Accounting Conservatism and Bankruptcy Risk

Gary C. Biddle*, Mary L. Z. Ma**, Frank M. Song*

*Faculty of Business and Economics
University of Hong Kong

**School of Administrative Studies
York University

January 1, 2016

JEL Classification: M41, G32, G33

Keywords: Conservative financial reporting; bankruptcy risk

Gary C. Biddle, Chair Professor of Accounting, email address is biddle@hku.hk, and phone number is (852) 3917-4388. Mary L. Z. Ma (contact author), Assistant Professor of Accounting, Email address is mlizhi@gmail.com, and phone number is (416) 736-2100 ext. 20204. Frank M. Song, Professor of Finance, Email address is fmsong@hku.hk, and phone number is (852) 2857-8507.

We thank for the helpful comments and suggestions of Kevin Chen, Jens Hilscher, Jeong-Bon Kim, Anya Kleymenova, Stephannie Larocque, Amy Lau, Xiaohong Liu, Zheng Liu, Yuri Loktionov, Chul Park, Lakshmanan Shivakumar, Anup Srivastava, Zhigang Tao, Kun Yu, Li Zhang, Mingshan Zhang, and workshop participants at the Chinese University of Hong Kong, the City University of Hong Kong, the University of Hong Kong, the Hong Kong University of Science and Technology, the London Business School, the Moscow School of Management, the National University of Singapore, the National Taiwan University, Ohio State University, the University of Washington, Xiamen University, and Yale University. We also thank discussants and participants at the American Accounting Association Annual Meetings, the Financial Accounting and Reporting Section Midyear Meetings, and the Chinese Accounting Professors' Association of North America Annual Meetings. We further appreciate research support from the Asian Case Research Center and the Computer Lab at the University of Hong Kong.

Accounting Conservatism and Bankruptcy Risk

Abstract

This study examines the relation between accounting conservatism and bankruptcy risk using a large sample of U.S listed firms. We present evidence that unconditional and conditional conservatism generally are negatively associated with subsequent bankruptcy risk by creating cushions for bad times and reducing information asymmetry between borrower firms and debtholders. We identify two channels for the observed associations: Enhancing cash holdings and constraining earnings management. Using a two-stage analysis approach and using Sarbanes-Oxley Act (SOX) enactment in 2002 as exogenous shocks, we show that accounting conservatism does have a mitigating effect on bankruptcy risk.

JEL Classification: M41, G32, G33

Keywords: bankruptcy risk; unconditional conservatism; conditional conservatism

Accounting Conservatism and Bankruptcy Risk

I. INTRODUCTION

This study examines the relation between accounting conservatism and bankruptcy risk. Conservative financial reporting refers to timelier reporting losses and bad earnings news than reporting gains and good earnings news. Accounting conservatism is a traditional accounting rationale that arose at least a millennium ago in response to demand by capital providers to assist their lending and liquidation decisions (De Ste. Croix 1956; Watts 2003; Basu 2009). Despite its potential significance, prior research has paid little attention to its relation with bankruptcy risk. If conservatism is found to lower bankruptcy risk, this evidence would be salient to contemporary debtholders, shareholders, and other stakeholders, whose interests are adversely affected by firm failures especially during crises times. Moreover, the financial crises of 2008-2009 heighten interests in searching mechanisms and tools that inhibit bankruptcy contagions along supply chains and across industries. Related evidence could further inform that conservative reporting could be a potentially useful tool for dampening bankruptcy risk contagions.

However, available evidence suggests different predictions regarding the association between conservative reporting and bankruptcy risk. On the one hand, Gigler, Kanodia, and Venugopalan (2009) argue analytically that accounting conservatism encourages the inefficient liquidation of profitable investment projects; and Zhang (2008) reports that conservatism accelerates debt covenant violations, both of which imply that conservative reporting increases bankruptcy risk. On the other hand, other studies suggest that accounting conservatism decreases bankruptcy risk. For example, Gao (2013) demonstrates analytically that conservatism reduces earnings management and debt renegotiation inefficiency; and Ahmed et al. (2002) and

Wittenberg-Moerman (2008) show that higher conservatism is associated with lower cost of debt, and by inference, lower failure risk. Thus, the question of whether and how accounting conservatism relates to bankruptcy risk remains an open question.

We propose that accounting conservatism decrease subsequent bankruptcy risk through its cushioning role and informational role. By understating net income and assets, conservative reporting reduces the proportion distributable to contracting counterparties, thus allowing the firm to retain more cash and other assets. Conservatism also promotes precautionary cash savings and creates cushions when future earning is risky. In addition, rather than passively retaining cash savings; conservatism also promotes efficient reinvestment that increases future cash flows and cushions (García Lara, Garcia Osma, and Penalva 2015). This cushioning role of conservatism enhances firms' capacities to repay or renegotiate their debts as it increases liquidation values and debtholder rights that deter managers' strategic defaults and bankruptcy threats, thus lowering bankruptcy risk (Kim, Ramaswamy, and Sundaresan 1993; Uhrig-Homburg 2005; Campbell, Hilscher, and Szilagyi 2008). Second, we propose that conservative accounting also plays an informational role whereby the timely reporting of bad earnings news reduces information asymmetries between debtholders and the firm (Watts 2003; Ahmed, Billings, Morton, and Stanford-Harris et al. 2002; Wittenberg-Moerman 2008; Kothari, Shu, and Wysocki 2009; Gao 2013), thus facilitating access to capital and debt renegotiations. This in turn helps the firm avert bankruptcy filings (Giammarino 1989; Mooradian 1994).

We examine both the cash holdings and earnings management as two channels to substantiate how accounting conservatism affects bankruptcy risk through its cushioning and informational roles. We also examine unconditional and conditional conservatism separately for the following reasons. Unconditional conservatism reflects conservative financial reporting practices that were applied consistently over multiple periods, whereas conditional conservatism focuses on financial reporting practices that trigger more timely recognition of bad versus good earnings news. These two types of conservatism therefore affect bankruptcy risk in subtly different ways — the former is especially efficacious in creating cushions and the latter at reducing information asymmetries between firms and debtholders.

We construct a large sample of firm-year observations of non-financial U.S. listed firms for the period 1989–2007. Our sample period ends in 2007 to avoid potential confounding effects of the financial crisis on the conservatism-bankruptcy risk relation. Our main tests employ two sets of bankruptcy risk measures: (i) An unconditional bankruptcy risk measure derived from Campbell et al. (2008); and (ii) a conditional bankruptcy risk measure derived from Merton (1974). Both measures are important because our sample includes healthy firms whose bankruptcy does not rely on financial distress as well as distressed firms whose bankruptcy does progress with distress. We measure unconditional conservatism using factor scores from the principal component analyses (PCA) of three unconditional conservatism metrics used in prior studies: Total accruals (Ahmed and Duellman 2007; Iliev 2010), industry-adjusted book-to-market ratios (Ahmed et al. 2002; Zhang 2008), and hidden reserves (Penman and Zhang 2002). Similarly, we gauge conditional conservatism using factor scores from the PCA of three component measures too: Accumulated non-operating accruals (Zhang 2008); an extended measure of Khan and Watts' (2009) C-scores; and a conservatism ratio measure adapted from Callen, Segal, and Hope (2010). We employ ordinary least squares (OLS) regressions with fixed time effects and with *t*-statistics adjusted for firm-level clustering for the primary tests, and follow Baron and Kenney (1986) for the channel tests.

Empirical analyses yield the following main results: First, unconditional and conditional conservatism are both negatively associated with subsequent unconditional and conditional bankruptcy risk, respectively. The findings support the prediction that accounting conservatism helps reduce bankruptcy risk by creating cushions and reducing information asymmetries. Second, unconditional and conditional conservatism enhance cash holdings, which in turn decrease subsequent bankruptcy risk, and they constrain opportunistic earnings management that increases subsequent bankruptcy risk. The results lend support to predictions that accounting conservatism reduces bankruptcy risk via the cash holding channel and earnings management channel.

In further analyses, we use a two-stage approach to check whether our baseline results are sensitive to the reverse causality from bankruptcy risk to conservatism. We also use the enactment of Sarbanes-Oxley Act (SOX) in 2002 that enhances conservative reporting (Lobo and Zhou 2006; Iliev 2010), as exogenous shock to conservatism, to check whether conservatism affect bankruptcy risk or not. We find that the negative relation between conservatism and bankruptcy risk is robust to the reverse causality considered, and becomes stronger in the post-SOX period, confirming that conservatism does mitigate bankruptcy risk. Our main findings hold even after controlling for income smoothing, extreme distress, and using alternative measures of bankruptcy risk and accounting conservatism. However, in firms whose debts are referenced by CDS contracts, the negative relation between conservative reporting and bankruptcy risk weakens or disappears, possibly because CDS contracts qualitatively change debt contracting relations by alleviating lenders' monitoring incentives and their willingness to re-negotiate debts.

This study contributes to existing literature in several ways. First, our study provides original evidence that both unconditional and conditional conservatism generally mitigate firm bankruptcy, the later stage of debt contracting. This evidence extends prior studies on the role of conservative accounting for technical defaults in the early stage of debt contracting (Zhang 2008; Nikolaev 2010), and for ultimate recovery rates in the post-bankruptcy stage of debt contracting (Donovan, Frankel, and Martin 2015). In addition, we document that cash enhancement and earnings management mitigation serve as two channels through which conservative reporting reduces bankruptcy risk.

Second, evidence in this study adds to the bankruptcy risk literature by showing that conservative accounting is an accounting-based determinant of bankruptcy risk in general. Prior studies identify cash holdings (Kim et al. 1993; Uhrig-Homburg 2005; Campbell et al. 2008), and information asymmetry (Giammarino 1989; Mooradian 1994) as determinants of bankruptcy risk. Complementing these studies, we show that both unconditional and conditional conservative accounting relates with bankruptcy risk via its impact on these two determinants, i.e., cash holdings and information asymmetries.

Third, our findings also have both practical and policy implications. Conservative accounting is a potentially useful accounting-based tool for stakeholders, regulators, and policymakers to mitigate bankruptcy risk and its contagion. Our evidence is also relevant to accounting standard setters by informing the continuing role of conservative accounting as a central tenet of financial reporting.

II. PRIOR FINDINGS AND HYPOTHESES

Relations between Unconditional and Conditional Conservatism and Bankruptcy Risk

Figure 1 depicts the debt-contracting continuum along which firms evolve from financial health to bankruptcy (T = 0 to T = 3). Accounting conservatism accelerates technical defaults by triggering violations of accounting-based covenants (Figure 1, T = 1). Yet prior anecdotal evidence and research suggest that unconditional and conditional conservatism should lower bankruptcy risk, via the cushioning and informational roles of accounting conservatism.[1] First, we consider the cushioning role. By understating reported net income and assets and by reporting bad news in a timelier manner, accounting conservatism reduces the proportion distributable to contracting parties, thus preserving more cash and other fungible assets within a firm. Especially when future cash flows become riskier, accounting conservatism promotes precautionary savings and helps prudent firms to save more (Kirschenheiter and Ramakrishnan 2010). Increased cash and fungible assets enhance a firm's capacity to repay and renegotiate debts, thus reducing bankruptcy risk (Kim et al. 1993; Uhrig-Homburg 2005; Campbell et al. 2008). This cushioning function of accounting conservatism also increases liquidation values and supports debtholder liquidation rights in the advent of real defaults (Figure 1, $T = 2$) as shown by Carrizosa and Ryan (2013), which in turn strengthen liquidation threats to managers and deter managers from suboptimal strategic defaults and bankruptcy filings. Whereas Zhang (2008) reports that conservatism accelerates the violation of earnings- or asset-based debt covenants (Figure 1, $T = 1$) that may appear to hasten bankruptcies (Figure 1, $T = 3$), the opposite is true in reality. Accelerated technical defaults due to conservatism facilitate the transfer of control rights from shareholders to debtholders and promote debtholder monitoring (Zhang 2008; Sufi 2009; Nikolaev 2010), which mitigates underinvestment and improves operating cash flows in covenant-violating firms (Tan 2013). Improved operating cash flows in turn enhance firms' abilities to service and renegotiate debts (Chatterjee, Dhillon, and Ramirez 1995), thus reducing

[1] Anecdotal evidence suggests that counter-conservatism contributes to financial distress. For instance, AIG insured financial institutions but did not accrue related contingent liabilities before the 2008–2009 financial crisis. When the crisis arose, AIG experienced large losses and would have been forced into bankruptcy without a government bailout. Similarly, before 2007, the subsequently bankrupt GM reported pension assets and liabilities as off-balance-sheet items under SFAS No. 87 rather than as contingent liabilities following SFAS No. 5, since before 2007, SFAS No. 87 allowed firms to report estimated net pension liabilities in the footnotes to the financial statements as an exception to SFAS No. 5.

bankruptcy risk.

Second, by reporting bad earnings news in a timelier manner and understating reported net income and assets, accounting conservatism also plays an informational role of alleviating the information asymmetry between the firm and debtholders. For example, Ahmed et al. (2002) and Wittenberg-Moerman (2008) document that conservatism decreases information asymmetry between managers and debtholders, which in turn reduces the cost of debt. Giammarino (1989) and Mooradian (1994) demonstrate that with severe information asymmetry, poorly informed debtholders prefer bankruptcy to debt renegotiation. However, lower information asymmetry due to conservatism facilitates debt renegotiation and thus helps to avoid bankruptcy filings. Specifically, it reduces the complexity of contract bargaining (Samuelson 1984), shortens the bankruptcy bargaining process by requiring fewer reorganization plans (Carapeto 2005), and increases the frequency and scope of debt renegotiations (Nikolaev 2013).[2]

Whereas unconditional and conditional conservatism play both cushioning and informational roles, they do so with nuanced differences. Unconditional conservatism, by consistently understating net assets and net income, actuates the accumulation of accrual cushions and precautionary savings, which *ex ante* insulates the firm from later risk realizations and buffers shocks to future cash flows (Lins et al. 2010). Meanwhile, it also reduces information asymmetries between debtholders and the firm. In comparison, conditional conservatism, by recognizing realized downside risk *ex post* and reporting bad news as losses in a timelier manner than good news as gains, performs more of an informational role than a cushioning role (Ryan 2006).

[2] In the corporate bond setting, Duffie and Lando (2001) also analytically show that accounting information that reduces information asymmetry between bondholders and the firm is priced and negatively associated with bond spread. However, the major part of debt contracts is private debt contracts that involve more debt covenants and renegotiations, and stronger debtholders' monitoring than corporate bonds.

Despite these subtle differences, the cushioning and informational roles of accounting conservatism predict negative relations between both unconditional and conditional conservatism and bankruptcy risk, as hypothesized below:

H1: *Unconditional and conditional conservatism are negatively associated with subsequent bankruptcy risk, all else being equal.*

To further substantiate the negative association hypothesized in H1 and provide new insights regarding how conservative reporting affects bankruptcy risk through its cushioning and informational roles, we next consider how cash holding enhancement and the constraining of earnings management operate as two potential channels for their relations.

The Cash Holding Channel

As explained earlier, we expect that accounting conservatism enhances a firm's cash holdings, which provides the firm with some cushions in meeting its debt servicing obligations, and thus mitigates subsequent bankruptcy risk. A firm can be viewed as a nexus of contracts that are often conditioned on accounting numbers. By understating reported net earnings and assets, unconditional and conditional conservatism, which operate in conjunction with contracts that are conditioned on earnings or asset numbers, reduce cash distributable to many (if not all) relevant contracting counterparties. This facilitates more cash being retained within the firm, and thus enhances a firm's cash position. Supporting this argument, Watts (2003) argues that conservatism reduces or defers cash expenditures for performance-based compensation, dividends and taxation. Zhang (2008) and Ahmed et al. (2002) reports that conservative reporting helps set lower interest rates in debt contract initiations and thus lowers cash interest payment ax ante, and lower cost of debt ex post, respectively. Hui et al. (2012) maintain that conservatism elicits more lenient contracting terms from suppliers and customers, which similarly facilitates cash retention. When future cash flows become riskier, the above mentioned cash savings from varied contracts are more valuable for a firm's survival. Therefore, firms also have incentives to use conservative accounting to promote precautionary cash saving, which is, saving cash by reducing expenditures as a response to uncertainty regarding future income.

The notion that conservatism enhances cash cushions and precautionary cash savings does not mean that conservatism only encourages passively retaining cash and discourages optimal cash spending. Despite no direct evidence on cash reinvestment, prior studies show that in general, conservative reporting increases operating and investment cash flows by enhancing investment efficiency (Francis and Martin 2010; García Lara et al. 2015).[3] These studies imply that conservatism further promotes optimal trade-offs between retaining cash and efficiently reinvesting cash in profitable opportunities, which ultimately enhances future cash flow and cash cushions.

The cushioning role of conservatism or its cash-enhancing effect facilitates a firm's abilities of debt servicing and debt renegotiations, which in turn mitigates bankruptcy risk. Because bankruptcy is ultimately a condition of cash insufficiency, and cash enhancement facilitates debt servicing, firms can operate indefinitely without entering real default or bankruptcy if net cash flows are sufficient to debt service obligations, irrespective of contemporaneous earnings. Correspondingly, Kim et al. (1993) and Uhrig-Homburg (2005) model bankruptcy as a real default triggered when cash flow falls below the required debt service payments. Campbell et al. (2008) document that cash holdings reduce failure risk over various prediction horizons. Enhanced cash holdings also alleviate underinvestment, particularly when firms face difficulties in rolling over debts (Harford, Klasa, and Maxwell 2014). This in turn

[3] Francis and Martin (2010) report that timely loss recognition curbs overinvestment in acquisition settings, and García Lara et. al. (2015) find that conservative accounting improves investment efficiency in general by facilitating a firm's access to debt financing and limiting underinvestment.

increases future operating cash flow and elevates debtholders' beliefs in the firms' abilities to service their debts, thus facilitating debt renegotiation and restructuring that preclude bankruptcy filings (Perotti and Spier 1993; Berkovitch and Israel 1998).[4]

Admittedly, however, increased cash exacerbates free cash flow agency problems (Jensen 1986) that increase bankruptcy risk, suggesting that cash enhancement due to conservatism may increase bankruptcy risk. Yet, Louis et al. (2012) show that conservatism mitigates agency problems associated with increased cash holdings, and Bates et al. (2009) report that increases in cash holdings are associated with low cash flow risk, to a greater extent, than with agency problems. Anderson and Carverhill (2012) further argue that holding cash to guard against real default serves shareholders' interests even if doing so aggravates cash-related agency problems. In addition, the option of holding cash to repurchase debt also reduces bankruptcy risk (Mao 2012; Mao and Tserlukevich 2012). Drawing on the analysis and existing evidence, we predict that accounting conservatism reduces subsequent bankruptcy risk by enhancing cash holdings, as expressed below:

H2a: *Unconditional and conditional conservatism reduce subsequent bankruptcy risk by enhancing cash holdings, all else being equal.*

The Earnings Management Channel

Both unconditional and conditional conservatism constrains managers' incentives to opportunistically manipulate earnings *ex ante* and to counteract the misstatement of earnings and assets *ex post* (Watts 2003; Ball and Shivakumar 2005; Chen et al. 2007; Kothari et al. 2009; Gao 2013). This effect of conservatism on earnings management is especially important after

[4] Indeed, conservatism could also preserve productive assets and other non-cash assets that can always be sold to meet their cash need and thus also bankruptcy risk. However, markets for productive assets and other non-cash assets are usually not as liquid and efficient as stock markets, and these assets cannot be sold timely to meet cash need; for example, distressed firms usually have to fire-sale assets on hands at a discount, suggesting that non-cash assets cannot sufficiently satisfy cash need. Therefore, cash, rather than non-cash assets, is an effective channel for conservative reporting to affect bankruptcy risk.

firms commit technical defaults, because at that time financially healthy firms (distressed firms) are likely to be involved in upward (downward) earnings management to improve their bargaining power and reduce renegotiation cost in the subsequent debt renegotiation process (Jha 2013). Earnings management increases the information asymmetry between the borrowing firm and creditors, which increases the incidence of bankruptcy and liquidation (Hotchkiss et al. 2008). By constraining earnings management, conservatism serves to reduce relevant information asymmetry, thus facilitating debt renegotiations and helping the borrowing firm to avoid bankruptcy filings.

However, Gigler et al. (2009) argue that conservatism increases debt renegotiation costs by creating false alarms, which increases information asymmetry and thus bankruptcy risk. Conversely, Gao (2013) demonstrates that after counterbalancing earnings management, conservatism does not generate false alarms, conveying that on balance conservatism should help mitigate bankruptcy risk by constraining earnings management. In addition, the above analysis does not address strategic bankruptcy, as strategic bankruptcy is rare to observe due to the huge bankruptcy cost associated therewith (Moulton and Thomas 1993). Combined, the above reasoning leads to the prediction presented below:

H2b: *Unconditional and conditional of conservative reporting reduce subsequent bankruptcy risk by constraining earnings management, all else being equal.*

III. DATA, MEASURES, AND MODELS

Data

This study utilizes a pooled sample of firm-year observations for firms listed on the NYSE, AMEX, and NASDAQ stock exchange for the period of fiscal years from 1989 to 2007. Data for bankruptcy risk, accounting conservatism, and channel measures are obtained from CRSP and Compustat. We obtain CDS contract data from the Markit CDS Composites database, and actual bankruptcy data from the website www.bankruptcydata.com. Firm-years with missing values for conservatism measures, bankruptcy risk measures, stock prices, total assets, or net income before extraordinary items are deleted. In line with the lagged specifications of estimation models, firms with less than three years of listing history are excluded. We also delete post-bankruptcy firm-years for firms filed under Chapter 11 of the U.S. Bankruptcy Code, since they are not comparable with pre-bankruptcy observations. To reduce the effects of outliers, major variables are winsorized at the top and bottom 1% of their empirical distributions. Firms in financial industries (SIC codes 6000-6999) are excluded. The final sample consists of 34,897 firm-years for 4,621 non-financial firms.

Measures for Bankruptcy Risk

We define bankruptcy risk as the probability that a firm liquidates under Chapter 7 or reorganizes under Chapter 11 of the U.S. Bankruptcy Code when it cannot service its debt obligations. Our primary proxies for bankruptcy risk include both (i) a measure of bankruptcy risk conditional on distress, *EDF*, which is the expected default frequency derived from Merton (1974) and (ii) an unconditional bankruptcy risk measure, *Campbell*, a score derived from Campbell et al. (2008). Both measures are important because our sample includes both healthy firms whose bankruptcy is not conditional on distress, and distressed firms whose bankruptcy does progress with distress and are explained in more details below.

EDF. *EDF* is the ranked probability that a firm's assets fall below its liabilities after T periods (T = one year in this study), and is estimated following Merton (1974). Merton's (1974) option-based structural model expresses a firm's market value V_E as a call option on the firm's assets V_A, with a strike price equal to the face value of the debt and a time to expiration equal to T. Applying the Black and Scholes' (1973) formula and Ito's lemma, we estimate *EDF* as:

$$EDF_t = \text{prob}\{-[ln(V_{A,t} / X_t) + (\mu - 0.5\sigma_A^2)T] / (\sigma_A T^{1/2}) \geq \varepsilon_{t+T}\} \quad (1)$$

$$= N(-(ln(V_{A,t} / X_t) + (\mu - 0.5\sigma_A^2)T) / (\sigma_A T^{1/2}))$$

where N is the cumulative density function of the standard normal distribution, X is the face value of a firm's debt, σ_A is the volatility of a firm's assets, and μ is the instantaneous drift, assuming that a firm's market value follows geometric Brownian motion. The intuition for *EDF* is that the probability that a firm's assets are insufficient to pay the face value of its debt increases with debt and asset volatility and decreases with assets. Key advantages of using *EDF* for this study are that it is a market-based bankruptcy risk measure conditional on leverage (a proxy for distress); it is therefore less subject to estimation bias due to conservatism, and has superior predictability in comparison with accounting-based bankruptcy measures, such as the Altman (1968) *Z-score* and Ohlson (1980) *O-score*.[5]

Campbell. *Campbell* is the ranked probability that a firm declares bankruptcy one month ahead. Similar to the classical Altman (1968) *Z-score* measure, *Campbell* is also calculated by fitting a reduced form logit model.[6] The logit model underlying *Campbell* mainly uses market-based determinants, not conditional on financial distress, and allows information asymmetry between creditors and firms.

In robustness checks, we also examine an extended Altman (1968) Z-score, *Zscore*, as an alternative unconditional bankruptcy risk measure, and a real bankruptcy indicator, *BANK*, as another alternative bankruptcy risk measure. The two measures are described below.

---

[5] Merton's (1974) model assumes market efficiency and complete information, and that default is the same as bankruptcy. It does not allow information asymmetry between firms and creditors and assumes away short-term default. As such, we implicitly relax these assumptions when examining relations between conservative reporting and conditional bankruptcy risk.

[6] We use the formula available in the last column of Table III of Campbell et al. (2008) to estimate *Campbell* for each fiscal-year end month: $Campbell_t = exp(temp_t) / (1 + exp(temp_t))$, where $temp_t = -9.08 - 29.67 * NIMTAVG_t + 3.36 * TLMTA_t - 7.35 * EXRETAVG_t + 1.48 * SIGMA_t + 0.082 * Rsize_t - 2.40 * CASHHMTA_t + 0.054 * MB_t - 0.937 * PRICE_t$. The intuition is that bankruptcy risk decreases with the predictability of market-based profitability *NIMTAVG*, the predictability of excess return relative to the S&P 500 index *EXRETAVG*, the market-based liquidity ratio *CASHHMTA,* and the stock price *PRICE*. Bankruptcy risk increases with the market-based leverage ratio *TLMTA*, the stock return volatility *SIGMA,* the market-to-book equity ratio *MB,* and the firm size relative to the S&P 500 index *Rsize.*

Zscore. *Zscore* is defined as the ranked value of negative one times the Altman (1968) *Z-score* derived from a formula estimated from a logit model, and a higher *Zscore* indicates higher unconditional bankruptcy risk.[7] As an accounting-based measure, *Zscore* is subject to biases caused by the understatement of net working capital, accumulated retained earnings, and total assets due to accounting conservatism. The impact of this bias on the relation between accounting conservatism and the *Zscore* is not readily predictable.

BANK. *BANK* is an indicator variable that equals one if a firm files for bankruptcy under Chapter 7 or 11 of the U.S. Bankruptcy Code, and zero otherwise. Unlike other bankruptcy risk measures, *BANK* indicates realized bankruptcy in firms with high bankruptcy risk. However, the subsample of firms that declare bankruptcy is very small and possibly unrepresentative of firms with various levels of bankruptcy risk that eventually do not file for bankruptcy.[8]

Measures for Unconditional and Conditional Conservatism

There are many different measures for conservative reporting and they capture different dimensions of accounting conservatism and are subject to estimation errors. Accordingly, we use factor scores from the PCA of three unconditional conservatism metrics to capture their commonalities: *UC_ACC* (total accruals as adapted from Ahmed and Duellman 2007 and Iliev 2010), *UC_BM* (the ranking of the industry-adjusted book-to-market ratio), and *UC_RES* (hidden reserves). We similarly use factor scores from the PCA of three conditional conservatism

---

[7] The *Z-score* of Altman (1968) is calculated using the formula *Z-score* = 1.20*(net working capital/total assets) + 1.40*(accumulated retained earnings/total assets) + 3.30*ROA + 0.60*(market equity/book debt) + 1.00*(sales/total assets).

[8] Several accounting studies argue that the CDS spread is a pure default risk measure and that the CDS setting enables cleaner tests of the effects of accounting practices on default risk (see Griffin (2014) for a comprehensive review). In our research setting, however, only a small subsample of firms has CDS contracts traded on the OTC market and thus available CDS spread data. More importantly, CDS contracts fundamentally change debt contracting relations. Specifically, by providing lenders hedges against credit risk, CDS contracts reduce lenders' monitoring incentives and make it harder to renegotiate debts, thus increasing bankruptcy risk (Peristiani and Savino 2014; Subrahmanyam et al. 2014). These same considerations also decrease borrowing firms' incentives to apply conservative reporting (Martin and Roychowdhury 2015). As a result, using the CDS spread data would confine our study to a small and special subsample with CDS contracts, which essentially changes debt contracting, whose conclusions would not generalize to the general debt contracting, and so we do not use CDS spread in this study.

metrics: *CC_AR* (extending Khan and Watts 2009), *CC_CR* (extending Callen et al. 2010), and *CC_ACM* (extending Zhang 2008). Below we describe their details.

UC_ACC. *UC_ACC* is a component unconditional conservatism measure that is equal to negative one times the ratio of the average total accruals before depreciation to the average total assets, both averaged over a three-year horizon ending in the current year, following the rationale that conservatism results in persistent negative accruals (Givoly and Hayn 2000; Ahmed and Duellman 2007).[9]

UC_BM. *UC_BM* is a component unconditional conservatism measure that is the ranking of negative one times the industry-adjusted ratio of the book-to-market value of equity (Ahmed and Duellman 2007; Zhang 2008). Since *UC_BM* also reflects expected economic rents and future growth opportunities, we use the R&D intensity as a control, following Ahmed and Duellman (2007).

UC_RES. *UC_RES* is a component unconditional conservatism measure reflecting "hidden" reserves related to LIFO inventory accounting (INV), R&D (RD) and advertising (ADV). Extending Penman and Zhang (2002), we measure *UC_RES* as the ratio of hidden reserves to total assets (TA), as expressed in the formula $UC\_RES_{it} = (INV_{it}^{res} + RD_{it}^{res} + ADV_{it}^{res}) / TA_{it}$.[10]

Using the above three component unconditional conservatism measures, namely, *UC_ACC, UN_BM,* and *UC_RES*, we construct the following two proxies for unconditional conservatism:

UC_PCA. *UC_PCA* is the main proxy for unconditional conservatism in our study. It is the factor score estimated in terms of the first factor from a PCA of the above three measures that

[9] We calculate total accruals *Total accruals* by the following formula: $Total\ accruals_{it} = net\ income\ before\ extraordinary\ items_{it} - operating\ cash\ flow_{it} + depreciation\ expense_{it}$.

[10] INV_{it}^{res} is the LIFO reserve, RD_{it}^{res} is calculated using the coefficients of Lev and Sougiannis (1996) to capitalize and amortize R&D, and ADV_{it}^{res} is advertising expenses capitalized and amortized over two years, following Bublitz and Ettredge (1989). Penman and Zhang (2002) use net operating assets as the deflator for hidden reserves, but net operating assets are negative for over one-sixth of our sample, which could bias estimated hidden reserves. We thus use total assets as the deflator. When data are missing for the LIFO reserve, R&D and advertising expenses, they are set to zero.

gauge unconditional conservatism from different perspectives and possess distinct strengths and weaknesses. Specifically, *UC_ACC* is an accrual-based metric that cannot capture non-accrual unconditional conservatism such as R&D and advertising expenditures, whereas *UC_RES* captures only non-accrual unconditional conservatism relevant to hidden reserves. *UC_BM* is a market-based metric that reflects the understatement of the book equity relative to market equity. *UC_PCA* reflects commonalities of these measures in capturing unconditional conservatism.

UC_AVG. *UC_AVG* is a secondary proxy for unconditional conservatism calculated as the average of the above three component measures. It can be perceived as a factor score from a special PCA that adopts an equal weighting scheme for component measures.

CC_ACM. *CC_ACM* is a component conditional conservatism measure that is equal to negative one times the ratio of accumulated non-operating accruals over a three-year window to the corresponding accumulated total assets, adapted from Zhang (2008). A higher value of *CC_ACM* indicates a higher level of bad news reported via non-operational accruals.[11]

CC_AR. *CC_AR* is a component conditional conservatism measure calculated as the ratio of the sum of the C Score and G Score to the G Score from Khan and Watts (2009).[12]

CC_CR. *CC_CR* is a component conditional conservatism measure extending the *CR* ratio in Callen et al. (2010). It is the ratio of current earnings shocks to total earnings news for bad

[11] Non-operating accruals are calculated as follows: *Nonoperating accruals = Total accruals - Δaccounts receivable - Δinventories - Δprepaid expenses + Δaccounts payable + Δtaxes payable*. Zhang (2008) uses the term "*operational accrual*", which matches the definition of total accruals used by Ahmed and Duellman (2007). Following Zhang (2008), when operating cash flow is unavailable, total accruals are calculated as follows: *Total accruals = net income + depreciation - funds from operations + Δcurrent assets - Δdebt - Δcurrent liabilities - Δcash*.

[12] Our sample period, fiscal years 1989 through 2007, is similar to that of Khan and Watts (2009), 1963 through 2005, and our sample size is also similar. Hence, we use model 2 in Table 3 of Khan and Watts (2009) to estimate *CC_AR* as follows:

$CC\_AR_{it} = (C\_Score_{it} + G\_Score_{it}) / G\_Score_{it} = 1 + C\_Score_{it} / G\_Score_{it}$,

$G\_Score_{it} = m_1 + m_2 Size_{it} + m_3 M/B_{it} + m_4 LEV_{it} = 0.237 - 0.033*Size_i - 0.007*M/B_{it} + 0.033*LEV_{it}$, and

$C\_Score_{it} = l_1 + l_2 Size_{it} + l_3 M/B_{it} + l_4 LEV_{it} = 0.031 + 0.005*Size_{it} - 0.006*M/B_{it} + 0.005*LEV_{it}$.

earnings news, with the ratio multiplied by negative one for good earnings news.[13]

Using the above three component conditional conservative measures, we construct the following two proxies for conditional conservatism measures:

CC_PCA. *CC_PCA* is a proxy for conditional conservatism calculated as the factor score estimated in terms of the first factor from a PCA of the above three component measures that captures conditional conservatism from different perspectives and with distinct strengths and weaknesses. Specifically, *CC_AR* and *CC_CR* are market-based metrics subject to noise from voluntary disclosures of accounting and non-accounting information. *CC_AR* employs accounting inputs that may correlate with bankruptcy risk measures. *CC_ACM* is an accrual-based metric that captures both bad news in accruals and “big baths” resulting from earnings manipulations and investment accruals. *CC_PCA* captures their commonalities in reflecting conditional conservatism.

CC_AVG. *CC_AVG* is a secondary proxy for conditional conservatism calculated as the average of the above three component measures. It can be perceived as a factor score from a special PCA that adopts an equal weighting scheme for all component measures.

Main Estimation Models

To test H1, we estimate the following baseline regression equation in which bankruptcy risk in year *t* is linked to conservatism in year *t-1* as specified below:

[13] *CC_CR* is derived from Vuolteenaho (2002) and its criterion for classifying good versus bad news is whether the *ROE*, earnings scaled by the book equity, is greater than the risk-free rate. This definition differs from the *CR* ratio of Callen et al. (2010) by multiplying the *CR* ratio by negative one for good earnings news, so that higher *CC_CR* represents greater conditional conservatism for the good news case, and by keeping observations of negative *CC_CR* within the sample. The conditional conservatism measure *CR* ratio in Callen et al. (2010) is defined as the ratio of the current earnings shock to earnings news. For adverse earnings news, a positive *CR* ratio reflects asymmetric timeliness in the recognition of loss relative to gain. However, for good earnings news, a positive *CR* ratio reflects asymmetric timeliness in the recognition of gain relative to loss, or counter-conservatism. Following this intuition, we adjust the original *CR* ratio definition by using the product of a negative ratio times the original *CR* ratio, and denote the measure as *CC_CR*. Therefore, in our study, a negative *CC_CR* represents a low conditional conservatism due to either a lower degree of asymmetric timeliness in the recognition of loss relative to gain in firms with adverse earnings news, or a higher degree of counter-conservatism, e.g., asymmetric timeliness in the recognition of gain relative to loss in firms with good earnings news.

$$BR_t = \alpha_0 + \gamma_1 CON_{t-1} + \beta_1 BR_{t-1} + \beta_2 BR_{t-2} + Controls_t + e_t \quad (2)$$

where *BR* refers to the bankruptcy risk measure *EDF*, *Campbell*, or *Zscore*; *CON* refers to unconditional and conditional conservatism measures, that is, *UC_PCA, UC_AVG, CC_PCA and CC_AVG*; and *Controls* refers to the control variables that are known to affect bankruptcy risk (Anderson et al. 1996; Shumway 2001; Parker et al. 2002; Uhrig-Homburg 2005; Campbell et al. 2008; Eberhart et al. 2008).[14] We include one- and two-period lagged bankruptcy risk measures, BR_{t-1} and BR_{t-2}, as additional controls to account for stickiness in the autoregressive process of bankruptcy risk (Duffie et al. 2007). BR_{t-2} also controls for reverse causality from bankruptcy risk to unconditional and conditional conservatism. H1 translates into $\gamma_1 < 0$.

IV. EMPIRICAL RESULTS

Descriptive Statistics

Table 1 reports summary statistics for all variables used in the empirical analyses in Panel A and correlation matrix for the main testing variables in Panel B. As shown in Panel A, the mean of conditional bankruptcy risk measure *EDF* is 0.0365, close to its value of 0.0420 reported by Vassalou and Xing (2004). The mean of *UC_ACC*, 0.0012, is lower than those reported in Ahmed et al. (2002), Ahmed and Duellman (2007), but higher than those reported in Iliev (2010). The difference is likely due to different samples, different sample periods, and different accrual-based measures used in these studies.[15] The mean of *CC_CR,* -0.3102, is lower than that of *CR* ratio reported in Callen et al. (2010), possibly because our CR ratio measure is not comparable to that in Callen et al. (2010), as detailed above.

[14] Specifically, these controls include the firm size $Ln(MV)_t$, leverage ratio $Leverage_t$, return on total assets ROA_t, return volatility STD_Ret_t, risk-free rate *Rate*, R&D investment intensity $Inten\_RD_t$, dummies for the Fama and French (1997) industry classification *Ind_Dum*, and indicator for the year effect *Year_Dum*. Consistent with prior studies, we predict that bankruptcy risk is positively associated with leverage and return volatility and negatively associated with *ROA*, *Ln(MV)*, *Rate,* and *Inten_RD*.

[15] Ahmed et al. (2002) and Ahmed and Duellman (2007) use S&P 500 firms during 1993–1998 and 1998–2002, respectively, although they use the same definition with our study. Different from our study, Iliev (2010) uses asset-deflated accrual measure for conservatism, and sample firms with a public float around $75 million, and a sample period of 2002-2005.

Panel B reports Pearson and Spearman correlations for the main testing and control variables in the upper and lower triangles, respectively. The Spearman (Pearson) correlations between the main bankruptcy risk metric, *EDF* and *Campbell*, and other bankruptcy risk measures, including the *Zscore* and real bankruptcy indicator *BANK*, are all significantly positive, with Spearman (Pearson) correlations between *EDF* and *Campbell* as high as 0.7789 (0.7789). These results suggest that our bankruptcy risk measures have strong convergent validity.

Correlations between the unconditional conservatism measures *UC_PCA* and *UC_AVG* are above 0.9990, and their correlations with component unconditional conservatism metrics (*UC_ACC*, *UC_BM*, and *UC_RES*) are uniformly positive when statistically significant. The evidence suggests that *UC_PCA* and *UC_AVG* possess content validity and convergent validity to represent unconditional conservatism.[16] *UC_PCA* and *UC_AVG* are both significantly negatively associated with conditional conservatism measures, *CC_PCA* and *CC_AVG*, with a Spearman (Pearson) correlation between *UC_PCA* and *CC_PCA* of -0.1441 (-0.0637). Correlations between *CC_PCA* and *CC_ AVG* are above 0.9890, and their correlations with component conditional conservatism metrics (*CC_ACM*, *CC_AR*, and *CC_CR*) are likewise uniformly positive when statistically significant. These correlations imply that *CC_PCA* and *CC_ AVG* possess content validity and convergent validity as proxies for conditional conservatism. Except for *CC_ACM*, the Spearman correlations between component measures of both types of conservatism are also predominantly negative, consistent with prior evidence (Roychowdhury and Watts 2007; Ball et al. 2013).

Pearson and Spearman correlations of unconditional conservatism measures, *UC_PCA* and

[16] A measure possesses convergent validity when it is positively correlated with another measure of the same concept. However, alternative measures can have low or even negative correlations if they reflect different aspects of a concept. For example, when measuring unconditional conservatism using hidden reserves (*UC_RES*) and an accrual-based measure (*UC_ACC*), *UC_ACC* and *UC_RES* are negatively correlated, possibly because firms that can use accruals to increase unconditional conservatism may have lower incentives to use reserves to do so.

UC_AVG, and their component metrics with all bankruptcy risk measures (*EDF*, *Campbell*, *Zscore*, and *BANK*) are significantly negative. In contrast, correlations of conditional conservatism measures, *UC_PCA* and *UC_AVG*, and their component metrics with all bankruptcy risk measures are significantly positive except for *CC_ACM*. However, these results should be interpreted cautiously, because they are subject to biases caused by the omitted correlated variables. Below we therefore perform multivariate analyses to examine their relations.

Relations between Unconditional and Conditional Conservatism and Bankruptcy Risk

We first examine relations between unconditional and conditional conservatism and conditional bankruptcy risk proxied by *EDF*, using the lagged OLS model described in Eq. (2), and report the results in Table 2. Models 1 to 3 indicate that lagged unconditional and conditional conservatism measures calculated based on the first factors of PCA analyses, UC_PCA_{t-1} and CC_PCA_{t-1}, are both significantly negatively associated with the subsequent conditional bankruptcy risk measure EDF_t, irrespective of whether they enter the regressions independently or simultaneously. In Model 3, the coefficients (*t*-statistics) of UC_PCA_{t-1} and CC_PCA_{t-1} are -0.0443 (-5.31) and -0.0083 (-12.41), respectively. The economic meaning is that a one standard deviation increase in UC_PCA_{t-1} (CC_PCA_{t-1}), which is 0.2120 (1.6979), leads to a 93.92 (140.93) basis point decrease in subsequent bankruptcy risk. This evidence strongly supports H1 that unconditional and conditional conservatism are negatively associated with subsequent bankruptcy risk through their cushioning role and the informational role. Models 4 to 6 report results for the alternative unconditional and conditional conservatism measures UC_AVG_{t-1} and CC_AVG_{t-1}, which are calculated based on the mean of their component measures, respectively. UC_AVG_{t-1} and CC_AVG_{t-1} are both significantly negatively associated with EDF_t, with their coefficients (*t*-statistics) in Models 5 and 6 being -0.0836 (-8.19) and -

0.264 (-17.97), respectively. The evidence lends further support to H1. In all models, the results for control variables are generally consistent with expectations. For example, $Leverage_t$ and STD_Ret_t are positively associated with EDF_t, whereas ROA_t, $Ln(MV)_t$, $Rate_t$, and $Inten\_RD_t$ are negatively associated with EDF_t.[17]

Because a large portion of our sample is healthy firms whose bankruptcy risk not necessarily depends on distress, we next examine relations between unconditional and conditional conservatism and unconditional bankruptcy risk proxied by *Campbell* using Eq. (2). Table 3 reports the estimation results. Models 1 to 3 of Table 3 indicate that lagged unconditional and conditional conservatism measures, UC_PCA_{t-1} and CC_PCA_{t-1}, are both significantly negatively associated with subsequent unconditional bankruptcy risk measure $Campbell_t$, respectively. Models 4 to 6 report that alternative unconditional and conditional conservatism measures UC_AVG_{t-1} and CC_AVG_{t-1} are both significantly negatively associated with $Campbell_t$. Therefore, findings reported in Table 3 about unconditional bankruptcy risk, combined with results in Table 2 about conditional bankruptcy risk, provide further support to H1. In all models, the results for control variables are generally consistent with our expectations, and with the results in Table 2 for conditional bankruptcy risk. For example, $Leverage_t$ and STD_Ret_t are positively associated, whereas $Ln(MV)_t$, ROA_t, $Rate_t$ and $Inten\_RD_t$ are negatively associated with $Campbell_t$.[18]

---

[17] Untabulated correlation analysis indicates that some control variables (e.g., *Ln(MV), ROA*, *Leverage*, *STD_Ret,* and *Inten_RD*) are highly correlated with bankruptcy and conservatism measures, with the magnitude of their correlations varying between 0 and 0.60. This begs the question of whether our estimation results are influenced by multicollinearity issues. We therefore perform a series of multicollinearity checks on them and find that their conditional indexes are between 2.91 to 2.96 and all are lower than 10.00, the threshold value of the conditional index indicating that multicollinearity problems affect the regression estimates (Belsley et al. 1980). We also find that their inflation factors (VIFs) range from 1.00 to 1.80, where VIF values larger than 10.00 are indicators for multicollinearity issues. Thus, these results collectively suggest that multicollinearity does not qualitatively bias our results.

[18] Again, we perform a series of multicollinearity checks for our control variables (e.g., *Ln(MV), ROA*, *Leverage*, *STD_Ret,* and *Inten_RD*) and find that their conditional indexes are between 1.00 to 2.98 and are lower than 10.00, and that the VIFs range from 1.00 to 2.47. These results collectively suggest that multicollinearity does not qualitatively bias our results.

Channels for Associations between Accounting Conservatism and Bankruptcy Risk

To test hypotheses that unconditional and conditional conservatism influence bankruptcy risk by enhancing corporate cash holdings (H2a) or by constraining earnings management (H2b), we estimate the models below:

$$Channel_t = \alpha_{10} + \gamma_{11} UC\_PCA_{t-1} + \delta_{11} CC\_PCA_{t-1} + \beta_{11} BR_{t-1} + \theta_{11} Channel_{t-1} + Controls1 + \varepsilon_{11} \quad (3)$$

$$BR_t = \alpha_{20} + \theta_{21} Channel_t + \gamma_{21} UC\_PCA_{t-1} + \delta_{21} CC\_PCA_{t-1} + \beta_{21} BR_{t-1} + \beta_{22} BR_{t-2} + Controls2 + £_{21} \quad (4)$$

where *BR* refers to *EDF* or *Campbell*, and *Channel* refers to *Cash* or *Emgmt.* The measure of cash enhancement *Cash* is the ratio of changes in cash holdings and short-term investments to total assets. The earnings management measure $Emgmt_t$ is the factor score generated in terms of the first factor from a PCA of four earnings management metrics: Accrual management, cash flow management, discretionary expense management, and product cost management. *Controls1* differs from *Controls* in Eq. (2) in terms of *Cash* or *Emgmt*, whereas *Controls2* is the same as *Controls* in Eq. (2).[19] This model follows the intuition of Baron and Kenney (1986) for testing the mediating effect of a channel. H2a predicts $\gamma_{11} > 0$ and $\delta_{11} > 0$ in Eq. (3) and $\theta_{21} < 0$ in Eq. (4). H2b predicts $\gamma_{11} < 0$ and $\delta_{11} < 0$ in Eq. (3) and $\theta_{21} > 0$ in Eq. (4). We use seemingly unrelated regression (SUR) approach to estimate Eqs. (3) and (4) to account for potential cross-equational covariance of the error terms.

Table 4 reports results for testing whether cash enhancing and earnings management

[19] As shown in Table 4, when *Channel* is the cash-enhancing measure *Cash*, *Controls1* includes identified determinants of cash holdings in the literature such as the firm size $Ln(MV)_t$, the leverage ratio $Leverage_t$, return on total assets ROA_t, return volatility STD_Ret_t, risk-free rate $Rate_t$, R&D investment intensity $Inten\_RD_t$, capital investment intensity $Invest\_capx_t$, debt financing $Dissue_t$, cash dividends DIV_t, loss dummy $LOSS_t$, and industry and year dummies *Ind_Dum* and *Year_Dum*, respectively. When *Channel* is the earnings management measure *Emgmt*, *Controls1* includes determinants of earnings management documented in previous studies (Barth et al. 2008; Cohen et al. 2008), such as the $Leverage_t$, ROA_t, $Ln(MV)_t$, sales growth $Growth_t$, small loss indicator $SPOS_t$, sales turnover $Turn_t$, debt financing $Dissue_t$, equity financing $Eissue_t$, and industry and year dummies *Ind_Dum* and *Year_Dum*, respectively.

constraining work as channels for the relations between conservatism and conditional bankruptcy risk. Model 1 indicates that both lagged unconditional and conditional conservatism measures UC_PCA_{t-1} and CC_PCA_{t-1} are significantly and positively associated with the subsequent cash enhancing measure $Cash_t$, with coefficients (*t*-statistics) of 0.0083 (3.54) and 0.0006 (2.61), respectively. These results are economically significant as well in that a one standard deviation increase in UC_PCA_{t-1} (CC_PCA_{t-1}), which is 0.2120 (1.6979), increases the future $Cash_t$ by 17.60 (10.19) basis points. In Model 2, the cash enhancing measure $Cash_t$ is significantly negatively associated with the subsequent conditional bankruptcy risk measure EDF_t, with a coefficient (*t*-statistic) of -0.0906 (-6.29). The economic meaning is that a one standard deviation increase in $Cash_t$, which is 0.0659, results in a 59.71 basis point decrease in EDF_t. Combined, the results reported in Models 1 and 2 are consistent with H2a and indicate that both unconditional and conditional conservatism reduce conditional bankruptcy risk by enhancing cash holdings. Model 2 further reports that after controlling for $Cash_t$, the coefficients on lagged unconditional and conditional conservatism remain significantly negative, suggesting that cash enhancement is not the only channel for conservatism to decrease bankruptcy risk. Results for control variables are consistent with expectations.[20]

Models 3 and 4 in Table 4 report the results for testing H2b regarding the influence of unconditional and conditional conservatism on subsequent conditional bankruptcy risk via constraining opportunistic earnings management. In Model 3, UC_PCA_{t-1} and CC_PCA_{t-1} are significantly negatively associated with the subsequent earnings management $Emgmt_t$, with coefficients (*t*-statistics) of -0.0610 (-10.26) and -0.0017 (-2.57), respectively. These results are

[20] In addition, the conditional bankruptcy risk measure EDF_{t-1} is significantly positively associated with $Cash_t$ in Model 1, with a coefficient (*t*-statistic) of 0.0015 (1.73), indicating that with increased distress risk, firms tend to hold more cash to alleviate the negative effects of cash shortage on firm operations and investments. We also alternatively measure cash enhancement as the ratio of changes in cash and short-term investments to cash and short-term investments at the fiscal year-start, with results qualitatively unchanged.

economically significant as well in that a one standard deviation increase in UC_PCA_{t-1} (CC_PCA_{t-1}) could constrain $Emgmt_t$ by 13.57 (28.86) basis points. In Model 4, $Emgmt_t$ is significantly positively associated with EDF_t, with a coefficient (*t*-statistic) of 0.0512 (13.78), implying that a one standard deviation increase in $Emgmt_t$, which is 0.2575, produces a 131.84 basis point increase in EDF_t. These results lend strong support to H2b, suggesting that unconditional and conditional conservatism reduce conditional bankruptcy risk by constraining opportunistic earnings management. Reconfirming previous results, Model 4 shows that both types of conservatism mitigate conditional bankruptcy risk after controlling for the earnings management effects on *EDF*, suggesting that the earnings management is not the only channel for their relation.[21]

Overall, results in Table 4 provide strong support to H2a and H2b for bankruptcy risk conditional on financial distress. However, a large portion of our sample includes healthy firms whose bankruptcy is not necessarily associated with distress. Therefore, we now perform channel analysis to test H2a and H2b for bankruptcy risk unconditional on distress. Table 5 reports the results and Model 1 indicates that both unconditional and conditional conservatism measures UC_PCA_{t-1} and CC_PCA_{t-1} are significantly and positively associated with the subsequent cash enhancing measure $Cash_t$. This result is economically significant as well: A one standard deviation increase in UC_PCA_{t-1} (CC_PCA_{t-1}), which is 0.2120 (1.6979), increases the future $Cash_t$ by 18.44 (8.19) basis points. In Model 2, the cash-enhancing measure $Cash_t$ is significantly

[21] As a side note, Model 3 shows that EDF_{t-1} is significantly negatively associated with subsequent $Emgmt_t$, suggesting that, with increased bankruptcy risk, the disincentives of debtholders and other stakeholders for earnings management increasingly dominate managerial incentives for earnings management. Table 4 also reveals that leverage increases $Emgmt_t$ but ROA_t decreases $Emgmt_t$, consistent with prior evidence that distress increases earnings management and fraudulent reporting (Rosner 2003). $SPOS_t$, $Eissue_t$, and $Dissue_t$ are significantly and positively associated with $Emgmt_t$, consistent with the notion that loss avoidance, debt issue, and equity issue create incentives for earnings management. We also use an alternative measure for earnings management, calculated as the average of the four earnings management metrics of $Emgmt_t$, with results qualitatively unchanged.

negatively associated with the unconditional bankruptcy risk measure $Campbell_t$. The economic meaning is that a one standard deviation increase in $Cash_t$, which is 0.0659, results in a 39.93 basis point decrease in $Campbell_t$. Combined, the above results indicate that both unconditional and conditional conservatism reduce unconditional bankruptcy risk by enhancing cash holdings, thus strongly corroborating H2a. Model 2 further reports that coefficients on UC_PCA_{t-1} and CC_PCA_{t-1} per se remain significantly negative, suggesting that conservatism decreases bankruptcy risk also through other channels. Results for control variables are consistent with expectations.[22]

Models 3 and 4 of Table 5 report the results for testing H2b that earnings management operates as a channel for conservatism to reduce unconditional bankruptcy risk. As shown in Model 3, UC_PCA_{t-1} and CC_PCA_{t-1} are negatively associated with earnings management $Emgmt_t$, and the relation is both statistically and economically significant. In Model 4, $Emgmt_t$ is positively associated with $Campbell_t$, and the relation is both statistically and economically significant in that a one standard deviation increase in $Emgmt_t$, which is 0.2575, produces a 100.94 basis point increase in $Campbell_t$. These results lend strong support to H2b, suggesting that unconditional and conditional conservatism mitigate unconditional bankruptcy risk by constraining earnings management. Model 4 also shows that both types of conservatism still mitigate subsequent unconditional bankruptcy risk after controlling for earnings management, implying that conservative accounting also influences bankruptcy risk via other channels.[23]

---

[22] The unconditional bankruptcy risk measure $Campbell_{t-1}$ is significantly positively associated with $Cash_t$ in Model 1, indicating that with an increase in bankruptcy risk, firms hold more cash to alleviate the negative effect of cash shortage on firm operations and investments. When we use the ratio of changes in cash and short-term investments to cash and short-term investments at the fiscal year-start to measure cash enhancement, the results are qualitatively unchanged.

[23] Model 3 shows that $Campbell_{t-1}$ is significantly negatively associated with subsequent earnings management $Emgmt_t$, suggesting that, with increased bankruptcy risk, the disincentives of debtholders and other stakeholders for earnings management increasingly dominate managerial incentives for earnings management. Table 5 also reveals that leverage increases $Emgmt_t$ but ROA_t decreases $Emgmt_t$, consistent with prior evidence that distress increases earnings management and fraudulent reporting (Rosner 2003). $SPOS_t$, $Eissue_t$, and $Dissue_t$ are significantly and positively associated with $Emgmt_t$, consistent with the notion that

Income Smoothing and Relations between Conservatism and Bankruptcy Risk

Income smoothing can be considered a type of "conservatism gaming," whereby managers apply higher conservatism during good times to accumulate reserves and cushions for future downturns, and release these reserves and cushions during bad times. Previous studies suggest a negative relation between income smoothing and bankruptcy risk. Smith and Stulz (1985) argue that smoothing hedges against bankruptcy risk; Trueman and Titman (1988) concur that smoothing lowers claimholders' perceptions of bankruptcy risk by lowering earnings volatility. Thus, if income smoothing increases "conservatism gaming," it may account for the observed negative relations between conservatism and bankruptcy risk. We employ the SUR equations below to address this confounding effect:

$$Esmooth_t = \alpha_{10} + \gamma_{11}UC\_PCA_{t-1} + \delta_{11}CC\_PCA_{t-1} + \beta_{11}BR_{t-1} + \theta_{11}Esmooth_{t-1} + Controls5 + \varepsilon_{21} \quad (5)$$

$$BR_t = \alpha_{20} + \gamma_{21}UC\_PCA_{t-1} + \delta_{21}CC\_PCA_{t-1} + \theta_{21}Esmooth_{t-1} + \beta_{21}BR_{t-1} + \beta_{22}BR_{t-2} + Controls6 + \varepsilon_{21} \quad (6)$$

where *BR* refers to *EDF*. *Esmooth* refers to either inert smoothing *Esmooth_Inn*, which is mainly driven by the natural role of accruals in removing inherent cash flow shocks, or discretionary smoothing *Esmooth_Dis*, which is mainly attributable to managerial discretion (LaFond et al. 2007). *Esmooth_Inn* is calculated as the decile ranking of negative one times the Spearman correlation between accruals and cash flow, and *Esmooth_Dis* is negative one times the ratio of the standard deviation of accruals to that of cash flow. *Controls5* in Eq. (5) includes previously identified determinants of income smoothing and *Controls6* in Eq. (6) is the same as in Eq. (2).[24]

Table 6 reports results and reveals that the effect of accounting conservatism on mitigating

---

loss avoidance, debt issue, and equity issue create incentives for earnings management. We also use an alternative measure for earnings management calculated as the average of the four component earnings management metrics of $Emgmt_t$, with results qualitatively unchanged.

[24] *Controls5* includes the firm size $Ln(MV)_t$, return over assets ROA_t, ROA volatility $Volatility\_ROA_t$, the leverage ratio $Leverage_t$, and industry and year dummies *Ind_Dum* and *Year_Dum*, respectively.

bankruptcy risk is incremental to the effect of income smoothing. As shown in Models 1 to 4 of Panel A, unconditional and conditional conservatism measures, *UC_PCA* and *CC_PCA*, respectively, have significant and negative association with the subsequent conditional bankruptcy risk, even after controlling for the effects of inert smoothing and discretionary smoothing. As shown in Model 1 to 4 in Panel B, unconditional and conditional conservatism remain significantly and negatively associated with subsequent unconditional bankruptcy risk *Campbell*, even after controlling for the effects of inert smoothing and discretionary smoothing. The findings strongly support the argument that the negative relation between conservatism and bankruptcy risk is incremental over and beyond the effects of income smoothing and its relation with conservatism. In addition, the results in Models 1 and 3 in both panels indicate that accounting conservatism reduces rather than increases subsequent inert smoothing and discretionary smoothing, respectively, suggesting that conservatism substitutes for income smoothing in mitigating bankruptcy risk. Consistent with Smith and Stulz (1985) and Trueman and Titman (1988), Models 2 and 4 in both panels further show that income smoothing per se decreases subsequent bankruptcy risk.

V. FURTHER ANALYSES AND ROBUSTNESS CHECKS

Endogeneity Issues

Up to now we show that unconditional and conditional conservatism are negatively associated with subsequent bankruptcy risk, and that this association operates via enhancing corporate cash holding position and constraining earnings management, among others. However, the observed relations may be influenced by the reverse causality from bankruptcy risk to conservatism and the dynamic relations between unconditional and conditional conservatism. This concern confines the possibility to draw a causal inference that conservatism affects bankruptcy risk. To address this issue, we conduct two additional analyses: (1) Using a two-stage approach to isolate the portion of conservatism robust to the reverse causality from bankruptcy risk to conservatism, and to the dynamics of the two types of conservatism; and (2) using *SOX* enforcement as a quasi-natural experiment that signifies exogenous shocks to accounting conservatism at the firm level.

Endogeniety Analysis Using a Two-Stage Approach

We employ a two-stage approach similar to that used in Nikolaev (2010) to explore whether the relation between conservatism and bankruptcy risk is robust to the reverse causality from bankruptcy risk to conservatism, and to the dynamics between unconditional and conditional conservatism. Accounting conservatism may rise with bankruptcy risk because conservatism is natural response to risk and uncertainty embedded in firms' business environments. If this effect dominates, we cannot conclude that accounting conservatism affects bankruptcy risk from their observed negative relation. In addition, unconditional and conditional conservatism tend to be negatively correlated in the short run but positively correlated in the long run (Roychowdhury and Watts 2007; Ball et al. 2013). Unconditional conservatism precedes and preempts conditional conservatism and immunizes firms from bad news shocks (Beaver and Ryan 2005; Qiang 2007).

To address these endogeneity problems, we conduct two-stage regressions, following the intuition of Nikolaev (2010) and Beatty et al. (2008; 2012). In the first stage, we regress unconditional and conditional conservatism respectively on the lagged values of bankruptcy risk and both types of conservatism. Note that these independent variables do not exhaust the full list of determinants of conservatism and only aim to capture the reverse causality from bankruptcy risk on conservatism and endogeneity of the two types of conservatism. Therefore, the residuals from the first-stage regressions are still correlated with conservatism, and represent the portions of conservatism unexplained and unaffected by the reverse causality and the dynamics between unconditional and conditional conservatism. This type of residuals can be denoted as "instrumental variables" (Nikolaev 2010). Then we use these residuals to represent conditional and unconditional conservative reporting respectively to replicate baseline analyses using Eq. (2).

Models 1 and 2 of Table 7 report the estimation results for the second-stage regressions of the two-stage approach, and show that *UC_PCAR* and *CC_PCAR*, the residual portion of unconditional and conditional conservatism free of reverse causality and other endogeneity issues, respectively, remain significantly and negatively associated with subsequent bankruptcy risk. The results support the view that our main findings are unlikely to be driven by potential reverse causality and other endogeneity issues, thus enhancing a causal inference.

SOX Enforcement as Exogenous Shocks to Accounting Conservatism

The passage of SOX in 2002 offers a natural regulatory setting for investigating the direction for the relation between accounting conservatism and bankruptcy risk. SOX regulations are promulgated to increase financial reporting quality, and thus bring exogenous shocks to accounting conservatism independent of the reverse causal effect of bankruptcy risk on conservatism. Lobo and Zhou (2006) and Iliev (2010) report that SOX increased accounting conservatism in average firms and in small firms, respectively. Our untabulated analyses similarly show that unconditional conservatism *UC_PCA* increases from 0.3443 in the pre-SOX period to 0.3805 in the post-SOX period, with a *t*-statistic of 8.77. Conditional conservatism *CC_PCA* increases from 0.8055 in the pre-SOX period to 0.8582 in the post-SOX period, with a *t*-statistic of 1.60. Because SOX enactment brings positive exogenous shocks to accounting conservatism, the negative relation between unconditional and conditional conservatism and bankruptcy risk should strengthen in the post-SOX period, ceteris parabus.

In addition, the potential effect of SOX enactment on decreasing bankruptcy risk further adds to the proposed negative relation between conservatism and bankruptcy risk in the post-SOX period. SOX enactment enhances corporate cash holdings by increasing managers' liability and constraining corporate risk takings (Bargeron, Lehn, and Zutter 2010), and decreases information asymmetry by improving corporate transparency, both of which reduce bankruptcy risk. By decreasing bankruptcy risk and increases conservatism at the same time, SOX enactment further enhances the mitigating effect of conservatism on bankruptcy risk.[25] We use the following equation to test our expectation:

$$BR_t = \alpha_0 + \gamma_0 CON_{t-1}*SOX + \gamma_1 CON_{t-1} + \gamma_2 SOX + \gamma_3 BOOM + \beta_1 BR_{t-1} + \beta_2 BR_{t-2} + Controls_t + \varepsilon_t \quad (7)$$

where *BR* refers to *EDF*, or *Campbell*. *CON* refers to *UC_PCAR*, *CC_PCAR*. *SOX* is an indicator for fiscal year after 2002 and proxies for SOX enactment. *BOOM* is an indicator for credit boom periods 1994-1998 and 2004-2007 (Becker and Ivashina 2014), and it controls for the potential confounding effect of credit boom on accounting conservatism and on SOX enactment. *Controls* is the same as in Eq. (2) described under Table 2. Our expectation translates into $\gamma_0<0$.

Models 3 and 4 of Table 7 report estimation results and show that the interactions of SOX enactment and the two types of conservatism are consistently negatively associated with bankruptcy risk, respectively, with their coefficients significantly negative in all cases except for one. Unconditional and conditional conservatism remain significantly negatively linked to subsequent bankruptcy risk measures. The coefficients on SOX dummy per se are significantly negative, consistent with prediction that SOX regulation decreases bankruptcy risk. Over all,

[25] Indeed, SOX enactment also adds real cost to firms and decreases firm values of small firms (Iliev 2010). However, we expect that this effect is secondary and do not hold for an average firm, and hence the mitigating effect of SOX on bankruptcy risk dominates.

analyses using the two-stage approach and using SOX enactment setting suggest that the observed negative relation between conservatism and bankruptcy risk is mainly attributable to the effect of accounting conservatism on decreasing bankruptcy risk.

The Cases of Extreme Distress and CDS Contracting

We now investigate whether the relation between accounting conservatism and bankruptcy risk still holds in the cases of extreme distress and CDS contract initiation. In distressed firms with high leverage, control rights progressively transfer to debtholders who demand higher conservatism to constrain managerial risk-taking incentives (Brockman et al. 2012). This strengthens the mitigating effect of conservatism on bankruptcy risk. However, in extremely distressed firms, managerial incentives and governance mechanisms may differ remarkably, and the relations between accounting conservatism and bankruptcy risk may also change. Specifically, in deeply distressed firms, shareholders' implicit call options on assets are at or close to the money, and equity values increase with asset volatility. When shareholders' risk-shifting incentives increasingly dominate such that firms prefer risk taking, firms may have less incentive to use conservatism to mitigate bankruptcy risk. In addition, the going-concern assumption of accrual accounting is less likely to apply in extremely distressed firms, making accrual accounting and unconditional conservatism less relevant. Meanwhile, firms' control rights also possibly transfer to creditors who tend to demand higher conservatism to prevent risk shifting to them and wealth transferring to shareholders. Constructing a subsample of the most distressed firms defined as those with the top decile of the leverage ratio, we re-examine the relations between conservatism and bankruptcy risk.

CDS is an insurance-type contracts that offer buyers protection against possible default of a reference entity and could fundamentally change debt contracting relations between lenders (i.e., protection buyers) and borrowers (i.e., CDS referenced firms). The reason is that when CDS contracts can protect lenders from credit risk, they tend to become tougher during debt renegotiations, thus increasing bankruptcy risk (Peristiani and Savino 2014; Subrahmanyam et al. 2014). For the same reason, lenders have fewer incentives to engage in costly monitoring and demand less conservative accounting; as responses, borrowing firms apply low accounting conservatism (Martin and Roychowdhury 2015). By increasing bankruptcy risk and decreasing accounting conservatism simultaneously, CDS contact initiation may weaken or eliminate the negative relation between conservatism and bankruptcy risk. To explore this possibility, we select a subsample of CDS referenced firms after the CDS initiation stage, which covers 1,755 observations for 453 CDS referenced firms from 2002 to 2007, to re-examine Eq. (2).

Models 5 and 6 of Table 7 reports results for a subsample of firms with extreme distress proxied by the top-decile leverage ratios and demonstrate that results remain qualitatively unchanged from those reported in Tables 2 and 3. Specifically, both unconditional and conditional conservatism are significantly negatively associated with conditional and unconditional bankruptcy risk, respectively. These findings indicate that our baseline results still holds in the extreme distress scenario, wherein the debt contracting relations do not change qualitatively.[26] In contrast, Models 7 and 8 indicate that after CDS initiations, the observed negative relations between conservative accounting and bankruptcy risk weaken or disappear. This result is consistent with expectations and possibly results from the fact that CDS contacts qualitatively changes the debt contracting relations in CDS referenced firms.

Alternative Measures for Bankruptcy Risk and Accounting Conservatism

To assess the robustness of bankruptcy risk measure, we reexamine relations between

[26] We also use the lowest decile of ROA to proxy for extreme distress and find that the results are qualitatively unchanged.

conservatism and bankruptcy risk using an alternative measure for unconditional bankruptcy risk, *Zscore*. In addition, we also follow Campbell et al. (2008) and use a logit model below to examine relations between conservatism and bankruptcy risk for a subsample of firms with real bankruptcy as indicated by *BANK*:

$$BANK_t = \alpha + \gamma CON_{t-1} + Controls7_t + \mu_t \qquad (8)$$

where *BANK* equals one if a firm actually filed for bankruptcy under Chapters 7 or 11 of the Bankruptcy Code during the sample period, and zero otherwise, and *CON* refers to the unconditional or conditional conservatism measures *UC_PCA* or *CC_PCA*, respectively.[27]

Models 1 and 2 in Table 8 indicate that unconditional and conditional conservatism are significantly and negatively associated with subsequent *Zscore*, reconfirming the results in Table 3. Model 2 reports the logit model results for real bankruptcy *BANK* and shows that only unconditional conservatism is significantly and negatively associated with *BANK*, while conditional conservatism is insignificantly related with *BANK*. Possible explanations are as follows. First, the cushioning role of conservative accounting plays a more important role for firms close to bankruptcy. Second, bad news is already disclosed for firms close to bankruptcy, and further disclosure is unhelpful for reducing information asymmetries between mangers and debtholders and could cause shocks and frictions among debt claimants and induce new information asymmetries, counterbalancing the mitigating influence of conditional conservatism on bankruptcy risk.

To address the possibility that our results may be driven by a single component measure of

[27] *Controls7* includes the following determinants mainly used in Campbell et al. (2008): the market-based profitability (*NIMTAVG*); the predictability of the excess return relative to the S&P 500 index (*EXRETAVG*); the R&D investment intensity (*Inten_RD*); the firm size relative to that of the S&P 500 index (*Rsize*); the stock price (*PRICE*) and the risk-free rate (*Rate*), which are expected to reduce the probability of *BANK*; the leverage ratio (*Leverage*); the liquidity ratio (*Cash*); changes in the liquidity ratio (Δ*Cash*); and the return volatility (*STD_Ret*) and the market-to-book equity ratio (*MB*), which are expected to increase the probability of *BANK*.

unconditional or conditional conservative accounting, we next examine three component measures of *UC_PCA*, namely, *UC_ACC*, *UC_BM*, and *UC_RES*, and three component measures of *CC_PCA*, namely, *CC_ACM*, *CC_AR*, and *CC_CR*. Models 3 to 14 in Table 9 indicate that all these measures are significantly negatively associated with subsequent conditional bankruptcy risk except for *CC_ACM*, which has an insignificant coefficient.

Alternative Estimation Models

Finally, unconditional and conditional conservatism measures are sticky. The bankruptcy risk measure *EDF* is also sticky and follows a long-run autoregressive process (Duffie et al. 2007). The stickiness of these measures suggests that our OLS estimation results may be sensitive to the lag structure of testing variables. To address this possibility, we re-examine H1 using an OLS model that additionally controls for two additional lagged periods of unconditional and conditional conservative accounting and bankruptcy risk, respectively. Untabulated results show that this treatment does not change our results qualitatively.[28]

VI. CONCLUSION

This study examines relations between accounting conservatism and bankruptcy risk with two primary findings: (i) Unconditional and conditional conservatism are negatively associated with subsequent bankruptcy risk, and (ii) unconditional and conditional conservatism reduce subsequent bankruptcy risk by enhancing cash holdings and constraining earnings management, consistent with their cushioning role and informational role. Additional analyses reveal that these relations are robust to controlling for reverse causality from bankruptcy to conservatism, and

[28] We also perform the following series of additional robustness checks: Use the original C score of Khan and Watts (2009) and *CC_CR* calculated using the direct method following Callen et al. (2010); use the negative skewness measure of Zhang (2008) to replace *CC_AR* to calculate our main conditional conservatism measure; use Qiang's (2007) accrual-based measure to replace *UC_ACC* and the first difference of *UC_RES* to replace its original value, with the aim to address the possibility that *UC_ACC* and *UC_RES* insufficiently reflect discretionary unconditional conservatism; and use the industry-specific component of the book-to-market ratio to proxy for unconditional conservatism, following Qiang (2007), to address the concern that *UC_BM* captures both types of conservatism. These treatments do not qualitatively change our findings.

endogeneity between the two types of conservatism, SOX enactment, income smoothing, extreme distress and alternative measures for main testing variables. However, relations between conservatism and bankruptcy risk weaken or disappear in reference firms after CDS contract initiations.

Our results provide several implications. They provide original evidence that conservative accounting, on average, mitigates bankruptcy risk in both healthy and distressed firms. We also document channels by which accounting conservatism influences bankruptcy risk. These results are of natural interest to firm stakeholders and economic policymakers by providing accounting-based tools to mitigate firm failures and related contagions. Our findings also help explain the long-standing use and pervasiveness of conservative accounting. Finally, our results are of relevance to accounting standard setters and capital market regulators.

References

Ahmed, A. S., B. K. Billings, R. M. Morton, and M. Stanford-Harris. 2002. The role of accounting conservatism in mitigating bondholder–shareholder conflicts over dividend policy and in reducing debt costs. *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.

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

Anderson, R., and A. Carverhill. 2012. Corporate liquidity and capital structure. *Review of Financial Studies* 25 (3): 797–837.

Ball, R., S. P. Kothari, and V. Nikolaev. 2013. Econometrics of the Basu asymmetric timeliness coefficient and the accounting conservatism. *Journal of Accounting Research* 51 (5): 1071–1097.

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.

Bargeron, L., K. Lehn, and C. J., Zutter. 2010. *Journal of Accounting and Economics* 49 (1-2): 34–52.

Baron, R. M., and D. A. Kenny. 1986. The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51 (6): 1173–1182.

Barth, M. E., W. R. Landsman, and M. H. Lang. 2008. International accounting standards and accounting quality. *Journal of Accounting Research* 46 (3): 467–498.

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

Bates, T. W., M. K. Kathleen, and R. Stulz. 2009. Why do U.S. firms hold so much more cash than they used to? *Journal of Finance* 64 (5): 1985–2021.

Beatty, A., R. Petacchi, and H. Zhang. 2012. Hedge commitments and agency costs of debt: evidence from interest rate protection covenants and accounting conservatism. *Review of Accounting Studies* 17 (3): 700–738.

Beatty, A., J. Weber, and J. Yu. Conservatism and debt. *Journal of Accounting and Economics* 45 (2008): 154 – 74.Beaver, W. H., and S. G. Ryan. 2005. Unconditional and conditional conservatism: Concepts and modeling. *Review of Accounting Studies* 10 (2–3): 269–309.

Becker B. and V. Ivashina. 2014. Cyclicality of credit supply: Firm level evidence. *Journal of Monetary Economics* 62 (March): 76 – 93.

Belsley, D. A., E. Kuh, and R. E. Welsch. 1980. *Regression Diagnostics: Identifying Influential Data and Sources of Collinearity*. New York: John Wiley and Sons.

Berkovitch, E., and R. Israel. 1998. The bankruptcy decision and debt contract renegotiations. *European Finance Review* 2 (1): 1–27.

Biddle, G. C. 1980. Accounting methods and management decisions: The case of inventory costing and inventory policy. *Journal of Accounting Research* 18 (Supplement): 235–280.

Black, F., and M. Scholes. 1973. The pricing of options and corporate liabilities. *Journal of Political Economy* 81 (3): 637–654.

Brockman, P., T. Ma, and X. Martin. 2012. CEO compensation structure and asymmetric timely loss recognition: An empirical analysis from debt contracting perspective. Working paper, Lehigh University.

Bublitz, B., and M. Ettredge. 1989. The information in discretionary outlays: Advertising, research and development. *The Accounting Review* 64 (1): 108–124.

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.

Campbell, J., J. Hilscher, and J. Szilagyi. 2008. In search of distress risk. *Journal of Finance* 53 (6): 2899–2939.

Carapeto, M. 2005. Bankruptcy bargaining with outside options and strategic delay. *Journal of Corporate Finance* 11 (4): 736–746.

Carrizosa, R., and S. G. Ryan. 2013. Conservatism, covenants, and recovery rates. Available at SSRN: http://ssrn.com/abstract=2197513.

Chatterjee, S., U. S. Dhillon, and G. G. Ramirez. 1995. Coercive tender and exchange offers in distressed high-yield debt restructurings: An empirical analysis. *Journal of Financial Economics* 38 (3): 333–360.

Chen, Q., T. Hemmer, and Y. Zhang. 2007. On the relation between conservatism in accounting standards and incentives for earnings management. *Journal of Accounting Research* 45 (3): 541–565.

Cohen, D. A., A. Dey, and T. Z. Lys. 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review* 83 (3): 757–787.

De Ste. Croix, G. E. M. 1956. Greek and Roman accounting, pp. 14–74. In: Littleton, A. C. and Yamey, B. S., ed., *Studies in the History of Accounting*, Richard D. Irwin, Homewood, IL.

Donovan, J., R. Frankel, and X. Martin. 2015. Accounting conservatism and ultimate recovery rate. *The Accounting Review*, forthcoming.

Duffie, D., and D. Lando, 2001. Term structures of credit spreads with incomplete accounting information. *Econometrica* 69 (3): 633–664.

Duffie, D., L. Saita, and K. Wang. 2007. Multi-period corporate default prediction with stochastic covariates. *Journal of Financial Economics* 83 (3): 635–665.

Eberhart, A., W. Maxwell, and A. Siddique. 2008. A reexamination of the tradeoff between the future benefit and riskiness of R&D increases. *Journal of Accounting Research* 46 (1): 27–52.

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

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

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

García Lara, J. M.,Garcia Osma, B., and Penalva, F. 2015. Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, forthcoming.

Giammarino, R. M. 1989. The resolution of financial distress. *Review of Financial Studies* 2 (1): 25–47.

Gigler, F., C. Kanodia, H. Sapra, and R. Venugopalan. 2009. Accounting conservatism and the efficiency of debt contracts. *Journal of Accounting Research* 47 (3): 767–797.

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.

Griffin, P. 2014. The market for credit default swaps: New insights into investors' use of accounting information? *Accounting and Finance* 54 (3): 847–883.

Harford, J., S. Klasa, and W. F. Maxwell. 2014. Refinancing risk and cash holdings. *The Journal of Finance* 69 (3): 975–1012**.**

Hertzel, M. G., M. S. Officer, Z. Li, and K. J. Rodgers. 2008. Inter-firm linkages and the wealth effects of financial distress along the supply chain. *Journal of Financial Economics* 87 (2): 374–387.

Hotchkiss, E. S., K. John, R. M. Mooradian, and K. S. Thorburn. 2008. Bankruptcy and the resolution of financial distress. In Eckbo, B., ed., *Handbook of Empirical Corporate Finance, Volume 2*. Elsevier/North-Holland: Amsterdam.

Hui, K. W., S. Klasa, and E. Yeung. 2012. Corporate suppliers and customers and accounting conservatism. *Journal of Accounting and Economics* 53 (1–2): 115–135.

Iliev, P. 2010. The Effect of SOX Section 404: Costs, Earnings Quality, and Stock Prices. *Journal of Finance* 65 (3): 1163–1196.Jensen, M. C. 1986. Agency cost of free cash flow, corporate finance and takeovers. *American Economic Review* 76 (2): 323–329.

Jha, A. 2013. Earnings management around debt-covenant violations: An empirical investigation using a large sample of quarterly data. *Journal of Accounting, Auditing and Finance* 28 (4): 369–396.

Jorion, P., and G. Zhang. 2009. Credit contagion from counterparty risk. *Journal of Finance* 64 (2): 2053–2087.

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

Kim, J., K. Ramaswamy, and S. Sundaresan. 1993. Does default risk in coupons affect the valuation of corporate bonds: A contingent claims model. *Financial Management* 22 (3): 117–131.

Kothari, S. P., S. Shu, and P. Wysocki. 2009. Do managers withhold bad news? *Journal of Accounting Research* 47 (1): 241–276.

LaFond, R., Lang, M. H., and H. A. Skaife. 2007. Earnings smoothing, governance and liquidity: international evidence. Available at SSRN: http://ssrn.com/abstract=975232.

Lang, L., and R. Stulz. 1992. Contagion and competitive intra-industry effects of bankruptcy announcements. *Journal of Financial Economics* 32 (1): 45–60.

Lev, B., and T. Sougiannis. 1996. The capitalization, amortization, and value-relevance of R&D. *Journal of Accounting and Economics* 21 (1): 107–138.

Lins, K., H. Servaes, and P. Tufano. 2010. What drives corporate liquidity? An international survey of cash holdings and lines of credit. *Journal of Financial Economics* 98 (1): 160–176.

Lobo, G. J. and Zhou, J., 2006. Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial Evidence. *Accounting Horizons* 20 (1): 57–73.

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

Mao, L. 2012. Cash holdings, debt repurchase and efficient bankruptcy timing. Working paper, Hong Kong University of Science and Technology.

Mao, L., and Y. Tserlukevich. 2012. Repurchasing debt. Working paper, Hong Kong University of Science and Technology.

Martin, X., and S. Roychowdhury. 2015. Do financial market developments influence accounting practices? credit default swaps and borrowers' reporting conservatism. *Journal of Accounting and Economics* 59 (1): 80–104.

Merton, R. C. 1974. On the pricing of corporate debt: The risk structure of interest rates. *Journal of Finance* 29 (2): 449–470.

Mooradian, R. M. 1994. The effect of bankruptcy protection on investment: Chapter 11 as a screening device. *Journal of Finance* 49 (4): 1403–1430.

Moulton, W. N., and H. Thomas. 1993. Bankruptcy as a deliberate strategy: Theoretical consideration and empirical evidence. Strategic Management Journal 14 (2):125–135.

Nikolaev, V. 2010. Debt covenants and accounting conservatism. *Journal of Accounting Research* 48 (1): 137–175.

Nikolaev, V. 2013. Scope for renegotiation in private debt contracts. Available at SSRN: http://ssrn.com/abstract=2012526.

Ohlson, J. A. 1980. Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research* 18 (1): 109–131.

Parker S., G. Peters, and H. Turetsky. 2002. Corporate governance and corporate failure: A survival analysis. *Corporate Governance* 2 (2): 4–12.

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

Peristiani, S., and V. Savino. 2014. Are credit default swaps associated with higher corporate defaults? *FRB of New York Staff Report No. 494.*

Perotti, E. C., and K. E. Spier. 1993. Capital structure as a bargaining tool: The role of leverage in contract renegotiation. *American Economic Review* 83 (5): 1131–1141.

Qiang, X. 2007. The effects of contracting, litigation, regulation, and tax costs on unconditional and conditional conservatism: Cross-sectional evidence at the firm level. *The Accounting Review* 82 (3): 759–796.

Rosner, R. 2003. Earnings manipulation in failing firms. *Contemporary Accounting Research* 20 (2): 361–408.

Roychowdhury, S., and R. Watts. 2007. Asymmetric timeliness of earnings, market-to-book and conservatism in financial reporting. *Journal of Accounting and Economics* 44 (1–2): 2–31.

Ryan, S. G. 2006. Identifying conditional conservatism. *European Accounting Review* 15 (4): 511–525.

Samuelson, W. 1984. Bargaining under asymmetric information. *Econometrica* 52 (4): 995–1005.

Shumway, T. 2001. Forecasting bankruptcy more accurately: A simple hazard model. *Journal of Business* 74 (1): 101–124.

Smith, C. W., and R. Stulz. 1985. The determinants of firms' hedging policies. *Journal of Financial and Quantitative Analysis* 20 (4): 391–405.

Subrahmanyam, M. G., D. Y. Tang, and S. Q. Wang. 2014. Does the tail wag the dog? The effect of credit default swaps on credit risk. *Review of Financial Studies* 27 (10): 2927–2960.

Sufi, A. 2009. Bank lines of credit in corporate finance: An empirical analysis. *Review of Financial Studies* 22 (3): 1057–1088.

Tan, L. 2013. Creditor control rights, state of nature verification, and financial reporting conservatism. *Journal of Accounting and Economics* 55 (1): 1–22.

Trueman, B., and S. Titman. 1988. An explanation for accounting income smoothing. *Journal of Accounting Research* 26 (Supplement): 127–139.

Uhrig-Homburg, M. 2005. Cash-flow shortage as an endogenous bankruptcy reason. *Journal of Banking and Finance* 29 (6): 1509–1534.

Vassalou, M., and H. Xing. 2004. Default risk in equity returns. *Journal of Finance* 59 (2): 831–868.

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

Watts, R. 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.

Appendix A Variable Definitions

Bankruptcy Risk Measures

EDF: Proxy for conditional bankruptcy risk and it is the ranking of the expected default probability one year ahead, estimated following Merton's (1974) model.
Campbell: Proxy for unconditional bankruptcy risk and it is the ranking of the probability of business failure one month ahead, calculated based on the formula in the last column of Table III of Campbell et al. (2008).
Zscore: Proxy for unconditional bankruptcy risk and it is the ranking of negative one times Altman's (1968) *Z-score* estimated as 3.3**ROA* + 1.2*(net working capital/total assets) + 1.00*(sales/total assets) + 0.6*(market equity/book debt) + 1.4*(accumulated retained earnings/total assets).
BANK: Proxy for realized bankruptcy risk and it is a dummy variable equal to one if a firm files for bankruptcy under Chapter 11 or Chapter 7 of the U.S. Bankruptcy Code and zero otherwise.

Unconditional Conservatism Measures

UC_PCA: Proxy for unconditional conservatism and it is the factor score generated in terms of the first factor from a principal components analysis (PCA) of three component unconditional conservatism measures: *UC_ACC*, *UC_BM,* and *UC_RES*. Their eigenvalues are 0.9539, 1.1433, and 0.9028, respectively; their eigenvectors are 0.5380, 0.6342, and 0.6721, respectively; and their final communality estimates are 0.2894, 0.4022, and 0.4517, respectively. The first factor from the PCA explains a 1.0789 variance between the component measures.
UC_AVG: A secondary proxy for unconditional conservatism and it is the average of the three component unconditional conservatism measures: *UC_ACC*, *UC_BM,* and *UC_RES*.
UC_ACC: a component unconditional conservatism measure and it is equal to minus one times the ratio of total accruals to average total assets, calculated over a rolling window of the current year and prior two years.
UC_BM: A component unconditional conservatism measure and it is the ranking of minus one times the industry-adjusted ratio of book to market value of common shareholders' equity at the fiscal year-end.
UC_RES: a component unconditional conservatism measure and it is the ratio of LIFO reserves plus hidden R&D and advertising reserves to total assets.

Conditional Conservatism Measures

CC_PCA: Proxy for conditional conservatism and it is the factor score generated in terms of the first factor from a PCA of the three component conditional conservatism measures: *CC_ACM*, *CC_AR*, and *CC_CR*. Their eigenvalues are 1.0461, 1.0324, and 0.9214, respectively; their eigenvectors are 0.3176, 0.5468, and 0.8040, respectively; and their final communality estimates are 0.1008, 0.2990, and 0.6464, respectively. The first factor from the PCA explains a 1.0461 variance between the component measures.
CC_AVG: A secondary proxy for conditional conservatism and it is the average of the three component conditional conservatism measures: *CC_ACM*, *CC_AR*, and *CC_CR*.
CC_ACM: A component conditional conservatism measure and it is minus one times the ratio of accumulated non-operating accruals to accumulated total assets, calculated over a rolling window of the current year and the prior two years.
CC_AR: A component conditional conservatism measure and it is the ratio of the C score plus the G score to the G score, as defined by Khan and Watts (2009), calculated using the formula in Table 3 of Khan and Watts (2009).
CC_CR: A component conditional conservatism measure and it is the ratio of the unexpected current earnings (or current earnings shocks) to total earnings news, with the ratio multiplied by minus one if earnings news is positive.

Measures for Other Testing Variables and Conditioning Variables

Cash: The ratio of changes in cash holdings and short-term investments to total assets.
Emgmt: proxy for earnings management and it is measured as the factor score generated in terms of the first factor from a PCA of the four earnings management metrics: the ranking of the absolute value of the discretionary accrual *DA*, abnormal operating cash flow *R_OCF*, abnormal discretionary expenses *R_DISX*, and abnormal product cost *R_PROD*. Their eigenvalues are 1.2992, 1.1747, 0.8823, and 0.6438, respectively; their eigenvectors are 0.2138, -0.7195, 0.8136, and -0.2691, respectively; and their final communality estimates are 0.0473, 0.5177, 0.6619, and 0.0724, respectively.
Leverage: The ratio of the sum of long-term and short-term debts to total assets.
Esmooth_Inn: Proxy for inert income smoothing and it is measured as the decile ranking of negative one times the

Spearman correlation of the operating cash flow and accruals (both deflated by total assets), estimated over a rolling window of five fiscal years.
Esmooth_Dis: Proxy for discretionary income smoothing and it is measured as negative one times the ratio of the standard deviation of earnings to that of operating cash flows (both deflated by total assets), estimated over a rolling window of five fiscal years.
SOX: An indicator for fiscal year after 2002 and proxies for SOX enactment.

Control Variables

Ln(MV): The natural logarithm of the market capitalization at the fiscal year end.
ROA: The ratio of earnings over total assets.
STD_Ret: The annualized standard deviation of the daily stock return over the prior twelve months.
Rate: the risk-free rate measured by the annualized three-month T-bill rate retrieved from the Federal Reserve Bank Reports.
Inten_RD: The ratio of R&D expenses to total assets.
Volatility_ROA: The variance of *ROA* calculated over a rolling window of the current year and prior four years.
SPOS: An indicator for small positive earnings, equal to one if net income scaled by total assets is between 0 and 0.01 and zero otherwise, following Barth et al. (2008).
Turn: The sales divided by end-of-year total assets, following Barth et al. (2008).
Eissue: The ratio of the changes in common shares outstanding at the current and previous fiscal year-ends to those at the previous fiscal year-end.
Dissue: The ratio of annual change in total liabilities to beginning-of-year total liabilities, following Barth et al. (2008).
DIV: The ratio of cash dividends to total assets.
Invest_CAPX: the ratio of capital expenditures to total assets.
LOSS: A dummy variable equal to one if a firm has a negative income for the current fiscal year, and zero otherwise.
Growth: Proxy for growth rate and it is measured as the annual change in sales deflated by sales in the previous fiscal year.
BOOM: An indicator for credit boom periods 1994-1998 and 2004-2007.
Exretavg: Proxy for the return predictability of *EXRET* (past excess return relative to the value-weighted S&P 500 index return over a period of 12 months) and calculated as $Exretavg_{t-1,t-12} = \frac{1-\phi}{1-\phi^{12}}(EXRET_{t-1} + \ldots + \phi^{11} EXRET_{t-12})$,
where $EXRET_{it} = log(1+R_{it}) - log(1 + R_{S\&P500,t})$ and $\phi = ½$.
MB: The ratio of the market-to-book value of equity.
Nimtaavg: Proxy for earnings predictability. Assuming earnings degenerate at the monthly rate ϕ = ½, it is the present value of the three-year sum of *NIMTA*, the annual net income deflated by total liabilities and the market value of equity: $Nimtaavg_{t-1,t-4} = \frac{1-\phi^{12}}{1-\phi^{24}}(NIMTA_{t-1,t-2} + \phi^{12} NIMTA_{t-2,t-3} + \phi^{24} NIMTA_{t-3,t-4})$.
Price: The stock price at the fiscal year-end calculated as the natural logarithm of the price per share.
Rsize: Proxy for relative firm size and it is calculated as the natural logarithm of the market value of equity relative to that of the S&P 500 index.

Table 1 Descriptive Statistics

This table reports descriptive statistics for the full sample from fiscal years 1989 through 2007. Panel A presents summary statistics for all of the variables used in the empirical analyses, and Panel B presents pairwise correlations between the main testing variables, with the upper (lower) triangle displaying Pearson (Spearman) correlations, with highlighted figures indicating statistical significance at least at the 90% confidence level. Variable definitions are provided in Appendix A.

Panel A: Summary Statistics for All Variables Used in the Empirical Analyses

Variable	Mean	Q1	Median	Q3
EDF (Raw, %)	3.6502	0.0000	0.0000	0.0558
Campbell (Raw, %)	0.0127	0.0014	0.0028	0.0064
Zscore (Raw)	-3.5093	-4.3556	-2.8542	-1.7630
UC_PCA	0.3659	0.1897	0.3639	0.5319
UC_AVG	0.1908	0.0985	0.1897	0.2785
UC_ACC	-0.0012	-0.0218	0.0010	0.0209
UC_BM (Raw)	-1.9489	-2.2175	-1.3437	-0.8280
UC_RES	0.0729	0.0000	0.0190	0.0910
CC_PCA	0.9188	0.4394	0.9534	1.5941
CC_AVG	0.6114	0.3185	0.3185	0.9620
CC_ACM	0.0189	0.0004	0.0156	0.0355
CC_AR	2.1255	1.2598	1.9177	2.8431
CC_CR	-0.3102	-0.4259	-0.1237	0.1165
Cash	0.0061	-0.0103	0.0015	0.0217
Emgmt	-0.2631	-0.4550	-0.2735	-0.0771
Esmooth _Inn	0.6048	0.4000	0.7000	0.9000
Esmooth _Dis	-1.1206	-1.2771	-0.7562	-0.4494
ln(MV)	5.8566	4.3320	5.8492	7.3159
Leverage	0.2540	0.1290	0.2478	0.3622
ROA	0.0336	0.0141	0.0420	0.0728
STD_Ret	0.4833	0.2939	0.4226	0.6119
Rate	0.0418	0.0287	0.0460	0.0516
Inten_RD	0.1261	0.0054	0.0219	0.0612
Inten_CAPX	0.0704	0.0271	0.0491	0.0857
Volatility_ROA	0.0054	0.0002	0.0006	0.0023
Turn	1.1700	0.6405	1.0352	1.4803
Eissue	0.0530	0.0000	0.0000	0.0050
Dissue	0.2137	-0.0457	0.0566	0.2225
DIV	0.0122	0.0000	0.0043	0.0173
Growth	0.2649	0.0051	0.0858	0.1955
Exretavg	-0.0031	-0.0244	0.0002	0.0226
MB	0.9042	0.4510	0.7442	1.2077
Nimtaavg	0.0305	0.0101	0.0311	0.0476
Price	2.3341	2.1401	2.7081	2.7081
Rsize	-10.0948	-11.5031	-10.0096	-8.6159

Table 1 Descriptive Statistics (Cont'd)

Panel B: Correlation Matrix for the Main Variables

Variable	*1.*	*2.*	*3.*	*4.*	*5.*	*6.*	*7.*	*8.*	*9.*	*10.*	*11.*	*12.*	*13.*	*14.*
1. *EDF*	1	**0.7789**	**0.2441**	**0.0124**	**-0.1948**	**-0.2062**	**-0.0333**	**-0.23**	**-0.0138**	**0.2404**	**0.3**	-0.0023	**0.488**	**0.0671**
2. *Campbell*	**0.7789**	1	**0.6458**	**0.0156**	**-0.059**	**-0.0584**	**0.0334**	**-0.2136**	**-0.0025**	**0.2468**	**0.1444**	-0.0081	**0.4764**	**0.0788**
3. *Zscore*	**0.4185**	**0.1133**	1	**0.0196**	**-0.0737**	**-0.0968**	**-0.1687**	**-0.0419**	**-0.0838**	**0.0711**	**0.0962**	**-0.0253**	**0.0578**	**0.0549**
4. *BANK*	**0.0265**	**0.0384**	**0.0241**	1	**-0.0287**	**-0.0291**	**-0.0222**	**-0.0256**	**-0.0096**	**0.0168**	**0.0172**	**-0.0103**	**0.0407**	-0.0035
5. *UC_PCA*	**-0.2168**	**-0.217**	**-0.0725**	**-0.0299**	1	**0.9999**	**0.182**	**0.9025**	**0.4861**	**-0.0637**	**-0.0898**	**0.1237**	**-0.202**	0.0104
6. *UC_AVG*	**-0.2174**	**-0.2151**	**-0.0488**	**-0.0301**	**0.9996**	1	**0.2033**	**0.9081**	**0.4672**	**-0.0651**	**-0.0917**	**0.1134**	**-0.2062**	**0.014**
7. *UC_ACC*	**-0.0274**	**0.0397**	**0.1753**	**-0.0158**	**0.1611**	**0.1803**	1	**0.0517**	**0.0489**	0.0029	-0.0039	**0.4819**	**-0.0728**	**0.0284**
8. *UC_BM*	**-0.2303**	**-0.2139**	**-0.0427**	**-0.0256**	**0.9349**	**0.9369**	**0.0574**	1	**0.0808**	**-0.0964**	**-0.1282**	**0.0516**	**-0.2485**	-0.0061
9. *UC_RES*	**-0.0474**	**-0.1398**	**-0.315**	**-0.0078**	**0.3023**	**0.2891**	-0.039	**0.0411**	1	**0.0468**	**0.0521**	**0.0551**	**0.0514**	**0.0301**
10. *CC_PCA*	**0.4111**	**0.4095**	**0.102**	**0.0318**	**-0.1441**	**-0.1454**	**-0.0243**	**-0.1704**	-0.0028	1	**0.9893**	-0.0062	**0.716**	**0.685**
11. *CC_AVG*	**0.4286**	**0.4213**	**0.154**	**0.0339**	**-0.1563**	**-0.1578**	**-0.0305**	**-0.1844**	-0.0024	**0.9901**	1	**0.028**	**0.534**	**0.8973**
12. *CC_ACM*	**-0.0204**	**-0.0454**	**-0.0596**	-0.0089	**0.1057**	**0.1139**	**0.4483**	**0.0485**	**0.0391**	**0.0262**	-0.0026	1	-0.0425	**0.0375**
13. *CC_AR*	**0.4655**	**0.4335**	**0.0362**	**0.0407**	**-0.2084**	**-0.2112**	**-0.0901**	**-0.2359**	-0.006	**0.4056**	**0.7855**	-0.0591	1	**0.0426**
14. *CC_CR*	**0.1922**	**0.2145**	**0.0549**	0.008	**-0.0299**	**-0.0295**	**0.0336**	**-0.0426**	-0.0043	**0.9305**	**0.5972**	**0.0245**	**0.1167**	1

Table 2 Relations between Accounting Conservatism and Conditional Bankruptcy Risk

This table reports the OLS estimation results for testing relations between unconditional and conditional conservatism and the subsequent conditional bankruptcy risk using the full sample. The conditional bankruptcy risk measure is *EDF*, the unconditional conservatism measures are *UC_PCA* and *UC_AVG*, and the conditional conservatism measures are *CC_PCA* and *CC_AVG*, respectively. The *t*-statistics are adjusted for firm-level clusters, model details are provided at the end of the table, and variable definitions are available in Appendix A. *, **, and *** indicate that a coefficient is significant at the 90%, 95%, and 99% confidence level, respectively.

Independent Variables	Dependent Variable: *EDF*					
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	0.3349	0.3366	0.3473	0.3328	0.3496	0.3600
	(14.93)***	(15.10)***	(15.57)***	(15.34)***	(16.19)***	(16.68)***
UC_PCA_{t-1}	**-0.0471**		**-0.0443**			
	(-5.54)* **		**(-5.31)*** **			
UC_AVG_{t-1}				**-0.0911**		**-0.0836**
				(-8.85)* **		**(-8.19)*** **
CC_PCA_{t-1}		**-0.0085**	**-0.0083**			
		(-12.54)* **	**(-12.41)*** **			
CC_AVG_{t-2}					**-0.0268**	**-0.0264**
					(-18.19)* **	**(-17.97)*** **
EDF_{t-1}	0.2215	0.2354	0.2290	0.2202	0.2383	0.2319
	(31.71)***	(32.13)***	(32.27)***	(42.38)***	(45.61)***	(44.44)***
EDF_{t-2}	0.0311	0.0309	0.0308	0.0310	0.0316	0.0317
	(6.43)***	(6.41)***	(6.43)***	(7.12)***	(7.31)***	(7.32)***
$Ln(MV)_t$	-0.036	-0.0385	-0.0376	-0.0361	-0.0401	-0.0392
	(-35.22)***	(-37.90)***	(-36.74)***	(-57.06)***	(-62.76)***	(-60.22)***
$Leverage_t$	0.6433	0.6405	0.6425	0.6426	0.6500	0.6521
	(56.06)***	(56.12)***	(56.66)***	(90.85)***	(91.15)***	(91.54)***
ROA_t	-0.4313	-0.436	-0.4379	-0.4306	-0.4346	-0.4364
	(-23.96)***	(-24.13)***	(-24.55)***	(-30.93)***	(-31.19)***	(-31.43)***
STD_Ret_t	0.3044	0.3034	0.3074	0.3050	0.3058	0.3097
	(39.01)***	(38.92)***	(40.32)***	(58.44)***	(59.37)***	(59.75)***
$Rate_t$	-1.1669	-1.1835	-1.1803	-0.1571	-1.1883	-1.1848
	(-4.88)***	(-4.97)***	(-4.95)***	(-4.62)***	(-4.78)***	(-4.77)***
$Inten\_RD_t$	-0.0006	-0.0006	-0.0005	-0.0006	-0.0006	-0.0005
	(-0.85)	(-0.86)	(-0.83)	(-0.85)	(-0.87)	(-0.83)
Year and Ind. Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	34,896	34,896	34,896	34,896	34,896	34,896
R^2	0.6784	0.6798	0.6805	0.6792	0.6824	0.6831

The OLS model used in this table for Models 1 to 6 is as follows:

$$BR_t = \alpha_{10} + \gamma_{11}CON_{t-1} + \beta_{11}BR_{t-1} + \beta_{12}BR_{t-2} + Controls + \varepsilon_t \quad (2)$$

where $BR = EDF$, and $CON = UC\_PCA$, UC_AVG, CC_PCA or CC_AVG in all models. *Controls* include the firm size $Ln(MV)_t$, the leverage ratio $Leverage_t$, return on assets ROA_t, return volatility STD_Ret_t, risk-free rate $Rate_t$, R&D investment intensity $Inten\_RD_t$, and industry and year dummies *Ind_Dum* and *Year_Dum,* respectively.

Table 3 Relations between Accounting Conservatism and Unconditional Bankruptcy Risk

This table reports the OLS estimation results for testing relations between unconditional and conditional conservatism and the subsequent unconditional bankruptcy risk over the full sample. The unconditional bankruptcy risk measure is *Campbell*, the unconditional conservatism measures are *UC_PCA* and *UC_AVG*, and the conditional conservatism measures are *CC_PCA* and *CC_AVG*, respectively. The *t*-statistics are adjusted for firm-level clusters, model details are provided at the end of the table, and variable definitions are available in Appendix A. *, **, and *** indicate that a coefficient is significant at the 90%, 95%, and 99% confidence level, respectively.

Independent Variables	Dependent Variable: *Campbell*					
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Intercept	0.3359	0.3451	0.3521	0.3358	0.3623	0.3687
	(14.24)***	(14.74)***	(15.01)***	(14.24)***	(15.50)***	(15.74)***
UC_PCA_{t-1}	**-0.0338**		**-0.0293**			
	(-5.85)* **		**(-5.10)*** **			
UC_AVG_{t-1}				**-0.0643**		**-0.0531**
				(-5.83)* **		**(-4.86)*** **
CC_PCA_{t-1}		**-0.0117**	**-0.0115**			
		(-17.44)* **	**(-17.26)*** **			
CC_AVG_{t-1}					**-0.034**	**-0.0336**
					(-20.83)* **	**(-20.67)*** **
$Campbell_{t-1}$	0.3190	0.3378	0.3336	0.3190	0.3440	0.3399
	(55.14)***	(59.46)***	(58.22)***	(55.94)***	(60.52)***	(59.28)***
$Campbell_{t-2}$	0.0252	0.021	0.0214	0.0252	0.0212	0.0217
	(5.24)***	(4.38)***	(4.49)***	(5.25)***	(4.44)***	(4.55)***
$Ln(MV)_t$	-0.0279	-0.0308	-0.0302	-0.0279	-0.0326	-0.032
	(-44.88)***	(-49.85)***	(-47.59)***	(-44.86)***	(-51.39)***	(-49.17)***
$Leverage_t$	0.5232	0.5201	0.5212	0.5233	0.5202	0.5214
	(68.95)***	(68.94)***	(69.09)***	(68.95)***	(69.21)***	(69.35)***
ROA_t	-0.9474	-0.9493	-0.9517	-0.9473	-0.945	-0.9472
	(-51.30)***	(-51.43)***	(-51.61)***	(-51.29)***	(-51.31)***	(-51.47)***
STD_Ret_t	0.1445	0.1465	0.1489	0.1445	0.1485	0.1508
	(29.15)***	(29.79)***	(30.17)***	(29.15)***	(30.29)***	(30.64)***
$Rate_t$	-0.1356	-0.1452	-0.1456	-0.1354	-0.1585	-0.1586
	(-0.49)	(-0.53)	(-0.53)	(-0.49)	(-0.58)	(-0.58)
$Inten\_RD_t$	-0.0015	-0.0014	-0.0014	-0.0015	-0.0014	-0.0014
	(-1.71)*	(-1.69)*	(-1.67)*	(-1.70)*	(-1.69)*	(-1.67)*
Year and Ind. Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	34,886	34,886	34,886	34,886	34,896	34,896
R^2	0.6383	0.6420	0.6423	0.6383	0.6442	0.6445

The OLS model used in this table for Models 1 to 6 is as follows:

$$BR_t = \alpha_{10} + \gamma_{11}CON_{t-1} + \beta_{11}BR_{t-1} + \beta_{12}BR_{t-2} + Controls + \varepsilon_t \quad (2)$$

where *BR* = *Campbell*, and *CON* = *UC_PCA*, *UC_AVG*, *CC_PCA* or *CC_AVG* in all models. *Controls* include the firm size $Ln(MV)_t$, the leverage ratio $Leverage_t$, return on assets ROA_t, return volatility STD_Ret_t, risk-free rate $Rate_t$, R&D investment intensity $Inten\_RD_t$, and industry and year dummies *Ind_Dum* and *Year_Dum,* respectively.

Table 4 Cash Enhancement and Earnings Management as Potential Channels for Associations between Accounting Conservatism and Conditional Bankruptcy Risk

This table reports the SUR estimation results for examining the mediating effects of cash enhancement and earnings management on relations between unconditional and conditional conservatism and bankruptcy risk. The models for testing the cash-enhancing channel consist of two OLS regression models that regress changes in cash holdings *Cash* on lagged unconditional and conditional conservatism measures *UC_PCA* and *CC_PCA* and other controls in Model 1, and regress the conditional bankruptcy risk measure *EDF* on *Cash*, *UC_PCA* and *CC_PCA*, and other controls in Model 2, respectively. The models for testing the earnings management channel also consist of two SUR regression models that regress the earnings management measure *Emgmt* on the lagged *UC_PCA* and *CC_PCA* and other controls in Model 3, and regress *EDF* on *Emgmt* and other controls in Model 4, respectively. The *t*-statistics are adjusted for firm-level clusters, model details are provided below, and variable definitions are available in Appendix A. *, **, and *** indicate that a coefficient is significant at the 90%, 95% and 99% confidence level, respectively.

Independent Variables	$Cash_t$	EDF_t	$Emgmt_t$	EDF_t
	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	-0.0067	0.3475	-0.1602	0.4586
	(-2.07)**	(15.74)***	(-17.18)***	(31.28)***
$Cash_t$		**-0.0906**		
		(-6.29)* **		
$Cash_{t-1}$	-0.1791			
	(-4.89)***			
$Emgmt_t$				**0.0512**
				(13.78)* **
$Emgmt_{t-1}$			0.4414	
			(84.55)***	
UC_PCA_{t-1}	**0.0083**	-0.0383	**-0.0604**	-0.0398
	(3.54)* **	(-7.01)***	**(-10.02)*** **	(-7.40)***
CC_PCA_{t-1}	**0.0006**	-0.0082	**-0.0017**	-0.0083
	(2.61)* **	(-13.69)***	**(-2.63)*** **	(-13.91)***
EDF_{t-1}	0.008	0.2407	-0.0350	0.2284
	(4.62)***	(49.82)***	(-7.07)***	(43.77)***
EDF_{t-2}		0.0748		0.0291
		(8.22)***		(6.73)***
$Ln(MV)_t$	0.0015	-0.0377	-0.0069	-0.0368
	(6.73)***	(-58.61)***	(-9.74)***	(-57.11)***
$Leverage_t$	-0.0198	0.6478	0.1006	0.6474
	(-6.06)***	(89.19)***	(11.92)***	(90.72)***
ROA_t	0.1652	-0.4340	-0.7448	-0.3847
	(12.37)***	(-29.84)***	(-44.03)***	(-26.86)***
STD_Ret_t	-0.0009	-0.0005		0.3111
	(-2.73)***	(-0.86)		(59.86)***
$Rate_t$	0.0097	0.3089		-2.3959
	(4.97)***	(58.05)***		(-13.93)***
$Inten\_RD_t$	-0.1004	-0.0005		-0.0006
	(-15.30)***	(-0.85)		(-0.87)
$Invest\_capx_t$	0.0656			
	(9.09)***			
$Dissue_t$	-0.1823		0.0043	

	(-5.71)***		(1.92)*	
DIV_t	0.0046			
	(2.82)***			
$LOSS_t$	-0.1004			
	(-15.30)***			
$Turn_t$			0.0602	
			(22.06)***	
$Growth_t$			0.0000	
			(-1.43)	
$SPOS_t$			0.0261	
			(5.56)***	
$Eissue_t$			0.0137	
			(3.12)***	
Year and Ind. Dummies	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes
Sample size	33,560	33,560	34,857	34,857
R^2	0.0875	0.6835	0.4038	0.6826

The SUR regression model used in this table includes the following two equations:

$$Channel_t = \alpha_{10} + \gamma_{11}UC\_PCA_{t-1} + \delta_{11}CC\_PCA_{t-1} + \beta_{11}BR_{t-1} + \theta_{11}Channel_{t-1} + Controls1 + \varepsilon_{11} \quad (3)$$

$$BR_t = \alpha_{20} + \theta_{21}Channel_t + \gamma_{21}UC\_PCA_{t-1} + \delta_{21}CC\_PCA_{t-1} + \beta_{21}BR_{t-1} + \beta_{21}BR_{t-2} + Controls2 + \varepsilon_{21} \quad (4)$$

where *BR* = *EDF*, and *Channel* = *Cash* or *Emgmt*. When *Channel* is the cash-enhancing measure *Cash*, *Controls1* includes the firm size $Ln(MV)_t$, leverage ratio $Leverage_t$, return on total assets ROA_t, return volatility STD_Ret_t, risk-free rate $Rate_t$, R&D investment intensity $Inten\_RD_t$, capital investment intensity $Invest\_capx_t$, annual change in total liabilities $Dissue_t$, cash dividends DIV_t, loss dummy $LOSS_t$, industry dummy *Ind_Dum*, and fiscal year dummy *Year_Dum*. When *Channel* is the earnings management measure *Emgmt*, *Controls1* includes the $Leverage_t$, ROA_t, $Ln(MV)_t$, sales growth $Growth_t$, small loss indicator $SPOS_t$, sales turnover $Turn_t$, debt financing $Dissue_t$, equity financing $Eissue_t$, industry dummy *Ind_Dum*, and fiscal year dummy *Year*. *Controls2* is the same as *Controls* in Eq. (2).

Table 5 Cash Enhancement and Earnings Management as Potential Channels for Associations between Accounting Conservatism and Unconditional Bankruptcy Risk

This table reports the SUR estimation results for examining the mediating effects of cash enhancement and earnings management on relations between unconditional and conditional conservatism and unconditional bankruptcy risk. The models for testing the cash-enhancing channel consist of two OLS regression models that regress changes in cash holdings *Cash* on the lagged unconditional and conditional conservatism measures *UC_PCA* and *CC_PCA* and other controls in Model 1, and regress the unconditional bankruptcy risk measure *Campbell* on *Cash*, *UC_PCA,* and *CC_PCA*, and other controls in Model 2, respectively. The models for the earnings management channel consist of two SUR regression models that regress the earnings management measure *Emgmt* on the lagged *UC_PCA* and *CC_PCA* and other controls in Model 3, and regress *Campbell* on *Emgmt* and other controls in Model 4, respectively. The *t*-statistics are adjusted for firm-level clusters, model details are provided below, and variable definitions are available in Appendix A. *, **, and *** indicate that a coefficient is significant at the 90%, 95%, and 99% confidence level, respectively.

Independent Variables	$Cash_t$	$Campbell_t$	$Emgmt_t$	$Campbell_t$
	Model 1	**Model 2**	**Model 3**	**Model 4**
Intercept	-0.0061	0.3473	-0.1657	0.4618
	(-1.93)*	(14.49)***	(-18.90)***	(30.33)***
$Cash_t$		**-0.0606**		
		(-3.51)* **		
$Cash_{t-1}$	-0.2217			
	(-17.67)***			
$Emgmt_t$				**0.0392**
				(10.17)* **
$Emgmt_{t-1}$			0.4432	
			(95.98)***	
UC_PCA_{t-1}	**0.0087**	-0.0300	**-0.0586**	**-0.0265**
	(3.79)* **	(-5.12)***	**(-9.84)*** **	**(-5.13)*** **
CC_PCA_{t-1}	**0.0005**	-0.0117	**-0.0018**	**-0.0117**
	(2.16) **	(-17.21)***	**(-2.70)*** **	**(-19.92)*** **
$Campbell_{t-1}$	0.0066	0.3468	-0.0250	0.3298
	(3.39)***	(65.37)***	(-5.37)***	(65.40)***
$Campbell_{t-2}$		-0.002		0.0187
		(-0.48)		(4.16)***
$Ln(MV)_t$	0.0013	-0.0305	-0.0061	-0.0296
	(6.13)***	(-47.29)***	(-9.10)***	(-48.65)***
$Leverage_t$	-0.0183	0.5278	0.0953	0.5277
	(-5.00)***	(68.38)***	(11.74)***	(76.81)***
ROA_t	0.1723	-0.9538	-0.7485	-0.9240
	(13.38)***	(-49.76)***	(-47.47)***	(-68.08)***
STD_Ret_t	0.0102	0.1508		0.1537
	(5.25)***	(29.97)***		(34.40)***
$Rate_t$		-0.0789		-1.3349
		(-0.28)		(-7.47)***
$Inten\_RD_t$	-0.0009	-0.0016		-0.0015
	(-2.83)***	(-1.86)*		(-2.78)***
$Invest\_capx_t$	-0.0981			
	(-14.88)***			
$Dissue_t$	0.065		0.0045	

	(8.95)***		(4.56)***	
DIV_t	-0.188			
	(-5.92)***			
$LOSS_t$	0.0045			
	(2.48)**			
$Turn_t$			0.0594	
			(34.10)***	
$Growth_t$			0.0000	
			(-0.04)***	
$SPOS_t$			0.0201	
			(4.13)***	
$Eissue_t$			0.0169	
			(3.95)***	
Year and Ind. Dummies	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes
Sample size	33,557	33,551	34,748	34,748
R^2	0.0903	0.6443	0.4035	0.5460

The SUR regression model used in this table consists of the two equations below:

$Channel_t = \alpha_{10} + \gamma_{11}UC\_PCA_{t-1} + \delta_{11}CC\_PCA_{t-1} + \beta_{11}BR_{t-1} + \theta_{11}Channel_{t-1} + Controls1 + \varepsilon_{11}$ (3)

$BR_t = \alpha_{20} + \theta_{21}Channel_t + \gamma_{21}UC\_PCA_{t-1} + \delta_{21}CC\_PCA_{t-1} + \beta_{21}BR_{t-1} + \beta_{21}BR_{t-2} + Controls2 + \varepsilon_{21}$ (4)

where *BR* = *Campbell*, and *Channel* = *Cash* or *Emgmt*., *Controls1* is the same as described below Table 4. The variable *Controls2* is the same as *Controls* in Eq. (2) described below Table 2.

Table 6 Income Smoothing and Relations between Accounting Conservatism and Bankruptcy Risk

This table reports SUR estimation results for examining whether relations between unconditional and conditional conservatism and bankruptcy risk are robust to the effect of income smoothing. Panels A and B use *EDF* and *Campbell* as the bankruptcy risk measures, respectively. Models 1 and 3 in both panels regress the inert income smoothing measure *Esmooth_Inn* and the discretionary income smoothing measure *Esmooth_Dis*, respectively, on the lagged unconditional and conditional conservatism measures *UC_PCA* and *CC_PCA* and other controls. Models 2 and 4 in both panels regress the bankruptcy risk measure *EDF* or *Campbell* on the lagged *Esmooth_Inn* and *Esmooth_Dis*, respectively, as well as on the lagged *UC_PCA* and *CC_PCA* and other controls. The *t*-statistics are adjusted for firm-level clusters, model details are provided below, and variable definitions are available in Appendix A. *, **, and *** indicate that a coefficient is significant at the 90%, 95%, and 99% confidence levels, respectively.

Panel A: Estimation Results Using Conditional Bankruptcy Risk Measure *EDF*

Independent Variables	$Esmooth\_Inn_t$	EDF_t	$Esmooth\_Dis_t$	EDF_t
	Model 1	**Model 2**	**Model 3**	**Model 4**
UC_PCA_{t-1}	**-0.0977**	**-0.0480**	**-0.8690**	**-0.0470**
	(-9.83)*	**(-8.48)***	**(-10.29)***	**(-8.47)***
CC_PCA_{t-1}	**-0.0018**	**-0.0077**	**-0.0241**	**-0.0080**
	(-1.64)*	**(-12.41)***	**(-2.52)***	**(-13.09)***
$Esmooth\_Inn_{t-1}$		**-0.0069**		
		(-2.36)*		
$Esmooth\_Dis_{t-1}$				-0.0004
				(-1.15)
Other controls	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes
Sample size	31,517	31,517	33,081	33,081
R^2	0.0501	0.6858	0.1253	0.6834

Panel B: Estimation Results Using Unconditional Bankruptcy Risk Measure *Campbell*

Independent Variables	$Esmooth\_Inn_t$	$Campbell_t$	$Esmooth\_Dis_t$	$Campbell_t$
	Model 1	**Model 2**	**Model 3**	**Model 4**
UC_PCA_{t-1}	**-0.0972**	**-0.0334**	**-0.0950**	**-0.0322**
	(-9.77)*	**(-5.48)***	**(-10.79)***	**(-5.45)***
CC_PCA_{t-1}	-0.0017	**-0.0114**	-0.0015	**-0.0113**
	(-1.51)	**(-16.34)***	(-1.53)	**(-16.75)***
$Esmooth\_Inn_{t-1}$		**-0.0097**		
		(-3.10)*		
$Esmooth\_Dis_{t-1}$				**-0.0094**
				(-2.81)*
Other controls	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes
Sample size	31,514	31,507	33,078	33,071
R^2	0.0499	0.4964	0.1281	0.6502

The SUR model used in this table consists of the following two equations:

$$Esmooth_t = \alpha_{10} + \gamma_{11}UC\_PCA_{t-1} + \delta_{11}CC\_PCA_{t-1} + \beta_{11}BR_{t-1} + \theta_{11}Esmooth_{t-1} + Controls5 + \varepsilon_{11} \quad (5)$$

$$BR_t = \alpha_{20} + \gamma_{21}UC\_PCA_{t-1} + \delta_{21}CC\_PCA_{t-1} + \theta_{21}Esmooth_{t-1} + \beta_{21}BR_{t-1} + Controls6 + \varepsilon_{21} \quad (6)$$

where *BR* = *EDF* or *Campbell*. *Esmooth* refers to the inert smoothing *Esmooth_Inn* or discretionary smoothing *Esmooth_Dis*. *Controls5* includes the firm size $Ln(MV)_t$, return over assets ROA_t, ROA volatility $Volatility\_ROA_t$, the leverage ratio $Leverage_t$, and industry and year dummies *Ind_Dum* and *Year_Dum*, respectively, which are previously identified determinants of income smoothing. *Controls6* is the same as *Controls* in Eq. (2) described below Table 2.

Table 7 The Effects of Endogeneity Issues, Extreme Distress, and CDS Contract Initiation

This table reports estimation results for the effects of endogeneity problems, extreme distress, and CDS contract initiation on relations between unconditional and conditional conservatism and bankruptcy risk. Models 1 and 2 present the second-stage results for a two-stage approach that controls for reverse causality from bankruptcy risk to conservatism and endogeneity between the two types of conservatism. Models 3 and 4, Models 5 and 6, and Models 7 and 8 present results for examining the effects of the SOX enactment, extreme distress, and CDS contract initiation, respectively. Bankruptcy risk measures are *EDF* and *Campbell* in all models, unconditional and conditional conservatism measures are *UC_PCAR* and *CC_PCAR* for Models 1 and 2, which are residuals portion of unconditional and conditional conservatism free of endogeneity issues, respectively. Unconditional and conditional conservatism measures used for Models 3 and 8 are *UC_PCA* and *CC_PCA*. *T*-statistics are adjusted for firm-level clusters, model details are provided below, and variable definitions are provided in Appendices A. *, **, and *** indicate that a coefficient is significant at the 90%, 95%, and 99% confidence levels, respectively.

Sample Size	**Full Sample**		**Full Sample**		**Subsample of Extreme Distress**		**Subsample of Post-CDS Initiation**	
Independent Variables	***EDF_t***	***$Campbell_t$***	***EDF_t***	***$Campbell_t$***	***EDF_t***	***$Campbell_t$***	***EDF_t***	***$Campbell_t$***
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
Intercept	0.3346	0.3332	0.3489	0.3521	0.3346	0.3332	0.782	0.5431
	(20.49)***	(19.76)***	(16.08)***	(14.98)***	(20.49)***	(19.76)***	(13.71)***	(11.04)***
UC_PCAR_{t-1}	**-0.0893**	**-0.0946**			**-0.0893**	**-0.0946**		
	(-14.82)* **	**(-15.52)*** **			**(-14.82)*** **	**(-15.52)*** **		
CC_PCAR_{t-1}	**-0.0033**	**-0.0049**			**-0.0033**	**-0.0049**		
	(-5.45)* **	**(-7.86)*** **			**(-5.45)*** **	**(-7.86)*** **		
$UC\_PCA_{t-1}*SOX$			**-0.0516**	**-0.0342**				
			(-4.85)* **	**(-3.08)*** **				
$CC\_PCA_{t-1}*SOX$			-0.0016	**-0.0052**				
			(-1.16)	**(-3.42)*** **				
UC_PCA_{t-1}			-0.0319	-0.0205			-0.0266	0.0225
			(-5.57)***	(-3.26)***			(-0.86)	(0.83)
CC_PCA_{t-1}			-0.0080	-0.0105			-0.0002	**-0.0138**
			(-12.37)***	(-14.54)***			(-0.05)	**(-5.12)*** **
SOX			-0.1393	-0.0741				
			(-7.39)***	(-3.63)***				
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	29,252	29,252	34,896	34,890	3, 490	3, 490	1,755	1,755
R^2	0.7080	0.6943	0.6804	0.6423	0. 4037	0.6137	0.6527	0.7356

The OLS model used for Models 1 and 2 in this table is as follows:

$$BR_t = \alpha_0 + \gamma_1 CON_{t-1} + \beta_1 BR_{t-1} + \beta_2 BR_{t-2} + Controls_t + \varepsilon_t \qquad (2)$$

where *BR* = *EDF*, or *Campbell*. *CON* refers to *UC_PCAR*, *CC_PCAR*. *Controls* is the same as in Eq. (2) described under Table 2.

The OLS model used for Models 3 and 8 in this table is as follows:

$$BR_t = \alpha_0 + \gamma_0 CON_{t-1}*SOX + \gamma_1 CON_{t-1} + \gamma_2 SOX + \gamma_3 BOOM + \beta_1 BR_{t-1} + \beta_2 BR_{t-2} + Controls_t + \varepsilon_t \qquad (7)$$

where *BR* = *EDF*, or *Campbell*. *CON* refers to *UC_PCAR*, *CC_PCAR*. *SOX* and *BOOM* are the indicator for SOX enactment and credit boom, respectively. *Controls* is the same as in Eq. (2) described under Table 2.

Table 8 Robustness Checks for Alternative Measures: Relations between Accounting Conservatism and Bankruptcy Risk

This table reports the estimation results for the relations between unconditional and conditional conservatism and bankruptcy risk, using alternative bankruptcy risk and conservatism measures. All estimations use the OLS model except for Model 2, which uses a logit model. The bankruptcy risk measure is *Zscore* in Model 1, the real bankruptcy indicator *Bank* in Model 2, *EDF* in Models 3 to 8, and *Campbell* in Models 9 to 14. The unconditional and conditional conservatism measures are *UC_PCA*, their component measures *UC_ACC*, *UC_BM*, *UC_RES*, *CC_PCA*, and their component measures *CC_ACM*, *CC_AR*, and *CC_CR*, respectively. The *t*-statistics are adjusted for firm-level clusters, and variable definitions are available in Appendix A. *, **, and *** indicate that a coefficient is significant at the 90%, 95%, and 99% confidence level, respectively.

Independent Variables	**Alternative Bankruptcy Risk Measures**		**Alternative Unconditional and Conditional Conservatism Measures**											
	Zscore$_t$	***Bank$_t$***	**Dependent variable is *EDF$_t$***						**Dependent variable is *Campbell$_t$***					
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**
UC_PCA$_{t-1}$	**-0.0247**	**-0.9155**				-0.0461	-0.0452	-0.0464				0.3363	-0.0277	-0.0322
	(-6.93)* **	**(-2.45)** **				(-8.54)***	(-8.90)***	(-8.60)***				(14.25)***	(-5.01)***	(-5.58)***
CC_PCA$_{t-1}$	**-0.0061**	0.0128	-0.0083	-0.0084	-0.0084				-0.0116	-0.0116	-0.0115			
	(-13.70)* **	(0.28)	(-13.91)***	(-14.04)***	(-14.03)***				(-17.38)***	(-17.38)***	(-17.25)***			
UC_ACC$_{t-1}$			**-0.1166**						**-0.0573**					
			(-5.91)* **						**(-2.47)*** **					
UC_BM$_{t-1}$				**-0.0298**						**-0.0126**				
				(-7.45)* **						**(-3.17)*** **				
UC_RES$_{t-1}$					**-0.0206**						**-0.0481**			
					(-2.53) **						**(-4.60)*** **			
CC_ACM$_{t-1}$						-0.026						-0.0012		
						(-1.13)						(-0.35)		
CC_AR$_{t-1}$							**-0.073**						**-0.0747**	
							(-48.10)* **						**(-45.88)*** **	
CC_CR$_{t-1}$								**-0.0008**						**-0.0038**
								**(-1.81)* **						**(-7.60)*** **
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm-level clusters	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sample size	33,655	30,987	34,896	34,752	34,752	34,896	34,752	34,752	34,886	34,886	34,886	34,886	34,886	34,886
R^2	0.8428		0.6808	0.6812	0.6807	0.6792	0.6709	0.6793	0.6423	0.6421	0.6423	0.6383	0.6674	0.6390
Pseudo-R^2		0.2580												

The OLS model used for Model 1, and Models 3 to 14 in this table is as follows:

$$BR_t = \alpha_0 + \gamma_1 CON_{t-1} + \beta_1 BR_{t-1} + \beta_2 BR_{t-2} + Controls_t + \varepsilon_t \quad (2)$$

where *BR* = *Zscore*, *EDF*, or *Campbell*. *CON* refers to *UC_PCA*, *CC_PCA*, *UC_ACC*, *UC_BM*, *UC_RES*, *CC_ACM*, *CC_AR*, or *CC_CR*. *Controls* is the same as in Eq. (2) described under Table 2.

The logit model used for Model 2 in this table is expressed as:

$$BANK_t = \alpha + \gamma_{11} UC\_PCA_{t-1} + \delta_{11} CC\_PCA_{t-1} + Controls7_{t-1} + \mu_t \quad (8)$$

where *BANK* is a real bankruptcy indicator equal to one if a firm went bankrupt and zero otherwise. *Controls7* includes the market-based profitability measure *NIMTAVG*, the predictability of the excess return *EXRETAVG*, the market-to-book ratio *MB*, the excess firm size *Rsize*, the leverage ratio *Leverage*, the return volatility *STD_Ret,* the stock price *PRICE,* the risk-free rate *Rate*, the R&D intensity *Inten_RD*, and the industry and year dummies *Ind_Dum* and *Year_Dum,* respectively.

Figure 1
Bankruptcy Timeline