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# Agency costs of free cash flow and conditional conservatism

Joohyung Ha *

*University of San Francisco, 2130 Fulton St, San Francisco, CA 94117, United States*

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ABSTRACT

This study investigates whether agency costs of free cash flow (FCF) are associated with conditional conservatism. Prior research documents that conditional conservatism improves *ex ante* efficient investment decisions and facilitates *ex post* monitoring of managers' investment decisions. As conditional conservatism can provide protection from possible managerial expropriation, the demand for conditional conservatism should increase with the agency costs of FCF. Using excess cash as a proxy for the agency costs of FCF, I provide evidence that firms with higher agency costs of FCF incorporate losses in a timelier manner relative to gains compared to their counterparts. Additionally, the association between excess cash and conditional conservatism predictably varies with the presence of alternative monitoring mechanisms that mitigate FCF problems, such as debt or dividend payouts or repurchases. Further investigation suggests that greater conservatism is associated with a lower likelihood of overinvestment among firms bearing high agency costs of FCF, demonstrating the ability of conservatism to reduce agency costs of FCF.



## 1. Introduction

This study investigates whether potential agency costs of free cash flow (FCF) affect a firm's level of conditional conservatism.[1] Previous studies document that when companies are prone to overinvest, investors discount the value of cash and, consequently, the corporate value. Jensen (1986) refers to this type of loss of firm value as the agency costs of FCF, a type of agency costs between a manager and shareholders. Most prior studies focus on corporate governance as a monitoring mechanism for manager–shareholder agency conflict (Dittmar & Mahrt-Smith, 2007; Dittmar, Mahrt-Smith, & Servaes, 2003; Pinkowitz & Williamson, 2007). However, governance structures are not designed *ex ante* to optimally mitigate agency problems and are not very responsive to demands arising from stakeholders (Richardson, 2006). Other than shareholder litigation, which is *ex post* in nature and very costly, there is no specific action that shareholders can take against possible managerial expropriation.[2]

Prior research provides ample evidence that asymmetrically timely loss recognition, otherwise known as conditional conservatism, serves as an *ex ante* safeguard against *ex post* managerial opportunism while at the same time being demand driven (e.g., Beatty, Weber, & Yu, 2008; Gao, 2013; Holthausen & Watts, 2001; LaFond & Roychowdhury, 2008; LaFond & Watts, 2008; Ramalingegowda & Yu, 2012; Watts, 2003a). Conditional conservatism imposes stricter verification standards for recognizing gains than for losses, which results in recognition of losses ahead of realization and a delay in the recognition of gains until realization. The requirement of conservative reporting makes the recognition of losses from overinvestments less likely to be deferred to the future, and *ex ante* knowledge that future losses in cash flows will be recognized in income in a timelier manner provides disincentives for managers who might otherwise undertake negative net present value (NPV) projects (Ball & Shivakumar, 2006). As conditional conservatism can provide protection from possible managerial expropriation, the demand for conditional conservatism should increase with the agency costs of FCF.

To empirically test this conjecture, I characterize firms holding large excess cash reserves as having more severe agency costs of FCF. Because

* Corresponding author.
*E-mail address:* jha6@usfca.edu.

[1] Beaver and Ryan (2005) use the term "conditional conservatism" to refer to asymmetric timely loss versus gain recognition, to distinguish it from unconditional conservatism, which is the predetermined understatement of the book value of net assets. Hansen, Hong, and Park (2018) examine whether reporting conservatism varies with firm life cycle stages and find that unconditional conservatism (under-recording of net assets captured by our first two sets of measures) decreases over life cycle stages whereas conditional conservatism does not systematically vary with life cycle stages. These findings demonstrate that researchers need to focus on which specific aspects of conservatism drive the overall relationship. This paper focuses solely on conditional conservatism and, for the sake of brevity, often uses "conservatism" instead of "conditional conservatism."

[2] Once paid, excess compensation for managers is extremely hard and costly to recover, especially when managers leave the firm. Also, *ex post* settling with managers is likely to be incomplete due to the difficulty of assessing the deadweight costs generated when managers' efforts to transfer wealth to themselves divert their attention from their primary job, which is to increase firm value. Also, there is a usually a limit to the socially acceptable amount of the penalty (LaFond & Roychowdhury, 2008).

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excess cash reserves are accumulated FCF, large excess cash reserves represent greater potential for overinvestment and increase the perceived agency costs of FCF. For example, Faleye (2004) finds that the propensity to initiate proxy fights against managers increases with excess cash. To compute excess cash, I follow the static tradeoff model developed by Opler, Pinkowitz, Stulz, and Williamson (1999).[3] The model considers various factors that provide reasons for firms to hold cash. For example, firms that have higher growth potential or riskier cash flows tend to have larger cash holdings, while firms that have easy access to external financing tend to have smaller cash holdings. Therefore, excess cash is computed as the cash beyond what the model predicts for a firm.

I use three firm-year specific conservatism measures. The first measure is Khan and Watts's (2009) firm-year specific conservatism score (Cscore), which is based on Basu's (1997) asymmetric timeliness model in which earnings capture bad news faster than good news because of the asymmetric standards for verification of losses versus gains. The second measure is a modified Cscore using Banker, Basu, Byzalov, and Chen's (2016) approach, which controls for the variation in cost stickiness. The third measure is a firm-specific asymmetric earnings persistence measure (Basu, 1997) based on the transitory nature of economic income, where negative changes in net income are less persistent than positive changes in net income. Across all conservatism measures, I find a positive association between excess cash reserves and conditional conservatism, consistent with the notion that firms bearing greater agency costs of FCF use more conditionally conservative accounting than their counterparts.

I also consider that the agency costs of FCF in general could be mitigated or eliminated in settings where alternative monitoring mechanisms are present. Specifically, I consider distributions to debtholders and equityholders as alternative monitoring mechanisms for FCF problems, as these mechanisms decrease the resources under management control and thereby reduce the opportunity for wasteful investments. The results show less pronounced incremental conservatism associated with excess cash as the distribution to debtholders and equityholders increases, consistent with the prediction. Furthermore, the results suggest that greater conservatism is associated with a lower likelihood of overinvestment among firms bearing high agency costs of FCF, demonstrating conservatism's ability to reduce the agency costs of FCF.

I also implement a battery of robustness tests. First, I find evidence that increases in excess cash precede increases in conditional conservatism, not vice versa. Second, to alleviate concerns associated with omitted variables, I use a first-difference specification in which the change in excess cash for the current period is regressed on the change in conservatism for the following period. The results are robust to the use of change specification. Third, the same inferences are obtained using two additional measures of conditional conservatism proposed in Ball and Shivakumar (2006) and Collins, Hribar, and Tian (2014). Fourth, the positive relationship between the agency costs of FCF and conservatism holds even after controlling for corporate governance, suggesting that conservatism plays a unique monitoring role that is not subsumed by corporate governance.

This study's findings add additional evidence to the literature on the demand for conservatism arising from shareholders. Despite a growing volume of research on the importance of equity market demand for conservatism (Ahmed, Billings, Morton, & Stanford-Harris, 2002; Francis & Martin, 2010; LaFond & Roychowdhury, 2008; LaFond & Watts, 2008), the most widely held view indicates that conservatism primarily originates from debt market contracting demands rather than from equity markets (see Holthausen & Watts, 2001; Zhang, 2008).[4] The present study attempts to establish a relatively direct link between equity market demand and the degree of conditional conservatism by using a relatively exogenous variable with respect to firms' reporting choices, namely, the amount of excess cash, to measure the level of agency costs of equity.[5]

The results of this study may be of interest to standard setters who are currently promoting "neutrality," which in their view is a necessary condition for faithfully representing reality and a more desirable quality of financial statements. This study identifies an economic context where the potential benefits of conservatism outweigh the costs of conservatism and, by highlighting the role of conservatism in monitoring corporate managers and mitigating agency concerns, provides evidence regarding why conservatism is an important financial reporting attribute.

The remainder of the paper is organized as follows. Section 2 summarizes related prior studies and develops hypotheses. Section 3 discusses empirical proxies and the research design. Section 4 reports the results, and Section 5 concludes the paper.

## 2. Previous literature and hypothesis development

The inherent conflict between shareholders and managers due to the separation of ownership and control and the agency costs that arise from shareholders' inability to monitor managerial action is well documented in the literature (e.g., Jensen & Meckling, 1976). Based on this finding, Jensen (1986) develops the agency costs of FCF hypothesis, which suggests that shareholders' limited ability to monitor opportunistic managerial behavior creates a potential for managers to spend internally generated cash flows for their own benefit rather than for maximizing firm value. Consistent with this hypothesis, extant research finds that larger free cash holdings are responsible for the agency problem. For example, Harford (1999) finds that cash-rich firms are more likely to make value-destroying acquisitions. Furthermore, he finds that the market reaction to the announcement of a takeover bid is negatively related to the amount of the bidder's excess cash holdings. Opler et al. (1999) find that firms with excess cash tend to spend more on capital expenditures and acquisitions, even when they have poor investment opportunities. Faulkender and Wang (2006) find that a dollar of cash is, on average, valued by the market below par ($0.94) and that the marginal value of cash declines with larger cash holdings, higher leverage, and better access to capital markets.

Given that managers have a short-term incentive to overstate current earnings and expectations of future cash flow in order to increase their compensation, there are increased demands for more efficient contracting *ex ante* in the presence of agency costs of FCF.[6] However, unlike debt contracts, no such formal contracts exist between shareholders and managers.

As a remedy for agency costs of FCF, researchers primarily emphasize the role of corporate governance. For instance, in a cross-country study, Pinkowitz, Stulz, and Williamson (2006) demonstrate that in the presence of agency costs of FCF, cash holdings are valued at a discount and that this firm-value discount is even more pronounced in countries that afford limited investor protection. Dittmar and Mahrt-Smith (2007) show that the value of U.S. firms' excess cash is positively related to firm-level monitoring, as measured by the G-index based on anti-takeover provisions proposed by Gompers, Ishii, and Metrick (2003), and that the operating performance of firms that reduce their large excess cash reserves is significantly diminished when the firms

[3] Dittmar et al. (2003) use this model to find that excess cash is valued at a discount, consistent with the FCF problem.

[4] For example, Ball, Robin, and Sadka (2008) compare the reporting practices of different countries in which the importance of equity markets and insider monitoring vary. They fail to find evidence that shareholders generate a demand for conservatism in their cross-country setting.

[5] Prior literature uses managerial ownership and board characteristics to measure agency costs of equity. Since managers and boards implement financial reporting, the relationship between conservatism and these proxies can be endogenous.

[6] Although an external oversight over managers' investment may be achieved through a number of different channels such as information disclosure (Hope & Thomas, 2008) and the market for corporate control (Jensen, 1986), my objective is not to compare the various ways to reduce the FCF problem. Instead, my analysis is limited to the proposed monitoring measure, conservative reporting. The presence of other *ex ante* controlling mechanisms would make it harder to find the hypothesized relationship between agency costs of FCF and conditional conservatism documented in this study.

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are poorly governed. Kalcheva and Lins (2007) document that entrenched managers are prevented from engaging in cash flow diversion in strong investor protection environments. In a US setting, Harford, Mansi, and Maxwell (2008) similarly find that poorly governed firms (measured by a lower G-index or higher insider ownership) with excess cash invest suboptimally.

Although the benefits associated with stronger corporate governance are evident, corporate governance is a part of corporate culture that exhibits little variation over time, and thus decisions regarding major revisions to improve corporate governance are unlikely to be made quickly enough to combat agency problems. As an alternative, extant studies view conservative accounting as a part of firms' monitoring mechanisms for reducing managerial opportunism and helping design effective contracts to maximize firm value (e.g., Ball & Shivakumar, 2006; Watts, 2003a; Watts & Zimmerman, 1990). Although debtholders are more likely to demand conservatism because they face downside risks (Khurana & Wang, 2015; Nikolaev, 2010; Zhang, 2008), the literature also provides evidence that conservatism responds to demands from various other stakeholders, such as a strong board of directors (Ahmed & Duellman, 2007; Beekes, Pope, & Young, 2004), large shareholders (Cheng, Huang, & Li, 2015; Ramalingegowda & Yu, 2012), new regulatory environments (He & El-Masry, 2008), and prestigious auditors (Cano-Rodríguez, 2010). The literature argues that managers are expected to adopt conservatism in response to these demands, as the benefits of conservatism outweigh the costs of adopting it.

Prior literature finds that accounting conservatism decreases the agency costs of equity. Agency costs of equity arise from the possibility of the agent (manager) prioritizing his/her own value over the value of the principal (shareholders). Francis and Martin (2010) document that conservative reporting is associated with more efficient acquisitions and divestitures and that this benefit is more pronounced among firms with high agency costs. Also, conservative reporting is believed to alleviate adverse moral hazard problems in the presence of information asymmetry, as well as agency costs associated with low managerial ownership (LaFond & Watts, 2008; Roychowdhury & Watts, 2007), and it provides early warning signals of weak corporate governance (Ahmed & Duellman, 2007). More closely related to the present study, some studies find that conservatism can mitigate the value discount associated with large cash holdings by encouraging more efficient use of cash (Louis, Sun, & Urcan, 2012) and can benefit investors in the form of more efficient investment (Ahmed & Duellman, 2011; García Lara, Garcia Osma, & Penalva, 2016). Kim and Zhang (2016) find that the degree of conditional conservatism is significantly and negatively associated with future stock price crash risk, and this relation is stronger in firms with higher information asymmetries. These findings suggest that conditional conservatism is an ex ante response to ex post opportunistic incentives to hide firm-specific bad news stemming from managerial opportunism. To the extent that shareholders understand these benefits of conservatism, they should demand more conservatism in the presence of agency costs of FCF when managers are able to exploit excess cash at the expense of shareholders.

In sum, the first hypothesis (stated in the alternative form) is as follows:

**H1.** : *Excess cash is positively associated with conservatism.*

Next, I investigate whether the association between the agency costs of FCF and conservative reporting systematically varies with alternative monitoring mechanisms for FCF. Specifically, I predict that certain firm characteristics lead to stronger or weaker associations between the severity of the agency costs of FCF and conservatism.[7]

Jensen (1986) argues that debt is an effective substitute mechanism for dividends because the required payments under debt contracts reduce the available cash flow, removing it from the control of corporate insiders. Moreover, the obligation to make the interest and principal payments motivates managers to manage the firm efficiently. Debt also signals a manager's willingness to pay out future cash flows and to be monitored by lenders and the debt market. Several papers find evidence that firms with high agency costs of FCF use relatively more debt as a disciplining device for the FCF problem (Lang, Ofek, & Stulz, 1996; McConnell & Servaes, 1995). In an international setting, Harvey, Lins, and Roper (2004) argue that debt mitigates the FCF problem in emerging markets, where overinvestment agency costs are potentially extreme.

Consequently, I expect high leverage to reduce shareholders' demands for conservative reporting as an additional monitoring mechanism.[8] Based on the above reasoning, the second hypothesis is as follows:

**H2.** : *The positive relation between excess cash and conservatism decreases with greater distribution to debtholders.*

Similarly, cash distributions to shareholders in the form of dividend or stock repurchases decrease the resources under management control and thereby reduce the incentive for wasteful investment while increasing firm value. Lang and Litzenberger (1989) find that there are larger returns associated with announcements of large dividend changes for overinvesting firms (low Q firms) compared to value maximizing firms (high Q firms), which is consistent with the hypothesis of agency costs of FCF. In the context of stock repurchases, Grullon and Michaely (2004) find that the market reaction to repurchase announcements is stronger for firms that are more likely to overinvest. Based on this evidence, it is perceived that the commitment to pay out excess cash in the form of dividends or stock repurchases will mitigate the likelihood of shareholder wealth expropriation, reducing the need for conservative reporting as an additional control mechanism. The preceding discussion leads to the third hypothesis:

**H3.** : *The positive relation between excess cash and conservatism decreases with greater distribution to equityholders in the form of dividends and repurchases.*

## 3. Research design and sample selection

### 3.1. Measures of agency costs of FCF

Jensen (1986) argues that larger amounts of excess cash lead to greater agency problems, as discretionary cash is more likely to be wasted in negative NPV projects or lost through organizational inefficiencies. Therefore, I use the amount of excess cash as a proxy for the agency costs of FCF. I measure excess cash following Dittmar and Mahrt-Smith (2007), who develop a model based on the work of Opler et al. (1999) to capture excess cash by deducting a predicted level of cash from the total cash holdings for each company using a regression model of total cash on variables that proxy for legitimate reasons why firms hold cash. More specifically, Opler et al.'s model factors in various reasons for firms to hold cash, such as needs arising from day-to-day operations, precautionary financial slack in anticipation of new investment opportunities in order to reduce external financing costs, and firm-specific reasons. A more detailed explanation of how to calculate excess cash (*EXCASH*) is provided in Appendix A.

[7] An implicit assumption behind testing H2 and H3 is that while several firm characteristics may partially reduce or increase the agency costs of FCF, the presence of those moderating mechanisms does not eliminate the agency costs and thus is not sufficient to completely offset demands for conservatism.

[8] However, debt can itself generate agency costs. Due to their limited liability, managers of levered firms tend to overinvest and choose NPV projects that are too risky and often negative. This leads to asset substitution (Jensen & Meckling, 1976). If this effect dominates, the demand for conservatism will increase with leverage in firms with a high FCF.

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### 3.2. Measures of conservatism

To test the association between agency costs of FCF and conservatism, I use three firm-specific conservatism measures: Cscore, as developed by Khan and Watts (2009) based on Basu's (1997) piecewise linear regression model, a modified Cscore based on Banker et al. (2016), who modified Basu's (1997) piecewise linear regression model to parse out the effect of cost stickiness, and an asymmetric earnings persistence measure based on Basu (1997).

#### 3.2.1. Firm-level conservatism measure (Cscore; Khan & Watts, 2009)

Although some have challenged the validity of the differential timeliness (DT) measure (e.g., Givoly, Hayn, & Natarajan, 2007), it has recently been tested in various settings such as surrounding earnings overstatements (Ettredge, Huang, & Zhang, 2012), foreign bank entries in India (Gormley, Kim, & Martin, 2012), and material weakness disclosures (Goh & Li, 2011), and it has been *proven* to detect predictable variation in conservatism. The DT measure focuses on how good and bad economic news, as measured by market returns, are asymmetrically associated with earnings. Basu's (1997) model is as follows:

$$NI_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 R_{it} + \beta_3 D_{it} R_{it} + \varepsilon_{it}. \quad (1A)$$

where $NI_{it}$ is the income before extraordinary items ($IB$) scaled by the lagged market value of equity for firm $i$ in fiscal year $t$, deflated by the prior fiscal year share price; $R_{it}$ is the return on firm $i$ from nine months before the fiscal-year end $t$ to three months after the fiscal-year end $t$; and $DR_{it}$ is a dummy variable equal to one if $R_{it}$ is negative, and zero otherwise. Based on Basu's piecewise regression model, Khan and Watts (2009) have developed a firm-specific conditional conservatism measure. They specify that the timeliness of both good news (GScore) and bad news (CScore) is a linear function of firm-specific characteristics, namely, size, the market-to-book ratio, and leverage, as follows:

$$GScore_{it} = \beta_2 = \mu_{1t} + \mu_{2t} SIZE_{it} + \mu_{3t} MB_{it} + \mu_{4t} LEV_{it} + \varepsilon; \quad (1B)$$

$$CScore_{it} = \beta_3 = \lambda_{1t} + \lambda_{2t} SIZE_{it} + \lambda_{3t} MB_{it} + \lambda_{4t} LEV_{it} + \varepsilon. \quad (1C)$$

Substituting Eqs. (1B) and (1C) into Eq. (1A) yields:

$$\begin{aligned} NI_{it} = {} & \beta_0 + \beta_1 D_{it} + R_{it}\,(\mu_{1t} + \mu_{2t} SIZE_{it} + \mu_{3t} MB_{it} + \mu_{4t} LEV_{it}) \\ & + D_{it} R_{it}\,(\lambda_{1t} + \lambda_{2t} SIZE_{it} + \lambda_{3t} MB_{it} + \lambda_{4t}\, LEV_{it}) + (\delta_{1t} SIZE_{it} \\ & + \delta_{2t} MB_{it} + \delta_{3t} LEV_{it} + \delta_{4t} D_{it} SIZE_{it} + \delta_{5t} D_{it} MB_{it} + \delta_{6t} D_{it} LEV_{it}) \\ & + \varepsilon_t. \end{aligned} \quad (1D)$$

I estimate annual regressions of Eq. (1D) and obtain the coefficients $\lambda_1$, $\lambda_2$, $\lambda_3$, and $\lambda_4$ to estimate *Cscore*.

#### 3.2.2. Modified Cscore (Banker et al., 2016)

Banker et al. (2016) modified Basu's (1997) piecewise linear regression model to parse out the effect of cost stickiness, the phenomenon where costs rise in response to sales increases more than they fall for sales decreases. Without controlling the asymmetric responses of costs to sales increases versus decreases, Basu's (1997) piecewise linear regression can erroneously detect conservatism when it actually implies cost stickiness. Specifically, Banker et al. (2016) propose the following model:

$$\begin{aligned} NI_{it} = {} & \alpha_0 + \alpha_1 D_{it} + \alpha_2 R_{it} + \alpha_3 D_{it} R_{it} + \beta_1 DS_{it} + \beta_2 \Delta S_{it}/P_{it-1} \\ & + \beta_3 DS_{it}{}^{*} \Delta S_{it}/P_{it-1} + \varepsilon_t, \end{aligned} \quad (2A)$$

where $DS_{it}$ is a dummy variable that is equal to one if sales decreased from year $t$-1 to year $t$ and is equal to zero otherwise, $\Delta S_{it}/P_{it\text{-}1}$ is the sales change from year $t$-1 to year $t$ that is scaled by the market value of equity at the beginning of the year, and the other variables are as previously defined.

I adopt the approach of Khan and Watts (2009) to develop a firm-level Cscore that parses out the effects of sticky costs (hereafter, the modified Cscore) by estimating the following model:

$$\begin{aligned} NI_{it} = {} & \beta_{0t} + \beta_{1t} D_{it} + R_{it}\,(\mu_{1t} + \mu_{2t} SIZE_{it} + \mu_{3t} MB_{it} + \mu_{4t} LEV_{it}) \\ & + D_{it} R_{it}\,(\lambda_{1t} + \lambda_{2t} SIZE_{it} + \lambda_{3t} MB_{it} + \lambda_{4t} LEV_{it}) + \lambda_{1t} \\ & + (\delta_{1t} SIZE_{it} + \delta_{2t} MB_{it} + \delta_{3t} LEV_{it} + \delta_{4t}\, D_{it} SIZE_{it} + \delta_{5t}\, D_{it} MB_{it} \\ & + \delta_{6t} D_{it} LEV_{it}) + DS_{it}\,(\gamma_{1t} + \gamma_{2t} SIZE_{it} + \gamma_{3t} MB_{it} + \gamma_{4t} LEV_{it}) \\ & + \Delta S_{it}/P_{it-1} (\gamma_{5t} + \gamma_{6t} SIZE_{it} + \gamma_{7t} MB_{it} + \gamma_{8t} LEV_{it}) \\ & + DS_{it}{}^{*} \Delta S_{it}/P_{it-1}\,(\gamma_{9t} + \gamma_{10t} \mathrm{SIZE_{it}} + \gamma_{11t} \mathrm{MB_{it}} + \gamma_{12t} \mathrm{LEV_{it}}) \\ & + \varepsilon_{\mathrm{it}}, \end{aligned} \quad (2B)$$

where all the variables are as previously defined. The modified Cscore is equal to $\lambda_{1t} + \lambda_{2t} SIZE_{it} + \lambda_{3t} MB_{it} + \lambda_{4t} LEV_{it}$. The modified Cscore controls for the variation in cost stickiness and removes this variation from Khan and Watts's (2009) firm-level Cscore derived from Basu's (1997) original regression.

#### 3.2.3. Asymmetric earnings persistence measure (APscore; Ball & Shivakumar, 2006; Basu, 1997)

The third conservatism measure is based on the transitory nature of economic income as documented by Basu (1997). Conservatism causes earnings to reflect bad news more quickly and more fully than good news. This leads Basu to predict that negative earnings changes are less persistent than positive earnings changes and that earnings response coefficients are lower for negative earnings changes. Consistent with this, Basu (1997) shows that the lower persistence of losses is primarily due to negative accruals:

$$\Delta NI_{it} = \beta_0 + \beta_1 DN_{it-1} + \beta_2 \Delta NI_{it-1} + \beta_3 DN_{it-1}{}^{*} \Delta NI_{it-1}, \quad (3A)$$

where $\Delta NI$ is the change in earnings before extraordinary items ($IB$) scaled by the lagged market value of equity. $DN_{it\text{-}1}$ is a dummy variable that is equal to one if $\Delta NI$ in the previous year is negative and is equal to zero otherwise, $\beta_2$ measures the persistence of a positive $\Delta NI$, and $\beta_3$ measures the differential persistence of a negative $\Delta NI$.

To estimate a firm-year level conservatism measure, I adopt the methodology proposed by Khan and Watts (2009). I estimate the following regression annually to obtain the coefficients $\lambda_1$, $\lambda_2$, $\lambda_3$, and $\lambda_4$ for each year to calculate the firm-specific asymmetric persistence score (APscore):

$$\begin{aligned} \Delta NI_{it} = {} & \beta_0 + \beta_1 DN_{it-1} \\ & + \Delta NI_{it-1}\,(\mu_1 + \mu_2 \mathrm{SIZE_{it}} + \mu_3 \mathrm{MB_{it}} + \mu_4 \mathrm{LEV_{it}}) \\ & + \mathrm{DN_{it-1}} \Delta \mathrm{NI_{it-1}}\,(\lambda_1 + \lambda_2 \mathrm{SIZE_{it}} + \lambda_3 \mathrm{MB_{it}} + \lambda_4 \mathrm{LEV_{it}}) \\ & + (\delta_1 \mathrm{SIZE_{it}} + \delta_2 \mathrm{MB_{it}} + \delta_3 \mathrm{LEV_{it}} + \delta_4 \mathrm{DN_{it-1}} \mathrm{SIZE_{it}} \\ & + \delta_5 \mathrm{DN_{it-1}} \mathrm{MB_{it}} + \delta_6 \mathrm{DN_{it-1}} \mathrm{LEV_{it}}) + \varepsilon_t. \end{aligned} \quad (3B)$$

*APscore* is calculated as follows:

$$APscore = \beta_3 = \lambda_{1t} + \lambda_{2t} SIZE_{it} + \lambda_{3t} MB_{it} + \lambda_{4t} LEV_{it}. \quad (3C)$$

In this model, conditional conservatism decreases with APscore, so I multiply the resulting measure by negative one to make it an increasing measure of conservatism.

All measures for firm-specific conservatism calculated above, including Cscore, modified Cscore, and APscore, are ranked annually into deciles, and this decile ranking is then divided by 9 so that the ranked variable falls between 0 and 1. The ranked variables are referred to as *CON_KW*, *CON_NEW*, and *CON_CHG*, respectively.

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### 3.3. Empirical models

Following Ahmed and Duellman (2013), who study the effect of managerial overconfidence on accounting conservatism, I use the firm-specific measures of conservatism in estimating the following model:

$$CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 SIZE_t + \beta_3 MB_t + \beta_4 LEV_t + \beta_5 LIT_t + \beta_6 Salesgrowth_t + \beta_7 RD_t + \beta_8 CFO_t + \beta_9 stdSALE_t + \beta_{Industry} + \beta_{Year} + \varepsilon, \quad (4)$$

where $CON_t$ is one of the three firm-specific conservatism measures *CON_KW, CON_NEW,* and *CON_CHG* and $EXCASH_{t-1}$ is excess cash measured at year *t*-1. To parse out the demand for conservatism attributable to agency costs of FCF, I control for other sources of conservative reporting identified by prior research. Khan and Watts (2009) note that firm-specific conservatism varies through cross-sectional variations in the firm-specific characteristics, namely, market-to-book ratio (*MB*), leverage (*LEV*), market value of equity (*SIZE*), and litigious industry (*LIT*). Sales growth (*SG*) is controlled because increased accruals such as accounts receivable or inventories may affect conservatism in reporting (Ahmed & Duellman, 2007). *R&D* is controlled because expensing R&D represents GAAP-inherent conservatism (or unconditional conservatism), which may affect conditional conservatism. Watts (2003a, 2003b) argues that more profitable firms may be engaged in more conservative reporting to reduce or defer the firm's tax burden. *CFO* is included to control for the impact of profitability on conservatism. The standard deviation of sales (*stdSALE*) captures operating uncertainty, which can affect information asymmetry between managers and debtholders as well as shareholders. Industry and year fixed effects are included to capture the static level of conservatism that is due to the nature of the industry or macroeconomic factors and to account for the unobservable time- and industry-invariant heterogeneity.

To test for moderating effects of other monitoring mechanisms on the incremental demand for conservatism in the presence of agency problems associated with FCF, I modify Eq. (4) as follows:

$$CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 DIST\_D_{t-1} + \beta_3 EXCASH_{t-1} DIST\_D_{t-1} + \beta_4 DIST\_EQ_{t-1} + \beta_5 EXCASH_{t-1} DIST\_EQ_{t-1} + \beta_6 SIZE_t + \beta_7 MB_t + \beta_8 LEV_t + \beta_9 LIT_t + \beta_{10} Salesgrowth_t + \beta_{11} RD_t + \beta_{12} CFO_t + \beta_{13} stdSALE_t + \beta_{Industry} + \beta_{Year} + \varepsilon. \quad (5)$$

Following Richardson (2006), *DIST_D* is net cash returned to debtholders, calculated as long-term debt reduction (DLTR) minus long-term debt issuance (DLTIS) minus changes in current debt (DLCCH). *DIST_EQ* is net cash returned to equityholders, calculated as purchases of common and preferred stock (PRSTKC) plus cash dividends (DV) minus sales of common and preferred stock (SSTK). Both *DIST_D* and *DIST_EQ* are indicator variables that are set to one (zero) for being above (below) the industry median value in a given year. I employ one-year lagged *EXCASH*, *DIST_D*, and *DIST_EQ* variables. Other control variables are measured contemporaneously with the dependent variable and are as previously defined.

If the distributions of cash to debtholders or equityholders serve as effective monitoring measures for the FCF problem, and thus reduce the incremental demand for conservatism, then the coefficients $\beta_3$ and $\beta_5$ are expected to be negative and significant. Please refer to Appendix B for detailed variable definitions.

#### 3.3.1. Sample selection

The initial sample contains all observations from 1987 to 2015 for which data is available in Compustat and CRSP to estimate *EXCASH* (statements of cash flow became available in 1987) and Basu's piecewise linear earnings-returns regression and asymmetric earnings persistence models. Consistent with previous literature, I exclude firms in the financial services industries (SIC codes between 6000 and 6999), where liquidity is hard to assess, and in the utility sector (SIC codes between 9000 and 9999), where liquidity and governance as well as conservatism might be affected by regulatory factors. To reduce the effects of outliers, I delete firm years for which the absolute value of the FCF deflated by total assets at the beginning of the fiscal year exceeds 1 (Richardson, 2006), sales growth measured as the percentage of annual sales growth rate ($Sales_t/Sales_{t-1}$) exceeds 10, or the market-to-book ratio exceeds 100. Firms with negative book values are also excluded, as these firms are likely in financial distress and their reporting incentives may therefore be drastically different from typical firms. Stock returns (R) are obtained from CRSP monthly returns files, and annual compounded buy-and-hold returns are computed beginning four months after the fiscal year end to ensure that the market reaction to the prior year's earnings are excluded and to measure the market reaction only after investors obtain financial statements for the prior year so that they can see the amounts of excess cash holdings. Data on institutional investor ownership was obtained from the Thomson Reuters Institutional Holdings database. The Thomson Reuters Holdings database covers investment companies and their security holdings as reported on their 13F forms filed with the Securities and Exchange Commission (SEC) every quarter. Each continuous variable is winsorized at 1% in each tail.

Out of 103,163 firm-year observations (12,313 unique firms), 68,888 firm-year observations (8068 unique firms) have all observations necessary to calculate firm-level conservatism scores and explanatory variables. Of these, only 45,434 (5577 unique firms) firm-year observations have all data needed to calculate excess cash. The resulting usable observations serve as the base sample for all analyses, but the sample sizes differ by analysis depending on data availability.

## 4. Empirical results

### 4.1. Descriptive statistics

To highlight the differences in firm characteristics depending on the severity of the agency costs of FCF, Panel A of Table 1 contains descriptive statistics comparing high excess cash (EXCASH) and low EXCASH subsamples. The high (low) EXCASH subsample corresponds to observations in the top tercile (bottom two terciles) of the distribution of excess cash. I assume that at any point in time, substantial amounts of excess cash can capture the attention of shareholders, which generates an increased demand for stronger monitoring over potential expropriation by insiders.[9] Among the 45,434 observations, I identified 6295 firm years representing 1967 unique firms as the high EXCASH subsample, and 39,139 firm years representing 5264 unique firms as the low EXCASH subsample. In most cases, the differences in means and medians are significantly different from zero. The inferences based on an alternative partition (using median cutoff rather than tercile cutoff) are similar (these are untabulated but available upon request).

On average, the high EXCASH subsample contains firms that have smaller market capitalization, are less profitable in terms of both ROA and cash flow from operations, are less leveraged, and have lower growth potential measured by both market-to-book ratio and sales growth than those in the low EXCASH subsample. Firms in the high EXCASH subsample return more cash to debtholders, but they distribute less cash to shareholders compared to those in the low EXCASH subsample. Firms in the high EXCASH subsample invest more than those

[9] Further examination reveals that there is some persistence in firm types; however, the low EXCASH subsample appears to be much more persistent than the high EXCASH subsample. For example, in Year 2, about 30% of the sample remains in the high EXCASH grouping. By Year 4, approximately only 13% of the sample remains in the high EXCASH grouping. On the other hand, approximately 40% of the sample remains in the low EXCASH subsample by year 2, and 20% of the initially low EXCASH subsample continues to maintain the same status by year 4.

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**Table 1**
Descriptive statistics and correlation matrix.

Panel A: Descriptive statistics based on excess cash partitions

| | EXCASH in the bottom two terciles | | | EXCASH in the top tercile | | | Mean diff | Median diff |
|---|---|---|---|---|---|---|---|---|
| Variable | N | Mean | Median | N | Mean | Median | p-val | p-val |
| *Cscore* | 30,658 | 0.098 | 0.104 | 14,776 | 0.118 | 0.126 | <0.0001 | <0.0001 |
| *NewCscore* | 30,658 | 0.109 | 0.112 | 14,776 | 0.127 | 0.130 | <0.0001 | <0.0001 |
| *NCscore* | 30,658 | 0.476 | 0.450 | 14,776 | 0.484 | 0.454 | 0.012 | 0.020 |
| *CON_KW* | 30,658 | 0.446 | 0.407 | 14,776 | 0.500 | 0.519 | <0.0001 | <0.0001 |
| *CON_NEW* | 30,658 | 0.484 | 0.481 | 14,776 | 0.503 | 0.519 | <0.0001 | <0.0001 |
| *CON_CHG* | 30,658 | 0.449 | 0.444 | 14,776 | 0.505 | 0.519 | <0.0001 | <0.0001 |
| *EXCASH* | 30,658 | −1.393 | −1.057 | 14,776 | 1.640 | 1.244 | <0.0001 | <0.0001 |
| *DIST_D* | 30,658 | 0.049 | 0.177 | 14,776 | 0.085 | 0.176 | <0.0001 | 0.854 |
| *DIST_EQ* | 30,658 | 0.124 | 0.164 | 14,776 | 0.101 | 0.153 | 0.000 | <0.0001 |
| *INVEST* | 30,658 | 0.127 | 0.082 | 14,776 | 0.162 | 0.119 | <0.0001 | <0.0001 |
| *SIZE* | 30,658 | 5.984 | 6.016 | 14,776 | 5.651 | 5.551 | <0.0001 | <0.0001 |
| *MB* | 30,658 | 2.813 | 1.910 | 14,776 | 2.367 | 1.690 | <0.0001 | <0.0001 |
| *ROA* | 30,658 | 0.028 | 0.046 | 14,776 | −0.006 | 0.034 | <0.0001 | <0.0001 |
| *LEV* | 30,658 | 0.975 | 0.530 | 14,776 | 0.807 | 0.393 | <0.0001 | <0.0001 |
| *SGR* | 30,658 | 0.125 | 0.078 | 14,776 | 0.130 | 0.073 | 0.169 | <0.0001 |
| *RD* | 30,658 | 0.022 | 0.000 | 14,776 | 0.071 | 0.037 | <0.0001 | <0.0001 |
| *CFO* | 30,658 | 0.097 | 0.099 | 14,776 | 0.057 | 0.074 | <0.0001 | <0.0001 |
| *stdSALE* | 30,658 | 0.277 | 0.175 | 14,776 | 0.280 | 0.197 | 0.612 | <0.0001 |
| *InstiOwn* | 27,545 | 0.484 | 0.505 | 12,601 | 0.474 | 0.469 | 0.0019 | 0.002 |
| *Gindex* | 13,728 | 8.940 | 9.000 | 5718 | 8.558 | 9.000 | <0.0001 | <0.0001 |

Panel B: Correlation matrix (Spearman bleow the diagonal and Pearson above the diagonal)

| | CON_KW | CON_NEW | CON_CHG | EXCASH | DIST_D | DIST_EQ | INVEST | SIZE | MB | ROA | LEV | SGR | RD | CFO | stdSALE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CON_KW | 1.000 | 0.987 | 0.429 | 0.067 | 0.090 | −0.291 | −0.174 | −0.916 | −0.424 | −0.335 | 0.158 | −0.142 | −0.015 | −0.337 | 0.277 |
| CON_NEW | 0.987 | 1.000 | 0.438 | 0.074 | 0.092 | −0.285 | −0.188 | −0.903 | −0.467 | −0.340 | 0.181 | −0.150 | −0.032 | −0.339 | 0.268 |
| CON_CHG | 0.438 | 0.447 | 1.000 | 0.039 | 0.046 | −0.136 | −0.097 | −0.387 | −0.258 | −0.172 | 0.106 | −0.075 | −0.034 | −0.154 | 0.120 |
| EXCASH | 0.073 | 0.079 | 0.044 | 1.000 | 0.000 | −0.063 | 0.166 | −0.063 | −0.096 | −0.104 | −0.074 | −0.032 | 0.364 | −0.167 | 0.039 |
| DIST_D | 0.054 | 0.056 | 0.028 | 0.024 | 1.000 | −0.097 | −0.326 | −0.104 | −0.066 | 0.014 | −0.009 | −0.145 | 0.004 | 0.098 | 0.046 |
| DIST_EQ | −0.077 | −0.071 | −0.021 | −0.005 | 0.006 | 1.000 | −0.180 | 0.299 | 0.004 | 0.316 | 0.050 | −0.163 | −0.157 | 0.315 | −0.253 |
| INVEST | −0.075 | −0.085 | −0.055 | 0.122 | −0.557 | −0.311 | 1.000 | 0.142 | 0.302 | 0.092 | −0.292 | 0.303 | 0.437 | 0.159 | −0.007 |
| SIZE | −0.906 | −0.894 | −0.391 | −0.063 | −0.062 | 0.091 | 0.055 | 1.000 | 0.403 | 0.316 | −0.132 | 0.139 | −0.008 | 0.318 | −0.303 |
| MB | −0.254 | −0.296 | −0.184 | −0.132 | −0.064 | −0.089 | 0.171 | 0.240 | 1.000 | 0.358 | −0.557 | 0.272 | 0.246 | 0.258 | 0.019 |
| ROA | −0.264 | −0.254 | −0.097 | −0.146 | 0.018 | 0.197 | −0.070 | 0.270 | −0.009 | 1.000 | −0.401 | 0.292 | −0.058 | 0.606 | −0.056 |
| LEV | 0.180 | 0.188 | 0.117 | −0.042 | −0.032 | 0.039 | −0.108 | −0.185 | −0.209 | −0.143 | 1.000 | −0.199 | −0.339 | −0.239 | −0.011 |
| SGR | −0.062 | −0.070 | −0.036 | −0.005 | −0.184 | −0.172 | 0.307 | 0.057 | 0.147 | 0.096 | −0.073 | 1.000 | 0.011 | 0.139 | 0.072 |
| RD | 0.059 | 0.036 | −0.009 | 0.401 | 0.013 | −0.204 | 0.410 | −0.078 | 0.265 | −0.338 | −0.176 | 0.075 | 1.000 | −0.109 | 0.024 |
| CFO | −0.287 | −0.281 | −0.114 | −0.195 | 0.078 | 0.273 | −0.014 | 0.279 | 0.030 | 0.625 | −0.104 | 0.026 | −0.320 | 1.000 | −0.113 |
| stdSALE | 0.122 | 0.117 | 0.050 | −0.015 | −0.028 | −0.060 | 0.037 | −0.134 | 0.031 | −0.038 | 0.018 | 0.077 | −0.005 | −0.051 | 1.000 |

Panel A reports summary statistics. The table reports the descriptive statistics for all of the main variables used in the analysis separately for the top-tercile EXCASH subsample and the bottom-two-tercile EXCASH subsamle. For the detailed calculations of each variable, refer to appendix A. The sample period is from 1987 to 2014. Each of the variables is winsorized at the 1st and 99th percentiles.
Panel B reports pairwise Pearson correlation coefficients above the diagonal and Spearman correlation coefficients below the diagonal. The significant correlation coefficients (at <5% level) are indicated in bold.

in the low EXCASH subsample, providing initial evidence that firms that have high excess cash holdings may overinvest. The high EXCASH subsample has higher operating uncertainty, reflected by a higher standard deviation of sales, and lower institutional ownership and higher anti-takeover provisions, indicating that firms more prone to the FCF problem may have poorer corporate governance than their counterparts.

Panel B of Table 1 presents the Pearson univariate correlations among the main testing variables. *EXCASH* is positively related to all three firm-specific conditional conservatism measures, providing initial evidence that the FCF problem increases the demand for conservatism. The correlation results are generally in line with the descriptive statistics.

### 4.2. Base results for H1

Table 2 presents the results of testing the primary hypothesis (H1) using Eq. (4), that is, testing whether firms with high excess cash holdings report more conservatively than their counterparts. The results reported in column (1) with *CON_KW* support the conjecture that high excess cash holdings increase the demand for conservatism. This finding holds across all the conservatism proxies, with the coefficient on *CON_KW*, for example, being significant at the 1% level. In light of the premise that high excess cash increases the agency costs of FCF, the results imply that agency costs of FCF may generate the demand for conservatism.

Turning to the control variables, the coefficient on *SIZE* is consistently negative and highly significant across all columns, indicating that smaller firms provide more conservative reports than their larger counterparts. The coefficient on *MB* is significantly negative across all columns, indicating that firms with smaller market-to-book ratios are more asymmetrically timely in recognizing bad news versus good news. The coefficients on leverage and litigation risks are consistently positive and significant, indicating that highly leveraged and litigious firms report more conservatively, as widely documented in prior literature. Each of the coefficients on sales growth, R&D expenditure, and CFO is negative and significant, suggesting that firms that are growing quickly, making more R&D investments, and generating large cash flows from operations on average report less conservatively. The coefficient on the standard deviation of sales is generally positive and significant, meaning that firms that have high sales volatility report more conservatively, probably to mitigate information asymmetry stemming from operational uncertainty. The coefficients on the control variables reported in Table 2 are similar to those in the following tables and are therefore not discussed further.

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**Table 2**
Agency costs of FCF and the demand for conservatism.

| | CON_KW$_t$t | | | CON_NEW$_t$ | | | CON_CHG$_t$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.182 | 126.27 | *** | 1.162 | 115.47 | *** | 0.672 | 47.79 | *** |
| $EXCASH_{t-1}$ | 0.018 | 8.14 | *** | 0.023 | 10.44 | *** | 0.018 | 5.21 | *** |
| $SIZE_t$ | −0.120 | −444.69 | *** | −0.115 | −412.87 | *** | −0.030 | −52.45 | *** |
| $MB_t$ | −0.004 | −11.62 | *** | −0.008 | −25.32 | *** | −0.003 | −7.67 | *** |
| $LEV_t$ | 0.000 | 0.27 | | 0.000 | 0.35 | | 0.000 | −0.02 | |
| $LIT_t$ | 0.011 | 4.10 | *** | 0.012 | 4.35 | *** | 0.008 | 2.08 | ** |
| $SGR_t$ | −0.005 | −2.55 | ** | −0.006 | −3.04 | *** | 0.006 | 1.79 | * |
| $RD_t$ | −0.126 | −9.32 | *** | −0.176 | −12.89 | *** | −0.125 | −6.00 | *** |
| $CFO_t$ | −0.115 | −17.97 | *** | −0.119 | −18.30 | *** | −0.038 | −3.73 | *** |
| $stdSALE_t$ | 0.001 | 0.84 | | 0.001 | 0.34 | | 0.001 | 0.36 | |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 82.66% | | | 81.17% | | | 16.34% | | |
| *No. Obs* | 45,430 | | | 45,430 | | | 45,430 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 SIZE_t + \beta_3 MB_t + \beta_4 LEV_t + \beta_5 LIT_t + \beta_6 Salesgrowth_t + \beta_7 RD_t + \beta_8 CFO_t + \beta_9 stdSALE_t + Industry\ dummies + Year\ dummies + \varepsilon$ (7)
2. $CON_t$ is one of the three firm-specific conservatism measures: *CON_KW, CON_NEW, CON_CHG*. To parse out the demand for conservatism attributable to agency costs of FCF proxied by *EXCASH*, I control for other sources of conservative reporting identified by prior research on conservatism. Khan and Watts (2009) note that firm-specific conservatism varies through cross-sectional variations in the firm specific characteristics, namely market to book (*MB*), leverage (*LEV*), market value of equity (*SIZE*), and litigious industry (*LIT*). Sales growth (*SG*) is controlled because increased accruals such as accounts receivables or inventory may affect reporting conservatism (Ahmed & Duellman, 2007). CFO is included to control for the impact of profitability on conservatism. Standard deviation of sales (*stdSALE*) captures operating uncertainty, which can affect information asymmetry between managers and debtholders as well as shareholders, increasing the demand for conservatism. Industry and year dummies are included to capture the static level of conservatism that is due to the nature of the industry or macroeconomic factors.
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Overall, the results in Table 2 support H1: shareholders demand greater conservative reporting in the presence of agency costs of FCF.

### 4.3. Tests of H2 and H3

If concerns about the agency costs of FCF drive the demand for conservative reporting, then one should expect to see predictable differences when such concerns are mitigated or heightened. H2 and H3 predict that conservatism among firms with more excess cash would show cross-sectional variations based on certain firm characteristics that presumably act as monitoring mechanisms for the FCF problem.

Table 3 presents the results of testing H2 and H3 regarding whether the incremental demand for conservatism associated with excess cash decreases if firms distribute more cash to debtholders or equityholders. Consistent with H2 and H3, I find a negative and significant coefficient on all four moderating variables across all three measures of conservatism.

In Panel A of Table 3, Column (1) reports the results using *CON_KW*. The coefficient on *EXCASH* is positive and significant in this specification, corroborating the main effect of excess cash on overinvestment found in Table 2. The coefficient on *EXCASH*DIST_D* is negative and significant (*coeff.* = −0.026, *t-stat* = −4.09), indicating that greater distribution to debtholders reduces the incremental

**Table 3**
The impact of Debts/Payout Policy on the incremental demand for conservatism for firms with high agency costs of FCF.

| | CON_KW$_t$ (1) | | | CON_NEW$_t$ (2) | | | CON_CHG$_t$ (3) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.175 | 121.17 | *** | 1.160 | 111.88 | *** | 0.680 | 46.78 | *** |
| $EXCASH_{t-1}$ | 0.046 | 8.46 | *** | 0.044 | 8.02 | *** | 0.036 | 4.38 | *** |
| $DIST\_D_{t-1}$ | 0.016 | 4.65 | *** | 0.018 | 5.10 | *** | −0.002 | −0.31 | |
| $EXCASH_{t-1}DIST\_D_{t-1}$ | −0.026 | −4.09 | *** | −0.028 | −4.21 | *** | −0.018 | −1.85 | * |
| $DIST\_EQ_{t-1}$ | −0.007 | −1.70 | * | −0.019 | −4.77 | *** | −0.016 | −2.72 | *** |
| $EXCASH_{t-1}DIST\_EQ_{t-1}$ | −0.028 | −4.40 | *** | −0.013 | −2.04 | ** | −0.016 | −1.63 | |
| $SIZE_t$ | −0.120 | −432.03 | *** | −0.114 | −401.34 | *** | −0.029 | −50.73 | *** |
| $MB_t$ | −0.004 | −11.51 | *** | −0.008 | −25.22 | *** | −0.003 | −7.73 | *** |
| $LEV_t$ | 0.000 | 0.30 | | 0.000 | 0.38 | | 0.000 | 0.02 | |
| $LIT_t$ | 0.010 | 3.80 | *** | 0.011 | 3.98 | *** | 0.007 | 1.78 | * |
| $SGR_t$ | −0.006 | −3.50 | *** | −0.008 | −4.25 | *** | 0.002 | 0.68 | |
| $RD_t$ | −0.143 | −10.46 | *** | −0.191 | −13.89 | *** | −0.138 | −6.55 | *** |
| $CFO_t$ | −0.109 | −16.61 | *** | −0.110 | −16.57 | *** | −0.024 | −2.29 | ** |
| $stdSALE_t$ | 0.001 | 0.43 | | 0.000 | −0.20 | | 0.000 | −0.20 | |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 72.85% | | | 70.82% | | | 12.68% | | |
| *No. Obs* | 45,430 | | | 45,430 | | | 45,430 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 DIST\_D_{t-1} + \beta_3 EXCASH_{t-1}\ DIST\_D_{t-1} + \beta_4 DIST\_EQ_{t-1} + \beta_5 EXCASH_{t-1}\ DIST\_EQ_{t-1} + \beta_6 SIZE_t + \beta_7 MB_t + \beta_8 LEV_t + \beta_9 LIT_t + \beta_{10} Salesgrowth_t + \beta_{11} RD_t + \beta_{12} CFO_t + \beta_{13} stdSALE_t + \beta_{Industry} + \beta_{Year} + \varepsilon$ (5)
2. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

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demand for conservatism. This indicates that debt is an effective mechanism to mitigate the agency costs of FCF, as suggested by Jensen (1986). The coefficient on *EXCASH*DIST_EQ* is negative and significant (*coeff.* = −0.028, *t-stat* = −4.40), supporting H3: greater distribution to equityholders reduces the incremental demand for conservatism driven by the agency costs of FCF. This indicates that the commitment to return more cash to equityholders can alleviate the agency costs of FCF.

The results reported in Column (2) with *CON_NEW* and in Column (3) with *CON_CHG* are consistent with the results reported in Column (1). I continue to find support for H2 and H3. Taken together, the results suggest that both distribution to debtholders and distribution to equityholders alleviate the agency costs of FCF and in turn reduce the incremental demand driven by agency concerns.

Extant research argues that payouts might be negatively related to the degree of conservatism for two reasons. First, because conservatism lowers current earnings by accelerating loss recognition, conservative firms may pay lower amounts of dividends. Accordingly, it is often suggested that conservatism protects debtholders against expropriation by shareholders by constraining payouts to equityholders and hence reduces the agency cost of debt (Ball, Kothari, & Robin, 2000; Watts, 2003a, 2003b; Zhang, 2008). Secondly, Louis and Urcan (2015) argue that conservatism reduces the demand for payouts to shareholders because dividends are driven by agency conflicts between shareholders and managers and conservatism reduces these conflicts by reducing managers' incentives to engage in value-destroying projects (Ahmed & Duellman, 2011; Ball & Shivakumar, 2006; Watts, 2003a, 2003b). They find consistent evidence that dividend payouts decrease with conservatism. To control for the possibility that payouts are a function of the FCF problem and conservatism, I regress distribution to equityholders on various control variables that are likely to affect dividends, namely, earnings, retained earnings, leverage, book-to-market ratio, and sales growth, and extract the error term. Use of the unexpected payouts to shareholders as the independent variable does not change the inferences (untabulated).

### 4.4. Overinvestment

As a natural extension of the main research question, I further examine whether conservatism has a measurable impact on future investment behavior for firms that are prone to overinvest. Specifically, I test whether firms with high excess cash holdings that practice greater conservatism are less likely to overinvest than their counterparts. To measure the likelihood of overinvestment, I first construct *ResInvest*, a ranked variable based on the residual term from the regression of investment at year *t* on sales growth at year *t*-1 (Biddle, Hilary, & Verdi, 2009). To this end, I estimate the following model for each year and industry separately:

$$Invest_{it} = \beta_0 + \beta_1 SalesGrowth_{it-1} + \varepsilon.$$

To get a meaningful error term, I require a minimum of 20 observations for each year-industry group. Industry is defined according to the Fama-French 48 industry classifications (Fama & French, 1997). *ResInvest* is ranked into deciles and rescaled between 0 and 1. The likelihood of overinvestment (*Overinvest*) equals one for the firm-year observations in the top quartile (the overinvesting group) and equals zero for the firm-year observations in the middle two quartiles (the normal-investing group). The observations of the underinvesting group (the firm-year observations in the bottom quartile) are discarded.

Following Biddle et al. (2009), I estimate the following multinomial logistic regression model to test the likelihood that conservatism reduces overinvestment associated with excess cash:

$$\begin{aligned} Overinvest_t = {} & \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 CON_t + \beta_3 EXCASH_t{}^{*} CON_t \\ & + \beta_4 Cash_t + \beta_5 MB_t + \beta_6 ROA_t + \beta_7 Lev_{t+1} \\ & + \beta_8 Dividend_{t+1} + \beta_9 Size_{t+1} + \beta_{10} stdSale_{t+1} \\ & + \beta_{11} stdInvest_{t+1} + \beta_{12} stdROA_t + \beta_{12} AltmanZ_t \\ & + \beta_{14} Tangible_t + \beta_{15} Age_t + \beta_{16} OperCycle_t \\ & + \beta_{17} InstiOwn_t + Industry + Year + \varepsilon. \end{aligned} \quad (6)$$

I employ one-year lagged *EXCASH*, while the dependent variable and the rest of the control variables are measured contemporaneously. I use the same control variables as Biddle et al. (2009). I include four variables to capture the impact of financial constraints on investment activities. Firms with greater cash holdings (*Cash*), greater assets (*Size*), greater returns on assets (*ROA*), and less leverage (*Lev* tend to have fewer financial constraints and can easily take advantage of investment opportunities. I control for sales volatility (*stdSale*), investment volatility (*stdInvest*), volatility of return on assets (*stdROA*), the market-to-book ratio (*MB*), and the dividend payout ratio (*Dividend*) since these variables have been found to affect investment behavior (Biddle et al., 2009). Following Biddle et al. (2009), I also control for firm age (*Age*), tangibility (*Tangible*), operating cycle (*OperCycle*), and Altman *Z*-score (*AltmanZ*), which is a measure of distress computed as in Altman (1968). Finally, to ensure that the effect I document is due to the quality of the information environment rather than any other corporate governance mechanisms, I include one corporate governance variable, institutional ownership (*InstiOwn*). The variable of interest is the coefficient on the interaction term *EXCASH*CON*. A negative sign on the interaction term reflects that conservatism mitigates overinvestment associated with excess cash, and a positive sign indicates that it does not.

The results are reported in Table 4. The coefficient on *EXCASH* is positive in all columns, indicating that excess cash induces overinvestment, consistent with Richardson (2006). The coefficient for *EXCASH*CON* is negative and significant across all three measures of conservatism, confirming the economic benefits of conservatism for firms that are prone to overinvest. Similar results are obtained in García Lara et al. (2016).

### 4.5. Additional tests

#### 4.5.1. Lead and lag analysis

Throughout this study, the *EXCASH* variable is positively associated with various conservatism proxies, and this is interpreted as meaning that agency costs of FCF increase the demand for conservatism among shareholders. Alternatively, one could argue that the positive coefficient on *EXCASH* is due to a possible mechanical relationship among individual determinants of the *EXCASH* variable and the measure of conservatism. Moreover, while the results establish a link between agency costs of FCF and conditional conservatism, they do not directly address concerns of reverse causality. Another possibility is that the result is simply driven by a self-selection bias, that is, firms that report more conservatively are more likely to be accumulating excess cash. In view of such possibilities, I track how conservatism is associated with the extent of excess cash over successive time periods.

In the spirit of LaFond and Watts (2008) and Ramalingegowda and Yu (2012), I examine the relation between conservatism and lagged, current, and lead change in the *EXCASH* variable *(ΔEXCASH)* by using the following equation:

$$\begin{aligned} NI_t = {} & \beta_0 + \beta_1 D_t + \beta_2 R_t + \beta_3 D_t R_t + \beta_4 SIZE_{t-1} + \beta_5 D_t SIZE_{t-1} \\ & + \beta_6 R_t SIZE_{t-1} + \beta_7 D_t R_t SIZE_{t-1} + \beta_8 MB_{t-1} + \beta_9 D_t MB_{t-1} \\ & + \beta_{10} R_t MB_{t-1} + \beta_{11} D_t R_t MB_{t-1} + \beta_{12} LEV_{t-1} + \beta_{13} D_t LEV_{t-1} \\ & + \beta_{14} R_t LEV_{t-1} + \beta_{15} D_t R_t LEV_{t-1} + \beta_{16} LIT_{t-1} + \beta_{17} D_t LIT_{t-1} \\ & + \beta_{18} R_t LIT_{t-1} + \beta_{19} D_t R_t\ LIT_{t-1} + \beta_{20} \Delta EXCASH_{t+x} \\ & + \beta_{21} D_t\ \Delta EXCASH_{t+x} + \beta_{22} R_t \Delta EXCASH_{t+x} \\ & + \beta_{23} D_t R_t \Delta EXCASH_{t+x} + \beta_{Firm} + \beta_{Year} + \varepsilon_t, \end{aligned} \quad (7)$$

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**Table 4**
Conservatism and overinvestment.

| | | | | CON=CON_KW$_t$ | | | CON_NEW$_t$ | | | CON_CHG$_t$ | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | | (4) | | |
| | Coeff | T-stat | Sig | Coeff | T-stat | Sig | Coeff | T-stat | Sig | Coeff | T-stat | Sig |
| *Intercept* | 0.197 | 0.26 | | −1.246 | 3.47 | * | −1.069 | 2.63 | | −1.816 | 8.26 | *** |
| $EXCASH_{t-1}$ | 0.191 | 20.35 | *** | 0.176 | 51.28 | *** | 0.181 | 54.24 | *** | 0.195 | 29.66 | *** |
| $EXCASH_{t-1}$*$CON_t$ | | | | −0.063 | 2.06 | * | −0.074 | 2.81 | ** | −0.094 | 1.97 | * |
| $CON_t$ | | | | −0.565 | 11.79 | *** | −0.693 | 20.85 | *** | −0.337 | 7.14 | *** |
| $FRQ_t$ | −1.185 | 136.54 | *** | −0.821 | 39.23 | *** | −0.825 | 39.68 | *** | −0.796 | 37.04 | *** |
| $CASH_t$ | 0.793 | 53.46 | *** | −0.052 | 0.11 | | −0.050 | 0.09 | | −0.067 | 0.17 | |
| $MTB_t$ | 0.028 | 24.50 | *** | 0.040 | 21.84 | *** | 0.037 | 18.92 | *** | 0.042 | 23.60 | *** |
| $ROA_t$ | −0.426 | 7.13 | *** | 2.104 | 17.59 | *** | 1.988 | 15.58 | *** | 2.270 | 20.75 | *** |
| $LEV_t$ | −0.236 | 124.93 | *** | 1.039 | 27.26 | *** | 1.050 | 28.02 | *** | 0.965 | 24.03 | *** |
| $DIV_t$ | −0.285 | 12.23 | *** | 0.003 | 0.70 | | 0.003 | 0.67 | | 0.003 | 0.86 | |
| $SIZE_t$ | 0.056 | 16.35 | *** | 0.011 | 0.18 | | −0.002 | 0.01 | | 0.067 | 14.07 | *** |
| $stdSALE_t$ | −0.050 | 1.67 | | −0.263 | 8.29 | *** | −0.258 | 7.97 | *** | −0.278 | 9.28 | *** |
| $stdINV_t$ | 2.348 | 302.53 | *** | 2.863 | 186.20 | *** | 2.856 | 185.27 | *** | 2.879 | 188.62 | *** |
| $stdROA_t$ | 0.237 | 3.31 | * | 2.214 | 16.22 | *** | 2.132 | 15.01 | *** | 2.312 | 17.78 | *** |
| $Altman\_Z_t$ | −0.004 | 0.73 | | −0.007 | 0.89 | | −0.008 | 0.98 | | −0.004 | 0.32 | |
| $Tangible_t$ | 3.090 | 792.89 | *** | 3.618 | 628.88 | *** | 3.621 | 629.01 | *** | 3.622 | 630.15 | *** |
| $AGE_t$ | −0.003 | 3.61 | * | 0.012 | 40.90 | *** | 0.012 | 41.83 | *** | 0.011 | 39.53 | *** |
| $OPERCYCLE_t$ | −0.003 | 108.60 | *** | −0.003 | 52.64 | *** | −0.003 | 52.79 | *** | −0.003 | 51.93 | *** |
| $InstiOwn_t$ | 0.019 | 4.52 | ** | 0.415 | 13.72 | *** | 0.406 | 13.40 | *** | 0.505 | 21.86 | *** |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 19.12% | | | 12.82% | | | 12.88% | | | 13.16% | | |
| *No. Obs* | 30,235 | | | 30,235 | | | 30,235 | | | 30,235 | | |

1. The table presents coefficients and the associated t-statistics for the following binomial logit regression model. Standard errors are clustered at the firm level: $Overinvest_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 CON_t + \beta_3 EXCASH_t{*}CON_t + \beta_4 Cash_t + \beta_5 MB_t + \beta_6 ROA_t + \beta_7 Lev_{t+1} + \beta_8 Dividend_{t+1} + \beta_9 Size_{t+1} + \beta_{10} stdSale_{t+1} + \beta_{11} stdInvest_{t+1} + \beta_{12} stdROA_t + \beta_{13} AltmanZ_t + \beta_{14} Tangible_t + \beta_{15} Age_t + \beta_{16} OperCycle_t + \beta_{17} InstiOwn_t + Industry + Year + \varepsilon.$ (6)
To measure the likelihood of overinvestment, I first construct *ResInvest*, a ranked variable based on the residual term from the regression of investment at year *t* on sales growth at year *t-1* (Biddle et al., 2009). To do so, I estimate the following model for each year-industry separately: $Invest_{ind,t} = \beta_0 + \beta_1 SalesGrowth_{ind,t-1} + \varepsilon.$
To get a meaningful error term, I require minimum 20 observations per each year-industry group. Industry is defined according to the Fama-French 48 industry classifications (Fama & French, 1997). *ResInvest* is ranked into deciles and rescaled between 0 and 1. The likelihood of overinvestment (*Overinvest*) equals one for the firm-year observations in the top quartile (over-investing group) and equals zero for the firm-year observations in the middle two quartiles (normal-investing group). The observations of the under-investing group (the firm-year observations in the bottom quartile) are discarded.
2. The control variables are motivated by Biddle et al. (2009). I include four variables to capture the impact of financial constraints on investment activities. Firms with more cash holdings (*Cash*), more assets (*Size*), greater return on assets (*ROA*), and with lower leverage (*Leverage*) tend to have fewer financial constraints and can easily take advantage of investment opportunities. I control for sales volatility (*stdSales*), investment volatility (*stdInvest*), and the volatility of return on assets (*stdROA*), the market to book ratio (*MtB*) and the dividend payout ratio (*Dividend*) since these variables have been found to affect investment behavior (Biddle et al., 2009). Following Biddle et al. (2009), I also control for firm age (*Age*), tangibility (*Tangible*), operating cycle (*OperCycle*), and Altman *Z*-score (*Altman Z*), which is a measure of distress computed as in Altman (1968). Finally, to ensure that the effect I document is due to the quality of the information environment rather than any other corporate governance mechanisms, I include one corporate governance variable, institutional ownership (*InstiOwn*).
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

where firm subscripts are omitted. $EXCASHt + x$ is equal to the change in the EXCASH over period $t + x$, where $x$ is equal to one of the following: −1, 0, 1. *LIT* is an indicator variable that equals one if a firm operates in a litigious industry and zero otherwise. Following Francis and Martin (2010), firms with SIC codes 2833–2836 (biotechnology), 3570–3577 (computer equipment), 3600–3674 (electronics), 5200–5961 (retailing), and 7370–7374 (computer services) are considered litigious industries. All other variables are as previously defined.

If changes in *EXCASH* lead conservatism, the coefficient on lagged $D^*R^*\Delta EXCASH_{t-1}$ will be positive. This is consistent with my hypothesis. If a mechanical relationship exists or if the results are simply driven by self-selection, the coefficient on concurrent $D^*R^*\Delta EXCASH_t$ is expected to be positive. If there is reverse causality (conservatism leads to greater agency costs of FCF), then the coefficient on $D^*R^*\Delta EXCASH_{t+1}$ will be positive.[10]

The results reported in Table 5 show that the coefficient on lagged $D^*R^*\Delta EXCASH_{t-1}$ is positive, confirming that excess cash leads conservatism. However, none of the coefficients for the concurrent ($D^*R^*\Delta EXCASH_t$) and leading ($D^*R^*\Delta EXCASH_{t+1}$) variables are positive, alleviating the concerns that the main results might be driven by either mere mechanical relations or reverse causality.

[10] Although only the results using CON_KW are tabulated, the results are similar across all the conservatism proxies.

*4.5.2. Propensity-score matching analysis*

As a further robustness check, I employed a propensity-score matching method to separate the expected change in the degree of conservatism related to fundamental firm characteristics from the effect of the FCF problem itself. Armstrong, Jagolinzer, and Larcker (2010) argue that propensity-score methods should be applied when the hypothesized causal variable is an endogenous choice by managers, boards of directors, or other similar parties. Because reporting decisions are not likely to be random, I attempt to control for potential selection bias using a propensity-score matching method. If differences in outcome variables (reporting behavior in this case) between firms with and without FCF problems are due to observable reasons other than FCF problems, I expect that the coefficient on *EXCASH* will not be different from zero in a matched sample. However, if the agency costs of FCF play a role in determining reporting behavior, then firms with greater agency costs of FCF and their matches should exhibit different reporting behavior.

In the first stage, all control variables in the main regression are included, and I estimate the following model annually:

$$AGENCY = \beta_0 + \beta_1 SIZE + \beta_2 MtB + \beta_3 Leverage + \beta_4 Salesgrowth + \beta_5 RD + \beta_6 CFO + \beta_{Industry} + \beta_{Year} + \varepsilon. \quad (8)$$

*AGENCY* is a dummy variable that equals one if a firm's excess cash is above the top tercile value for the year and zero otherwise. I employ the same set of control variables from the baseline model (4). All variables

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**Table 5**
Lead and lag analysis.

| | $t = T\text{-}1$ | | | $t = T$ | | | $t = T + 1$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | |
| | Coeff | T-stat | Sig | Coeff | T-stat | Sig | Coeff | T-stat | Sig |
| *Intercept* | 0.037 | 3.03 | *** | 0.038 | 2.89 | *** | 0.036 | 2.74 | *** |
| $D_t$ | −0.007 | −0.81 | | −0.008 | −0.74 | | −0.008 | −0.77 | |
| $R_t$ | 0.027 | 8.08 | *** | 0.029 | 3.94 | *** | 0.032 | 4.73 | *** |
| $DR_t$ | 0.260 | 13.53 | *** | 0.252 | 8.47 | *** | 0.251 | 8.54 | *** |
| $SIZE_{t-1}$ | 0.006 | 9.99 | *** | 0.006 | 8.02 | *** | 0.006 | 7.73 | *** |
| $D_t\ SIZE_{t-1}$ | 0.001 | 0.52 | | 0.001 | 0.71 | | 0.001 | 0.74 | |
| $R_t\ SIZE_{t-1}$ | −0.002 | −4.00 | *** | −0.002 | −1.31 | | −0.002 | −1.32 | |
| $D_tR_tSIZE_{t-1}$ | −0.029 | −9.16 | *** | −0.029 | −6.07 | *** | −0.028 | −5.98 | *** |
| $MB_{t-1}$ | −0.004 | −8.44 | *** | −0.004 | −6.65 | *** | −0.004 | −6.34 | *** |
| $D_t\ MB_{t-1}$ | −0.002 | −1.45 | | −0.001 | −1.21 | | −0.001 | −1.23 | |
| $R_t\ MB_{t-1}$ | −0.002 | −7.00 | *** | −0.001 | −2.15 | ** | −0.001 | −2.40 | ** |
| $D_tR_tMB_{t-1}$ | 0.002 | 0.61 | | 0.001 | 0.35 | | 0.001 | 0.42 | |
| $LEV_t$ | −0.027 | −29.10 | *** | −0.027 | −10.30 | *** | −0.027 | −10.27 | *** |
| $D_t\ LEV_{t-1}$ | −0.008 | −5.87 | *** | −0.007 | −1.96 | * | −0.008 | −2.00 | ** |
| $R_t\ LEV_{t-1}$ | −0.013 | −16.82 | *** | −0.013 | −3.02 | *** | −0.013 | −3.14 | *** |
| $D_tR_tLEV_{t-1}$ | 0.005 | 3.35 | *** | 0.005 | 1.09 | | 0.006 | 1.10 | |
| $LIT_{t-1}$ | −0.022 | −4.55 | *** | −0.021 | −3.70 | *** | −0.021 | −3.66 | *** |
| $D_t\ LIT_{t-1}$ | 0.008 | 1.21 | | 0.007 | 1.00 | | 0.007 | 1.03 | |
| $R_t\ LIT_{t-1}$ | 0.000 | −0.02 | | −0.003 | −0.45 | | −0.003 | −0.45 | |
| $D_tR_tLIT_{t-1}$ | 0.027 | 1.76 | * | 0.033 | 1.58 | | 0.036 | 1.69 | * |
| $\Delta EXCASHt + x$ | −0.001 | −0.96 | | 0.008 | 5.47 | *** | −0.006 | −3.53 | *** |
| $D_t\Delta EXCASHt + x$ | −0.001 | −0.96 | | −0.003 | −0.94 | | 0.003 | 0.90 | |
| $R_t\Delta EXCASHt + x$ | −0.003 | −6.73 | *** | 0.001 | 0.53 | | 0.002 | 0.94 | |
| $D_tR_t\Delta EXCASHt + x$ | 0.007 | 2.16 | ** | −0.013 | −1.32 | | 0.011 | 1.01 | |
| Industry fixed effects | Yes | | | Yes | | | Yes | | |
| Year fixed effects | Yes | | | Yes | | | Yes | | |
| Adj. R square | 18.90% | | | 18.85% | | | 18.70% | | |
| No. Obs | 32,441 | | | 32,761 | | | 32,473 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $NI_t = \beta_0 + \beta_1 D_t + \beta_2 R_t + \beta_3 D_t R_t + \beta_4 SIZE_{t-1} + \beta_5\ D_t\ SIZE_{t-1} + \beta_6\ R_t SIZE_{t-1} + \beta_7\ D_t R_t SIZE_{t-1} + \beta_8\ MTB_{t-1} + \beta_9\ D_t\ MTB_{t-1} + \beta_{10}\ R_t MTB_{t-1} + \beta_{11}\ D_t R_t MTB_{t-1} + \beta_{12} LEV_{t-1} + \beta_{13}\ D_t\ LEV_{t-1} + \beta_{14}\ R_t LEV_{t-1} + \beta_{15}\ D_t R_t LEV_{t-1} + \beta_{16}\ LIT_{t-1} + \beta_{17}\ D_t\ LIT_{t-1} + \beta_{18}\ R_t LIT_{t-1} + \beta_{19}\ D_t R_t\ LIT_{t-1} + \beta_{20}\ \Delta EXCASH_{t+x} + \beta_{21} D_t\ \Delta EXCASH_{t+x} + \beta_{22}\ R_t\ \Delta EXCASH_{t+x} + \beta_{23}\ D_t R_t\ \Delta EXCASH_{t+x} + \beta_{Firm} + \beta_{Year} + \varepsilon_t$ (7)
where firm subscripts are omitted. ≷$EXCASHt + x$ is equal to the change in the EXCASH over period $t + x$, where $x$ is equal to one of the following: −1, 0, 1. All other variables are as previously defined.
2. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

on the right-hand side of model (8) are as defined in model (4). I obtain the propensity score for each firm year as the predicted value in model (8) and then match each treatment firm ($AGENCY = 1$) with a previously unmatched control firm ($AGENCY = 0$) that (among the unmatched control firms) has the closest score in the same year within a distance of 0.01 from the treatment firm's propensity score. If the propensity score match is successful, then I assume that each treatment firm and its matching control firm are similar on all observable dimensions with the exception of the degree of the agency costs of FCF measured by excess cash. Untabulated results comparing the treatment group to the control group show that these two groups are not different along any of the dimensions except the degree of conservatism,

**Table 6**
Change specification.

| *Depvar* = | $\Delta CON\_KW_t$ | | | $\Delta CON\_NEW_t$ | | | $\Delta CON\_CHG_t$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | −0.357 | −26.79 | *** | −0.358 | −23.91 | *** | 0.033 | 1.40 | |
| $\Delta EXCASH_{t-1}$ | 0.002 | 2.09 | ** | 0.003 | 2.14 | ** | 0.002 | 0.80 | |
| $\Delta MB_t$ | 0.000 | 0.56 | | 0.000 | 0.10 | | 0.000 | −0.59 | |
| $\Delta LEV_t$ | 0.000 | 0.23 | | 0.004 | 5.82 | *** | −0.015 | −14.74 | *** |
| $\Delta SIZE_t$ | −0.018 | −13.13 | *** | −0.019 | −13.02 | *** | 0.015 | 11.74 | *** |
| $LIT_t$ | 0.048 | 3.67 | *** | 0.024 | 1.69 | * | −0.056 | −2.61 | *** |
| $\Delta SG_t$ | 0.009 | 4.08 | *** | 0.012 | 4.93 | *** | −0.062 | −14.16 | *** |
| $\Delta RD_t$ | −0.200 | −4.61 | *** | −0.261 | −6.07 | *** | 0.172 | 2.40 | ** |
| $\Delta CFO_t$ | −0.025 | −2.15 | ** | −0.007 | −0.56 | | 0.023 | 1.14 | |
| $\Delta stdSALE_t$ | 0.000 | 29.09 | *** | 0.000 | 24.69 | *** | 0.000 | −9.45 | *** |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 5.43% | | | 5.30% | | | 1.69% | | |
| *No. Obs* | 44,589 | | | 44,589 | | | 44,589 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $\Delta CON_t = \beta_0 + \beta_1 \Delta EXCASH_{t-1} + \beta_2 \Delta\ SIZE_t + \beta_3 \Delta MB_t + \beta_4 \Delta LEV_t + \beta_5 LIT_t + \beta_6\ \Delta SG + \beta_7 \Delta RD_t + \beta_8\ \Delta CFO_t + \beta_9 \Delta stdSALE_t + Industry\ dummies + Year\ dummies + \varepsilon$ (9)
2. Δ indicates a change in a variable. See Table 2 for definitions of other variables.
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

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**Table 7**
Propensity score matching.

Panel A: First stage

| | *Average Coeff* | *Average Z stat* |
|---|---|---|
| *Intercept* | −1.379 | −6.47 |
| $SIZE_t$ | 0.056 | 0.26 |
| $MB_t$ | −0.240 | −1.12 |
| $Lev_t$ | −0.012 | −0.06 |
| $SGR_t$ | 0.156 | 0.73 |
| $RD_t$ | 12.325 | 57.81 |
| $CFO_t$ | −1.452 | −6.81 |
| *Psuedo-Rsquare* | 20.72% | |

Panel B: Second stage

| | $CON\_KW_t$ | | | $CON\_NEW_t$ | | | $CON\_CHG_t$ | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.161 | 50.58 | *** | 1.136 | 48.04 | *** | 0.687 | 27.02 | *** |
| $EXCASH_{t-1}$ | 0.018 | 6.35 | *** | 0.020 | 6.90 | *** | 0.008 | 2.33 | ** |
| $SIZE_t$ | −0.120 | −168.73 | *** | −0.115 | −164.16 | *** | −0.033 | −38.43 | *** |
| $MB_t$ | −0.004 | −5.86 | *** | −0.008 | −10.12 | *** | −0.007 | −7.69 | *** |
| $LEV_t$ | 0.003 | 2.12 | ** | 0.003 | 2.35 | ** | 0.006 | 4.56 | *** |
| $LIT_t$ | 0.016 | 2.44 | ** | 0.016 | 2.45 | ** | 0.010 | 1.85 | * |
| $SGR_t$ | 0.000 | 0.15 | | −0.001 | −0.39 | | 0.002 | 0.49 | |
| $RD_t$ | −0.105 | −3.60 | *** | −0.169 | −5.74 | *** | −0.074 | −2.34 | ** |
| $CFO_t$ | −0.130 | −9.75 | *** | −0.124 | −9.15 | *** | −0.044 | −2.68 | *** |
| $stdSALE_t$ | 0.000 | 0.00 | | −0.001 | −0.46 | | 0.001 | 0.32 | |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 83.28% | | | 81.64% | | | 15.94% | | |
| *No. Obs* | 15,944 | | | 15,944 | | | 15,944 | | |

Average coefficient reports the average coefficient estimates across year-specific estimations from 1986 to 2014. Aggregate z-statistics reports the aggregate z-statistics, which are calculated as the sum of the annual z-statistic divided by the square root of the number of years over which the equation is estimated. See the appendix for variable definitions.
1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 SIZE_t + \beta_3 MB_t + \beta_4 LEV_t + \beta_5 LIT_t + \beta_6 Salesgrowth_t + \beta_7 RD_t + \beta_8 CFO_t + \beta_9 stdSALE_t + Industry\ dummies + Year\ dummies + \varepsilon$ (7)
2. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

indicating that the propensity-score method forms matched pairs of treatment firms that have similar characteristics but differing levels of agency costs of FCF. In the second stage, I compare the conservatism between treatment firms and control firms.

The propensity-score matching algorithm yields a primary analysis sample of 15,944 firm-year observations (7972 matched pairs). The results of the propensity-score matching analysis are reported in Table 5. Panel A presents the first stage logit model that is used to estimate propensity scores. The first stage regression shows that several firm characteristics are significantly related to high levels of excess cash. Only the coefficients on *CFO* and *RD* are statistically significant. The pseudo-R square for this model is 20.72%, indicating that a modest amount of variation in the dependent variable is explained by the chosen model.

The second stage results reported in Panel B show that the coefficient $\beta_1$ on *EXCASH* is positive and significant (*coeff.* = 0.018, *t-stat* = 6.35) in column (1) when *CON_KW* is used, consistent with greater conservatism among the treatment group relative to the control group. The inferences remain unchanged when *CON_NEW* and *CON_CHG* are used in columns (2) and (3), respectively. As the propensity-score matched samples control for various firm characteristics and are therefore less subject to confounding effects, these results provide robust evidence for the conclusions discussed in Section 5.3, namely, that high levels of excess cash drive the demand for conservatism.

### 4.5.3. Change specifications

In addition to the lead and lag analysis, I also perform a change specification of Eq. (3). Throughout the analyses, I employed level regression specifications by associating levels of conservatism measures and levels of excess cash. In this section, I estimate the following variation of model (4), a first-difference specification ("change" specification), to mitigate potential bias due to time-invariant unobservable heterogeneity and investigate whether firms increase conservatism in response to changes in the degree of agency costs of FCF reflected in the changes in excess cash. Such an

**Table 8**
Alternative conservatism measure: Using CON_ACC.

| | $CON\_ACC_t$ | | | $CON\_BS_t$ | | |
|---|---|---|---|---|---|---|
| | (1) | | | (2) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | −0.012 | −1.18 | | 0.912 | 94.91 | *** |
| $EXCASH_{t-1}$ | 0.012 | 3.84 | *** | 0.007 | 3.65 | *** |
| $SIZE_t$ | −0.006 | −12.19 | *** | −0.072 | −161.08 | *** |
| $MB_t$ | 0.004 | 6.95 | *** | −0.003 | −7.31 | *** |
| $LEV_t$ | 0.006 | 0.78 | | 0.029 | 28.57 | *** |
| $LIT_t$ | 0.010 | 2.11 | ** | −0.007 | −2.00 | ** |
| $SGR_t$ | 0.043 | 6.46 | *** | −0.002 | −1.00 | |
| $RD_t$ | 0.250 | 6.23 | *** | −0.281 | −17.84 | *** |
| $CFO_t$ | −0.667 | −35.64 | *** | −0.197 | −25.32 | *** |
| $stdSALE_t$ | 0.000 | 26.14 | *** | 0.006 | 2.71 | *** |
| *Industry fixed effects* | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | |
| *Adj. R square* | 23.37% | | | 54.24% | | |
| *No. Obs* | 45,430 | | | 45,430 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 SIZE_t + \beta_3 MB_t + \beta_4 LEV_t + \beta_5 LIT_t + \beta_6 Salesgrowth_t + \beta_7 RD_t + \beta_8 CFO_t + \beta_9 stdSALE_t + Industry\ dummies + Year\ dummies + \varepsilon$ (7)
2. *CON is either CON_ACC or CON_BS. CON_ACC is accrual* asymmetric timeliness based on Collins et al. (2014) and CON_ACC is based on Ball and Shivakumar (2006). More detailed description for these variables is provided in the text.
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

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**Table 9**
Corporate governance partitions.

| | $CON\_KW_t$ | | | | | | $CON\_NEW_t$ | | | | | | $CON\_CHG_t$ | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Strong Gov | | | Weak Gov | | | Strong Gov | | | Weak Gov | | | Strong Gov | | | Weak Gov | | |
| | (1) | | | (2) | | | (3) | | | (4) | | | (5) | | | (6) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.080 | 34.94 | *** | 1.072 | 40.51 | *** | 1.083 | 33.74 | *** | 1.055 | 37.86 | *** | 0.723 | 27.20 | *** | 0.682 | 24.67 | *** |
| $EXCASH_{t-1}$ | 0.046 | 10.73 | *** | 0.029 | 6.00 | *** | 0.049 | 11.32 | *** | 0.030 | 6.04 | *** | 0.013 | 2.01 | ** | 0.016 | 2.41 | ** |
| $SIZE_t$ | −0.098 | −70.58 | *** | −0.104 | −77.86 | *** | −0.094 | −68.50 | *** | −0.097 | −72.89 | *** | −0.034 | −16.24 | *** | −0.034 | −16.87 | *** |
| $MB_t$ | −0.013 | −15.33 | *** | −0.018 | −14.51 | *** | −0.017 | −21.63 | *** | −0.023 | −17.98 | *** | −0.005 | −4.68 | *** | −0.008 | −6.54 | *** |
| $LEV_t$ | 0.152 | 10.50 | *** | 0.202 | 13.30 | *** | 0.133 | 9.23 | *** | 0.191 | 12.35 | *** | 0.135 | 7.22 | *** | 0.143 | 7.75 | *** |
| $LIT_t$ | −0.030 | −3.79 | *** | 0.005 | 0.54 | | −0.031 | −3.90 | *** | 0.010 | 1.12 | | 0.004 | 0.35 | | 0.013 | 1.20 | |
| $SGR_t$ | −0.034 | −4.52 | *** | −0.023 | −2.68 | *** | −0.024 | −3.25 | *** | −0.017 | −1.95 | * | 0.023 | 1.62 | | −0.015 | −1.06 | |
| $RD_t$ | −0.326 | −6.33 | *** | −0.373 | −6.57 | *** | −0.411 | −7.94 | *** | −0.398 | −6.84 | *** | −0.142 | −2.16 | ** | −0.244 | −4.00 | *** |
| $CFO_t$ | −0.353 | −12.33 | *** | −0.230 | −8.14 | *** | −0.365 | −12.56 | *** | −0.245 | −8.33 | *** | −0.155 | −4.15 | *** | −0.109 | −3.24 | *** |
| $stdSALE_t$ | 0.000 | −1.03 | | 0.000 | 0.27 | | 0.000 | −1.48 | | 0.000 | 1.77 | * | −0.001 | −12.64 | *** | 0.001 | 3.50 | *** |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 58.36% | | | 62.39% | | | 57.35% | | | 60.98% | | | 7.23% | | | 10.01% | | |
| *No. Obs* | 5689 | | | 5603 | | | 5689 | | | 5603 | | | 5689 | | | 5603 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 SIZE_t + \beta_3 MB_t + \beta_4 LEV_t + \beta_5 LIT_t + \beta_6 Salesgrowth_t + \beta_7 RD_t + \beta_8 CFO_t + \beta_9 stdSALE_t + Industry\ dummies + Year\ dummies + \varepsilon$ (7)
2. I define the composite governance variable (GOV) by taking the unweighted average of the standardized variables of five governance attributes, namely G-index, board independence, CEO-Chair duality, and institutional ownership. The G-index constructed based on firms' use of anti-takeover provisions captures the level of management entrenchment and provide an inverse indicator of internal corporate governance (Gompers et al., 2003). Since the data for the governance index are published about every two or three years, following Gompers et al. (2003), when the governance index for the particular year is missing, I assume that these governance scores are equal to the previously published value until the next value becomes available. Board independence is the percentage of independent outside directors on the board. CEO-Chair duality is an indicator variable that is set to 1 if the CEO is the chair of the board, and 0 otherwise. See Table 2 for definitions of other variables.
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

analysis of changes can mitigate concerns associated with potential omitted variables. I estimate the following model:

$$\Delta CON_t = \beta_0 + \beta_1 \Delta EXCASH_{t-1} + \beta_2 \Delta SIZE_t + \beta_3 \Delta MB_t + \beta_4 \Delta LEV_t + \beta_5 LIT_t + \beta_6 \Delta SG + \beta_7 \Delta RD_t + \beta_8 \Delta CFO_t + \beta_9 \Delta stdSALE_t + Industry\ dummies + Year\ dummies + \varepsilon, \quad (9)$$

where Δ indicates a change in a variable. If the agency costs of FCF drive the demand for conservatism, then the change in *EXCASH* and subsequent change in conservatism are predicted to be positive. The results reported in Table 6 are consistent with this prediction. When a change in *CON_KW* is used as a dependent variable in Column (1), the coefficient on *ΔEXCASH* is positive and significant (*coeff.* = 0.002, *t-stat* = 2.09). When a change in *CON_NEW* is used instead in Column (2), the inferences remain identical. However, with a change in *CON_CHG*, the results disappear.

In general, the above analyses reinforce my primary results that it is the agency costs of FCF that drive the demand for conservatism, not a mechanical relationship between the conservatism measure and the determinants of excess cash, self-selection, or a reverse causality. Nonetheless, I acknowledge that the above test does not imply strong causality, since the severity of the agency costs of FCF is measured based on the status of a firm's financial condition rather than exogenous shocks.

*4.5.4. Alternative conservatism proxy*

To corroborate the results, I use two additional measures: (1) the accrual asymmetric timeliness measure suggested by Collins et al. (2014), and (2) the ACscore based on Ball and Shivakumar's (2006) accruals-cash-flows-based conservatism.

Earnings asymmetric timeliness as proposed by Basu (1997) captures both accrual and operating cash flow (CFO) asymmetric timeliness. Collins et al. (2014) posit that accrual asymmetric timeliness is mainly a result of managerial discretion in recognizing gains versus losses in the accounting measure system, while CFO asymmetric timeliness is mostly a result of the fundamental earnings process, which depends on the firm's life cycle. They argue that accrual asymmetric timeliness is a more appropriate measure to test conditional conservatism. For robustness, I follow Collins et al.'s (2014) suggestion and reconduct my main analysis using the accrual asymmetric timeliness measure. Similar to the cases of other firm-specific conservatism measures, I follow Khan and Watts's (2009) approach to derive a firm-specific accrual asymmetric timeliness measure. Specifically, I run the following regression model annually:

$$ACC_{it} = \beta_0 + \beta_1 D_{it} + R_{it}(\mu_1 + \mu_2 SIZE_{it} + \mu_3 MB_{it} + \mu_4 LEV_{it}) + D_{it}R_{it}(\lambda_{1t} + \lambda_{2t} SIZE_{it} + \lambda_{3t} MB_{it} + \lambda_{4t} LEV_{it}) + (\delta_{1t} SIZE_{it} + \delta_{2t} MB_{it} + \delta_{3t} LEV_{it} + \delta_{4t} D_{it} SIZE_{it} + \delta_{5t} D_{it} MB_{it} + \delta_{6t} D_{it} LEV_{it}) + \varepsilon_t,$$

where $ACCt_t$ is total accruals, calculated as *NI* minus *CFO*, with *NI* being income before extraordinary items and discontinued operations scaled by the lagged market value of equity and *CFO* taken directly from the statement of cash flows. I use the estimated coefficients $\lambda_1$, $\lambda_2$, $\lambda_3$, and $\lambda_4$ to compute the accrual asymmetric timeliness score:

$$Acc\_CScore_{it} = \beta_3 = \lambda_{1t} + \lambda_{2t} SIZE_t + \lambda_{3t} MB_t + \lambda_{4t} LEV_t + \varepsilon.$$

Similar to other conservatism measures, I ranked the asymmetric timeliness score into deciles and divided by 9. I refer to this measure as *CON_ACC*.

The other alternative conservatism measure is based on Ball and Shivakumar (2006) accruals-cash-flows-based measure of conservatism. I also apply Khan and Watts's (2009) method to estimate a firm-year measure of conservatism by estimating the following regression model:

$$ACC_t = \beta_0 + \beta_1 DC_t + \beta_2 CFO_t + \beta_3 DC_t{}^* CFO_t + \varepsilon_t,$$

where $ACCt_t$ is total accruals in year *t* deflated by the year *t*-1 market value of equity, $CFO_t$ is the cash flow from operations (*OANCF*) in year *t* deflated by the year *t*-1 market value of equity (*CSHO*PRCC_F*), and $DC_t$ is a dummy variable that is equal to one if $CFO_t$ is negative and

**Table 10**
Unrepatriated earnings.

Panel A: excess cash after controlling for unrepatriated earnings

| | *CON_KWt* | | | *CON_NEWt* | | | *CON_CHGt* | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.325 | 79.76 | *** | 1.314 | 78.22 | *** | 0.815 | 58.04 | *** |
| *NewEXCASHt-1* | 0.070 | 21.74 | *** | 0.078 | 24.18 | *** | 0.013 | 4.79 | *** |
| *SIZEt* | −0.128 | −202.93 | *** | −0.118 | −185.48 | *** | −0.043 | −80.93 | *** |
| *MBt* | −0.016 | −34.34 | *** | −0.024 | −50.33 | *** | −0.008 | −19.38 | *** |
| *LEVt* | 0.251 | 32.07 | *** | 0.134 | 17.02 | *** | 0.019 | 2.85 | *** |
| *LITt* | −0.020 | −4.18 | *** | −0.015 | −2.99 | *** | −0.004 | −0.90 | |
| *SGRt* | −0.014 | −3.90 | *** | −0.009 | −2.36 | ** | 0.006 | 2.08 | ** |
| *RDt* | −0.308 | −13.54 | *** | −0.400 | −17.40 | *** | −0.086 | −4.44 | *** |
| *CFOt* | −0.187 | −16.49 | *** | −0.149 | −13.07 | *** | −0.031 | −3.28 | *** |
| *stdSALEt* | 0.000 | −0.32 | | 0.000 | 0.22 | | 0.000 | −0.20 | |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 80.09% | | | 78.29% | | | 40.44% | | |
| *No. Obs* | 3496 | | | 3496 | | | 3496 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1\ NewEXCASH_{t-1} + \beta_2\ SIZE_t + \beta_3\ MB_t + \beta_4\ LEV_t + \beta_5\ LIT_t + \beta_6\ Salesgrowth_t + \beta_7\ RD_t + \beta_8\ CFO_t + \beta_9\ stdSALE_t +$ *Industry dummies* + *Year dummies* + $\varepsilon$.
2. $NewExcash_{t-1}$ is an error term after adding permanently reinvested foreign earnings (using tax footnotes from Audit Analytics) as an additional control variable in excess cash equation (Eq. B1). See Table 2 for definitions of other variables.
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

Panel B: Subsample Analyses

| | *CON_KWt* | | | | | |
|---|---|---|---|---|---|---|
| | (1)with unrepatriated earnings data | | | (2)without unrepatriated earnings data | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.269 | 50.56 | *** | 1.343 | 59.94 | *** |
| *Excasht-1* | 0.054 | 8.97 | *** | 0.073 | 19.32 | *** |
| *SIZEt* | −0.120 | −85.73 | *** | −0.128 | −172.00 | *** |
| *MBt* | −0.011 | −12.10 | *** | −0.018 | −31.94 | *** |
| *LEVt* | 0.192 | 11.76 | *** | 0.263 | 29.45 | *** |
| *LITt* | −0.013 | −1.57 | | −0.026 | −4.40 | *** |
| *SGRt* | −0.028 | −2.87 | *** | −0.012 | −2.92 | *** |
| *RDt* | −0.353 | −7.05 | *** | −0.273 | −10.61 | *** |
| *CFOt* | −0.404 | −13.28 | *** | −0.150 | −12.05 | *** |
| *stdSALEt* | 0.000 | 0.14 | | 0.000 | 0.57 | |
| *Industry fixed effects* | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | |
| *Adj. R square* | 76.17% | | | 79.85% | | |
| *No. Obs* | 3496 | | | 10,023 | | |
| *Difference in Coeff newEXCASH between two subsamples*: | *F stat = 1.87 P value = .06* | | | | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2\ PERS_{t-1} + \beta_3\ PERS_{t-1}{}^{*}EXCASH_{t-1} + \beta_n\ Control\ Variables_t +$ *Industry dummies* + *Year dummies* + $\varepsilon$.
2. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

zero otherwise. A positive coefficient $\beta_3$ indicates conditional conservatism. Following Khan and Watts (2009), the timeliness of good news (AGscore) and bad news (ACscore) can be expressed as follows:

$$AGscore = \beta_2 = \mu_1 + \mu_2 SIZE_t + \mu_3 MB_t + \mu_4 LEV_t;$$

$$ACscore = \beta_3 = \lambda_1 + \lambda_2 SIZE_t + \lambda_3 MB_t + \lambda_4 LEV_t;$$

$$ACC_t = \beta_0 + \beta_1 DC_t + CFO_t\ (\mu_1 + \mu_2 SIZE_t + \mu_3 MB_t + \mu_4 LEV_t) + DC_t{}^{*}CFO_t\ (\lambda_1 + \lambda_2 SIZE_t + \lambda_3 MB_t + \lambda_4 LEV_t) + (\delta_1 SIZE_t + \delta_2 MB_t + \delta_3 LEV_t + \delta_4 DC_t SIZE_t + \delta_5 DC_t MB_t + \delta_6 DC_t LEV_t) + \varepsilon_t.$$

*ACscore* is first ranked into deciles and is divided by 9 so that the value falls between 0 and 1. I refer to this measure as *CON_BS*.

The results using these two alternative conservatism measures are reported in Table 8. I continue to find consistent results. *EXCASH* has a significantly positive coefficient of 0.012 and 0.007 with *CON_ACC* and *CON_BS*, respectively, as a dependent variable, indicating that the higher the agency costs of FCF, the greater the degree of conditional conservatism.

*4.5.5. Corporate governance and incremental conservatism*

The additional demands for conservatism associated with excess cash may vary with corporate governance. Corporate governance is defined as a set of mechanisms through which outside investors protect themselves against expropriation by insiders (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 2000). On the one hand, strong corporate governance structures may generate a lower contracting demand for conservatism among shareholders (Bushman & Piotroski, 2006; Callen, Guan, & Qiu, 2014) because managers in strongly governed firms have less latitude for expropriating shareholders. On the other hand, corporate governance may lead to implementing more conservative reporting because good corporate governance will regard conservatism as a desirable reporting practice due to its embedded monitoring benefits. Consistent with this, García Lara, Osma, and Penalva (2009) show that corporate governance measured by both internal and external indicators such as anti-takeover provisions and certain board characteristics

**Table 11**
Persistent cash holdings vs temporary cash holdings.

| | *CON_KWt* | | | *CON_NEWt* | | | *CON_CHGt* | | |
|---|---|---|---|---|---|---|---|---|---|
| | (1) | | | (2) | | | (3) | | |
| | Coeff | T-stat | P-val | Coeff | T-stat | P-val | Coeff | T-stat | P-val |
| *Intercept* | 1.270 | 50.21 | *** | 1.266 | 48.65 | *** | 0.500 | 17.19 | *** |
| *EXCASHt-1* | 0.033 | 4.93 | *** | 0.028 | 4.03 | *** | 0.034 | 4.43 | *** |
| $PERS_{t-1}$ | 0.175 | 14.27 | *** | 0.170 | 13.48 | *** | 0.078 | 5.49 | *** |
| $PERS_{t-1}$ *EXCASHt-1 | −0.021 | −2.62 | *** | −0.020 | −2.44 | ** | −0.038 | −4.07 | *** |
| *SIZEt* | −0.124 | −72.10 | *** | −0.118 | −66.85 | *** | −0.024 | −11.97 | *** |
| *MBt* | −0.012 | −19.07 | *** | −0.014 | −21.66 | *** | −0.004 | −6.24 | *** |
| *LEVt* | 0.160 | 7.48 | *** | 0.138 | 6.30 | *** | 0.002 | 0.10 | |
| *LITt* | −0.018 | −2.10 | ** | −0.013 | −1.54 | | 0.001 | 0.07 | |
| *SGRt* | 0.013 | 3.39 | *** | 0.015 | 3.70 | *** | 0.012 | 2.64 | *** |
| *RDt* | −0.205 | −7.20 | *** | −0.261 | −8.90 | *** | −0.101 | −3.08 | *** |
| *CFOt* | −0.056 | −3.63 | *** | −0.059 | −3.71 | *** | 0.003 | 0.15 | |
| *stdSALEt* | 0.003 | 2.05 | ** | 0.000 | 0.01 | | 0.004 | 2.25 | ** |
| $PERS_{t-1}$ *SIZEt | −0.016 | −7.35 | *** | −0.013 | −5.93 | *** | −0.008 | −3.18 | *** |
| $PERS_{t-1}$ *MBt | −0.009 | −10.42 | *** | −0.011 | −12.41 | *** | −0.004 | −4.09 | *** |
| $PERS_{t-1}$ *LEVt | −0.033 | −1.19 | | −0.024 | −0.85 | | −0.015 | −0.48 | |
| $PERS_{t-1}$ *LITt | 0.015 | 1.94 | * | 0.011 | 1.43 | | 0.001 | 0.08 | |
| $PERS_{t-1}$ *SGRt | −0.022 | −4.20 | *** | −0.022 | −4.12 | *** | −0.013 | −2.10 | ** |
| $PERS_{t-1}$ *RDt | 0.038 | 1.09 | | 0.024 | 0.67 | | −0.011 | −0.28 | |
| $PERS_{t-1}$ *CFOt | −0.020 | −1.01 | | −0.013 | −0.64 | | −0.006 | −0.27 | |
| $PERS_{t-1}$ *stdSALEt | −0.003 | −1.55 | | −0.002 | −0.70 | | −0.005 | −2.03 | ** |
| *F- Test* | | 2.77 | *** | 1.75 | * | | | −0.44 | |
| $PERS_{t-1} + PERS_{t-1}{}^{*}EXCASH_{t-1} = 0$ | | | | | | | | | |
| *Industry fixed effects* | Yes | | | Yes | | | Yes | | |
| *Year fixed effects* | Yes | | | Yes | | | Yes | | |
| *Adj. R square* | 75.95% | | | 74.10% | | | 24.69% | | |
| *No. Obs* | 7972 | | | 7972 | | | 7972 | | |

1. The table presents coefficients and the associated t-statistics for the following regression model: $CON_t = \beta_0 + \beta_1 EXCASH_{t-1} + \beta_2 PERS_{t-1} + \beta_3 PERS_{t-1} {}^{*}EXCASH_{t-1} + \beta_n Control\ Variables_t + Industry\ dummies + Year\ dummies + \varepsilon$.
2. Following Mikkelson and Partch (2003), firms that have a ratio of cash to assets above 0.25 for the past 5 years are classified as persistent cash holders, while firms that have a ratio of cash to assets above 0.25 at the end of first two years that fall by more than two-thirds between the next three years are classified as non-persistent (temporary) cash holders. A dummy variable *PERS* is assigned to persistent cash holders and 0 otherwise. See Table 2 for definitions of other variables.
3. *, **, ***Significance of difference from zero at the 0.10, 0.05, and 0.01 levels, respectively.

is positively related to conditional conservatism as measured by the sensitivity of earnings to bad news.

To explore whether corporate governance has a measurable impact on the incremental demand for conservatism for firms bearing high agency costs of FCF, I first split the sample into above- and below-median corporate governance and reconduct the baseline regression on each subsample separately. I define the composite governance variable (*GOV*) by taking the unweighted average of the standardized variables of four governance attributes, namely, G-index, board independence, CEO–Chair duality, and institutional ownership. The G-index, constructed based on firms' use of anti-takeover provisions, captures the level of management entrenchment and provides an inverse indicator of internal corporate governance (Gompers et al., 2003). Since the data for the governance index is published about every two or three years, I follow Gompers et al. (2003) when the governance index for a particular year is missing and assume that these governance scores are equal to the previously published value until the next value becomes available. Board independence is the percentage of independent outside directors on the board. CEO–Chair duality is an indicator variable that is set to one if the CEO is the chair of the board and zero otherwise. Availability of the G-index restricts the sample for this analysis to the period 1990–2007.

Across all conservatism measures, the coefficient on *EXCASH* remains statistically significant in both subsamples, suggesting that conservatism plays a unique monitoring role that is not subsumed by corporate governance. Statistically, the difference in the coefficient on EXCASH between the strong corporate governance and weak corporate governance subsamples is not significant. The coefficients on the control variables in Table 9 are generally consistent with my expectations and the previous results reported in Tables 3–8.

Taken together, the results reported in Tables 3–9 support the principal hypothesis that shareholders demand greater conservatism for its monitoring role as firms face greater agency costs of FCF.

#### 4.5.6. Unrepatriated cash (cash overseas)

It is well known that firms that lower their effective tax rates with foreign operations build up large amounts of unrepatriated foreign earnings. Because U.S. multinational corporations can defer paying tax on foreign profits indefinitely by agreeing not to use the earnings for certain purposes, like paying dividends or financing domestic acquisitions. In short, the rules prohibit a company from using pre-tax money in transactions that may benefit shareholders. Because unrepatriated foreign earnings have limited ability to be invested or returned to shareholders, one may suggest that true excess cash that might be wasted can be calculated after unrepatriated foreign earnings are controlled for. I addressed this point in two ways.

First, using permanently reinvested foreign earnings (using tax footnotes from Audit Analytics) as a proxy for excess cash held overseas, I re-estimate excess cash equation (Eq. B1) after controlling presently reinvested foreign earnings. Due to the data availability (I only have access to this data from 2003 to 2013), the sample size is significantly reduced. I repeat the main analyses (in Table 3) using this alternative excess cash ($=newExcash_{t-1}$). The results are reported in Panel A of Table 10. The coefficient on $newExcash_{t-1}$ is positive and highly significant across all three conservatism proxies, implying that the results hold even after controlling for the excess cash held overseas.

While the above analysis provides credence to the results, the unrepatriated foreign earnings data is only available to a small subset of firms. Therefore, to further corroborate the main results, I take the second approach by partitioning the original sample into two subsamples, one with unrepatriated foreign earnings data and the other without the data and running the main regression separately for each

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subsample. The results are reported in Panel B of Table 10. Using *CON_KW* as a proxy, I find that the coefficient on $Excash_{t-1}$ is positive and significant for both subsamples (subsample with unrepatriated foreign earnings: coeff = 0.054, t-stat = 8,97; subsample without unrepatriated foreign earnings: coeff = 0.073, t-stat = 19.32), indicating that conservatism increases with excess cash regardless of whether excess cash is held domestically or overseas. However, the difference in the coefficient $Excash_{t-1}$ between the two subsamples is marginally significant (two-tailed $p = .06$), suggesting that conservatism and excess cash is more positively associated for firms without unrepatriated foreign earnings perhaps because excess cash in the US is more vulnerable to overinvestment than excess cash overseas.

#### 4.5.7. Persistent cash holdings

Mikkelson and Partch (2003) find that firms with persistent cash holdings support investment without hindering performance. If this is the case, then one may argue that the relation between excess cash and conservatism is mostly driven by firms holding excess cash temporarily. To examine this issue further, I partition the sample into two subsamples, namely persistent excess cash holding group and temporary excess cash holding group following Mikkelson and Partch (2003). Using the 5 year time horizon, I classify firms that have a ratio of cash to assets above 0.25 for the past 5 years as persistent cash holders (denoted as a dummy variable $PERS = 1$) and firms that have a ratio of cash to assets above 0.25 at the end of first two years that fall by more than two-thirds between the next three years as non-persistent (temporary) cash holders ($PERS = 0$). Then, I test whether the link between excess cash and conservatism is less pronounced for firms having a policy of persistent large cash balances by interacting a dummy variable, *PERS*, with *EXCASH*. If non-persistent cash holding firms (temporary cash holding firms) drive the results, then the interaction term, $PERS_{t-1}{}^{*}EXCASH_{t-1}$ should be negative. The results are reported on Table 11. As predicted, the coefficient on $PERS_{t-1}{}^{*}EXCASH_{t-1}$ is negative and significant at <1% level across all conservatism proxies, suggesting that temporary cash holders drive the results. Furthermore, the sum of coefficients on $PERS_{t-1}$ and $PERS_{t-1}{}^{*}EXCASH_{t-1}$ is positive and significant for Columns (1) and (2), but not significant in Column (3). The results generally indicate that persistent cash holding firms report more conservatively than firms having no excess cash but they use conservatism to a lesser degree than non-persistent cash holding firms. The results can be interpreted as both temporary cash windfalls or persistent excess cash holdings generate potential for overinvestment, and that conservatism is a mechanism to reduce potential overinvestment.

## 5. Conclusion

Recent research has shown that investors systematically discount the value of corporate cash reserves when these are at high risk of being wasted for the private benefit of managers. This destruction of firm value represents the agency costs of FCF. In light of recent evidence that conditional conservatism improves *ex ante* efficient investment decisions and facilitates *ex post* monitoring of managers' investment decisions, this study examines whether firms with higher agency costs of FCF incorporate losses in a timelier manner relative to gains than their counterparts and finds that they do. Furthermore, the association between the agency costs of FCF and conservatism systematically vary as monitoring needs change. The presence of alternative monitoring mechanisms that mitigate FCF problems, such as debt or dividends payouts or repurchases, reduces the incremental demand for conservatism as an additional monitoring measure. Further investigation shows that firms with high excess cash that report more conservatively are less likely to overinvest in the future than those who report less conservatively. Most of the results are qualitatively similar across three main conservatism measures, and a series of robustness tests rules out alternative explanations and confirms the results.

Some caveats are in order. First, although the results suggest that greater agency costs of FCF drive the demand for conservatism, I cannot directly observe firms' motivations for altering reporting decisions or specific channels through which shareholders pressure managers into reporting more conservatively. Second, although I test several alternative monitoring measures in conjunction with conservatism, there are other contracting mechanisms in place to reduce agency costs of FCF. Firms are likely to assess the costs and benefits of many governance mechanisms such as incentive contracts or managerial ownership and choose the optimal combination of mechanisms to maximize firm value. Furthermore, I measured agency costs of FCF by the amounts of excess cash rather than exogenous shocks. Although I use various settings to see whether the association being tested changes with other monitoring mechanisms in order to overcome this limitation, the results do not prove that agency costs cause conservative reporting, due to the endogeneity inherent in this study.

While subject to these caveats, this paper makes several contributions. First, it contributes to the literature that examines shareholder-related contracting explanations for conservatism. While prior research employs firms' choice variables, such as managerial ownership and board characteristics, to assess the levels of agency costs, this study uses variables relatively exogenous to the firms' reporting decisions to identify agency costs, which in turn provides a more direct link between agency costs of equity and conservatism. Second, the results contribute to the broad literature on conditional conservatism determinants, establishing that a high excess cash level is a determinant of conditional conservatism in addition to those that have previously been uncovered. Third, this study contributes to the literature that links conservatism to investment efficiency. By focusing on a specific agency conflict where overinvestment is a concern, I find that shareholders demand conservative reporting to monitor possible managerial opportunism, and the resulting conservatism enhances the subsequent investment efficiency of firms having potentially high agency costs of FCF. Fourth, the evidence in this paper is likely to be of interest to regulators who are currently advocating neutral accounting rather than conservatism. The fact that conservative reporting responds to shareholders' demands can be evidence that the capital markets act as an external monitoring mechanism through exerting sufficient pressure on firms.

## Appendix A. APPPENDICES

### A.1. Measuring excess cash (EXCASH)

$EXCASH_{t-1}$ is an actual level of cash minus predicted level of cash (regression residual), scaled by lagged total assets (AT) following Opler et al. (1999).

$$Ln\left(\frac{Cash_{i,t}}{NA_{i,t}}\right) = \beta_0 + \beta_1 Ln(NA_{i,t}) + \beta_2 \frac{FCF_{i,t}}{NA_{i,t}} + \beta_3 \frac{NWC_{i,t}}{NA_{i,t}} + \beta_4 (IndustrySigma)_{i,t} + \beta_5 \frac{\widehat{MV}_{i,t}}{NA_{i,t}} + \beta_6 \frac{RD_{i,t}}{NA_{i,t}} + Year\ Dummies + Firm\ Fixed\ effects + \varepsilon_{i,t} \quad (B1)$$

where, Cash = Cash and Cash equivalents (CHE), NA = Net Assets (AT-CHE), FCF=Operating income (OAIDP) minus Interest (XINT) minus Taxes (TXT), NWC=Current Assets (ACT) minus Current liabilities (LCT) minus Cash (CHE), Industry Sigma = industry average of prior 10 year standard deviation of FCF/NA, MV = Market value = Price (PRCC_F) times the number of shares outstanding (CSHO) plus total liabilities (LT), and RD = R&D expenditures (XRD), set to zero if missing.

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*A.2. Variable definitions (Compustat codes in parenthesis)*

| Variable | Definition |
|---|---|
| $NI_t$ | Income before extraordinary items (IB) at the end of fiscal year t, scaled by market value of equity(PRCC_F*CSHO) at the end of the fiscal year t-1. |
| $\Delta NI_t$ | the change in net income from year t-1 to year t, scaled by market value of equity at the end of the fiscal year t-1. |
| $R_t$ | 12-month compound returns beginning 3 months after the fiscal year-end. Data are obtained from CRSP monthly stock returns (RET). |
| $D_t$ | An indicator variable set equal to one if $R_t$ is negative, and zero otherwise. |
| $DNI_t$ | An indicator variable set equal to one if $\Delta NI_t$ is negative and 0 otherwise. |
| AGENCY | An indicator variable for firms with high agency costs of FCF, that is set to 1for firm years with the top tercile EXCASH each year and 0 otherwise. |
| Tobin's Q | The sum of market value of equity (PRCC*CSHO) and book value of debt (DLC + DLTT) scaled by total assets (AT) at the beginning of the fiscal year. |
| MB | The market to book ratio at the end of the fiscal year. |
| LEV | Total debt (DLTT+LCT) divided by lagged total assets(AT) at the end of the fiscal year. |
| SIZE | The natural log of market value of equity at the end of the fiscal year. |
| LIT | An indicator variable that equals 1 if a firm operates in a litigious industry and 0 otherwise. Following Francis and Martin (2010), firms with SIC codes of 2833–2836(biotechnology), 3570–3577(computer equipment), 3600–3674(electronics), 5200–5961(retailing), and 7370–7374(computer services) are considered litigious industries. |
| DIST_D | The net cash returned to debtholders, computed as long-term debt reduction(DP) less long term debt issuance(DLTIS) less change in current debt(DLCCH), scaled by total assets (AT) at the end of the fiscal year. |
| DIST_EQ | The net cash returned to equityholders, computed as dividends (DV) plus repurchase of common and preferred stock (PRSTKC) minus stock issuance (SSTK), scaled by total assets (AT) at the end of the fiscal year. |
| SGR | The percentage of annual sales growth rate calculated as $Sales_t/Sales_{t-1}$. |
| AGE | The age of the firm in a given year, measured as the number of years with return history on CRSP. |
| ROA | Earnings (IB) after adding back after-tax interest expense (XINT) and special items (SPI) divided by total assets (AT) at the beginning of the fiscal year. |
| CAPEX | The capital expenditure (CAPX) scaled by total assets (AT) at the end of the beginning of the fiscal year. |
| R&D | The research and development expenditure (XRD) scaled by total assets (AT) at the beginning of the fiscal year. |
| INVEST | Total investment expenditure, calculated as R&D (XRD) plus CAPEX (CAPX) plus Acquisitions(AQC) less cash receipts from sale of property, plant and equipment (SPPE) at the end of fiscal year t, deflated by total assets (AT) at the beginning of the fiscal year. |
| CFO | Operating cash flows (OANCF) taken directly from the statement of cash flows scaled by lagged market value of equity. |
| Dividend | dividend payout ratio. |
| StdSales | standard deviation of sales of past 5 years. |
| *stdInvest* | standard deviation of investment of past 5 years. |
| *stdROA* | standard deviation of return on assets of past 5 years. |
| *AltmanZ* | the measure of distress computed as in Altman (1968). |
| *Tangible* | the ratio of PP&E to total assets. |
| *OperCycle* | the log of receivables to sales plus inventory to COGS multiplied by 360. |
| *InstiOwn* | institutional ownership ratio. |
| *GOV* | The composite governance variable (GOV) by taking the unweighted average of the standardized variables of five governance attributes, namely G-index, board independence, CEO-Chair duality, and institutional ownership. The G-index constructed based on firms' use of anti-takeover provisions captures the level of management entrenchment and provide an inverse indicator of internal corporate governance (Gompers et al., 2003). Since the data for the governance index are published about every two or three years, following Gompers et al. (2003), when the governance index for the particular year is missing, I assume that these governance scores are equal to the previously published value until the next value becomes available. Board independence is the percentage of independent outside directors on the board. CEO-Chair duality is an indicator variable that is set to 1 if the CEO is the chair of the board, and 0 otherwise. |

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