**Further Analyses and Robustness Checks Addendum to:**

**“Accounting Conservatism and Bankruptcy Risk”**

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This on-line addendum presents additional evidence and robustness checks in support of reported findings in **Biddle, G. C., Ma, M. L. Z., Song, F. M. (2020) Accounting Conservatism and Bankruptcy Risk, *Journal of Accounting, Auditing & Finance***. For continuity and ease of reference, table numbers follow on those in the published article and variables are as defined in its Appendix A.

Specifically, we present here the following additional results as further detailed below.

1. **Endogeneity Control Using Two-Stage Approach –** Documenting that reported findings are not attributable to reverse causality from bankruptcy risk to conservatism or to interactions between unconditional and conditional conservatism using a two-stage estimation approach.
2. **SOX Reporting Influence on Accounting Conservatism –** Documenting an enhanced relationship between accounting conservatism and bankruptcy risk commensurate with previously documented increases in conditional and unconditional conservatism associated with the implementation of the Sarbanes-Oxley Act (SOX).
3. **Extreme Distress and CDS Contracting –** Documenting that the reported relationship between accounting conservatism and bankruptcy risk holds under conditions of extreme financial distress and mitigates in the presence of Credit Default Swaps (CDS) found in prior research to offer buyers insurance-like protection against default.
4. **Income Smoothing Control –** Documenting thatthe reported relationship between accounting conservatism and bankruptcy risk is robust to controls for income smoothing and that conservatism substitutes for income smoothing in mitigating bankruptcy risk.
5. **Alternative Measures for Accounting Conservatism and Bankruptcy Risk –** Documenting thatthe reported relationship between accounting conservatism and bankruptcy risk is robust to using alternate measures of accounting conservatism and alternative measures of bankruptcy risk including actual bankruptcy.
6. **Alternative Estimation Methods** – Documenting thatthe reported relationship between accounting conservatism and bankruptcy risk is robust to alternative methods for estimating bankruptcy risk and bankruptcy risk components.

**Endogeneity Control Using Two-Stage Approach**

We employ a two-stage estimation approach to determine whether observed relations between accounting conservatism and bankruptcy risk are robust to reverse causality from bankruptcy risk to conservatism and to interactions between unconditional and conditional conservatism. Accounting conservatism may rise with bankruptcy risk because conservatism is a natural response to risk and uncertainty in firms’ business environments. In addition, unconditional and conditional conservatism have been found to be negatively correlated in the short run and positively correlated in the long run (Roychowdhury and Watts 2007; Ball et al. 2013) and unconditional conservatism has been argued to precede and preempt conditional conservatism (Beaver and Ryan 2005; Qiang 2007).

To control for these possible endogeneity effects, we conduct two-stage regressions following Nikolaev (2010) and Beatty et al. (2008; 2012). In the first stage, we regress unconditional and conditional conservatism respectively on lagged values of bankruptcy risk and both types of conservatism without other controls. The “instrumental variable” residuals from this first-stage regression remain correlated with conservatism and represent the portions of conservatism unexplained by reverse causality and interactions between unconditional and conditional conservatism (Nikolaev 2010). We then use these residuals to represent unconditional conservatism (*UC\_PCAR*) and conditional conservatism (*CC\_PCAR* ) to re-estimate Eq. (2). Models 1 and 2 in Table 5 report estimation results for second-stage regressions showing that the residual portions of unconditional and conditional conservatism remain significantly and negatively associated with subsequent bankruptcy risk for both *REDFt* and *Campbellt*, respectively. These results indicate that findings reported above are not attributable to reverse causality or conservatism type interaction endogeneity.

**SOX Reporting Influence on Accounting Conservatism**

Sabanes-Oxley (SOX) reporting requirements enacted in 2002 offer a regulatory intervention in accounting conservatism albeit conditioned on related and concurrent effects on bankruptcy risk. Lobo and Zhou (2006) and Iliev (2010) report that SOX increased accounting conservatism with Jha (2013) correspondingly finding that SOX restrained managerial ability to use accruals to stave off bond covenant violations. Untabulated analyses for our sample similarly find *UC\_PCA* to increase from 0.3443 in the pre-SOX period to 0.3805 in the post-SOX period, with a *t*-statistic of 8.77, and *CC\_PCA* to increase from 0.8055 in the pre-SOX period to 0.8582 in the post-SOX period, with a *t*-statistic of 1.60. The potential of SOX enactment to thereby enhance accounting conservatism’s effects on bankruptcy risk must take into account SOX related and contemporaneous effects on bankruptcy risk. These include business conditions (Livshits, MacGee, Tertilt 2010), reduced managerial risk-taking ([Bargeron](http://www.sciencedirect.com/science/article/pii/S0165410109000305), [Lehn](http://www.sciencedirect.com/science/article/pii/S0165410109000305), and [Zutter](http://www.sciencedirect.com/science/article/pii/S0165410109000305) 2010), lower firm values (Iliev 2010; Stunda 2014) and enhanced bankruptcy predictability (Kwak, Cheng, and Ni 2012; Chan, Chou, Lin, and Liu 2016). To help control for these SOX-related and contemporary effects on bankruptcy risk that are by nature difficult to model around enactment, we employ a design less sensitive to their effects using long periods designating SOX reporting and countervailing credit booms pre- and post-dating its initiation:

*BRt = α0 + γ0CONt-1\*SOX + γ1CONt-1 + γ2SOX + γ3BOOM + β1BRt-1 + β2BRt-2* (7)

*+ Controlst + εt*

where *BR* refers to *REDF*, or *Campbell*. *CON* refers to *UC\_PCAR*, *CC\_PCAR*. *SOX* is an indicator for fiscal years following SOX enactment. *BOOM* is an indicator for credit boom periods 1994-1998 and 2004-2007 (Becker and Ivashina 2014). *Controls* is the same as in Table 2 and H1 predicts *γ0<0.* Models 3 and 4 of Table 5 report estimation results showing interactions of *SOX* with both types of conservatism significantly negatively associate with bankruptcy risk beyond the mitigating effect of SOX on bankruptcy risk, except for *CC\_PCAt-1\*SOX* for *REDFt*, consistent with incremental SOX-related effects supportive of H1.

**Extreme Distress and CDS Contracting**

Next we consider whether observed relations between accounting conservatism and bankruptcy risk hold in conditions of extreme distress. In distressed firms with high leverage, control rights may transfer to debtholders who demand higher conservatism to constrain managerial risk-taking incentives (Brockman et al. 2012) consistent with the mitigating effect of conservatism on bankruptcy risk. However, in extremely distressed firms, shareholder implicit call options on assets are at or close to the money, and equity values increase with asset volatility. If shareholder risk-shifting incentives dominate, firms may thus 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 thereby less relevant. To assess the effects of extreme distress on relations between accounting conservatism and bankruptcy risk under conditions of extreme distress, we examine the top decile of firm-years by leverage ratio. Models 5 and 6 of Table 5 reveal both unconditional and conditional conservatism to significantly negatively associate with bankruptcy risk even for extremely distressed firms and we find similarly for the lowest decile of firm-years ranked by ROA (untabulated).

Credit Default Swaps (CDS) are insurance-like contracts that offer buyers protection against the default of a reference entity thereby potentially changing relations between accounting conservatism and bankruptcy risk (Griffin 2014). Specifically, because holders are protected from default risk, they become “tougher” during debt renegotiations, thereby increasing bankruptcy risk (Peristiani and Savino 2014; Subrahmanyam et al. 2014). Holders also have lower incentives to engage in costly monitoring and to demand conservative accounting (Martin and Roychowdhury 2015). By increasing bankruptcy risk and decreasing monitoring and accounting conservatism simultaneously, CDS contracts may weaken or eliminate negative relations between conservatism and bankruptcy risk. To test this possibility, we identify a subsample of CDS referenced firms after the CDS initiation stage, comprising 1,755 firm-year observations for 453 CDS referenced firms from 2002 to 2007 and re-estimate Eq. (2). As seen in Models 7 and 8 of Table 5, previously observed negative relations between accounting conservatism and bankruptcy risk weaken or disappear for the CDS sub-sample consistent with CDS contacts serving a substitutive risk mitigation role.[[1]](#footnote-2)

**Income Smoothing Control**

Income smoothing can be considered a type of “conservatism gaming” whereby managers apply higher conservatism during good times that they release during bad times, with Smith and Stulz (1985) arguing that smoothing hedges against bankruptcy risk and Trueman and Titman (1988) arguing that smoothing lowers claimholder perceptions of bankruptcy risk by reducing earnings volatility. To control for the effects of income smoothing on observed negative relations between accounting conservatism and bankruptcy risk, we estimate the following SUR equations:

*Esmootht = α10 + γ11UC\_PCAt-1**+ δ11CC\_PCAt-1**+ β11BRt-1 + θ11Esmootht-1 + Controls5 + ε21* (5)

*BR****t*** *= α20 + γ****21****UC\_PCA****t-1*** *+ δ****21****CC\_PCA****t-1*** *+ θ****21****Esmooth****t-1*** *+ β****21****BR****t-1*** *+ β****22****BR****t-2***(6)  
*+ Controls6 + ε21*

where *BR* refers to *REDF*. *Esmooth* refersto either inert smoothing *Esmooth\_Inn* due mainly to the natural role of accruals in removing inherent cash flow shocks or discretionary smoothing *Esmooth\_Dis* mainly attributable to managerial discretion (LaFond et al. 2007). *Esmooth\_Inn* is defined as the decile ranking of negative one times the Spearman correlation between accruals and cash flow. *Esmooth\_Dis* is defined as 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).[[2]](#footnote-3)

Models 1 to 4 in Panel A (B) of Table 6 confirm that *UC\_PCA* ***t-1*** and *CC\_PCA****t-1*** exhibit significant negative associations with subsequent bankruptcy risk measured by *REDF****t*** (*Campbell****t***), after controlling for the effects of inert and discretionary smoothing. In addition, Models 1 and 3 in both panels indicate that accounting conservatism reduces rather than increases subsequent inert and discretionary smoothing, 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 also decreases subsequent bankruptcy risk.

**Alternative Measures for Bankruptcy Risk and Accounting Conservatism**

To assess the robustness of our bankruptcy risk measures, we also examine relations between accounting conservatism and bankruptcy risk measured using Altman’s (1968) *Zscore* and, following Campbell et al. (2008), we estimate the following logit model to examine relations between accounting conservatism and actual bankruptcy:

*BANKt = α + γCONt-1 + Controls7t + µt* (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.[[3]](#footnote-4) Model 1 in Table 7 indicates that unconditional and conditional conservatism are significantly negatively associated with bankruptcy risk defined as subsequent *Zscore*. Model 2 finds only unconditional conservatism but not conditional conservatism to be significantly negatively associated with *BANK*. A possible explanation is that bad news is already disclosed for firms close to actual bankruptcy.

To address the possibility that our results may be driven by selected component measures of unconditional or conditional conservatism, Table 7 also examines independently *UC\_PCA* components *UC\_ACC*, *UC\_BM*, and *UC\_RES,* and *CC\_PCA* components *CC\_ACM*, *CC\_AR*, and *CC\_CR*. Models 3 to 14 in Table 7 indicate that all component measures are significantly negatively associated with subsequent bankruptcy risk except for *CC\_ACM*, which while negative, does not exhibit statistical significance at conventional levels.

**Alternative Estimation Methods**

Bankruptcy risk measure *REDF* has been shown to follow a long-run autoregressive process (Duffie et al. 2007). Unconditional and conditional conservatism measures may be “sticky”. To address the possibility that our OLS results may be sensitive to the lag structure of our test variables, 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 generalization does not qualitatively change our findings.

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.

**Table 5 Robustness Checks: Endogeneity, 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 *REDF* 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** | **2-Stage - Full Sample** | | **SOX - Full Sample** | | **Subsample ofExtreme Distress** | | **Subsample ofPost-CDS Initiation** | |
| **Independent Variables** | ***REDFt*** | ***Campbellt*** | ***REDFt*** | ***Campbellt*** | ***REDFt*** | ***Campbellt*** | ***REDFt*** | ***Campbellt*** |
| **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\_PCARt-1* | **-0.0893** | **-0.0946** |  |  | **-0.0893** | **-0.0946** |  |  |
|  | **(-14.82)\*\*\*** | **(-15.52)\*\*\*** |  |  | **(-14.82)\*\*\*** | **(-15.52)\*\*\*** |  |  |
| *CC\_PCARt-1* | **-0.0033** | **-0.0049** |  |  | **-0.0033** | **-0.0049** |  |  |
|  | **(-5.45)\*\*\*** | **(-7.86)\*\*\*** |  |  | **(-5.45)\*\*\*** | **(-7.86)\*\*\*** |  |  |
| *UC\_PCAt-1\*SOX* |  |  | **-0.0516** | **-0.0342** |  |  |  |  |
|  |  |  | **(-4.85)\*\*\*** | **(-3.08)\*\*\*** |  |  |  |  |
| *CC\_PCAt-1\*SOX* |  |  | -0.0016 | **-0.0052** |  |  |  |  |
|  |  |  | (-1.16) | **(-3.42)\*\*\*** |  |  |  |  |
| *UC\_PCAt-1* |  |  | -0.0319 | -0.0205 |  |  | -0.0266 | 0.0225 |
|  |  |  | (-5.57)\*\*\* | (-3.26)\*\*\* |  |  | (-0.86) | (0.83) |
| *CC\_PCAt-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 |
| *R2* | 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:

*BRt = α0 + γ1CONt-1 + β1BRt-1 + β2BRt-2 + Controlst + εt* (2)

where *BR* = *REDF*, 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:

*BRt = α0 + γ0CONt-1\*SOX + γ1CONt-1 + γ2SOX + γ3BOOM + β1BRt-1 + β2BRt-2 + Controlst + εt* (7)

where *BR* = *REDF*, 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 6 Robustness Check: Income Smoothing**

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 *REDF* 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 *REDF* 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 Bankruptcy Risk Measure *REDF*** | | | | |
| **Independent Variables** | ***Esmooth\_Innt*** | ***REDFt*** | ***Esmooth\_Dist*** | ***REDFt*** |
| **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| *UC\_PCAt-1* | **-0.0977** | **-0.0480** | **-0.8690** | **-0.0470** |
|  | **(-9.83)\*\*\*** | **(-8.48)\*\*\*** | **(-10.29)\*\*\*** | **(-8.47)\*\*\*** |
| *CC\_PCAt-1* | **-0.0018** | **-0.0077** | **-0.0241** | **-0.0080** |
|  | **(-1.64)\*** | **(-12.41)\*\*\*** | **(-2.52)\*\*** | **(-13.09)\*\*\*** |
| *Esmooth\_Innt-1* |  | **-0.0069** |  |  |
|  |  | **(-2.36)\*\*** |  |  |
| *Esmooth\_Dist-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 |
| *R2* | 0.0501 | 0.6858 | 0.1253 | 0.6834 |
|  | | | | |
| **Panel B: Estimation Results Using Bankruptcy Risk Measure *Campbell*** | | | | |
| **Independent Variables** | ***Esmooth\_Innt*** | ***Campbellt*** | ***Esmooth\_Dist*** | ***Campbellt*** |
| **Model 1** | **Model 2** | **Model 3** | **Model 4** |
| *UC\_PCAt-1* | **-0.0972** | **-0.0334** | **-0.0950** | **-0.0322** |
|  | **(-9.77)\*\*\*** | **(-5.48)\*\*\*** | **(-10.79)\*\*\*** | **(-5.45)\*\*\*** |
| *CC\_PCAt-1* | -0.0017 | **-0.0114** | -0.0015 | **-0.0113** |
|  | (-1.51) | **(-16.34)\*\*\*** | (-1.53) | **(-16.75)\*\*\*** |
| *Esmooth\_Innt-1* |  | **-0.0097** |  |  |
|  |  | **(-3.10)\*\*\*** |  |  |
| *Esmooth\_Dist-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 |
| *R2* | 0.0499 | 0.4964 | 0.1281 | 0.6502 |

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

*Esmootht**= α10 + γ11UC\_PCAt-1**+ δ11CC\_PCAt-1**+ β11BRt-1 + θ11Esmootht-1+ Controls5 + ε11* (5)

*BR****t*** *= α20 + γ****21****UC\_PCA****t-1*** *+ δ****21****CC\_PCA****t-1*** *+ θ****21****Esmooth****t-1*** *+ β****21****BR****t-1*** *+ Controls6**+ ε21* (6)

where *BR = REDF*or*Campbell*. *Esmooth* refersto the inert smoothing *Esmooth\_Inn* or discretionary smoothing *Esmooth\_Dis. Controls5* includes the firm size *Ln(MV)t*, return over assets *ROAt*, ROA volatility *Volatility\_ROAt*, the leverage ratio *Leveraget*, 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 Robustness Check: Alternative Measures for 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, *REDF* 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. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Independent Variables** | **Alternative Bankruptcy Risk**  **Measures** | | **Alternative Unconditional and Conditional**  **Conservatism Measures** | | | | | | | | | | | | |
| ***Zscoret*** | ***Bankt*** | **Dependent variable is *REDFt*** | | | | | | **Dependent variable is *Campbellt*** | | | | | | |
| **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\_PCAt-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\_PCAt-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\_ACCt-1* |  |  | **-0.1166** |  |  |  |  |  | **-0.0573** |  |  |  |  |  | |
|  |  |  | **(-5.91)\*\*\*** |  |  |  |  |  | **(-2.47)\*\*\*** |  |  |  |  |  | |
| *UC\_BMt-1* |  |  |  | **-0.0298** |  |  |  |  |  | **-0.0126** |  |  |  |  | |
|  |  |  |  | **(-7.45)\*\*\*** |  |  |  |  |  | **(-3.17)\*\*\*** |  |  |  |  | |
| *UC\_RESt-1* |  |  |  |  | **-0.0206** |  |  |  |  |  | **-0.0481** |  |  |  | |
|  |  |  |  |  | **(-2.53)\*\*** |  |  |  |  |  | **(-4.60)\*\*\*** |  |  |  | |
| *CC\_ACMt-1* |  |  |  |  |  | -0.026 |  |  |  |  |  | -0.0012 |  |  | |
|  |  |  |  |  |  | (-1.13) |  |  |  |  |  | (-0.35) |  |  | |
| *CC\_ARt-1* |  |  |  |  |  |  | **-0.073** |  |  |  |  |  | **-0.0747** |  | |
|  |  |  |  |  |  |  | **(-48.10)\*\*\*** |  |  |  |  |  | **(-45.88)\*\*\*** |  | |
| *CC\_CRt-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 | |
| *R2* | 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-R2* |  | 0.2580 |  |  |  |  |  |  |  |  |  |  |  |  | |
| The OLS model used for Model 1, and Models 3 to 14 in this table is as follows:  *BRt = α0 + γ1CONt-1 + β1BRt-1 + β2BRt-2 + Controlst + εt* (2)  where *BR* = *Zscore*, *REDF*, 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:  *BANKt = α +γ11UC\_PCAt-1 + δ****11****CC\_PCAt-1 + Controls7t-1**+ µt* (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. | | | | | | | | | | | | | | | |

1. Untabulated results available from the authors further partition the CDS sub-sample by firm size, finding that unconditional conservatism remains insignificantly related to both *REDF* and *Campbell* for both CDS size subsamples, whereas conditional conservatism exhibits for both CDS size subsamples a negative significant relation with *Campbell*, the bankruptcy measure not conditioned on financial distress. [↑](#footnote-ref-2)
2. *Controls5* includes the firm size *Ln(MV)t*, return over assets *ROAt*, ROA volatility *Volatility\_ROAt*, the leverage ratio *Leveraget*, and industry and year dummies *Ind\_Dum*and *Year\_Dum*, respectively. [↑](#footnote-ref-3)
3. *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*. [↑](#footnote-ref-4)