Exploring the Predictive Ability of Asymmetric Cost Behavior on AAERs

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ABSTRACT

This study explored the predictive potential of cost stickiness in financial reporting misconduct. Managers in firms with high-cost stickiness have increased motivation and opportunities to commit financial reporting misconduct. Increased cost stickiness negatively affects operating and market performance, and undermines managerial financial benefits. Additionally, increased stickiness signifies intense agency issues that tend to be combined with weak corporate governance mechanisms. To empirically examine the ability of cost stickiness to predict the occurrence of Accounting and Auditing Enforcement Releases (AAERs), we employed a data sample of 41,061 firm-year observations for the period 1990-2020. Our results show that cost stickiness increases the likelihood of financial reporting misconduct. Our empirical findings remain robust when we control for (i) the main drivers and alternative measures of cost stickiness, (ii) earnings management, (iii) the intensity of financial difficulties, and (iv) agency and managerial optimism issues. However, our empirical evidence seems more profound when firms experience high transitory earnings.

Keywords: cost stickiness, financial misreporting, AAERs.

Funding: The research work was supported by the Hellenic Foundation for Research and Innovation (HFRI) under the 3rd Call for HFRI PhD Fellowships (Fellowship Number: 5253).

Data availability: Data are available from the public sources cited in the text..

JEL Classifications: M41; M49.

Paper type: Research paper.

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I. INTRODUCTION

This study explores the effects of cost stickiness on financial reporting misconduct perpetrated by U.S. public companies. Financial reporting misconduct and financial statement fraud are substantial sources of risk to the integrity and effectiveness of the capital markets. Owing to their significant influence on the economy, several studies have focused on exploring the factors and outcomes associated with financial reporting misconduct (Karpoff, Koester, Lee & Martin, 2017; Amiram et al., 2018). However, there is limited empirical evidence on the relationship between past cost stickiness and future financial reporting misconduct. In fact, when various external stakeholders make economic decisions, they seem to ignore cost stickiness or adopt a simplistic assumption for cost behavior (Weiss, 2010; Ciftci, Mashruwala, & Weiss 2016; Ciftci & Salama, 2018). Cost stickiness is a behavior-driven pattern of cost behavior, and its manifestation may reflect managerial discretion and, consequently, managerial motives and behaviors associated with future financial reporting misconduct. A statistically significant relationship between cost stickiness and financial reporting misconduct will shed light on the complex mechanisms that drive the occurrence of misconduct events, contributing to the financial reporting misconduct prediction literature.

Asymmetric cost behavior refers to the economic phenomenon that the response of variable costs is not symmetric towards changes (increases or decreases) on the operating activity volume (e.g., Anderson, Banker, & Janakiraman 2003; Banker, Byzalov, & Chen 2013; Liu, Liu & Reid 2019; Ballas, Naoum & Vlismas 2022). A variable cost exhibits cost stickiness (anti-stickiness) if its decline is lower (higher) for decreasing activity levels than for increasing (in absolute terms) activity levels. Cost stickiness arises from managerial decisions to bear idle costs when activity

volumes decline, considering the magnitude of resource adjustment costs (Banker & Byzalov, 2014).

We expect cost stickiness to be positively associated with the likelihood of a firm committing financial reporting misconduct. Managers in firms with high-cost stickiness have increased motivation and opportunities to commit financial reporting misconduct. Asymmetric cost behavior denotes a buildup of slack resources where managers retain idle resources until they are indifferent to retaining or disposing the marginal unit of resources (Banker, Byzalov, Fang, & Liang 2018; Naoum, Ntounis, Papanastasopoulos, & Vlismas 2023). Maintaining unutilized resources when operating activity decreases has direct consequences on a firm's operating and market performance, which reduces managerial financial benefits. Firms that exhibit stickier cost behavior tend to exhibit increased future earnings volatility (Banker & Chen, 2006) and are less able to sustain higher dividend payouts in the future (He, Tian, Yang, & Zuo 2020). Additionally, increased cost stickiness inflates conditional conservatism (Banker, Basu, Byzalov, & Chen 2016) and cash flow asymmetric timeliness (Lu, Shan, Wright, & Yu 2020).

The economic implications of increased cost stickiness on a firm's financial position and performance are responsible for negative market reactions, especially when firms exhibit low long-term growth (Chung, Hur, & Liu, 2019; Liu et al., 2019; Silge & Wöhrmann, 2021) and reduce the quality of information available to investors, causing a stock price delay (Agarwal, 2022). The presence of downward effects on the price of common stock reduces the associated capital market-based benefits that managers can derive (Amiram et al., 2018) such as stock-based compensation (Beneish 1999b), granting stock options (Call, Kedia, & Rajgopal 2016), and raising new financing on more favorable terms (Burns & Kedia, 2006). In addition, the implications of cost stickiness on earnings volatility, conditional conservatism, and cash flow asymmetric timelessness may

negatively affect managerial annual bonus plans based on earning-based compensation contracts (Healy, 1985; Dechow, Sloan, & Sweeney 1996) and increase the likelihood of violation of covenants in debt contracts that are based on accounting numbers (Dechow et al., 1996).

A reduction in managerial financial benefits stimulates managerial motives to commit financial reporting misconduct. In addition to the effects of cost stickiness on managerial financial benefits, cost stickiness signifies the presence of organizational conditions that may elevate the likelihood of a firm committing financial reporting misconduct. Increased cost stickiness may be driven by empire-building behavior (Chen, Lu, & Sougiannis 2012; Banker & Byzalov, 2014) which, in combination with weak corporate governance-related institutional features, contributes to the increased likelihood of financial reporting misconduct (Dechow et al., 1996; Beasley, Carcello, Hermanson, & Lapides 2000; Fich & Shivdasani, 2007; Zhao & Chen, 2008).

To empirically examine the ability of cost asymmetry to predict cases of financial reporting misconduct, we employed 41,061 firm-year observations for the period 1990-2020. We then integrated these data with an extensive sample of accounting violations disclosed by the Securities and Exchange Commission (SEC) through Accounting, Auditing and Enforcement Releases (AAERs), as modelled by Dechow, Ge, Larson, and Sloan (2011). We find that the level of cost asymmetry contributes to the increased likelihood of financial reporting misconduct across all prediction periods.

In an additional analysis, we focused on the main drivers of cost stickiness (i.e., level of adjustment costs, managerial empire building behavior, and the level of firm-specific uncertainty) and explored their individual effects on the likelihood of firms receiving an AAER. We provide empirical evidence that the main drivers of cost stickiness reinforce their positive relationship with the likelihood of firms receiving AAER. Furthermore, to mitigate the concern that our primary

findings are driven by earnings management initiatives, we attempted to incorporate the potential effects of earnings management on cost stickiness and financial reporting misconduct. It seems that the different types of earnings management do not affect the validity of our main analysis. Additional robustness tests support the generalization of our findings against (i) alternative measures of cost asymmetry, (ii) the effect of financial difficulties on the intensity of cost asymmetry, and (iii) endogeneity concerns. Furthermore, our empirical results seem to be more profound for firms with high transitory earnings. Finally, agency and managerial optimism seem to reinforce the positive relationship between cost stickiness and the likelihood that a firm receives an AAER.

Our study attempts to link two research fields: cost asymmetry from the management accounting literature and financial reporting quality from the financial accounting literature. We expect this study to contribute to the literature in several ways. First, it contributes to the broader literature on whether cost decisions affect the likelihood of a firm engaging in financial reporting misconduct (Davidson, 2015; Richardson, Sloan, Soliman, & Tuna 2006; Schrand & Zechman, 2012; Tran & O'Sullivan, 2020). This is the first study to examine the predictive ability of cost stickiness for financial reporting misconduct. Second, we extend the literature on the economic consequences of cost asymmetry on earnings behavior and prediction (Banker & Chen, 2006; Weiss, 2010; Banker et al., 2016; Ciftci & Salama, 2018; He et al., 2020). Analysts and managers cannot easily capture the effect of cost asymmetry on earnings predictability, because the former increases earnings volatility, resulting in substantial earnings forecast errors (Ciftci et al., 2016; Ciftci & Salama, 2018; Kaspereit & Lopatta, 2019). Our empirical findings reveal that prior-period cost stickiness seems to increase the likelihood of a firm receiving an AAER, which means that cost stickiness provides signals not only for poor future reporting quality but also for increased

likelihood of failure of firms' accounting systems. Third, several empirical studies (Dierynck, Landsman, & Renders 2012; Kama & Weiss, 2013; Kaspereit & Lopatta, 2019) have examined the effect of earnings management on the intensity of cost asymmetry. In this study, we promote cost asymmetry as a determinant of earnings quality, placing emphasis on financial accounting fraud that presents actual events, and it is considered a reliable indicator of poor accounting quality (DeFond, 2010; Lennox, Lisowsky, & Pittman 2013). Finally, the findings of this study have practical implications for standard-setters and auditors' professional communities. This study's findings may encourage auditors and regulators to pay more attention to cost stickiness, which increases the likelihood of a firm engaging in financial reporting misconduct.

The remainder of this paper proceeds as follows: In Section 2, we describe the background and hypothesis of our study. The sample selection and research methodology are presented in Section 3. Section 4 presents the empirical results. Sections 5 and 6 present the additional analysis and robustness tests, respectively. Finally, Section 7 concludes the study.

II. LITERATURE AND HYPOTHESIS

The asymmetric cost behavior phenomenon is an emerging research theme in contemporary cost accounting literature (Anderson et al., 2003; Banker & Byzalov, 2014; Chen et al., 2012). Prior empirical research has documented that the response of variable costs is not symmetric towards increasing and decreasing changes in activity levels (e.g., Anderson et al., 2003; Banker et al., 2013; Liu et al., 2019; Ballas et al., 2022). Instead, a variable cost item may exhibit cost stickiness (anti-stickiness) if its decline is lower (higher) for decreasing activity levels than the rise in cost for increasing (in absolute terms) activity levels.

The fundamental driver of asymmetric cost behavior is deliberate managerial commitment decisions to bear the costs of idle resources when activity volumes decline, taking into consideration the magnitude of resource adjustment costs (Banker & Byzalov, 2014). Adjustment costs include explicit expenditure and implicit organizational, psychological, personal, and opportunity costs that emerge when managers attempt to adjust the available resource capacity to different levels of operating activity (He et al., 2020). The level of adjustment costs depends on (i) the level of concurrent sales, the prior period's resource levels, (ii) managerial expectations for future adjustment costs, and (iii) various agency and behavioral factors (Banker & Byzalov, 2014).

Our research motivation is to explore whether cost behavior can provide various external stakeholders, including policymakers and various regulatory authorities, with early insights into a firm's tendency to engage in financial reporting misconduct. Costs are subject to managerial discretion and, consequently, managerial motives and behaviors associated with future financial reporting misconduct might be reflected in past cost behavior. It seems that when various external stakeholders make economic decisions, they seem either to ignore cost stickiness or adopt a simplistic assumption for cost behavior (Weiss, 2010; Ciftci et al., 2016; Ciftci & Salama, 2018).

There is limited empirical evidence on the relationship between past cost behavior and future financial reporting misconduct. A statistically significant relationship between cost stickiness and financial reporting misconduct will shed light on the complex mechanisms that drive the occurrence of misconduct events, contributing to the financial reporting misconduct prediction literature (Amiram et al., 2018). In addition, our intuition is that if public authorities analyze a firm's cost behavior, it may expand the time horizon of their investigation by identifying predictive signs for financial reporting misconduct at an earlier stage, thereby improving their enforcement abilities.

Within the context of our research design, we adopt Amiram et al. 's(2018) broad definition of financial reporting misconduct, which includes reporting fraud, misrepresentation, misreporting, and other irregularities[1]. Financial reporting misconduct seems to be higher for firms with a greater proportion of insiders on the board of directors (Beasley, 1996; Dechow et al., 1996) and if the CEO simultaneously serves as a board chairman or the CEO is the accounting entity's founder (Dechow et al., 1996). Misconduct decreases as the proportion of outside members on the board of directors increases (Beasley, 1996). In addition, good governance practices such as the presence of an audit committee may decrease financial reporting misconduct (Dechow et al., 1996; Beasley et al., 2000; Fich & Shivdasani, 2007; Zhao & Chen, 2008).

Besides governance and auditing, several other firm-specific characteristics have been associated with misconduct perpetrated mechanisms, including the level of working capital accruals, overstated sales revenues (Dechow, Sloan, & Sweeney, 1995; Beneish 1997), extreme accrual reversals (Richardson et al. 2006), number of employees (Dechow et al, 2011), high sales growth (Beneish 1999a), and consecutive strings of positive earnings surprises (Chu, Dechow, Hui, & Wang 2016), etc. Recently, several research initiatives have proposed novel approaches to predict financial reporting misconduct. For instance, Brazel, Jones, and Zimbelman (2009) focused on non-financial measures and found that the difference between growth in revenue, number of employees, and non-financial measures is greater for misconduct than for non-misconducting firms. Amiram et al. (2018) provide empirical evidence for the significance of Benford's law as a predictive factor for future misconduct. Finally, machine learning (Cecchini, Aytug, Koehler, & Pathak 2010) and linguistic analysis (Hoberg & Lewis, 2015) have enriched the existing cohort of misconduct prediction approaches.

We expect that the effects of cost stickiness on earnings behavior in the present may affect the intensity of capital market- and accounting-based managerial motives to commit financial reporting misconduct in the future. Firms that exhibit stickier cost behavior are associated with increased future earnings volatility (Banker & Chen, 2006), decreased operating efficiency, and future performance (Chung et al., 2019; Liu et al., 2019; Zhang, Li, & Wang 2019) and pay lower dividends than their peers because they are less able to sustain a higher level of dividend payouts in the future (He et al., 2020)[2]. Increased cost stickiness inflates conditional conservatism (Banker et al., 2016) and asymmetric cash flow timeliness (Lu et al., 2020). The economic implications of increased cost stickiness on a firm's financial position and performance may inflate accounting-based managerial motives to commit financial reporting misconduct because they negatively affect managerial annual bonus plans based on earning-based compensation contracts (Healy, 1985; Dechow et al., 1996) and increase the likelihood of violation of covenants in debt contracts based on accounting numbers (Dechow et al., 1996). In addition, the economic implications of increased cost stickiness on a firm's financial position and performance are responsible for negative market reactions, especially when firms exhibit low long-term growth (Chung et al., 2019; Liu et al., 2019; Silge & Wöhrmann, 2021) and reduce the quality of information available to investors, causing a stock price delay (Agarwal, 2022). These effects on the price of common stock may have negative effects on the capital market-based benefits that managers can derive (Amiram et al., 2018): stock-based compensation (Beneish 1999b), granting stock options (Call et al., 2016), and raising new financing on more favorable terms (Burns and Kedia, 2006). As cost stickiness increases, the above managerial financial benefits decrease, and capital market-based managerial motives to engage in financial reporting misconduct increase.

In addition to increased managerial motives to commit financial reporting misconduct, the presence of increased cost stickiness is associated with various managerial characteristics, agencies, and behavioral factors (Naoum et al., 2023) that shape an organizational environment with increased opportunities to commit financial reporting misconduct. A high intensity of cost stickiness may signify the presence of intense empirical building behavior (Banker & Byzalov, 2014; Chen et al., 2012). Empire-building behavior occurs when managers engage in activities for their own benefits, rather than the benefits of the firm's shareholders, by growing the firm beyond its optimal size or by maintaining unutilized resources to increase personal utility from status, power, compensation, and prestige (Chen et al., 2012). Usually, increased levels of cost stickiness due to the presence of intense empire building behavior are accompanied by weak corporate governance mechanisms (Liang, Chen, & Hu 2014; Xue & Hong, 2016; Ibrahim, 2018; Chung et al., 2019; Liu et al., 2019; Zhang et al. 2019; Hartlieb, Loy, & Eierle 2020; Jang & Yehuda, 2020), lower auditing quality (Liang et al., 2014; Cai, Zheng, & Zhu, 2019; Höglund & Sundvik, 2019) and less efficient internal control systems (Kim, Lee, & Park 2019; Zhu, Hu, Peng, & Xue 2020). Intense empire-building behavior and weak corporate governance-related institutional features increase the likelihood of financial reporting misconduct (Dechow et al., 1996; Beasley et al., 2000; Fich & Shivdasani, 2007; Zhao & Chen, 2008).

Based on the above analysis, it seems that managers in firms with high-cost stickiness have increased motivation and opportunities to commit financial reporting misconduct. Therefore, we explored the following hypotheses:

H1: All else being equal, the level of cost stickiness is positively associated with the likelihood a firm to commit financial reporting misconduct in the future.

III. RESEARCH METHODS

Sample and data

We collected data from the North American Compustat for the period 1990-2020. We eliminated certain data observations to ensure the reliability and integrity of the analysis. More specifically, we dropped firms from the financial and utility industries (four-digit SIC codes:4800-4900; 6000-6999) and excluded cases where SG&A expenses exceeded sales revenue and instances where sales revenue, SG&A expenses, and total assets had negative values. Additionally, to prevent biased results in capturing the variable measuring the intensity of cost stickiness ($COST\_WEISS_{i,t}$), we eliminated observations where SG&A expenses move counter to sales revenue. The calculation of the primary independent research variable $COST\_WEISS_{i,t}$ further contributed to reducing the dataset size, and our final sample for conducting the main analysis contained 41,061 firm-year observations. All continuous variables were winsorized at the first and 99^{th} percentiles.

Since 1982, the Securities and Exchange Commission (SEC) has issued accounting and audit enforcement releases (AAERs). These AAERs can be easily accessed through the SEC's official website or by searching the LexisNexis database. Notably, the Leventhal School of Accounting, University of Southern California (Dechow et al., 2011) has undertaken the task of compiling a comprehensive database comprising individual AAERs sourced from these above platforms. This database encompasses a wealth of summary information pertaining to each AAER, including key details such as the firm's identification, the specific year during which the misstatements transpired, and a comprehensive description of their nature. It is widely recognized as the most extensive and authoritative publicly accessible database in relation to AAERs[3]. We only considered the regulatory actions taken against firms to engage in financial misrepresentation.

We implement the methodology introduced by Weiss (2010) to measure the intensity of firm-level cost stickiness. Weiss (2010) measured the intensity of cost stickiness for firm i in quarter q as the difference in the cost function between the most recent quarters from quarters q-3 to quarter q, such that for an increase and for a decrease in sales revenue:

$$COST\_WEISS_{i,t} = \log(\Delta SG_{i,t}/\Delta SL_{i,t})_{i,T(-)} - \log(\Delta SG_{i,t}/\Delta SL_{i,t})_{i,T(-)},\ T(-),\ T(+) \in \{t, \ldots, t-3\} \quad \text{Eq. (1)}$$

where T(-) represents the most recent of the last four quarters with a decrease in sales and T(+) refers to the most recent quarters of the last four quarters with an increase in sales. $COST\_WEISS_{i,t}$ represents the inverse metric of firm-level SG&A cost stickiness. Consequently, cost stickiness is more intense when $COST\_WEISS_{i,t}$ receives more negative values. Consistent with prior literature (Rouxelin, Wongsunwai, & Yehuda, 2018; Golden, Mashruwala, & Pevzner 2020), we introduced a scalar adjustment of -1 to Weiss' (2010) initial measure, so that higher values of cost asymmetry indicate more cost stickiness in recent years. Finally, to avoid look-ahead bias, we estimated $COST\_WEISS_{i,t}$ by considering the average value of cost asymmetry over a three-year rolling window.

Empirical models

Our hypothesis suggests that the intensity of cost stickiness has an incremental effect on the probability that a manager chooses to commit financial reporting fraud. To empirically test this hypothesis, we employed logistic regression analysis to estimate the likelihood of a firm engaging in accounting fraud, considering additional factors that may influence the decision to commit fraudulent activities. We estimate the following empirical model.

$$Pr(AAER_i)_{t+x} = b_0 + b_1\ COST\_WEISS_{i,t} + \Sigma b_i K_{i,t} + \varepsilon_t \quad \text{Eq. (2)}$$

The dependent variable, $AAER_i$, takes the value of one for firm-years in which firm i receives an AAER in the current period (x=0) as well as in the following three years (x=1; x=2; x=3), and zero

otherwise. The independent variable of interest is the firm-level cost stickiness ($COST\_WEISS_{i,t}$), which is defined in the previous section. In Eq. (2), $K_{i,t}$ represents the vector of observable financial and non-financial determinants that may influence managerial motives to engage in fraud based on prior literature (Beneish, 1997; Erickson, Hanlon, & Maydew 2006; Lennox & Pittman, 2010; Dechow et al., 2011; Hanlon, Hoopes, & Shroff 2014; Tran & O'Sullivan, 2020; Mason & Williams, 2022).

The controls are measures of firms' working capital ($WCTA_{i,t}$), modelled by the ratio of the cash conversion cycle to total assets, as well as the level of financial leverage ($LEV_{i,t}$), proxied by the ratio of total debt to total assets. The level of working capital and magnitude of leverage capture whether fraudulent companies engage in earnings management and are more prone to financial distress. We also account for the logarithm of each firm's market value ($SIZE_{i,t}$). With respect to firm size, empirical literature provides mixed empirical evidence on the relationship between size and the incidence of fraud. More specifically, prior research has revealed that larger companies are less susceptible to litigation, which is likely attributable to either their access to substantial legal resources or some potential political costs (Dunbar, Juneja, & Martin 1995; Bonner, Palmrose, & Young 1998). However, client size is positively related to the likelihood of SEC enforcement actions, which mainly stems from agency conflicts between managers and outside investors (Lennox & Pittman, 2010; Dechow et al., 2011). To consider whether a firm's profitability and market value draw attention from regulators, we include the return on total assets ($ROA_{i,t}$) and market value of equity scaled by total liabilities ($MVE_{i,t}$). We also incorporate whether the effect of operational characteristics influences managerial motivations to engage in fraud through the following proxies: (i) sales growth ($GROWTH_{i,t}$), (ii) the level of property, plant, and equipment scaled by total assets ($PPE_{i,t}$), and (iii) the level of cash scaled by total assets

($CASHTA_{i,t}$). Finally, we also consider whether fraudulent companies are more likely to report losses within a loss indicator variable ($LOSS_{i,t}$), which equals one if net income is negative and zero otherwise.

IV. RESULTS

Descriptive Statistics

Table 1 (Panel B) illustrates the descriptive statistics for the main variables of our research design for firm years that are the subject of an AAER and the full sample of other firm years. We conduct two-sample t-tests to assess the difference in the means of various financial indicators between firm-years subject to AAER and the full sample of all other firms. Firm years with an AAER have a statistically significant higher average $COST\_WEISS_{i,t}$ than firm years without an AAER. The mean value of cost stickiness is 0.191 for firm-years with AAER, whereas the magnitude of cost stickiness is 0.018 for firm-years without AAER. Based on this preliminary analysis, ceteris paribus, an elevated level of cost stickiness is associated with an increased probability of a firm initiating misreporting that results in AAER. In addition, firms that received an AAER tended to be larger, have enhanced growth opportunities, and be more profitable. A possible explanation is that the SEC is more likely to target larger, profitable, and growth opportunities given their significance to the economy and society. Alternatively, larger, profitable, and with growth opportunities, firms are positively anchored with an increased likelihood of misreporting (Dechow et al., 2011; Kim et al., 2012; Tran & O'Sullivan, 2020). Further, firms that received an AAER tend to have statistically significant lower mean values of leverage, investments in property, plant, and equipment, and level of cash than the corresponding mean values of other firms. The above results of the mean difference analysis are mainly consistent with previous

literature (Graham, Harvey, & Rajgopal 2005; Dechow et al., 2011; Tran & O'Sullivan, 2020; Mason & Williams, 2022).

Main Results

We explored the incremental ability of cost stickiness to predict AAER cases during a three-year window. The logistic regression models specified in Eq. (2) is estimated using white heteroscedasticity-corrected standard errors and clustered by firm to address autocorrelation and heteroscedasticity (Petersen, 2009). Table 2 presents the findings of the baseline empirical analysis. Consistent with our predictions, we observe a statistically significant association between a firm's likelihood of engaging in fraudulent financial reporting and the level of asymmetric cost stickiness.

The estimated coefficients of cost stickiness ($COST\_WEISS_{i,t}$) are significant and positive across all the prediction periods. More specifically, the estimated values of coefficient b_1 range from 0.224 to 0.334. On average, firms with a higher intensity of cost stickiness are more likely to receive an AAER at horizons greater than one year. In general, the model exhibited a strong fit, as indicated by ROC curve values of 0.67 or higher, across all models. The untabulated results also indicate that the variable $COST\_WEISS_{i,t}$ makes a significant contribution to the explanatory power of all four models using a likelihood ratio chi-squared test ($p<0.05$).

Based on previous literature (Young & Peng, 2013; Cao, Feng, Feroz, & Davalos 2015; Cheng, Palmon, Yang, & Yin 2023), we also performed a survival analysis by estimating Eq. (2), using a Cox proportional hazard model (the dependent variable is $HazardRatio_{i,t}$). The estimation results of the hazard models (Table 2-Panel B) indicate that firms with higher cost stickiness

intensity are more likely to engage in financial misstatements and subject to SEC enforcement actions.

The estimated values of the coefficients for the financial and non-financial control variables incorporated in our models provide valuable insights into mechanisms that could potentially drive the occurrence of AAERs and are broadly consistent with prior literature. Sales growth is positively associated with the likelihood that a firm engages in fraudulent misreporting, reinforcing prior research that managers react to market pressures for consistent sales growth by resorting to fraudulent activities (Graham et al., 2005; Mason & Williams, 2022). An additional rationale for the positive relationship between sales growth and financial reporting misrepresentation can be attributed to the quality of internal control systems, which has been observed to exhibit a lag operation in times of high growth (Beneish, 1999a). Similarly, larger firms and firms with high market value have significantly higher occurrences of AAERs, which is in line with the literature (Lennox & Pittman, 2010; Dechow et al., 2011; Das, Gong, & Li 2020; Mason & Williams, 2022). Finally, firms with high investments in tangible assets and a low level of cash are less likely to receive AAER.

V. ADDITIONAL ANALYSIS

Determinants of Cost Asymmetry

Our main analysis suggests a positive association between cost stickiness and the likelihood of firms receiving AAER in the future. Cost stickiness increases earnings and cash flow volatility, reducing the capital market-based and accounting-based financial benefits of managers and, as a result, increases managerial motives to commit financial reporting misconduct in the future. In addition, we expect cost stickiness to signal the presence of behavioral factors and firm-specific

characteristics that increase the likelihood of a firm committing financial reporting misconduct. In this section, we attempt to explore whether the relative ability of cost stickiness in predicting cases of AAERs is conditional on the factors associated with the manifestation of the asymmetric cost behavior phenomenon, such as (a) the level of adjustment costs, (b) the intensity of managerial empire building behavior, and (c) the presence of demand uncertainty (e.g., Anderson et al., 2003; Chen et al., 2012; Venieris, Naoum, & Vlismas 2015; Ballas et al., 2022).

Asymmetric cost behavior is an economic expression of the cost implications of deliberate managerial commitment decisions to maintain idle resources when sales revenue declines, considering the level of adjustment costs. Firms with a higher level of adjustment costs, and subsequently, more intense cost stickiness, experience negative market reactions, especially when they demonstrate low long-term growth (Chung et al., 2019; Liu et al., 2019; Silge & Wöhrmann, 2021) and which are associated with increased future earnings volatility (Banker & Chen, 2006), decreased operating efficiency, and future operating performance (Chung et al., 2019; Liu et al., 2019; Zhang et al., 2019). As explained earlier, the implications of cost stickiness on equity valuation and financial performance reduce managers' financial benefits and increase their motivation to engage in financial misreporting. For this reason, we assume that our theoretical proposition that cost stickiness is positively associated with the likelihood of a firm committing financial reporting misconduct in the future is more (less) likely to be confirmed in cases where firms face increased (decreased) adjustment costs.

We adopted the level of asset intensity using the median split (by industry and year) to signify the presence of adjustment costs. Panel A of Table 3 presents the estimation results for the logistic regression model in Eq. (2) for two distinct subsets of firms, categorized based on their levels of asset intensity and unused resources. As expected, the prior period of cost asymmetry is

positively associated with the likelihood that a firm receives an AAER in the case of firms with high adjustment costs, and insignificant otherwise.

Managerial empire-building behavior is another crucial driver of cost stickiness (Chen et al., 2012; Habib & Hasan, 2019; Liu et al., 2019; Zhang et al., 2019; Hartlieb et al., 2020). Firms that exhibit intense cost stickiness driven by empire-building behavior are commonly related to suboptimal corporate governance mechanisms, which in turn increase the likelihood of financial reporting misconduct (Beasley et al., 2000; Dechow et al., 1996; Fich & Shivdasani, 2007; Zhao & Chen, 2008; Tran & O'Sullivan, 2020; Mason & Williams, 2022). Lopatta, Kaspereit, and Gastone (2020) present empirical evidence supporting the notion that cost stickiness incorporates a harmful element for both the firm and its shareholders, as corroborated by the theoretical underpinnings of agency theory.

The results in Panel B of Table 3 indicate that agency conflicts have a moderating effect on the relationship between cost stickiness and the likelihood that a firm will experience AAER. Our empirical results are more profound for firms with high free cash flow values (above the median), which implies more pronounced agency issues. On the other hand, for firms with low free cash flow values (below the median), the predictability of cost asymmetry becomes more apparent in the current and one-year ahead prediction models.

Economic uncertainty is an additional determinant of both cost stickiness and financial misreporting (Bentley, Omer, & Sharp 2013; Banker, Byzalov, Ciftci, & Mashruwala 2014; Ding, Lu & Zheng 2019). Firm-specific uncertainty seems to affect a firm's cost structure and behavior. More specifically, in periods of high uncertainty, managers are generally less inclined to base their complex resource adjustment decisions on expectations of future business prospects. Instead, managers may prioritize opportunistic motives related to empire building (Chen et al., 2012).

Furthermore, firms operating in highly uncertain environments are prone to employing increased estimation and approximation techniques in their financial reporting, thereby exposing themselves to a higher risk of reporting errors (Johnston & Petacchi, 2017). Therefore, in Panel C of Table 3, we investigate whether our null hypothesis is conditional on the effects of firm-specific uncertainty.

We re-estimate Eq. (2) for two different subsamples partitioned according to firm-specific uncertainty. We classify a firm as low (high) uncertainty if its firm-specific uncertainty is lower (greater) than the corresponding industrial median value. To incorporate the effect of firm-specific uncertainty, we calculate the standard deviation of firm-level sales revenue over rolling 3-year windows. It seems that when managers face firm-level uncertainty, they are more likely to retain unutilized resources for their own benefit, increasing the likelihood that a firm receives an AAER.

Overall, the above analysis suggests that the primary drivers of cost asymmetry reinforce the positive relationship between cost asymmetry and the likelihood of firms receiving AAER. Specifically, our null hypothesis is verified in firms with (i) high adjustment costs, (ii) high agency issues, and (iii) increased environmental uncertainty.

Earnings Management Initiatives

Earnings management affects the intensity of cost stickiness. Prior literature (Dierynck et al., 2012; Kama & Weiss, 2013; Liang et al., 2014; Hall, 2016; Ma, Wang, & Zhang 2019; Yang, 2019; Huang & Kim, 2020) has documented that when managers are anchored with incentives to meet earnings targets and engage in earnings management initiatives, they will cut unutilized resources to increase current period earnings, reducing the intensity of cost stickiness. Furthermore, several empirical studies have documented that established factors for earnings management, such as

discretionary accruals, are significant predictors of misconduct behavior (Jones, Krishnan, & Melendrez 2008; Dechow et al., 2011; Perols & Lougee, 2011). According to Amiram et al. (2018), financial misconduct lies at the extreme right end of a spectrum of discretionary accruals with legally approved earnings management techniques that comply with GAAP on the far left side.

To rule out the possibility that the documented positive relationship between cost asymmetry and financial fraud reflects the joint effect of earnings management initiatives on cost stickiness and financial fraud separately, we control for several earnings quality proxies that may have confounded our primary empirical results. Table 4 presents the estimation results for the regression model in Eq. (2), which expands with the interaction of earnings management with the corresponding cost asymmetry variable. To empirically estimate the level of earnings management, we emphasize the following measures: (i) the level of abnormal accruals ($Abnormal\_Accruals_{i,t}$) estimated by the well-known Jones model modified by Kothari, Leone, and Wasley (2005); (ii) the total level of abnormal real activities ($Abnormal\_REM_{i,t}$) as obtained from the three real earnings management models proposed by Roychowdhury (2006); and (iii) managerial incentives to meet earnings targets ($Meet\_Targets_{i,t}$), which is an indicator variable equal to one for firm-year observations where a firm's net income scaled by lagged total assets ranges from -0.075 to + 0.075.

It seems that the effect of accrual earnings management and incentives to meet earnings targets (Panel A and Panel C-Table 4) have no effect on the relationship between cost asymmetry and the likelihood that a firm receives an AAER. In the case of real earnings management (Panel B, Table 4), the positive and significant coefficient of the interaction term is consistent with the argument that cost asymmetry arises from real managerial adjustment decisions to shift real business activities, which enhances the probability that a firm will initiate misreporting that results in an AAER.

VI. ADDITIONAL ROBUSTNESS TESTS

The Effects of Financial Difficulties

This section examines whether the presence of financial difficulties moderates the effect of cost stickiness on the likelihood of a firm receiving AAER. Firms experiencing increased financial difficulties are more likely to engage in earnings manipulation and commit financial reporting misconduct. Auditing standards recognize financial distress as a risk factor that induces incentive or pressure for managers to engage in fraudulent activities (AICPA, 2002; Eutsler, Nickell, & Robb 2016). In particular, the revelation of misconduct can have detrimental implications for firms' operating activities, such as a higher cost of capital and a decrease in cash flow from operations (Murphy, Shrieves, & Tibbs 2009). Further, firm engages in fraudulent misreporting face noticeable liquidity problems and are more likely to be suffering from financial distress (Cox, Thomas, & Kiku 2003; Bai, Cox, & Thomas 2010). At the same time, prior literature (Cheng, Jiang, & Zeng 2018; Li & Zheng, 2020; Costa & Habib, 2021; Costa, Habib, & Bhuiyan 2021) has explored the intensity of cost stickiness under the prism of financial difficulties (e.g., access to capital, financial constraints, and the presence of financial distress) documenting the presence of a negative relationship. More specifically, managers in firms with limited access to financing resources or capital tend to dispose of unutilized resources to mitigate financial risk.

To control our empirical results for the presence of financial difficulties, we modified the calculation of our primary research variable, $COST\_WEISS_{i,t}$ excluding the effect of financial difficulties:

$$COST\_WEISS_{i,t} = a_0 + a_1\ FINAN\_DIFF_{i,t} + e_{i,t} \qquad \text{Eq. (3)}$$

where $FINAN\_DIFF_{i,t}$ proxied by the following metrics: (i) the accounting-based measure WW index proposed by Whited and Wu (2006), (ii) the SA index formulated by Hadlock and Pierce (2010), and (iii) Altman (1968) Z-score. Therefore, we adjusted $COST\_WEISS_{i,t}$ as:

$$MOD\_COST\_WEISS_{i,t} = COST\_WEISS_{i,t} - \widehat{\alpha_1} FINAN\_DIF_{i,t} \quad \text{Eq. (4)}$$

$MOD\_COST\_WEISS_{i,t}$ is a measure of a firm's intensity of cost asymmetry, controlled for the effects of financial difficulties. Table 5 presents the empirical results. It seems that the results are broadly similar to those presented in Table 2, and that they are not influenced by the effects of financial strength measures on the intensity of cost stickiness.

Alternative Econometric Specifications

We undertook additional tests to determine the sensitivity of our findings and to provide further support for our inference that cost asymmetry can increase the odds of experiencing an AAER. We employed (i) propensity score matching regression analysis and (ii) alternative proxies to capture the intensity of cost stickiness. We discuss these points in more detail below:

First, to identify the effect of cost stickiness on the odds of AAER more clearly and address endogeneity concerns regarding the potential influence of unobservable factors on our results, we performed our analysis using a propensity matching (PSM) technique. This scoring method clusters firms according to their intensity of cost stickiness. To conduct PSM and calculate the propensity scores (p-scores), we estimated a logistic regression that regressed the indicators from Eq. (2) for firms classified in the lowest or highest quartiles of $COST\_WEISS_{i,t}$ in the data sample[4]. Based on prior literature (Lawrence, Minutti-Meza, & Zhang, 2011; Shipman, Swanquist, & Whited et al., 2017; McMullin & Schonberger, 2022), we matched observations using common support and a caliper of 0.01. Our matched sample consisted of 20,134 observations (10,067

treatment observations and 10,067 control observations). Using this matched sample, we re-estimate Eq. (2), and present the results in Panel A of Table 6. Consistent with our main empirical findings, we find a statistically significant increase in the likelihood of receiving an AAER as the level of asymmetric cost behavior increases.

We further examined our findings by dividing our observations into quartiles based on the level of cost stickiness. This allows us to explore whether our empirical results are driven by target firms that exhibit relatively high or low levels of cost asymmetry. To answer this question, we removed $COST\_WEISS_{i,t}$ from Eqs. (2) and added two quartiles of dummy variables based on the endpoints of the variable $COST\_WEISS_{i,t}$. The dummy variable $Highest\_Quartile_{i,t}$ ($Lowest\_Quartile_{i,t}$) includes observations with the highest (lowest) degree of cost asymmetry compared to the peer group. Turning to the reported results in Panel B of Table 6, the odds of experiencing an AAERs caused by higher levels of cost asymmetry compared to the peer group with lower levels of cost asymmetry reduces the likelihood of AAERs.

Finally, we employ an alternative specification of cost stickiness to estimate our main empirical findings. We estimate a firm-specific measure of cost asymmetry, called $ASY_{i,t}$ which considers various factors that contribute to the intensity of asymmetric cost behavior. These factors are asset intensity, employee intensity, GDP growth, and level of free cash flow. Specifically, we estimate the well-known two- and three-way interaction models proposed by Anderson et al. (2003):

$$\log (SG_{i,t}/SG_{i,t-1}) = a_0 + c_0 Z_{i,t} + [b_1 + c_1 Z_{i,t}] \log (SL_{i,t}/SL_{i,t-1}) + [b_2 + c_2 Z_{i,t}] DS_{i,t} \log (SL_{i,t}/SL_{i,t-1}) + e_{i,t} \quad \text{Eq. (5)}$$

where the variables of interest are the annual log change in SGA expenses ($SG_{i,t}$) and annual log change in sales revenue ($SL_{i,t}$). Further, the dummy variable $DS_{i,t}$ emphasizes the direction of sales

and equals one if the sales decrease for fiscal year t and otherwise 0. The fulfillment of conditions $b_1>0$ and $b_2<0$ ($b_1>b_1+ b_2$) signifies the presence of cost asymmetry. $Z_{i,t}$ represents the vector of the observable determinants that influence the intensity of cost asymmetry: (i) the level of asset intensity ($AST_{i,t}$), (ii) the level of employee intensity ($EMPT_{i,t}$), (iii) the influence of macroeconomic activity using GDP growth ($GDP_{i,t}$), (iv) managerial expectations regarding future sales proxied by a successive sales decrease dummy variable ($SUC_{i,t}$), and (v) the effect of managerial empire building behavior proxied by the level of free cash flow ($FCF_{i,t}$). The model in Eq. (5), estimated using fixed effects and clustering standard errors by firm. Based on the estimated values of the coefficients of cost asymmetry (b_2), $ASY_{i,t}$ is measured for each firm and industry, as follows:

$$ASY_{i,t} = \widehat{b_2} + \hat{c}_2 AST_{i,t} + \hat{c}_2 EMPT_{i,t} + \hat{c}_2 SUC_{i,t} + \hat{c}_2 GDP_{i,t} + \hat{c}_2 FCF_{i,t} \quad \text{Eq. (6)}$$

Lower values of $ASY_{i,t}$ indicate higher cost asymmetry. As with $COST\_WEISS_{i,t,}$ we multiply $ASY_{i,t}$ by minus one to ensure that its higher values are primarily related to the increased levels of cost asymmetry.

In Panel C of Table 6, we examine whether our main empirical findings exist for this alternative cost asymmetry specification. Our results are robust to this alternative specification of cost asymmetry, and the coefficient of $ASY_{i,t}$ remains positive and significant across all models in Eq. (2). Overall, our primary results remain qualitatively similar for alternative econometric specifications and alternative proxies of cost asymmetry.

Earnings Persistence

Golden and Zheng (2022) documented a positive association between cost stickiness and dividend yields. Their rationale is that managers who choose a stickier form of cost management have

information about future permanent earnings and thus choose to pay out more dividends to reflect future earnings levels. This empirical finding is concentrated in firms with (a) selling, general, and administrative (SG&A) expenses that create higher future value, (b) higher-ability managers, and (c) no successive sales decreases. On the other hand, the underlining rationale of this study for the relationship between cost stickiness and the likelihood that a firm receives an AAER stems from the fact that firms that exhibit stickier cost behavior are associated with increased future earnings volatility (Banker & Chen, 2006), decreased operating efficiency, and future performance (Chung et al., 2019; Liu et al., 2019; Zhang et al., 2019) and pay lower dividends than their peers because they are less able to sustain a higher level of dividend payouts in the future (He et al., 2020). In this section, we attempt to control for whether earnings persistence has moderating effects on the relationship between cost stickiness and the likelihood that a firm receives an AAER.

Following prior research (Lev, 1983; Ali & Zarowin, 1992; Francis, LaFond, Olsson, & Schipper, 2004), we define our measure of earnings persistence as the estimated value of the slope coefficient $\lambda_{1,i}$ from a first-order autoregressive model for annual split-adjusted earnings per share ($EBEX_{it}$):

$$EBEX_{it} = \lambda_0 + \lambda_{1i} EBEX_{it-1} + e_{i,t} \quad \text{Eq. (7)}$$

For each firm-year, Eq. (7) is estimated using the maximum likelihood estimation and a rolling four-year window. Values of λ_{1i} close to 1 imply highly persistent earnings, whereas values of λ_{1i} close to zero imply highly transitory earnings.

Table 7 presents the estimation results of Eq. (1) after splitting firms into those that present highly persistent earnings and those with highly transitory earnings. For firms with highly transitory earnings, we confirm that cost stickiness is positively associated with the likelihood of

a firm receiving AEER. However, in the case of firms that present highly persistent earnings, the effect of cost stickiness on the likelihood of a firm receiving an AAER is insignificant. This empirical finding is consistent with the basis of our theoretical framework that cost stickiness is a source of increased earnings, increased future earnings volatility (Banker & Chen, 2006), decreased operating efficiency, and future performance (Chung et al., 2019; Liu et al., 2019; Zhang et al., 2019) which reduces managers' financial benefits and increases their motivation to engage in financial misreporting. It is also apparent that high levels of earnings persistence mitigate the positive effects of cost stickiness on the likelihood of a firm receiving AEER in the future because the negative effects of cost stickiness on earnings volatility are not significant.

Agency and Managerial Arguments

Further, we undertake additional robustness tests for the agency and managerial optimism arguments. Thus, we examine our main empirical findings for subsamples of firms with (a) higher-ability managers, (b) SG&A expenses that create higher future value, (c) no successive sales decreases, and (d) growth opportunities.

According to resource-based theory, managerial ability is a valuable resource that can offer a competitive advantage (Holcomb, Holmes & Connelly 2009). Several studies examine the relationship between managerial ability and financial reporting quality, yielding mixed and inconclusive results. On the one hand, high-ability managers achieve superior firm outcomes since they can effectively manage corporate resources and match their interests with subsequent firm's financial performance (Demerjian, Lev, Lewis & McVay 2013; Cheung, Naidu, Navissi, & Ranjeeni, 2017; Baik, Brockman, Farber & Lee 2017). However, high-ability managers may engage in activities for their own benefit using firm resources at the expense of shareholders and other stakeholders. Wolfe and Hermanson (2004) and Dellaportas (2013) provide evidence that

managerial intellectual and cognitive attributes and abilities enable managers to recognize, implement, and conceal opportunities for fraudulent activities.

To examine the relationship between cost asymmetry and financial reporting misconduct based on the level of managerial ability, we used the annually ranked managerial ability scores provided by Demerjian, Lev, and McVay (2012). Panel A in Table 8 presents the empirical results. It seems that our main empirical hypothesis is more profound for firms with a high managerial ability subsample and insignificant in the low managerial ability subsample for the two- and three-year ahead prediction models. A possible explanation is that cost stickiness is a source of future earnings volatility, which probably enforces higher ability managers to behave opportunistically to meet market expectations, maximize managerial short-term remuneration, and influence firm outcomes.

We enrich the aforementioned empirical results by emphasizing alternative specifications of managerial optimism. Banker, Huang, and Natarajan (2011) posit that long-term cross-sectional value is contingent on the value generated through SG&A expenditure initiatives. When costs contribute significantly to future value, diminishing them does not yield long-term benefits for a firm's performance. More specifically, the authors argue that the prevalence of myopic behavior is improbable in cases where incremental long-term investments have the potential to yield substantially higher future values to outweigh the short-term benefits from myopic behavior. Our arguments are also based on the agency-based explanation of cost stickiness, which harms corporate value and increases the likelihood of a firm committing financial reporting misconduct in the future. For this reason, we expect that our main hypothesis exists for firms with SG&A expenses that create low future value. To proxy for the future value creation of SG&A costs, we follow the methodology proposed by Banker et al. (2011). Panel B of Table 8 shows that cost

asymmetry increases the likelihood of a firm receiving AEERs in the low future-value group but is mainly insignificant in the high future-value group.

We also examine our hypotheses based on managerial expectations of future sales. Managerial expectations of future sales are considered one of the crucial determinants of cost asymmetry. Prior empirical literature captures the level of managerial expectations based on whether a firm experiences a decrease in sales revenue for two consecutive years. Specifically, managers have low (high) expectations about future firm sales if they (do not) experience two consecutive periods of sales decline. Anderson et al.(2003) and Banker and Byzalov (2014) argue that SG&A cost stickiness is less pronounced when firms face a two-year consecutive sales decrease. Panel C of Table 8 partitions our sample on the basis of managerial expectations. Our main hypothesis is verified for firms with high managerial expectations. In the case of low managerial expectations, the predictability of cost asymmetry becomes more apparent in the two- and three-year-ahead prediction models.

Finally, the relationship between cost asymmetry and the likelihood that a firm will receive an AAER may also depend on a firm's growth potential. Growth firms invest in SG&A resources that generate strategic initiatives with potential future benefits and avoid cutting SG&A resources due to the potential loss of strategic position and higher adjustment costs. On the other hand, mature firms have fewer investment opportunities and SG&A resources associated with less future value. Chen et al. (2012) provide evidence that cost stickiness is more pronounced in mature firms than it is in growth firms, implying that agency issues tend to be more acute in mature firms. Following Chen et al. (2012), we partitioned our sample based on the median value of the book-to-market ($BTM_{i,t}$) ratio. Firms classified above (below) the median value are mature (growth)

firms. Panel D of Table 8 provides empirical evidence that the predictive ability of cost asymmetry on AAERs is more (less) profound in mature (growth) firms.

In line with Golden and Zheng (2022), we find that agency and managerial optimism seem to play a significant role in the effect of cost asymmetry on the likelihood of firms receiving an AAER. The aforementioned tests support our theoretical rationale that the economic implications of increased cost stickiness on a firm's financial position and performance are responsible for negative market reactions, especially when firms (a) have higher-ability managers, (b) exhibit low long-term growth, and (c) present no successive sales decrease.

VII. CONCLUSION

This study explores the predictive ability of cost stickiness in AAERs. Costs are subject to managerial discretion and, consequently, managerial motives and behaviors associated with future financial reporting misconduct might be reflected in past cost behavior. It seems that when various external stakeholders make economic decisions, they seem either to ignore cost stickiness or adopt a simplistic assumption for cost behavior (Weiss, 2010; Ciftci et al., 2016; Ciftci & Salama, 2018). There is limited empirical evidence for the relationship between past cost behavior and future financial reporting misconduct. Our research motivation is to explore whether cost behavior can provide various external stakeholders, including policymakers and various regulatory authorities, with early sights for a firm's tendency to engage in financial reporting misconduct.

The theoretical underpinning of our research design is that cost stickiness negatively affects operating and market performance, undermines managerial financial benefits, and stimulates managers to commit financial reporting misconduct. Additionally, firms with increased cost stickiness are associated with intense agency issues that tend to be combined with weak corporate

governance mechanisms. Our empirical findings suggest that cost stickiness increases the likelihood of financial reporting misconduct. Our empirical findings remain robust when we control for (i) the main drivers and alternative measures of cost stickiness, (ii) earnings management, (iii) the intensity of financial difficulties, and (iv) agency and managerial optimism issues. However, our empirical evidence seems more profound when firms experience high transitory earnings.

This is the first study to examine the predictive ability of cost stickiness for financial reporting misconduct. Our study provides empirical evidence that cost decisions affect the likelihood of a firm engaging in financial reporting misconduct (Davidson, 2015; Richardson et al. 2006; Schrand & Zechman, 2012; Tran & O'Sullivan, 2020). In addition, we extend the literature on the economic consequences of cost asymmetry on earnings behavior and prediction (Banker & Chen, 2006; Weiss, 2010; Banker et al., 2016; Ciftci & Salama, 2018; He et al., 2020). Analysts and managers cannot easily capture the effect of cost asymmetry on earnings predictability, because the former increases earnings volatility, resulting in substantial earnings forecast errors (Ciftci et al., 2016; Ciftci & Salama, 2018; Kaspereit & Lopatta, 2019). Our empirical findings reveal that prior-period cost stickiness seems to increase the likelihood of a firm receiving an AAER, which means that cost stickiness provides signals not only for poor future reporting quality but also for increased likelihood of failure of firms' accounting systems. We expect that the empirical findings of this study will encourage auditors and regulators to pay more attention to cost stickiness, which increases the likelihood of a firm engaging in financial reporting misconduct. Finally, we examine the relationship between earnings management and cost asymmetry from different angles. Several empirical studies (Dierynck et al., 2012; Kama & Weiss, 2013; Kaspereit & Lopatta, 2019) have examined the effect of earnings management on the

intensity of cost asymmetry. In this study, we promote cost asymmetry as a determinant of earnings quality, placing emphasis on financial accounting fraud that presents actual events, and it is considered a reliable indicator of poor accounting quality (DeFond, 2010; Lennox et al., 2013).

Appendix: Variables Definition

Variable	Description
$Abnormal\_Accruals_{i,t}$	The level of abnormal accruals, which are the residuals from the following regression analysis: $ACC_{it}/ASSETS_{it-1} = \alpha_0 + \alpha_1(1/ASSETS_{it-1}) + \alpha_2(\Delta SL_{it}/ ASSETS_{it-1}) + \alpha_3(PPE_{it}/ ASSETS_{it-1}) + \alpha_4 ROA_i + \varepsilon_{it}$
$Abnormal\_REM_{i,t}$	The total level of of abnormal real activities obtained from the residuals of following three real earnings management models: (i) $CFO_{it}/ASSETS_{it-1} = \alpha_0 + \alpha_1(1/ASSETS_{it-1}) + \alpha_2(SL_{it}/ASSETS_{it-1}) + \alpha_3(\Delta SL_{it}/ASSETS_{it-1}) + \varepsilon_{it}$, (ii) $PROD_{it}/ASSETS_{it-1} = \alpha_0 + \alpha_1(1/ASSETS_{it-1}) + \alpha_2(SL_{it}/ASSETS_{it-1}) + \alpha_3(\Delta SL_{it}/ASSETS_{it-1}) + \alpha_4(\Delta SL_{it-1}/ ASSETS_{it-1}) + \varepsilon_{it}$, (iii) $DEXP_{it}/ASSETS_{it-1} = \alpha_0 + \alpha_1(1/ASSETS_{it-1}) + \alpha_2(SL_{it-1}/ASSETS_{it-1}) + \varepsilon_{it}$
$ACC_{i,t}$	The level of accruals calculated as the difference between net income and cash flow from operations.
$AGE_{i,t}$	Number of years listed in North American Compustat.
$ASSETS_{i,t}$	The magnitude of total assets (*Compustat Item at*).
$AST_{i,t}$	The log ratio of total assets to sales revenue (= Log ($ASSETS_{i,t}/ SL_{i,t}$)).
$ASY_{i,t}$	A sticky score measure of the selling general and administrative expenses using the estimated coefficients from the Eq. (6).
$BTM_{i,t}$	Ratio of book value of equity (*Compustat Item ceq*) to market value of equity (*Compustat Item prcc×csho*)
$CASHTA_{i,t}$	Ratio of cash and cash equivalents to total assets (*Compustat Item ch/at*).
$CFO_{i,t}$	The level of cash flow from operations (*Compustat Item oancf*).
$COST\_WEISS_{i,t}$	A sticky score measure of the selling general and administrative expenses using the methodology proposed by Weiss et al (2010).
$DEXP_{it}$	The total level of discretionary expenses, proxied by the SG&A and R&D expenses (*Compustat Item xsga + xrd*).
$DIV_{i,t}$	Total dividends measured as common plus preferred dividends (*Compustat Item dvc + dvp*).
$DIVPOS_{i,t}$	A dummy variable equal to 1 if the firm pays dividends and 0 otherwise
$DS_{i,t}$	A dummy variable equals to one if sales decreased in year t and 0 otherwise
$DEBT_{i,t}$	The level of shorth term-debt plus the long-term debt (*Compustat Item dlc + dltt*).
$EBIT_{i,t}$	The level of earnings before interest and taxes (*Compustat Item ebit*).
$EBEX_{it}$	The level of Earnings per Share (*Compustat Item opeps*).
$EMPT_{i,t}$	The log ratio of number of employees to sales revenue (=Log($EMPL_{i,t}/SL_{i,t}$))
$EMPL_{i,t}$	Number of employees (*Compustat Item emp*).
$FCF_{i,t}$	The level of free cash flows which is calculated by the following formula: $(NI_{i,t} - Cur\_Assets_{i,t} + CASH_{i,t} + Cur\_Liabilities_{i,t} - Short\_Debt_{i,t} + DEPR_{i,t} - DIV_{i,t} - EMPL_{i,t}) / ASSETS_{i,t} -$ *(Compustat Item (ni-act+ch+lct-dlc+dp-dvt-emp)/at)*

$FUTURE\_VALUE_{i,t}$	Industry specific value creation of SG&A expenses received from Table 2 of Banker et al. (2011), where a value is assigned to each two-digit SIC code. Observations are partitioned into the high and low future value creation groups by year.
$GDP_{i,t}$	The percentage growth in real Gross National Product.
$Highest\_Quartile_{i,t}$	A dummy variables that equals to one for observations in the highest quartile of $COST\_WEISS_{i,t}$, zero otherwise.
$LEV_{i,t}$	The magnitude of financial leverage calculated as the ratio of $DEBT_{i,t}$ to $ASSETS_{i,t}$-(*Compustat Item (dlc plus dltt)/at*).
$LOSS_{i,t}$	A dummy variable equals to one if net income is negative, otherwise zero (*Compustat Item ib*).
$Lowest\_Quartile_{i,t}$	A dummy variables that equals to one for observations in the lowest quartile of $COST\_WEISS_{i,t}$, zero otherwise.
$GROWTH_{i,t}$	The growth rate of sales revenue.
$Managerial\_Ability_{i,t}$	The level of Managerial Ability (MA) proposed by Demerjian et al. (2012). The MA score represents the segment of a company's efficiency that remains undisclosed despite considering a range of firm attributes such: as size, market share, cash availability, life cycle, operational complexity, and foreign operations.
$Meet\_Targets_{i,t}$	A dummy variables equals one in case a firm's net income scaled by total assets at prior year end ranges from -0.075 to +0.075, zero otherwise.
$MOD\_COST\_WEISS_{i,t}$	A measure of cost asymmetry controlled for the effects of financial constraints and financial distress.
$MV_{i,t}$	Sum of market value of equity, long and short-term debt, liquidation value of preferred stock, and deferred taxes and investment credit-(*Compustat Item mkvalt*).
$MVE_{i,t}$	The market value of equity scaled by total liabilities-(*Compustat Item mkvalt/lt*).
$NI_{i,t}$	Net income before extraordinary items-(*Compustat Item ib*).
$PPE_{i,t}$	The level of property, plant and equipment scaled by total assets-(*Compustat Item ppegt/at*).
$PROD_{i,t}$	The total level of production cost, proxied by the cost of goods sold and the change in total inventories-(*Compustat Item cogs + invt*).
$RETAINED_{i,t}$	The level of retained earnings-(*Compustat Item re*).
$ROA_{i,t}$	Return on assets, calculated as the ratio of $NI_{i,t}$ to $ASSETS_{i,t}$-(*Compustat Item ib/at*)
$SA_{i,t}$	The index has been developed by Hadlock and Pierce (2010) using the following equation: $SA_{i,t}= -0.737SIZE_{i,t}+0.043(SIZE_{i,t})^2 -0.040AGE_{i,t}$
$SL_{i,t}$	The magnitude of sales revenues-(*Compustat Item sale*).
$SG_{i,t}$	The level of the selling general and administrative expense-(*Compustat Item xsga*).
$S\_GROWTH_{i,t}$	Three digit SIC code industry annual sales growth.
$SIZE_{i,t}$	The logarithm of total assets(=Log($ASSETS_{i,t}$)).
$SUC_{i,t}$	A dummy variable that takes the value of 1 if sales revenue decreases for two consecutive periods, and 0 otherwise.
$TL_{i,t}$	The level of total liabilities-(*Compustat Item tl*).

$UNCERTAINTY_{i,t}$	The standard deviation of log changes in sales over rolling 3-year windows.
$WCTA_{i,t}$	The ratio of working capital to total assets-(*Compustat Item wcap/at)*
$WW_{i,t}$	The index has been developed by Whited and Whu (2006) using the following equation: $WW_{i,t}$= -0.091($CFO_{i,t}$/$ASSETS_{i,t}$) - 0.062$DIVPOS_{i,t}$ + 0.021($TL_{i,t}$/$DEBT_{i,t}$) - 0.044$SIZE_{i,t}$+0.102S_$GROWTH_{i,t}$-0.035S_$GROWTH_{i,t}$
$Z\_SCORE_{i,t}$	The index has been developed by Altman (1996) using the following equation: $Z\_SCORE_{i,t}$= +1.2$WCTA_{i,t}$ + 1.4($RETAINED_{i,t}$/$ASSETS_{i,t}$) + 3.3($EBIT_{i,t}$/$ASSETS_{i,t}$) + 0.6($MV_{i,t}$/$TL_{i,t}$) + 1.0($SL_{i,t}$/$ASSETS_{i,t}$)

NOTES

1. According to Amiram et al. (2018); researchers can identify fraud through allegations under either Section 17(a) of the 1933 Securities Act or Section 10(b) of the 1934 Securities Exchange Act. In addition, financial misrepresentation is defined as violations of Section 13(b) of the 1934 Securities Exchange Act which refers to reliability of accounting system and system of internal control. Financial misreporting includes violations of Section 13(a) which requires the timely filing with the SEC of certain financial reports. Finally, financial irregularities refer to restatements due to intentional misstatement.

2. Golden and Zheng (2022) found that cost stickiness is positively associated with dividend yield. The underlining rationale for this relationship is that managers who choose a stickier form of cost management have information about future permanent earnings, thus choosing to pay out more dividends to reflect future earnings levels. However, this empirical finding is not necessarily contradictory to this reported by He et al. (2020). Cost stickiness may have a negative effect on both the cash dividends and the market value of equity resulting in lower dividends and higher dividend yield. In addition, the positive relationship of cost stickiness with dividend yield is observed in the case of firms with (a) higher ability managers; (b) SG&A expenses that create higher future value; and (c) no successive sales decreases. It seems that the empirical findings of Golden and Zheng (2022) refer to firms experiencing low agency issues, with long term orientation and relatively stable sales growth. For this reason, we perform additional robustness analysis (see Section VI).

3. Karpoff et al. (2017) emphasized on common databases of financial misconduct, such as: (i) the Government Accountability Office (GAO), (ii) the Audit Analytics (AA) databases of restatements, (iii) the Standford Securities Class Action Clearinghouse (SCAC) and (iv) the AAER database. They concluded that AAERs are appropriate for examining the complete chronicle of misconduct, including the beginning and the ending dates of fraudulent behavior. Nevertheless, they are insufficient for scrutinizing precise dates when information about the misconduct becomes accessible to investors. Considering our research

objective of assessing the impact of cost asymmetry on the probability of financial reporting misconduct, AAERs appear as the most pertinent source for identifying fraudulent firms and the onset of fraudulent activities.

4. We also perform PSM technique by comparing firms received an AAERs with firms have similarly propensity to receive an AAER yet do not. Untabulated results indicates that our main empirical results are also robust to this classification of firms.

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TABLES

Table 1. Main variables and descriptive statistics

Panel A: Selection of data sample

	Observations Eliminated	Observations Remaining
Initial valid firm-year observations (1990-2020)		353,270
Exclude firms in regulated and financial industries (two-digit SIC codes 49; 60-69)	115,740	237,530
Elimination of the observations which the level of the SG&A expenses is higher than the level of the sales revenue and observations for firms that the sales revenues, the SG&A expenses, and total assets have no positive value.	63,673	173,857
Elimination of the observations with missing values for the calculation of $ASY^{j}_{i,t}$	132,796	41,061

Panel B: Main variables and descriptive statistics

		AAER firm-years			Non-AAER firm years			t-stat of
	Number of Obs.	Mean	Median	Standard Deviation	Mean	Median	Standard Deviation	Diff. in Means
$COST\_WEISS_{i,t}$	41,061	0.191	0.115	0.673	0.018	0.024	0.75	**3.85**[c]
$LOSS_{i,t}$	41,061	0.251	0.000	0.434	0.331	0.000	0.47	**-2.85**[c]
$WCTA_{i,t}$	41,061	0.256	0.223	0.226	0.21	0.205	0.282	**2.75**[c]
$LEV_{i,t}$	41,061	0.226	0.239	0.18	0.25	0.205	0.251	**-1.65**[a]
$SIZE_{i,t}$	41,061	2.893	2.825	0.953	2.494	2.503	0.957	**7.00**[c]
$GROWTH_{i,t}$	41,061	0.203	0.086	0.427	0.098	0.053	0.332	**5.30**[c]
$ROA_{i,t}$	41,061	0.012	0.034	0.165	-0.011	0.032	0.195	**1.90**[a]
$PPE_{i,t}$	41,061	0.346	0.270	0.261	0.556	0.436	0.443	**-7.95**[c]
$MVE_{i,t}$	41,061	5.846	2.363	8.943	4.001	1.807	6.859	**4.50**[c]
$CASHTA_{i,t}$	41,061	0.101	0.058	0.114	0.116	0.069	0.131	**-1.90**[a]

Table 2: Predictive ability of cost asymmetry on AAERs.

Panel A: Logit Model

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:$COST\_WEISS_{i,t}$	**0.334[c]**	**(4.55)**	**0.286[c]**	**(3.56)**	**0.224[b]**	**(2.43)**	**0.241[b]**	**(2.23)**
d_2:$LOSS_{i,t}$	-0.132	(-0.70)	-0.0241	(-0.12)	-0.297	(-1.27)	-0.497[a]	(-1.96)
d_3:$WCTA_{i,t}$	0.752[b]	(2.37)	0.473	(1.23)	0.0624	(0.15)	-0.0237	(-0.05)
d_4:$LEV_{i,t}$	-0.311	(-1.10)	0.0933	(0.31)	0.559[a]	(1.79)	0.533	(1.63)
d_5:$SIZE_{i,t}$	0.552[c]	(7.20)	0.441[c]	(5.17)	0.321[c]	(3.57)	0.223[b]	(2.36)
d_6:$GROWTH_{i,t}$	0.670[c]	(5.32)	0.829[c]	(6.64)	0.678[c]	(4.87)	0.581[c]	(3.44)
d_7:$ROA_{i,t}$	-1.021[b]	(-2.16)	-0.146	(-0.21)	-0.526	(-0.87)	-1.222[b]	(-2.30)
d_8:$PPE_{i,t}$	-1.677[c]	(-8.16)	-1.507[c]	(-6.97)	-1.310[c]	(-5.57)	-1.296[c]	(-5.23)
d_9:$MVE_{i,t}$	0.0221[c]	(3.84)	0.0268[c]	(4.46)	0.0302[c]	(4.21)	0.0215[b]	(2.41)
d_{10}:$CASHTA_{i,t}$	-2.527[c]	(-4.24)	-2.020[c]	(-3.13)	-1.786[b]	(-2.47)	-1.400[a]	(-1.81)
Number of Obs.:	41,061		36,222		32,189		28,651	
Pseudo R-Squared:	6.14%		5.43%		4.02%		3.17%	
ROC-Curve:	0.74		0.72		0.70		0.67	

Panel B: Hazard Model

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:$COST\_WEISS_{i,t}$	**0.365[c]**	**(5.10)**	**0.321[c]**	**(4.09)**	**0.265[c]**	**(2.93)**	**0.287[c]**	**(2.72)**
d_2:$LOSS_{i,t}$	-0.180	(-0.96)	-0.106	(-0.52)	-0.418[a]	(-1.80)	-0.663[c]	(-2.60)
d_3:$WCTA_{i,t}$	1.041[c]	(3.31)	0.858[b]	(2.29)	0.535	(1.31)	0.507	(1.13)
d_4:$LEV_{i,t}$	-0.290	(-1.01)	0.0144	(0.05)	0.413	(1.29)	0.373	(1.12)
d_5:$SIZE_{i,t}$	0.390[c]	(4.78)	0.300[c]	(3.36)	0.208[b]	(2.22)	0.130	(1.32)
d_6:$GROWTH_{i,t}$	0.828[c]	(6.86)	0.981[c]	(8.41)	0.821[c]	(6.33)	0.713[c]	(4.55)
d_7:$ROA_{i,t}$	-1.104[b]	(-2.33)	-0.0163	(-0.03)	-0.338	(-0.56)	-1.059[b]	(-2.02)
d_8:$PPE_{i,t}$	-1.574[c]	(-8.41)	-1.408[c]	(-7.14)	-1.204[c]	(-5.68)	-1.174[c]	(-5.36)
d_9:$MVE_{i,t}$	0.0222[c]	(3.98)	0.0243[c]	(4.19)	0.0267[c]	(3.84)	0.0193[b]	(2.17)
d_{10}:$CASHTA_{i,t}$	-3.372[c]	(-5.40)	-3.049[c]	(-4.54)	-2.908[c]	(-3.82)	-2.560[c]	(-3.19)
Number of Obs.:	41,061		41,061		41,061		41,061	
Pseudo R-Squared:	3.53%		3.40%		2.68%		2.59%	

Notes: This table presents the predictive ability of cost asymmetry and other firm characteristics on the probability a manager to commit fraud using either logit (Panel A) or hazard (Panel B) models. The dependent variable $AAERs_{i,t}$ equals to one if firms begins fraud disclosed in the AAER in the current period t as well as in year t+1, t+2 and t+3; the main independent variable $COST\_WEISS_{i,t}$ is the firm-level cost stickiness developed by Weiss (2010).The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix. a, b, c indicates 10%, 5% and 1% levels of significance respectively.

Table 3: Determinants of Cost Asymmetry

Panel A: Level of Asset Intensity

	Dependent Variable: $AAERs_{i,t+x}$							
	Low Asset Intensity				High Asset Intensity			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:COST_WEISS$_{i,t}$	0.138	-0.0242	-0.112	-0.0955	**0.451^{c}**	**0.482^{c}**	**0.461^{c}**	**0.493^{c}**
	(1.10)	(-0.20)	(-0.79)	(-0.55)	**(4.96)**	**(4.70)**	**(4.01)**	**(3.92)**
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	22,496	19,804	17,540	15,554	18,565	16,418	14,649	13,097
Pseudo R-Squared:	6.65%	6.88%	6.32%	5.27%	5.39%	4.97%	3.86%	3.32%

Panel B: Level of FCF

	Dependent Variable: $AAERs_{i,t+x}$							
	Low FCF				High FCF			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:COST_WEISS$_{i,t}$	**0.340^{c}**	**0.402^{c}**	0.167	0.252	**0.385^{c}**	**0.267^{b}**	**0.308^{b}**	**0.264^{a}**
	(3.00)	**(3.48)**	(1.10)	(1.47)	**(3.86)**	**(2.36)**	**(2.46)**	**(1.86)**
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	20,045	17,537	15,527	13,790	18,809	16,844	15,097	13,508
Pseudo R-Squared:	5.98%	6.90%	6.05%	5.22%	7.23%	6.46%	5.18%	4.02%

Panel C: Level of Uncertainty

	Dependent Variable: $AAERs_{i,t+x}$							
	Low Uncertainty				High Uncertainty			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:COST_WEISS$_{i,t}$	**0.348^{c}**	0.139	-0.0482	0.119	**0.342^{c}**	**0.358^{c}**	**0.333^{c}**	**0.288^{b}**
	(2.61)	(0.92)	(-0.31)	(0.76)	**(3.85)**	**(3.79)**	**(3.01)**	**(2.08)**
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	21,616	18,597	16,097	13,965	19,445	17,625	16,092	14,686
Pseudo R-Squared:	5.25%	4.39%	2.31%	2.88%	5.33%	4.94%	4.45%	3.14%

Notes: This table presents the predictive ability of cost asymmetry on fraudulent misreporting under different factors of cost asymmetry. In Panels A we split the sample based on their level of adjustment costs. The level of adjustment costs is captured using either the level of firm's asset intensity. In panel B and D we use a median split on the level of Free Cash Flows and the level of uncertainty. To estimate the level of demand uncertainty, we calculate the standard deviation of sales revenue over a three year rolling window. The dependent variable $AAERs_{i,t}$ equals to one if firms begins fraud disclosed in the AAER in the current period t as well as in year t+1, t+2 and t+3; the main independent variable $COST\_WEISS_{i,t}$ is the firm-level cost stickiness developed by Weiss (2010).The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix. a, b, c indicates 10%, 5% and 1% levels of significance respectively.

Table 4: Earnings Management Initiatives.

Panel A: Accrual Earnings Management

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:COST_WEISS$_{i,t}$	**0.306**[c]	**(4.03)**	**0.264**[c]	**(3.24)**	**0.183**[b]	**(1.98)**	**0.210**[a]	**(1.95)**
d_{11}:Abnormal_Accruals$_{i,t-1}$	**0.983**[b]	**(2.42)**	0.608	(1.35)	0.0648	(0.13)	0.429	(0.71)
d_{12}:Abnormal_Accruals$_{i,t-1}$ * COST_WEISS$_{i,t}$	-0.860	(-1.58)	-0.108	(-0.20)	-0.129	(-0.18)	0.466	(0.62)
Control Variables	Included		Included		Included		Included	
Number of Obs.:	37,856		33,544		29,916		26,707	
Pseudo R-Squared:	6.25%		5.12%		3.78%		2.87%	

Panel B: Real Earnings Management

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:COST_WEISS$_{i,t}$	**0.296**[c]	**(3.97)**	**0.242**[c]	**(2.99)**	**0.177**[a]	**(1.95)**	0.158	(1.46)
d_{11}:Abnormal_REM$_{i,t-1}$	0.171	(0.97)	0.0461	(0.26)	0.0782	(0.43)	0.276	(1.32)
d_{12}:Abnormal_REM$_{i,t-1}$ *COST_WEISS$_{i,t}$	**0.375**[a]	**(1.66)**	**0.587**[b]	**(2.57)**	**0.592**[b]	**(2.35)**	**0.651**[b]	**(2.42)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	39,777		35,170		31,296		27,894	
Pseudo R-Squared:	6.35%		5.57%		4.30%		3.58%	

Panel C: Meet Earnings Targets

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:COST_WEISS$_{i,t}$	**0.334**[c]	**(3.15)**	**0.294**[c]	**(2.64)**	**0.223**[a]	**(1.73)**	**0.281**[a]	**(1.91)**
d_{11}:Meet_Targets$_{i,t}$	**0.309**[c]	**(2.40)**	0.118	(0.88)	0.0823	(0.55)	0.0266	(0.16)
d_{12}: Meet_Targets$_{i,t}$ *COST_WEISS$_{i,t}$	0.0595	(0.43)	0.0457	(0.29)	0.0431	(0.24)	-0.0350	(-0.17)
Control Variables	Included		Included		Included		Included	
Number of Obs.:	41,061		36,222		32,189		28,651	
Pseudo R-Squared:	6.36%		5.50%		4.06%		3.19%	

Notes: This table presents the predictive ability of cost asymmetry on the probability a manager to commit fraud under the prism of different earnings management initiatives. The level of earnings management is captured by the: (i) accrual earnings management initiatives (Panel A), (ii) real earnings management initiatives (Panel B) and (iii) incentives to meet earnings targets (Panel C). The dependent variable $AAERs_{i,t}$ equals to one if firms begins fraud disclosed in the AAER in the current period t as well as in year t+1, t+2 and t+3; the main independent variable $COST\_WEISS_{i,t}$ is the firm-level cost stickiness developed by Weiss (2010).The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix. a, b, c indicates 10%, 5% and 1% levels of significance respectively.

Table 5: Predictive ability of cost asymmetry on AAERs after excluding the effect of financial constraints/distress on cost asymmetry.

Panel A: Incorporating WW index

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:MOD_COST_WEISS$_{i,t}$	**0.294[c]**	**(3.95)**	**0.241[c]**	**(2.98)**	**0.166[a]**	**(1.81)**	**0.191[a]**	**(1.76)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	39,828		35,205		31,340		27,927	
Pseudo R-Squared:	6.07%		5.19%		3.77%		2.90%	

Panel B: Incorporating SA index

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:MOD_COST_WEISS$_{i,t}$	**0.334[c]**	**(4.56)**	**0.286[c]**	**(3.56)**	**0.224[b]**	**(2.44)**	**0.243[b]**	**(2.25)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	41,061		36,222		32,189		28,651	
Pseudo R-Squared:	6.14%		5.43%		4.02%		3.17%	

Panel C: Incorporating Altman Z-Score index

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:MOD_COST_WEISS$_{i,t}$	**0.334[c]**	**(4.56)**	**0.286[c]**	**(3.57)**	**0.224[b]**	**(2.43)**	**0.241[b]**	**(2.23)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	41,061		36,222		32,189		28,651	
Pseudo R-Squared:	6.14%		5.43%		4.02%		3.17%	

Notes: This table presents the predictive ability of cost asymmetry on fraudulent misreporting after adjusting the $COST\_WEISS^{j}_{i,t}$ for the effects of financial constraints/distress, by excluding the following proxies: (i) WW index ($WW_{i,t}$) developed by Whited and Whu (2006)-Panel A, (ii) SA index ($SA_{i,t}$) developed by Hadlock and Pierce (2010)-Panel B and (iii) Altman Z-Score ($Z\_SCORE_{i,t}$) developed by Altman (1968). The dependent variable $AAERs_{i,t}$ equals to one if firms begins fraud disclosed in the AAER in the current period t as well as in year t+1, t+2 and t+3; the main independent variable $COST\_WEISS_{i,t}$ is the firm-level cost stickiness developed by Weiss (2010).The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix. a, b, c indicates 10%, 5% and 1% levels of significance respectively.

Table 6: Propensity Score Matching, Quartile Analysis and Alternative Measures

Panel A: Propensity Score Matching

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:COST_WEISS$_{i,t}$	**0.346^{c}**	**(4.41)**	**0.302^{c}**	**(3.45)**	**0.263^{b}**	**(2.52)**	**0.354^{c}**	**(2.85)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	20,134		17,756		15,734		13,964	
Pseudo R-Squared:	7.56%		5.50%		5.52%		5.15%	

Panel B: Quartile Analysis

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
a_1:Highest_Quartile$_{i,t}$	**0.376^{c}**	**(3.14)**	**0.286^{b}**	**(2.23)**	**0.290^{b}**	**(2.06)**	**0.271^{a}**	**(1.73)**
a_2:Lowest_Quartile$_{i,t}$	**-0.382^{b}**	**(-2.51)**	**-0.430^{c}**	**(-2.65)**	**-0.305^{a}**	**(-1.78)**	**-0.318^{a}**	**(-1.66)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	52,132		45,940		40,730		36,250	
Pseudo R-Squared:	6.29%		5.83%		4.18%		2.99%	

Panel C: Alternative Specification of Cost Asymmetry

	$AAERs_{i,t}$		$AAERs_{i,t+1}$		$AAERs_{i,t+2}$		$AAERs_{i,t+3}$	
	Coefficient Estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)	Coefficient estimates	(z-stat.)
d_1:ASY$_{i,t}$	**0.859^{c}**	**(2.60)**	**1.059^{c}**	**(2.99)**	**1.296^{c}**	**(3.53)**	**1.151^{c}**	**(2.93)**
Control Variables	Included		Included		Included		Included	
Number of Obs.:	77,290		68,140		60,415		53,755	
Pseudo R-Squared:	4.89%		4.79%		4.11%		3.15%	

Notes: This table presents the empirical results of the main analysis represented in Eq.(1) after: (i) matching firms classified as high intensity of cost stickiness with low intensity of cost asymmetry using PSM (Panel A), (ii) replacing the COST_WEISS$_{i,t}$ with two dummy variables Highest_Quartile$_{i,t}$ and Lowest_Quartile$_{i,t}$ and (iii) using alternative measures of cost asymmetry (Panel C). To estimate the propensity score, a logit model estimated using as dependent variable a dummy variable (Intent_WEISS$_{i,t}$) which takes the value of one (zero) if firms classified in the highest (lowest) quartile of COST_WEISS$_{i,t}$. Independent variables Highest_Quartile$_{i,t}$ and Lowest_Quartile$_{i,t}$ calculated based on the level of cost asymmetry on a quantile basis. Highest_Quartile$_{i,t}$ (Lowest_Quartile$_{i,t}$) includes the observations with the highest (lowest) cost asymmetry score. The main independent variable ASY$_{i,t}$ is the estimated value of the coefficients of the basic asymmetric cost behavior model developed by Anderson et al. (2003); the dependent variable $AAERs_{i,t}$ equals to one if firms begins fraud disclosed in the AAER in the current period t as well as in year t+1, t+2 and t+3. The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix A. a, b, c indicates 10%, 5% and 1% levels of significance respectively.

Table 7: The Effect of Earnings Persistence on the Predictability of Cost Asymmetry on AAERs

	Dependent Variable: $AAERs_{i,t+x}$							
	Transitory Earnings				**Earnings Persistence**			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:COST_WEISS$_{i,t}$	**0.438^c**	**0.415^c**	**0.356^c**	**0.333^c**	0.0755	-0.00213	-0.186	-0.0625
	(5.10)	**(4.33)**	**(3.60)**	**(2.90)**	(0.49)	(-0.01)	(-0.88)	(-0.24)
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	26,904	23,784	21,167	18,898	10,038	8,978	8,067	7,233
Pseudo R-Squared:	7.25%	6.80%	5.37%	3.94%	4.22%	3.14%	4.37%	3.65%

Notes: This table presents the empirical results of the main analysis represented in Eq. (1) after splitting firms into those that present highly persistent earnings and those with highly transitory earnings. The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix A. a, b, c indicates 10%, 5% and 1% levels of significance respectively.

Table 8: Agency and Managerial Optimism Arguments

Panel A: Level of Managerial Ability

	Dependent Variable: $AAERs_{i,t+x}$							
	Low Managerial Ability				High Managerial Ability			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:$COST\_WEISS_{i,t}$	**0.399**[c]	**0.332**[b]	0.201	0.252	**0.295**[c]	**0.263**[c]	**0.249**[b]	**0.236**[a]
	(3.37)	**(2.43)**	(1.35)	(1.37)	**(3.13)**	**(2.67)**	**(2.12)**	**(1.78)**
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	19,928	17,508	15,566	13,779	21,133	18,714	16,623	14,872
Pseudo R-Squared:	6.05%	4.83%	4.27%	3.24%	7.05%	6.91%	4.74%	4.01%

Panel B: Level of Future Value Creation of SG&A Costs

	Dependent Variable: $AAERs_{i,t+x}$							
	Low Future Value Creation				High Future Value Creation			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:$COST\_WEISS_{i,t}$	**0.237**[c]	**0.245**[b]	**0.292**[b]	**0.454**[c]	**0.410**[c]	**0.324**[c]	0.164	0.0361
	(2.34)	**(2.22)**	**(2.27)**	**(3.09)**	**(4.02)**	**(2.86)**	(1.28)	(0.25)
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	20,806	18,423	16,404	14,632	20,255	17,799	15,785	14,019
Pseudo R-Squared:	7.06%	5.83%	3.58%	4.86%	5.88%	5.53%	4.89%	2.53%

Panel C: Managerial Expectations

	Dependent Variable: $AAERs_{i,t+x}$							
	Low Managerial Expectations				High Managerial Expectations			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:$COST\_WEISS_{i,t}$	0.330	**0.571**[c]	**0.711**[c]	-0.0116	**0.336**[c]	**0.267**[c]	**0.188**[a]	**0.260**[c]
	(1.54)	**(2.60)**	**(2.84)**	(-0.04)	**(4.34)**	**(3.21)**	**(1.94)**	**(2.30)**
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	6,256	5,133	4,500	3,963	34,805	31,089	27,689	24,688
Pseudo R-Squared:	11.56%	5.80%	6.29%	7.01%	5.61%	5.31%	4.10%	3.17%

Panel D: Firm's Growth Opportunity

	Dependent Variable: $AAERs_{i,t+x}$							
	Mature Firms				Growth Firms			
	x=0	x=1	x=2	x=3	x=0	x=1	x=2	x=3
d_1:$COST\_WEISS_{i,t}$	**0.456**[c]	**0.501**[c]	**0.428**[c]	**0.581**[c]	**0.226**[b]	0.126	0.0692	-0.0163
	(4.42)	**(4.55)**	**(3.59)**	**(4.89)**	**(2.27)**	(1.19)	(0.54)	(-0.11)
Control Variables	Included	Included	Included	Included	Included	Included	Included	Included
Number of Obs.:	21,447	18,896	16,695	14,731	19,616	17,329	15,497	13,923
Pseudo R-Squared:	7.58%	5.71%	4.80%	4.68%	5.47%	5.51%	3.79%	3.40%

Notes: This table presents the predictive ability of cost asymmetry on fraudulent misreporting under different agency and managerial optimism perspectives. Panel A and C we split our sample based on managerial characteristics, such as the level of managerial ability (Panel A) and the managerial expectations (Panel C). To estimate the level of managerial expectations, we use a dummy variable for successive sales decrease in the preceding and current periods. In Panel B we partition our sample according to the industry-specific impact of SG&A on return on assets according to Banker et al.(2011). Panel D presents our main empirical results for mature and growth firms. The dependent variable $AAERs_{i,t}$ equals to one if firms begins fraud disclosed in the AAER in the current period t as well as in year t+1, t+2 and t+3; the main independent variable $COST\_WEISS_{i,t}$ is the firm-level cost stickiness developed by Weiss (2010).The models are estimated by firm-clustered standard errors to control for autocorrelation and heteroscedasticity (Petersen, 2009). Variables are defined in Appendix. a, b, c indicates 10%, 5% and 1% levels of significance respectively.