equity) an average of 1.94 (1.78) times over the sample period. For firms that issue capital more than once in our sample, the mean number of years between capital issuance is 2.44 years.

checks. We also find that the reduction in the cost of equity associated with conservatism is greater for large equity issuers than for large debt issuers, but do not find an analogous difference when we examine the cost of debt. In addition, we find that the association between conservatism and the issuance of equity (versus debt) is stronger when there is greater information asymmetry between firms and shareholders. These additional results suggest that conservatism reduces information asymmetry more between firms and shareholders than between firms and debtholders.

We acknowledge several important caveats related to our study. First, while we find that conservatism is associated with a greater reduction in cost of equity than cost of debt for firms that issue significant amounts of debt or equity, our findings also indicate that conservatism is associated with a reduction in *both* the cost of equity and the cost of debt. Second, although our findings suggest that conservatism is associated with lower information asymmetry, we note that our study is not designed to distinguish whether the effect is associated with the moral hazard or the adverse selection aspects of information asymmetry, or indeed, some other (correlated) channel such as litigation risk. Third, our results are obtained based on an outlying sample of large equity or debt issuers (i.e., firms with significant financing needs) and hence may not generalize to all firms. Fourth, although we use several measures of conditional conservatism and employ different alternative tests to triangulate our results, our inferences ultimately depend on how well these conservatism measures capture the underlying construct of conservative reporting. Fifth, our results are specific to the U.S. and may not carry over to other countries with different institutional settings such as bank-centric, code law countries. Sixth, our models assume linear effects of firm characteristics, but the true model may not be linear. Seventh, we do not attempt to directly address endogeneity or joint causation and hence the association between conservatism and the choice between debt and equity may be driven by some underlying firm characteristics that we do not adequately control for in our empirical specifications.

Despite these limitations, our study provides valuable insight into the relation between conditional conservatism and firms' external financing decisions. Our study extends extant research on the economic implications of accounting conservatism by examining the role of financial reporting in firms' financing decisions, and helps inform the debate on the informational role of accounting conservatism.

Appendix 1
Measuring Conditional Conservatism

Conservatism Ratio (CR)

The conservatism ratio (*CR*) measures the proportion of the total shock to current and expected future cash flows that is recognized in current year earnings. In the case of adverse (positive) cash flow news, a higher (lower) proportion of the news is recognized in current earnings because of the asymmetric treatment of negative and positive shocks by the accounting system.

We compute *CR* using Callen et al.'s (2010) approach, which is based on Vuolteenaho's (2002) return decomposition model. Vuolteenaho (2002) shows that shocks to returns can be decomposed into: (1) shocks to current and future dividends or cash flows, and (2) shocks to current and future discount rates. Based on the clean surplus relation, shocks to returns can be expressed in terms of shocks to current and expected future earnings (instead of dividends or cash flows) and shocks to current and future discount rates as follows:

$$r_t - E_{t-1}(r_t) = Ne_t - Nr_t \quad \text{(A1)}$$

r_t is the market rate of return, $E_{t-1}(r_t)$ is the expected market rate of return, Ne_t is earnings news (or total shocks to current and future earnings), and Nr_t is discount rates news (or total shocks to current and future discount rates). Equation (A1) shows that unexpected revision to current stock returns increases with earnings news and decreases with discount rate news.

In order to estimate *CR*, a measure of earnings news (Ne_t) and a measure of the amount of earnings news that is captured in current accounting earnings are required. To derive these measures, we follow the detailed methodology set out in Callen and Segal (2010). First, we estimate a log-linear vector autoregressive (VAR) model consisting of the following system of equations with three state variables, *r*, *roe* and *bm* (the firm subscript, *i*, is omitted for expositional convenience):

$$r_t = \alpha_1 r_{t-1} + \alpha_2 roe_{t-1} + \alpha_3 bm_{t-1} + \eta 1_t \quad \text{(A2a)}$$

$$roe_t = \beta_1 r_{t-1} + \beta_2 roe_{t-1} + \beta_3 bm_{t-1} + \eta 2_t \quad \text{(A2b)}$$

$$bm_t = \delta_1 r_{t-1} + \delta_2 roe_{t-1} + \delta_3 bm_{t-1} + \eta 3_t \quad \text{(A2c)}$$

The return variable *r* equals the log of one plus the annual return (12-month returns beginning 3 months after prior fiscal year end) minus the log of one plus the annualized three-month T-bill rate. The earnings variable *roe* is the log of one plus returns on equity (*ROE*) minus the log of one plus the annualized three month T-bill rate. *ROE* is computed as income before extraordinary items scaled by beginning book value of equity. *bm* equals the log of the book-to market ratio at fiscal year-end. We estimate the VAR model by Fama and French (1997) industry grouping using weighted least squares based on one pooled regression per system equation. Each annual cross-section is weighted equally by deflating the data for each-firm year by the number of firms in that year. All variables in the system of equations (A2) are demeaned. We exclude financial firms (SIC 6000-6999), observations with market value of equity below $10 million, and observations in the top and bottom 1 percent distribution of each variable.

From the estimation of system of equations (A2), we use the VAR matrix of estimated coefficients and the vectors of residuals η to derive unexpected shock to returns ($r_t - E_{t-1}(r_t)$), earnings news (Ne_t), and discount rate news (Nr_t) as follows:

$$r_{i,t} - E_{i,t-1}(r_{i,t}) = \eta 1_{i,t} \quad \text{(A3a)}$$

$$Ne_{i,t} = e2'(I - \rho \mathbf{A})^{-1} \eta_{i,t} \quad \text{(A3b)}$$

$$Nr_{i,t} = e1'\rho \mathbf{A}(I - \rho \mathbf{A})^{-1} \eta_{i,t} \quad \text{(A3c)}$$

$\mathbf{A}$ is the matrix of coefficients estimated from equations (A2). *e1*' and *e2*' are vectors equal to [1, 0, 0] and [0, 1, 0], respectively. $\mathbf{I}$ is the identity matrix and ρ is a constant equal to 0.967. $\eta_{i,t}$ is the vector $[\eta 1_{i,t}, \eta 2_{i,t}, \eta 3_{i,t}]'$.

To calculate *CR*, we use earnings news (*Ne*) estimated from equation (A3b) and the residuals ($\eta 2$) from equation (A2b), which proxies for current period unexpected earnings. Specifically,

$$CR_{i,t} = \eta 2_{i,t} / Ne_{i,t} \quad \text{(A4)}$$

CR measures the amount of total shocks to current and future earnings (*Ne*) that is captured by current period unexpected earnings ($\eta 2$). A larger value of *CR* indicates greater conditional conservatism. We use the average of *CR* over three years as our proxy for conditional conservatism. In equation (1), we use the lagged decile rank of *CR*, *Rank_CR*, as our primary test variable.

Appendix 1 (continued)
Measuring Conditional Conservatism

Conservatism Score (Cscore)

The conservatism score (*Cscore*) is based on the Basu's (1997) conservatism regression, which is as follows:

$$X_{i,t} = \beta_{1,t} + \beta_{2,t}D_{i,t} + \beta_{3,i,t}R_{i,t} + \beta_{4,i,t}D_{i,t} * R_{i,t} + \varepsilon_{i,t} \quad \text{(A5)}$$

X is income before extraordinary items scaled by lagged market value. *R* is annual returns compounded from monthly returns ending three month after fiscal year end. *D* is a dummy variable that takes the value of one for firms with negative returns, and zero otherwise. ε is the residual. In equation (A5), β_3 captures the timeliness of good news. β_4 is the measure of conditional conservatism that captures the incremental timeliness of bad news relative to good news.

Based on equation (A5), Khan and Watts (2009) express the timeliness of good news (β_3) and the incremental timeliness of bad news relative to good news (β_4) as linear functions of three time-varying firm-specific characteristics: size, market-to-book ratio, and leverage. These three characteristics are shown vary conceptually and empirically with conditional conservatism. Specifically the following identities are stated:

$$Gscore = \beta_{3,i,t} = \mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEV_{i,t} \quad \text{(A6a)}$$

$$Cscore = \beta_{4,i,t} = \lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEV_{i,t} \quad \text{(A6b)}$$

Gscore is the timeliness of good news, and *Cscore* is the incremental timeliness of bad news. *SIZE* is the natural log of market value of equity, *MB* is the market-to-book ratio, and *LEV* is the sum of long term and short term debt divided by market value of equity. λ_i and μ_i are constant across firms, but vary across time.

Equations (A6a) and (A6b) are substituted into equation (A5) to yield the following empirical equation:

$$X_{i,t} = \beta + \beta_{2,t}D_{i,t} + R_{i,t} * (\mu_1 + \mu_2 SIZE_{i,t} + \mu_3 MB_{i,t} + \mu_4 LEV_{i,t}) + D_{i,t} * R_{i,t} * (\lambda_1 + \lambda_2 SIZE_{i,t} + \lambda_3 MB_{i,t} + \lambda_4 LEV_{i,t}) + \varepsilon_{i,t} \quad \text{(A7)}$$

Following Khan and Watts (2009), we estimate equation (A7) annually to obtain the year-specific estimated parameters, λ_i and μ_i. We then substitute λ_i into equation (A6b), along with firm-specific measures of firm size (*SIZE*), market-to-book (*MB*) and leverage (*LEV*) to obtain the firm-year specific *Cscore*. In our estimation of (A7) we exclude financial firms (SIC 6000-6999). We also exclude observations with (1) missing data for any of the variables in the equation, (2) negative total assets or book value of equity, (3) price per share less than one, and (4) in the top and bottom one percent distribution of earnings, returns, size, market-to-book ratio and leverage in each year. We use the average of the *Cscore* over three years as our proxy for conditional conservatism. In equation (1), we use the lagged decile rank of *Cscore*, *Rank_Cscore*, as our primary test variable.

Non-operating Accruals (NOPA)

Following Givoly and Hayn (2000), we measure non-operating accruals as:

Non-operating accruals = Total accruals before depreciation − Operating accruals
= [(Net Income + Depreciation) − Cash flow from operations]
− (Δ Accounts receivable + Δ Inventories +Δ Prepaid expenses
− Δ Accounts payable − Δ Taxes payable).

We average the non-operating accruals over a three-year period to obtain *NOPA*, our proxy for conditional conservatism. In equation (1), we use the lagged decile rank of *NOPA*, *Rank_NOPA*, as our primary test variable.

Appendix 2
Variable Definitions

DISSUE	Dummy variable that equals 1 if a firm's net debt issue constitutes more than 5 percent of beginning total assets and any net equity issue is less than 5 percent of beginning total assets, and 0 if a firm's net equity issue constitutes more than 5 percent of beginning total assets and any net debt issue is less than 5 percent of beginning total assets. Net Debt issued is long-term debt issued (DLTIS) minus long-term debt reduction (DLTR)], scaled by beginning total assets (AT). Net equity issued is sale of common stock and preferred stock (SSTK) minus purchase of common stock and preferred stock (PRSTKC), scaled by beginning total assets (AT).
Rank_CR	Annual decile rank of *CR*, scaled to lie between 0 and 1. *CR* is the three-year average of the conservatism ratio developed by Callen et al. (2010), using variance decomposition methodology of Vuolteenaho (2002). Higher values of *CR* indicate higher level of conservatism. The measurement of *CR* is detailed in Appendix 1.
Rank_Cscore	Annual decile rank of *Cscore*, scaled to lie between 0 and 1. *Cscore* is the three-year average of the conservatism score derived from linear functions of three firm-specific characteristics: size, market-to-book ratio, and leverage, and computed as in Khan and Watts (2009). Higher values of *Cscore* indicate higher level of conservatism. The measurement of *Cscore* is detailed in Appendix 1.
Rank_NOPA	Annual decile rank of *NOPA*, scaled to lie between 0 and 1. *NOPA* is the three-year average of non-operating accruals as in Givoly and Hayn (2000), Higher values of *NOPA* indicate higher level of conservatism. The measurement of *NOPA* is detailed in Appendix 1.
PZ_score	Proxy for unconditional conservatism developed by Penman and Zhang's (2002), and is constructed from unrecorded reserves from LIFO inventory method (LIFR), R&D expenses (XRD), and advertising expenses (XAD) measured over a five-year period.
STDRET	Standard deviation of daily stock returns over the fiscal year.
TARGET_GAP	Median leverage of firms with the same four-digit SIC code minus the firm's leverage in the prior period. Leverage is measured as by book value of debt scaled by total assets (AT), where book value of debt is long-term debt (DLTT) plus debt in current liabilities (DLC).
LNASSET	Natural logarithm of book value of total assets (AT).
MB	Market value to book value ratio calculated as total assets (AT) minus book value of equity (CEQ) plus market value of equity (CSHO*PRCC_F), divided by total assets (AT), all measured at the end of the fiscal year.
RET	Holding period stock return over the last fiscal year prior to issue year.
ROA	Return on assets is the ratio of operating income before depreciation (OIBDP) to beginning total assets (AT).
LOSS	Dummy variable that equals 1 if net income (NI) is less than zero, 0 otherwise.
CASH	Cash and short term investments (CHE) divided by total assets (AT).
CRATE	Dummy variable that equals 1 if the firm has a long-term debt rating assigned by Standard & Poor's (SPLTICRM), 0 otherwise.
ZSCORE	Modified Altman Z-score measured as [3.3× pretax income (PI) + sales (SALE) + 1.4× retained earnings (RE) + 1.2× (current assets (ACT) - current liabilities (LCT))] / total assets (AT).
AGE	Number of years the firm is listed in COMPUSTAT.
TANG	Tangible assets is net property, plant and equipment (PPENT) scaled by total assets (AT).
R&D	Research and development expenses (XRD) scaled by total sales (AT).
TLCF	Tax loss carried forward (TLCF) scaled by total assets (AT).
DIVIDEND	Ratio of dividends (DV) to total assets (AT).

Appendix 2 (Continued)
Variable Definitions

BIG6	Dummy variable that equals 1 if the audit code (AU) is between 1 and 8, 0 otherwise.
SIZE	Natural logarithm of market value of equity (CSHO*PRCC_F).
LEV	Book value of debt scaled by market value of equity (CSHO*PRCC_F), where book value of debt is long-term debt (DLTT) plus debt in current liabilities (DLC).
COE	Measure of cost of equity, based on Easton (2004) and Botosan and Plumlee (2005): $\sqrt{\frac{eps_5 - eps_4}{P_0}}$ where eps_5 (eps_4) refers to analysts' forecast of five-year (four-year) ahead earnings and P_0 refers to current stock price. Forecasts are obtained from I/B/E/S database, current stock prices obtained from CRSP and measured at the end of the fiscal year. If eps_3 through eps_5 are missing, we follow Daske, Hail, Leuz, and Verdi (2008) by applying the following relation: $eps_{t+\tau} = eps_{t+\tau-1} \times (1 + ltg)$ where *ltg* is the long-term earnings growth. To mitigate the effects of outliers, we restrict *COE* to lie between 0 and 1.
COD	Cost of debt measured as interest paid (INTPN) divided by the sum of short and long term debt (DLC+DLTT). To mitigate the effects of outliers, we restrict *COD* to lie between 0 and 1.
ANALYST	Log of number of analysts following a firm.
DISP	Inter-analyst standard deviation of EPS forecasts deflated by absolute value of earnings.
DEDINST	Percent of shares held by dedicated institutional investors as defined in Bushee (1998).
HIGH_R&D	Dummy variable that equals 1 if the firm's research and development expenditure (scaled by total assets) is in the highest quartile of the sample, 0 otherwise.
ILLIQ	Illiquidity ratio developed by Amihud (2002) defined as the mean of the square root of the ratio of firm *i*'s daily absolute stock return to the reported daily dollar volume (in millions) over all days in fiscal year τ with nonzero volume.
PIN	The probability of informed trades from Brown and Hillegeist (2007), available for download at http:// www.rhsmith.umd.edu/faculty/sbrown/.

References

Aboody, D., J. Hughes, and J. Liu. 2005. Earnings quality, insider trading, and cost of capital. *Journal of Accounting Research* 43(5): 651-673.

Aboody, D., and B. Lev. 2000. Information asymmetry, R&D, and insider gains. *The Journal of Finance* 55 (6): 2747–2766.

Ahmed, A. S., B. Billings, R. Morton, and M. Harris. 2002. The role of accounting conservatism in mitigating bondholder–shareholder conflict over dividend policy and in reducing debt cost. *The Accounting Review* 77 (4): 867–890.

Ahmed, A. S., and S. Duellman. 2007. Accounting conservatism and board of director characteristics: An empirical analysis. *Journal of Accounting and Economics* 43 (2-3): 411–437.

Ahmed, A. S., and S. Duellman. 2011. Evidence on the role of accounting conservatism in monitoring managers' investment decisions. *Accounting and Finance* 51 (3): 609-633.

Ai, C., and E. C. Norton. 2003. Interaction terms in logit and probit models. *Economics Letters* 80 (1): 123-129.

Alford, A. W., and P. G. Berger. 1999. A simultaneous equations analysis of forecast accuracy, analyst following, and trading volume. *Journal of Accounting, Auditing and Finance* 14 (3): 219–46.

Ali, A., and L. S. Hwang. 2000. Country-specific factors related to financial reporting and the value relevance of accounting data. *Journal of Accounting Research* 38 (1): 1- 21.

Altman, E., 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *Journal of Finance* 23 (4): 589-609.

Amihud, Y. 2002. Illiquidity and stock returns: Cross-section and time-series effects. *Journal of Financial Markets* 5 (1): 31–56.

Ashbaugh, H., D. W. Collins, and R. LaFond. 2006. The effects of corporate governance on firms' credit ratings. *Journal of Accounting and Economics* 42 (1-2): 203–243.

Bagnoli, M., and S. Watts. 2005. Conservative accounting choices. *Management Science* 51 (5): 786–801.

Ball, R. 2001. Infrastructure requirements for an economically efficient system of public financial reporting and disclosure, Brookings-Wharton Papers on Financial Services: 127–169.

Ball, R., R. M. Bushman, and F. Vasvari. 2008a. The debt contracting value of accounting information and loan syndicate structure. *Journal of Accounting Research* 46 (2): 247-287.

Ball, R., S.P. Kothari, and A. Robin, 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics* 29 (1): 1-51.

Ball, R., A. Robin, and G. Sadka. 2008b. Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies* 13 (2-3): 168– 205.

Ball, R., and L. Shivakumar. 2005. Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics* 39 (1): 83-128.

Ball, R., and L. Shivakumar. 2008. Earnings quality at initial public offerings. *Journal of Accounting and Economics* 45 (2-3): 324–349.

Barron, O. E. 1995. Trading volume and belief revisions that differ among individual analysts. *The Accounting Review* 70 (4): 581-597.

Barron, O. E., Kim, O., Lim, S., and D. Stevens. 1998. Using Analysts' Forecasts to Measure Properties of Analysts' Information Environment. *The Accounting Review* 73 (4): 421-433.

Basu, S. 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics* 24 (1): 3-37.

Basu, S. 2009. Conservatism research: Historical development and future prospects. *China Journal of Accounting Research* 2 (1): 1-20.

Beatty, A., J. Weber, and J. Yu. 2008. Conservatism and Debt. *Journal of Accounting and Economics* 45 (2-3): 154-174.

Beekes, W., P. Pope, and S. Young. 2004. The link between earnings timeliness, earnings conservatism and board composition: evidence from the UK, *Corporate Governance: An International Review* 12 (1): 47-59.

Bharath, S. T., J. Sunder, and S. V. Sunder. 2008. Accounting quality and debt contracting. *The Accounting Review* 83 (1): 1-28.

Bhushan, R. 1989. Firm characteristics and analyst following. *Journal of Accounting and Economics* 11 (2-3): 255-274.

Bhushan, R. 1994. An informational efficiency perspective on the post-earnings-announcement drift. *Journal of Accounting and Economics* 18 (1): 45-65.

Biddle, G., G. Hilary, and R. Verdi. 2009. How does financial reporting quality relate to investment efficiency? *Journal of Accounting & Economics* 48 (2-3): 112-131.

Biddle, G. C., M. L. Ma, and F. Song. 2012a. The risk management role of accounting conservatism for operating cash flows. *Working paper*, University of Hong Kong. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1695629.

Biddle, G. C., M. L. Ma, and F. Song. 2012b. Accounting conservatism and bankruptcy risk. *Working paper*. University of Hong Kong. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1621272.

Botosan, C., and M. Plumlee. 2005. Assessing alternative proxies for the expected risk premium. *The Accounting Review* 80 (1): 21–53.

Botosan, C., M. Plumlee, and H. Wen. 2011. The relation between expected returns, realized returns, and firm risk characteristics. *Contemporary Accounting Research* 28 (4): 1085-1122.

Brown, S., and S. Hillegeist. 2007. How disclosure quality affects the level of information asymmetry. *Review of Accounting Studies* 12 (2-3): 443–77.

Bushee, B. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73 (3): 305-333.

Bushman, R., J. Piotroski, and A. Smith. 2011. Capital allocation and timely accounting recognition of economic losses. *Journal of Business Finance and Accounting* 38 (1-2): 1-33.

Callen, J. L., and D. Segal. 2010. A variance decomposition primer for accounting researchers. *Journal of Accounting, Auditing and Finance* 25 (1): 121-142.

Callen, J. L., D. Segal, and O. K. Hope. 2010. The pricing of conservative accounting and the measurement of conservatism at the firm-year level. *Review of Accounting Studies* 15 (1): 145-178.

Chang, X., S. Dasgupta, and G. Hilary. 2006. Analyst coverage and financing decisions. *Journal of Finance* 61 (6): 3009–3048.

Chang, X., S. Dasgupta, and G. Hilary. 2009. The effect of auditor quality on financing decisions. *The Accounting Review* 84 (4): 1085–1117.

Chen, S., X. Chen, and Q. Cheng. 2014. Conservatism and equity ownership of the founding family. *European Accounting Review* 23 (3): 403-430.

Chen, X., J. Hartford, and K. Li. 2007. Monitoring: Which institutions matter? *Journal of Financial Economics* 86 (2): 279-305.

Daske, H., L. Hail, C. Leuz., and R. Verdi. 2008. Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of Accounting Research* 46 (3): 1085-1142.

DeAngelo, H., and R. Masulis. 1980. Optimal capital structure under corporate and personal taxation. *Journal of Financial Economics* 8 (1): 3-29.

Diether, K. B., C. J. Malloy, and A. Scherbina. 2002. Differences of opinion and the cross-section of stock returns, *Journal of Finance* 57 (5): 2113-2141.

Donaldson, G., 1961. Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity. Boston, Division of Research, Harvard Graduate School of Business Administration.

Donaldson, G., 1969. Strategy for financial mobility. Boston, Division of Research, Harvard Graduate School of Business Administration.

Easley, D., N. Kiefer, and M. O'Hara. 1997. One Day in the Life of a Very Common Stock. *Review of Financial Studies* 10 (3): 805-835.

Easton, P. D. 2004. PE ratios, PEG ratios, and estimating the implied expected rate of return on equity capital. *The Accounting Review* 79 (1): 79-95.

Fama, E., and K. French. 1997. Industry costs of equity. *Journal of Financial Economics* 43 (2): 153–193.

Fama, E., and K. French. 2002. Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies* 15 (1): 1-33.

Fan, Q., and X. Zhang. 2012. Accounting conservatism, information aggregation, and the quality of financial reporting. *Contemporary Accounting Research* 29 (1): 38-56.

Francis, J., and X. Martin. 2010. Acquisition profitability and timely loss recognition. *Journal of Accounting and Economics* 49 (1-2): 161–178.

Frank, M., and V. Goyal. 2003. Testing the pecking order theory of capital structure. *Journal of Financial Economics* 67 (2): 217-248.

Frank, M., and V. Goyal. 2009. Capital structure decisions: Which factors are reliably important? *Financial Managemen*t 38 (1): 1-37.

Frankel, R. M., M. F. Johnson, K. K. Nelson. 2002. The relation between auditors' fees for non-audit services and earnings management. *The Accounting Review* 77 (s-1): 71–106.

Gao, P. 2013. A measurement approach to conservatism and earnings management. *Journal of Accounting Economics* 55 (2–3): 251–268.

Garcia Lara, J., B. Osma, and F. Penalva. 2009a. Accounting conservatism and corporate governance. *Review of Accounting Studies* 14 (1): 161-201.

Garcia Lara, J., B. Osma, and F. Penalva. 2009b. Conditional conservatism and firm investment efficiency. Working paper, Universidad Carlos III de Madrid.

Garcia Lara, J., B. Osma, and F. Penalva. 2011. Conditional conservatism and cost of capital. *Review of Accounting Studies* 16 (2): 247-271.

García Lara, J., B. Osma, and F. Penalva, 2014. Information consequences of accounting conservatism. *European Accounting Review* 23 (2): 173-198.

Gigler, F., and T. Hemmer. 1998. On the frequency, quality, and informational role of mandatory financial reports *Journal of Accounting Research* 36: 117–147.

Givoly, D., and C. Hayn. 2000. The changing time series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting and Economics* 29 (3): 287-320.

Givoly, D., C. Hayn, and. S. Katz. 2010. Does public ownership of equity improve earnings quality? *The Accounting Review* 85 (1): 195–225.

Göx, R., and A. Wagenhofer. 2009. Optimal impairment rules. *Journal of Accounting and Economics* 48 (1): 2-16.

Greene, W. 2010. Testing hypotheses about interaction terms in nonlinear models. *Economics Letters* 107 (2): 291-296.

Grossman, S., and O. Hart. 1980. Takeover bids, the free rider problem, and the theory of the corporations. *Bell Journal of Economics* 11 (1): 42–64.

Guay, W. R., and R. E. Verrecchia. 2007. Conservative disclosure. Working paper, University of Pennsylvania. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=995562.

Halov, N., F. Heider, and K. John. 2009. Capital structure and volatility of risk. Working paper, UCSD Rady School of Management, European Central Bank and NYU.

Haw, I-M, J. Lee, and W. Lee. 2014. Debt financing and accounting conservatism in private firms. *Contemporary Accounting Research* 31 (4): 1220-1259.

Hillegeist, S. A., E. K. Keating, D. P. Cram, and K. G. Lundstedt. 2004. Assessing the probability of bankruptcy. *Review of Accounting Studies* 9 (1): 5-34.

Ho, J. L.-C., C.-S. Liu, and R. Ramanan. 1997. Open-market stock repurchase announcements and revaluation of prior accounting information. *The Accounting Review* 72 (3): 475–87.

Holthausen, R. W., and R. L. Watts. 2001. The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics* 31 (1-3): 3-75.

Hong, H., T. Lim, and J. C. Stein. 2000. Bad news travels slowly: Size, analyst coverage and the profitability of momentum strategies. *Journal of Finance* 55 (1): 265-295.

Hovakimian, A. 2004. The role of target leverage in security issues and repurchases. *Journal of Business* 77 (4): 1041-1071

Hovakimian, A., T. Opler, and S. Titman. 2001. The debt–equity choice. *Journal of Financial and Quantitative Analysis* 36 (1): 1-24.

Huddart, S. 1993. The effect of a large shareholder on corporate value. *Management Science* 39 (11): 1407–1421.

Johnson, S. A. 2003. Debt maturity and the effects of growth opportunities and liquidity risk on leverage. *Review of Financial Studies* 16 (1): 209–236.

Khan, M., and R. L. Watts. 2009. Estimation and empirical properties of a firm-year measure of conservatism. *Journal of Accounting and Economics* 48 (2-3): 132-150.

Kim, J. B., and L. Zhang. 2015. Accounting conservatism and stock price crash risk: Firm-level evidence. *Contemporary Accounting Research*, forthcoming.

Kolasinski, A. C., and A. F. Siegel. 2010. On the economic meaning of interaction term coefficients in non-linear binary response regression models. Working Paper, University of Washington. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1668750.

Korajczyk, R., and A. Levy. 2003. Capital structure choice: Macroeconomic conditions and financial constraints. *Journal of Financial Economics* 68 (1): 75–109.

LaFond, R., and R. L. Watts. 2008. The information role of conservatism. *The Accounting Review* 83 (2): 447-478.

Le, C. T. 1998. *Applied Categorical Data Analysis*. New York: John Wiley & Sons inc.

Leary, M., and M. Roberts. 2005. Do firms rebalance their capital structures? *Journal of Finance* 60 (6): 2575–2619.

Li, N. 2010. Negotiated measurement rules in debt contracts. *Journal of Accounting Research* 48 (5): 1103-1144.

Li, X. 2014. Accounting conditional conservatism and the cost of capital: An international analysis. Working Paper, Temple University. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1261971.

Liao, T. F. 1994. Interpreting probability models: Logit, probit, and other generalized linear models, Sage University Paper Series on Quantitative Applications in the Social Sciences, Series No. 07–101.

Littleton, A. C., 1941. A genealogy for "cost or market." *The Accounting Review* 16 (2): 161-67.

Louis, H., A. Sun, and O. Urcan. 2012. Value of cash holdings and accounting conservatism. *Contemporary Accounting Research* 29 (4): 1249-1271.

Lucas, D. J., and R. McDonald. 1990. Equity issues and stock price dynamics. *Journal of Finance* 45 (4): 1019-1043.

MacKie-Mason, J. K. 1990. Do firms care who provides their financing? *Journal of Finance* 45 (5): 1471-1495.

Marsh, P. 1982. The choice between equity and debt: An empirical study. *Journal of Finance* 37 (1): 121 – 144.

Myers, S. C. 1977. Determinants of Corporate Borrowings. *Journal of Financial Economics* 5 (2): 147–175.

Myers, S. C. 1984. The capital structure puzzle. *Journal of Finance* 39 (3): 575-592.

Myers, S., and N. Majluf. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics* 13 (2): 187–221.

Neter, J., M. Kutner, C. Nachtsheim, and W. Wasserman. 1996 Applied linear statistical models (4th Edition), Chicago, IL: IRWIN: 385-388.

Nikolaev, V. V. 2010. Debt covenants and accounting conservatism. *Journal of Accounting Research* 48 (1): 51-89.

O'Brien, P. C., and R. Bhushan. 1990. Analyst following and institutional ownership. *Journal of Accounting Research* 28: 55-76.

Penman, S., and X. Zhang. 2002. Accounting conservatism, the quality of earnings and stock returns. *The Accounting Review* 77 (2): 237–264.

Penndorf, B., 1933. Luca Pacioli, Abhandlung ¨uber die Buchhaltung 1494,...mit einer Einleitung ¨uber die italienische Buchhaltung im 14 und 15. Jahrhundert und Paciolis Leben und Werk, Stuttgart.

Petersen, M. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22 (1): 435-480.

Pope, P. F., and M. Walker. 1999. International differences in the timeliness, conservatism and classification of earnings. *Journal of Accounting Research* 37: 53-98.

Rajan, R., and L. Zingales. 1995. What do we know about capital structure? Some evidence from international data. *Journal of Finance* 50 (5): 1421-1460.

Ryan, S. G., and P. A. Zarowin. 2003. Why has the contemporaneous linear returns-earnings relation declined? *The Accounting Review* 78 (2): 523-553.

Shackeford, D., and T. Shevlin. 2001. Empirical tax research in accounting. *Journal of Accounting and Economics* 31 (1-3): 321-387.

Shleifer, A., and W. Vishny. 1986. Large shareholders and corporate control. *Journal of Political Economy* 94 (3): 461–488.

Shroff, P., R. Venkataraman, and S. Zhang. 2012. The conservatism principle and the asymmetric timeliness of earnings: An event-based approach. *Contemporary Accounting Research* 30 (1): 215-241.

Smith, C. W., and J. B. Warner. 1979. On financial contracting: An analysis of bond covenants. *Journal of Financial Economics* 7 (2): 117–161.

Taggart, R. A. 1977. A model of corporate financing decisions. *Journal of Finance* 32 (5): 1467-1484.

Velury, U., and D. S. Jenkins. 2006. Institutional ownership and the quality of earnings. *Journal of Business Research* 59 (9): 1043-1051.

Vuolteenaho, T. 2002. What drives firm-level stock returns? *Journal of Finance* 57 (1): 233-264.

Watts, R. L. 2003. Conservatism in accounting Part I: Explanations and implications. *Accounting Horizons* 17 (3): 207-221.

Wittenberg-Moerman, R. 2008. The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics* 46 (2-3): 240-260.

Zhang, J. 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics* 45 (1): 27–54.

TABLE 1
Sample selection and distribution by industry

Panel A: Sample selection

	CR sample	*Cscore* sample	*NOPA* sample
Firm years with available data on conservatism and control variables	24,987	31,131	44,803
Less: Non-issuers (both net debt and net equity issuance less than 5% of total assets)	(19,875)	(23,883)	(33,101)
	5,112	7,248	11,702
Less: Dual issuers (both net debt and net equity issuance more than 5% of total assets)	(214)	(564)	(1,261)
Final sample	4,898	6,684	10,441

Panel B: Distribution by industry

	Percentage of firm-year observations			
Industry	*CR* sample	*Cscore* sample	*NOPA* sample	Compustat sample
Agriculture	0.49%	0.45%	0.34%	0.48%
Chemicals	3.67%	3.13%	2.81%	2.70%
Computers	11.92%	14.06%	16.06%	17.89%
Durable manufacturers	27.85%	27.80%	25.79%	23.78%
Extractives	6.55%	6.25%	6.10%	5.44%
Food	3.72%	3.28%	3.11%	2.65%
Mining and construction	3.10%	2.60%	2.84%	4.35%
Pharmaceuticals	4.96%	6.76%	8.75%	6.88%
Retail	14.68%	13.46%	12.01%	11.29%
Services	10.41%	10.62%	10.38%	11.52%
Textile and printing/publishing	6.08%	5.55%	4.90%	5.01%
Transportation	6.55%	6.03%	6.90%	7.99%
Total firm-years	4,898	6,684	10,441	120,366

Notes: Panel A summarizes our sample selection procedures. With respect to the Non-issuers observations, for the (1) *CR* sample, the mean of *CR*, ratio of net debt issuance to total assets (*Debt/TA*), and ratio of net equity issuance to total assets (*Equity/TA*) is 0.259, -0.015, and -0.014 respectively; (2) *Cscore* sample, the mean of *Cscore*, *Debt/TA*, and *Equity/TA* is 0.032, -0.016, and -0.013 respectively; (3) *NOPA* sample, the mean of *NOPA*, *Debt/TA*, and *Equity/TA* is 0.033, -0.019, and -0.011 respectively. With respect to the Dual issuers observations, for the (1) *CR* sample, the mean of *CR* ratio, *Debt/TA*, and *Equity/TA* is 0.599, 0.160, and 0.125 respectively; (2) *Cscore* sample, the mean of *Cscore*, *Debt/TA*, and *Equity/TA* is 0.072, 0.176, and 0.184, respectively; (3) *NOPA* sample, the mean of *NOPA*, *Debt/TA*, and *Equity/TA* is 0.079, 0.240, and 0.248, respectively. Panel B reports the sample compositions, as well as the overall Compustat sample, by key industries. Industry membership is determined by SIC code as follows: Agriculture (0100–0999), Chemicals (2800–2824, 2840–2899), Computers (3570–3579, 3670–3679, 7370–7379), Durable manufacturers (3000–3999, excluding 3570–3579 and 3670–3679), Extractives (2900–2999, 1300–1399), Food (2000–2111), Mining and construction (1000–1999, excluding 1300–1399), Pharmaceuticals (2830–2836), Retail (5000–5999), Services (7000–8999, excluding 7370–7379), Textiles and printing/publishing (2200–2799), and Transportation (4000–4899).

TABLE 2
Descriptive statistics

	Debt Issuers		Equity Issuers			
	Mean	Median	Mean	Median	Diff. in Means (*t*-statistic)	Diff. in Medians (*z*-statistic)
CR	0.614	0.243	1.462	0.272	-4.23***	-3.92***
Rank_CR	0.491	0.444	0.532	0.556	-3.74***	-3.74***
Cscore	0.022	0.021	0.124	0.124	-28.09***	-26.77***
Rank_Cscore	0.435	0.444	0.664	0.778	-28.85***	-26.62***
NOPA	0.037	0.024	0.072	0.043	-15.39***	-15.86***
Rank_NOPA	0.438	0.444	0.536	0.556	-15.91***	-15.87***
PZ_score	0.090	0.019	0.256	0.082	-5.85***	-18.93***
STDRET	0.139	0.117	0.220	0.189	-36.80***	-41.97***
TARGET_GAP	-0.041	-0.007	-0.060	0.000	4.49***	-1.87*
LNASSET	5.754	5.751	4.060	3.864	44.38***	40.72***
MB	1.904	1.519	3.561	2.291	-26.35***	-30.88***
RET	0.190	0.161	0.361	0.293	-11.37***	-9.75***
ROA	0.110	0.134	-0.142	-0.005	36.48***	43.74***
LOSS	0.231	0.000	0.644	1.000	-44.89***	-42.10***
CASH	0.104	0.047	0.283	0.198	-39.42***	-37.07***
CRATE	0.296	0.000	0.093	0.000	27.87***	24.54***
ZSCORE	1.351	1.791	-2.219	-0.151	30.68***	44.33***
AGE	18.385	13.000	12.329	9.000	28.04***	23.99***
TANG	0.340	0.273	0.233	0.144	22.55***	25.80***
R&D	0.029	0.000	0.144	0.066	-33.78***	-38.46***
TLCF	0.164	0.000	0.932	0.000	-19.25***	-20.17***
DIVIDEND	0.008	0.000	0.002	0.000	22.76***	28.42***
BIG6	0.853	1.000	0.760	1.000	11.57***	11.99***

Notes: This table reports descriptive statistics (mean and median values) of the conservatism measures and the control variables for debt issuers and equity issuers. The last two columns report test statistics for differences in these variables between the two groups of issuers. The descriptive statistics for all variables (except *CR* and *Cscore*) are based on the largest sample when conservatism is measured by *NOPA* (*N*=10,441). The descriptive statistics for *CR* (*Cscore*) are based on 4,898 (6,684) firm-year observations. Based on the *NOPA* sample reported in the table, 6,414 firm-years (61 percent) are debt issuers while 4,027 firm-years (39 percent) are equity issuers. For the *CR* sample, 3,775 firm-years (77 percent) are debt issuers while 1,123 firm-years (23 percent) are equity issuers. For the *Cscore* sample, 4,616 firm-years (69 percent) are debt issuers while 2,068 firm-years (31 percent) are equity issuers. The mean number of times a firm raises debt (equity) during the sample period is 1.88 (1.76). See Appendix 2 for detailed variable definitions. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, based on two-tailed tests.

TABLE 3
Conservatism and the likelihood of debt versus equity financing

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. Sign	Coeff.	*z*-statistic	Coef.	*z*-statistic	Coef.	*z*-statistic
Intercept	+/-	1.862	1.87*	1.784	2.32**	0.323	0.49
CON	+/-	-0.383	-2.84***	-0.993	-3.23***	-0.205	-2.40**
PZ_score	+/-	-0.085	-1.03	-0.035	-0.70	-0.038	-1.33
STDRET	-	-0.975	-1.00	-1.436	-1.79**	-1.412	-3.74***
TARGET_GAP	+	1.494	5.46***	1.140	5.59***	0.246	1.35*
LNASSET	+	0.195	5.07***	0.042	0.89	0.235	9.04***
MB	-	-0.313	-6.78***	-0.193	-5.70***	-0.094	-3.74***
RET	-	-0.495	-6.23***	-0.441	-6.97***	-0.241	-5.65***
ROA	+	1.186	1.81**	0.977	2.26**	0.295	1.14
LOSS	-	-0.617	-4.88***	-0.695	-7.50***	-0.888	-11.81***
CASH	-	-1.810	-5.33***	-1.902	-6.45***	-1.737	-8.06***
CRATE	+	-0.030	-0.24	-0.114	-1.03	-0.169	-2.01**
ZSCORE	+	0.123	2.29**	0.092	2.38***	-0.005	-0.28
AGE	+	0.012	2.29**	0.016	3.55***	0.015	5.20***
TANG	+	0.382	1.11	0.570	1.57*	0.491	1.86**
R&D	-	-3.039	-2.76***	-1.989	-2.68***	-1.864	-4.21***
TLCF	-	-0.077	-0.49	-0.230	-2.11**	0.007	0.22
DIVIDEND	+	10.176	1.81**	7.706	2.07**	8.828	2.66***
BIG6	-	-0.019	-0.12	0.129	1.16	0.027	0.32
IND		Included		Included		Included	
YEAR		Included		Included		Included	
N		4,898		6,684		10,441	
Pseudo R^2 (%)		25.52		31.41		30.12	

Notes: This table reports the results of estimating equation (1) as follows:

$$DISSUE_{i,t} = \alpha + \beta_1 CON_{i,t-1} + \sum_{n=2}^{N} \beta_n Controls_{i,t-1} + IND + YEAR + \varepsilon_{i,t} \quad (1)$$

The dependent variable is the indicator variable *DISSUE*, which equals 1 if the firm's net debt issuance is more than and any net equity issuance is less than 5 percent of total assets, and 0 if the firm's net equity issuance is more than and any net debt issue is less than 5 percent of total assets. *CON* is the decile ranks of the proxies for conservatism, *Rank_CR*, *Rank_Cscore*, and *Rank_NOPA. Controls* is a set of control variables. *IND* and *YEAR* are industry and year dummies. All variables are defined in Appendix 2. Coefficients on the industry and year dummies are not tabulated for parsimony. The *z*-statistics are adjusted for firm and year clustering. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, based on one-tailed (two-tailed) tests for directional (non-directional) prediction.

TABLE 4
Changes in conservatism and the likelihood of debt versus equity financing

	Pred. Sign	*ΔCON = Rank_ΔCR* (1)		*ΔCON = Rank_ΔCscore* (2)		*ΔCON = Rank_ΔNOPA* (3)	
		Coeff.	*z*-statistic	Coef.	*z*-statistic	Coef.	*z*-statistic
Intercept	+/-	1.010	1.87*	1.681	3.03***	1.526	2.49***
ΔCON	+/-	-0.091	-0.65	-0.478	-2.29**	-0.266	-3.24***
ΔPZ_score	+/-	0.005	1.21	-0.002	-0.33	-0.001	-1.31
ΔSTDRET	-	0.225	0.33	-0.293	-0.68	-0.166	-0.49
ΔTARGET_GAP	+	0.163	0.29	1.017	2.82***	0.476	2.06**
ΔLNASSET	+	-0.001	-0.01	-0.055	-0.28	0.371	3.72***
ΔMB	-	-0.195	-2.19**	-0.116	-2.19**	-0.017	-1.02
ΔRET	-	-0.232	-2.71***	-0.197	-3.06***	-0.129	-2.52***
ΔROA	+	-1.651	-2.17**	-1.310	-2.26**	-0.341	-1.62*
ΔLOSS	-	-0.142	-0.99	-0.162	-1.44*	-0.149	-2.19**
ΔCASH	-	-0.412	-0.74	-0.386	-0.87	0.236	0.96
ΔZSCORE	+	0.258	1.95**	0.166	2.16**	0.040	1.32*
ΔTANG	+	0.042	0.05	1.035	1.49*	1.062	3.06***
ΔR&D	-	-0.553	-0.48	-0.458	-0.60	0.444	2.17**
ΔTLCF	-	-0.832	-2.97***	-0.139	-1.20	-0.023	-0.72
ΔDIVIDEND	+	3.660	2.00**	1.510	0.77	0.609	1.32*
IND		Included		Included		Included	
YEAR		Included		Included		Included	
N		3,905		5,336		8,555	
Pseudo R^2 (%)		12.71		14.28		13.63	

Notes: This table reports the results using changes in, instead of levels of, conservatism in equation (1). The dependent variable is the indicator variable *DISSUE*, which equals 1 if the firm's net debt issuance is more than and any net equity issuance is less than 5 percent of total assets, and 0 if the firm's net equity issuance is more than and any net debt issue is less than 5 percent of total assets. *ΔCON* is measured as the difference in *CON* between year *t* and *t-1*, where *CON* is measured by *CR*, *Cscore*, or *NOPA*. We rank *ΔCON* based on deciles and standardize the decile ranks to range between zero and one (*Rank_ΔCON*). The control variables are as defined in Appendix 2 and are all measured as changes between year *t* and year *t-1*. Note that all independent variables are lagged one period from the period of measurement of the dependent variable, *DISSUE*. Coefficients on the industry and year dummies are not tabulated for parsimony. The *z*-statistics are adjusted for firm and year clustering. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, based on one-tailed (two-tailed) tests for directional (non-directional) prediction.

Table 5
Conservatism and the likelihood of debt versus equity financing: Using a Modified Basu (1997) measure of conservatism

		Model (1)		Model (2)		Model (3)	
	Pred. sign	Coeff.	*t*-statistic	Coeff.	*t*-statistic	Coeff.	*t*-statistic
Intercept	+/-	-0.003	-0.13	-0.050	-1.75*	-0.046	-1.68*
D	-	-0.027	-4.00***	-0.026	-1.62**	-0.027	-1.74**
Ret	+	0.022	2.96***	0.069	3.66***	0.068	3.84***
*D*Ret*	+	0.150	5.86***	0.332	5.83***	0.298	4.74***
DISSUE	+/-	0.068	12.12***			0.050	8.46***
*D*DISSUE*	+/-	0.023	3.72***			0.020	3.25***
*Ret*DISSUE*	+/-	0.062	8.49***			0.067	7.59***
*D*Ret*DISSUE*	+/-	-0.100	-3.72***			-0.092	-3.93***
SIZE	+/-			0.018	11.50***	0.015	8.77***
*D*SIZE*	+/-			0.001	0.62	0.001	0.41
*Ret*SIZE*	+			0.009	3.19***	0.008	3.11***
*D*Ret*SIZE*	-			-0.046	-4.90***	-0.041	-4.20***
LEV	+/-			-0.041	-5.80***	-0.034	-5.17***
D LEV*	+/-			0.013	1.32	0.008	0.92
Ret LEV*	-			0.032	2.41**	0.016	1.36
*D*Ret* LEV*	+			-0.027	-0.88	-0.002	-0.08
MB	+/-			-0.000	-1.02	-0.000	-1.08
*D*MB*	+/-			0.001	1.63*	0.001	1.63*
*Ret*MB*	+			0.000	0.76	0.000	0.80
*D*Ret*MB*	-			0.001	1.24	0.001	1.23
IND		Included		Included		Included	
YEAR		Included		Included		Included	
N		23,517		23,517		23,517	
Adjusted R^2 (%)		17.76		18.48		23.30	
*D*Ret* + *D*Ret*DISSUE*	+/-	0.050	3.62***			0.206	4.01***

Notes: This table reports the results of estimating equation (2) as follows:

$$X_{i,t} = \beta_1 + \beta_2 D_{i,t} + \beta_3 Ret_{i,t} + \beta_4 D_{i,t}*Ret_{i,t} + \beta_5 DISSUE_i + \beta_6 D_{i,t}*DISSUE_i + \beta_7 Ret_{i,t}*DISSUE_i + \beta_8 D_{i,t}*Ret_{i,t}*DISSUE_i + \beta_9 SIZE_{i,t} + \beta_{10} D_{i,t}*SIZE_{i,t} + \beta_{11} Ret_{i,t}* SIZE_{i,t} + \beta_{12} D_{i,t}*Ret_{i,t}*SIZE_{i,t} + \beta_{13} LEV_{i,t} + \beta_{14} D_{i,t}* LEV_{i,t} + \beta_{15} Ret_{i,t}* LEV_{i,t} + \beta_{16} D_{i,t}*Ret_{i,t}* LEV_{i,t} + \beta_{17} MB_{i,t} + \beta_{18} D_{i,t}*MB_{i,t} + \beta_{19} Ret_{i,t}* MB_{i,t} + \beta_{20} D_{i,t}*Ret_{i,t}*MB_{i,t} + IND + YEAR + e_{i,t} \quad (2)$$

We identify debt and equity issuers using *DISSUE* in each year *t*, but further require that these firms do not issue any equity or debt over the years *t-3* to *t-1* to ensure a cleaner test. For each firm that issues equity or debt in year *t*, we use three years of data (i.e., year *t-3* to *t-1*) to estimate equation (2). *X* is earnings scaled by lagged market value and *Ret* is fiscal year return. *D* is a dummy variable that equals 1 if return (i.e., *Ret*) is negative, and 0 if return is positive. *DISSUE* is a dummy variable which equals 1 if the firm's net debt issuance is more than and any net equity issuance is less than 5 percent of total assets, and 0 if the firm's net equity issuance is more than and any net debt issue is less than 5 percent of total assets. S*IZE* is firm size, *LEV* is leverage, and *MB* is the market-to-book ratio. *IND* and *YEAR* are industry and year dummies. All variables are as defined in Appendix 2. Coefficients on the industry and year dummies are not tabulated for parsimony. The *t*-statistics are adjusted for firm and year clustering. The table also provides the t-statistic for the sum of the coefficients on *D*Ret* and *D*Ret*DISSUE*. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, based on one-tailed (two-tailed) tests for directional (non-directional) prediction.

TABLE 6
Conservatism and costs of equity and debt

Panel A: Descriptive statistics

	N	Mean	Median	Q1	Q3	Std Dev
Cost of Equity (*COE*)						
CR sample	2,737	0.130	0.108	0.086	0.139	0.172
Cscore sample	3,581	0.127	0.110	0.086	0.144	0.083
NOPA sample	4,187	0.124	0.104	0.076	0.143	0.131
Cost of Debt (*COD*)						
CR sample	2,737	0.057	0.050	0.035	0.065	0.055
Cscore sample	3,581	0.061	0.052	0.035	0.068	0.067
NOPA sample	4,187	0.061	0.052	0.035	0.069	0.065

Panel B: Cost of equity (*COE*)

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. Sign	Coef.	*t*-statistic	Coef.	*t*-statistic	Coef.	*t*-statistic
Intercept	+/-	0.125	6.11***	0.126	8.41***	0.117	8.88***
CON	-	-0.101	-1.93**	-0.105	-7.64***	-0.048	-1.71**
DISSUE	+/-	0.018	1.11	0.002	0.36	0.003	0.31
*CON*DISSUE*	+/-	0.018	2.04**	0.034	2.31**	0.052	1.83**
IND		Included		Included		Included	
YEAR		Included		Included		Included	
N		2,737		3,581		4,187	
Adj R^2 (%)		4.14		12.01		3.74	
*CON + CON*DISSUE*	-	-0.083	0.67	-0.071	9.00***	0.004	0.46

Panel C: Cost of debt (*COD*)

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. Sign	Coef.	*t*-statistic	Coef.	*t*-statistic	Coef.	*t*-statistic
Intercept	+/-	0.096	6.94***	0.059	5.86***	0.094	9.63***
CON	-	-0.023	-1.20	-0.090	-4.95***	-0.022	-1.27*
DISSUE	+/-	-0.056	-5.41***	-0.029	-3.33***	-0.061	-7.80***
*CON*DISSUE*	+/-	0.019	1.00	0.082	1.49	0.018	1.61
IND		Included		Included		Included	
YEAR		Included		Included		Included	
N		2,737		3,581		4,187	
Adj R^2 (%)		21.10		22.26		21.10	
*CON+ CON*DISSUE*	-	-0.004	2.37**	-0.008	3.32***	-0.004	2.29**

TABLE 6 (Continued)
Conservatism and costs of equity and debt

Notes: Panel A reports the descriptive statistics on the cost of equity and cost of debt for each sample based on the three conservatism measures. Panels B and C report the results from estimating equations (3a) and (3b) as follows: $COD_{i,t}$ or $COE_{i,t} = a_0 + a_1 CON_{i,t-1} + a_2\ DISSUE_{i,t} + a_3 CON_{i,t-1} * DISSUE_{i,t} + IND + YEAR + e$. *COD* is total interest expense divided by the sum of short-term and long-term debt. *COE* is implied cost of equity based on the PEG ratio. *COD* and *COE* are restricted to values between 0 and 1 to mitigate outliers. *CON* is the decile rank of the conservatism measures, *Rank_CR*, *Rank_Cscore*, and *Rank_ NOPA*. *DISSUE* equals 1 if the firm's net debt issuance is more than and any net equity issuance is less than 5 percent of total assets, and 0 if the firm's net equity issuance is more than and any net debt issue is less than 5 percent of total assets. *IND* and *YEAR* are industry and year dummies. All variables are as defined in Appendix 2. Coefficients on the industry and year dummies are not tabulated for parsimony. The *t*-statistics are adjusted for firm and year clustering. The table also reports t-statistic for the sum of the coefficients on *CON* and *CON*DISSUE*. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, based on one-tailed (two-tailed) tests for directional (non-directional) prediction.

TABLE 7
Effects of cross-sectional differences in information asymmetry on the relation between the likelihood of debt versus equity financing and conservatism

Panel A: Financial intermediaries

Analyst coverage (ANALYST)

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. sign	Coef.	*z*-statistic	Coef.	*z*-statistic	Coef.	*z*-statistic
CON	-	-0.475	-1.88**	-0.636	-1.42*	-0.234	-1.41*
ANALYST	-	-0.409	-3.83***	-0.103	-0.82	-0.356	-4.43***
*CON*ANALYST*	+	0.048	1.68**	0.551	3.11***	0.047	3.43***
N		3,543		4,834		6,681	
Pseudo R^2 (%)		30.82		32.65		34.02	

Analyst dispersion (DISP)

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. sign	Coef.	*z*-statistic	Coef.	*z*-statistic	Coef.	*z*-statistic
CON	-	-0.180	-0.81	-1.654	-3.78***	-0.122	-1.13
DISP	+	2.282	1.41*	3.367	1.00	0.226	1.40*
*CON*DISP*	-	-4.056	-2.00**	-4.382	-0.99	-0.421	-2.01**
N		2,927		4,046		5,348	
Pseudo R^2 (%)		29.12		32.09		31.85	

Dedicated institutional ownership (DEDINST)

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. sign	Coef.	*z*-statistic	Coef.	*z*-statistic	Coef.	*z*-statistic
CON	-	-0.319	-1.73**	-0.375	-1.22	-0.364	-2.98***
DEDINST	-	-0.010	-1.23	-0.057	-1.53*	-0.012	-2.06**
*CON*DEDINST*	+	0.023	1.51*	0.052	6.21***	0.011	1.53*
N		3,845		5,040		7,291	
Pseudo R^2 (%)		27.11		33.25		30.05	

Panel B: Growth opportunities

Research and development expenditure (HIGH_R&D)

		CON = Rank_CR (1)		*CON = Rank_Cscore* (2)		*CON = Rank_NOPA* (3)	
	Pred. sign	Coef.	*z*-statistic	Coef.	*z*-statistic	Coef.	*z*-statistic
CON	-	-0.258	-2.31***	-0.828	-2.75***	-0.407	-3.00***
HIGH_R&D	-	-1.590	-0.84	-1.482	-1.95**	-0.609	-5.25***
*CON*HIGH_R&D*	-	-2.702	-1.34*	-0.450	-2.73***	-0.342	-2.26***
N		4,898		6,684		10,441	
Pseudo R^2 (%)		25.57		31.53		32.78	

TABLE 7 (Continued)
Effects of cross-sectional differences in information asymmetry on the relation between the likelihood of debt versus equity financing and conservatism

Tangible assets (TANG)

	Pred. sign	*CON = Rank_CR* (1) Coef.	*z*-statistic	*CON = Rank_Cscore* (2) Coef.	*z*-statistic	*CON = Rank_NOPA* (3) Coef.	*z*-statistic
CON	-	-0.886	-3.54***	-1.429	-4.29***	-0.139	-1.04
TANG	+	0.320	0.72	0.289	0.54	1.698	7.73***
*CON*TANG*	+	1.611	2.65***	1.541	2.73***	1.279	3.48***
N		4,898		6,684		10,441	
Pseudo R^2 (%)		25.52		31.42		30.34	

Panel C: Micro-market-based measures of information asymmetry

Market illiquidity (ILLIQ)

	Pred sign	*CON = Rank_CR* (1) Coef.	*z*-statistic	*CON = Rank_Cscore* (2) Coef.	*z*-statistic	*CON =Rank_NOPA* (3) Coef.	*z*-statistic
CON	-	-0.309	-2.00**	-1.060	-3.58***	-0.358	-3.47***
ILLIQ	+	0.761	6.56***	0.682	6.58***	0.392	6.15***
*CON*ILLIQ*	-	-0.235	-1.46*	-0.290	-2.28***	-0.229	-2.23***
N		4,739		6,482		10,046	
Pseudo R^2 (%)		27.15		32.95		31.49	

Probability of informed trade (PIN)

	Pred. sign	*CON = Rank_CR* (1) Coef.	*z*-statistic	*CON = Rank_Cscore* (2) Coef.	*z*-statistic	*CON = Rank_NOPA* (3) Coef.	*z*-statistic
CON	-	-0.027	-0.11	-1.791	-4.04***	-0.215	-1.07
PIN	+	5.037	5.68***	1.390	1.43*	4.480	10.51***
*CON*PIN*	-	-2.335	2.61***	-3.866	-3.37***	-1.840	-2.18**
N		4,631		6,337		9,816	
Pseudo R^2 (%)		26.32		32.23		31.39	

Notes: This table reports the results of estimating equation (4) as follows:
$DISSUE_{i,t} = \alpha + \beta_1 CON_{i,t-1} + \beta_2 IA_{i,t-1} + \beta_3 CON_{i,t-1} * IA_{i,t-1} + \sum_{n=4}^{N} \beta_n Controls_{i,t-1} + IND + YEAR + \varepsilon_{i,t}$ (4)
In Panel A, *IA* captures information asymmetry based on financial intermediaries: analyst coverage (*ANALYST*), percent of shares held by dedicated institutional investors as defined in Bushee (1998) (*DEDINST*), and analyst forecast dispersion (*DISP*). In Panel B, *IA* captures information asymmetry based on growth opportunities: research and development expenditure (*HIGH_R&D*) and tangibility (*TANG*). In Panel C, *IA* captures information asymmetry based on market microstructure measures: illiquidity measure (*ILLIQ*) by Amihud (2002) and probability of informed trades (*PIN*) by Brown and Hillegeist (2007). *DISSUE* equals 1 if the firm's net debt issuance is more than and any net equity issuance is less than 5 percent of total assets, and 0 if the firm's net equity issuance is more than and any net debt issue is less than 5 percent of total assets. *CON* is the decile rank of the conservatism measures, *Rank_CR*, *Rank_Cscore*, and *Rank_ NOPA*. *Controls* is a set of control variables. *IND* and *YEAR* are industry and year dummies. All control variables are not tabulated for parsimony. All variables are as defined in Appendix 2. The *z*-statistics are adjusted for firm and year clustering. ***, **, and * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively, based on one-tailed (two-tailed) tests for directional (non-directional) prediction.