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**Article — Published Version**

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Managerial and Decision Economics

**Provided in Cooperation with:**

John Wiley & Sons

*Suggested Citation:* Lopatta, Kerstin; Kaspereit, Thomas; Gastone, Laura-Maria (2020) : Managerial style in cost asymmetry and shareholder value, Managerial and Decision Economics, ISSN 1099-1468, Wiley, Hoboken, NJ, Vol. 41, Iss. 5, pp. 800-826, <https://doi.org/10.1002/mde.3139>

This Version is available at:

<https://hdl.handle.net/10419/230201>

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## RESEARCH ARTICLE

## Managerial style in cost asymmetry and shareholder value

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We show that CEOs' contribution to SG&A cost asymmetry is associated with lower shareholder value. CEO-related excess SG&A cost stickiness of CEOs with compensation less tied to shareholder value creation and high power drive this association. Last, we provide first evidence that cost asymmetry incorporates a harmful element to the firm and shareholders, namely CEO-related excess SG&A cost asymmetry.

## JEL CLASSIFICATION

D24; M11; M12

## 1 | INTRODUCTION

Traditional cost models separate costs into fixed and variable costs under the assumption that the variable costs vary symmetrically with activity levels, whereas fixed costs remain constant (Noreen, 1991). However, recent literature has found SG&A costs to behave asymmetrically.<sup>1</sup> On average, SG&A costs increase more rapidly when the activity level increases than they decrease when the activity level decreases—a phenomenon known as “sticky costs” (Anderson, Banker, & Janakiraman, 2003). Under an excess capacity assumption, the response of SG&A costs to a decrease in activity level exceeds the SG&A cost response to an equivalent increase in activity, in which case they are labeled “anti-sticky costs” (Banker & Byzalov, 2014).

Existing research on SG&A cost asymmetry mostly focuses on explaining this phenomenon with firm-specific and macroeconomic factors, such as asset intensity, employee intensity, life cycle of the company, and gross domestic product (GDP) growth (Anderson et al., 2003; Banker, Byzalov, Ciftci, & Mashruwala, 2014; Banker & Byzalov, 2014; Dierynck, Landsman, & Renders, 2012). However, there has been little to no research on the direct effects of top management on the asymmetry of SG&A costs or on its economic consequences. We close this literature gap by investigating how individual CEO-induced SG&A cost asymmetry in excess of the firm-specific level is associated with shareholder value.

We follow Bertrand and Schoar (2003) and assume that individual CEOs' direct contribution to SG&A cost asymmetry is supported by extensions of agency theory and neoclassical theory. Having identified

the part of SG&A cost asymmetry which is induced by decisions of individual CEOs and is in excess of the firm-specific level of SG&A cost asymmetry determined by firm-specific and macroeconomic factors, labeled as a CEO-related excess level of SG&A cost asymmetry, we explore whether it has a significant association with shareholder value.

Following two different threads of agency theory, we expect that—independently of the direction in which it deviates—individual CEO-related excess SG&A cost asymmetry is negatively associated with shareholder value, as it represents agency costs due to a CEO's idiosyncratic style that is imposed on the firm and its shareholders. On the one hand, individual CEOs' cost management decisions may be biased by potential personal benefits resulting from empire-building activities, in which case we expect an excess level of SG&A cost stickiness. On the other hand, CEOs' myopia due to potential gains from meeting or beating current earnings targets could motivate them to make suboptimal decisions regarding cost management, leading to excess SG&A cost anti-stickiness. However, under this assumption, it is also possible that capital markets do not punish firms in terms of shareholder value if they are also short-term oriented, as cost anti-stickiness leads to higher current earnings per share. Although we acknowledge that CEOs' cost adjustment decisions could also stem from stewardship (e.g., because CEOs have private information), we conjecture that, on average, the effects described by agency theory dominate.

To test our predicted association between CEO-related excess cost asymmetry and shareholder value, we follow a two-step

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approach. In a first step, we model firm-level SG&A cost asymmetry as a function of firm-specific and macroeconomic factors identified by prior literature. For this we use a self-developed extended version of the cost asymmetry model in Anderson et al. (2003).<sup>2</sup> By analogy to the literature on abnormal audit fees and abnormal accruals, we assume that the firm-specific level depends only on firm-specific and macroeconomic factors and thus interpret any deviation from it as a deviation from the firm-specific level of SG&A cost asymmetry. To determine how CEOs contribute to this, we add CEO-fixed effects to our model and interpret the personal contribution of each CEO to the level of cost asymmetry as excess cost asymmetry that is induced by their decisions. We use the method outlined in Bertrand and Schoar (2003) to estimate CEO-fixed effects on SG&A cost asymmetry for moving CEOs.<sup>3</sup> In a second step, we use these effects to conduct our main test on the association between CEO-related excess SG&A cost asymmetry and shareholder value, measured by *Tobin's Q* (Kaldor, 1966; Tobin & Brainard, 1976).

Our results show that individual CEOs' contribution to the level of SG&A cost asymmetry is statistically significant. The results also support our second prediction that the CEO-related excess level of cost asymmetry is associated with lower shareholder value, this association being mainly driven by CEO-related excess SG&A cost stickiness. Additional tests help us confirm the robustness of our results by eliminating the possibility that the identified CEO-fixed effects are the result of CEO overconfidence or only representative of the decisions of newly appointed CEOs. Furthermore, we show that the documented negative association of CEO-related excess cost asymmetry with shareholder value is stronger for CEOs whose compensation is less dependent on shareholder value creation. Finally, we find that powerful CEOs (in terms of control rights), who contribute to CEO-related excess cost stickiness as well as CEOs with less power who contribute to CEO-related excess cost anti-stickiness, drive the negative association with shareholder value.

This study contributes to the literature by providing empirical proof of the association between individual CEO-related SG&A costs asymmetry and shareholder value, thus linking the strand of managerial accounting literature on cost asymmetry (Anderson et al., 2003; Banker & Byzalov, 2014) to finance literature (Cunat, Gine, & Guadalupe, 2012; Kaspereit, Lopatta, & Onnen, 2017). It also contributes to the literature on individual CEOs' cost management decisions as an important factor in explaining SG&A cost asymmetry (Chen, Gores, & Nasev, 2013; Chen, Kama, & Lehavy, 2017; Chen, Lu, & Sougiannis, 2012; Dierynck et al., 2012; Kama & Weiss, 2013). Furthermore, it follows prior research recommendations in that it identifies the harmful part of cost asymmetry (Banker & Byzalov, 2014), represented in this paper by CEO-related excess SG&A cost asymmetry.

The remainder of this paper is organized as follows. In Section 2, we review the existing literature and develop our hypotheses. In Section 3, we discuss the sample and methodology. Section 4 presents the results, and Section 5 concludes.

## 2 | LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Most of the existing literature on the topic of cost asymmetry focuses on explaining it through economic factors such as asset or employee intensity, stock performance, demand uncertainty, life cycle (Anderson et al., 2003; Anderson & Lee, 2016; Anderson, Lee, & Mashruwala, 2016; Dierynck et al., 2012; Zhu & Xu, 2011), capacity utilization (Balakrishnan, Petersen, & Soderstrom, 2004), the criticality of cost (Balakrishnan & Gruca, 2008), pattern of sales changes (Banker & Byzalov, 2014), management expectations (Chen et al., 2017), employment protection legislation (Banker, Byzalov, & Chen, 2013), or national culture (Kitching, Mashruwala, & Pevzner, 2016).

Few studies examine potential top managerial influence on cost asymmetry. Chen et al. (2012), Chen et al. (2013), Dierynck et al. (2012), or Kama and Weiss (2013) examine the influence of agency problem-induced management incentives on SG&A cost asymmetry at firm level. Chen et al. (2012) find that management's agency problem-induced empire-building incentives (proxied by free cash flow, CEO tenure, CEO horizon, and CEO fixed pay) lead to increased SG&A cost stickiness. Conversely, Kama and Weiss (2013) find that agency problem-induced incentives to meet earnings targets or to avoid losses lessen the degree of SG&A cost stickiness at firm level. Dierynck et al. (2012) also find this to hold true for a sample of private Belgian firms. Additionally, Chen et al. (2013) find that SG&A cost stickiness increases with CEO overconfidence. However, to the best of our knowledge, there is no study that examines the direct impact of individual top managers' leadership style on SG&A cost asymmetry.

Beyond the part of SG&A cost asymmetry which arises from incentives due to the agency problem and other economic determinants, it is plausible to assume that the idiosyncratic characteristics of top executives, particularly CEOs,<sup>4</sup> have an additional impact on the level of SG&A cost asymmetry. First, extensions of standard agency models imply that top managers have discretion inside their firm and are able to influence corporate choices through their idiosyncratic style, especially if corporate controls are limited. Second, on the basis of extensions of the neoclassical model, top managers are purposefully chosen by firms because of their idiosyncratic characteristics, which means they are a good fit for the firm's strategy. However, as also argued by Bertrand and Schoar (2003), regardless of the underlying theory, we expect top managers to play a significant role in corporate decisions because of differences in style. This is also supported by academic literature's widely shared belief that CEOs are the most powerful individuals in a modern corporation (Pearce & DeNisi, 1983; Pearce & Robinson, 1987; Tone Hosmer, 1982) because of unique attributes such as their legitimate authority and broad knowledge about the firm they lead (Roth, 1995; Wallace, Worrell, & Cheng, 1990). In the context of managerial accounting, we assume that CEOs have to make strategic cost adjustment choices and are often faced with a trade-off between the potential costs (e.g., reputational damage when laying off employees) and potential benefits (e.g., maintaining profitability margins) of cost reduction. As different managers have distinctive idiosyncratic characteristics that guide their

decisions, their interpretation of such current complex decision problems will differ.

Bertrand and Schoar (2003) provide the first comprehensive empirical evidence of the existence of specific patterns in managerial decision-making, indicating differences in style across managers. By requiring managers in their sample to have worked for at least two different firms over the analyzed period (so-called “moving” managers), they are able to appropriately separate manager- from firm-fixed effects and to relate the former to idiosyncratic managerial style. Other archival studies show that personal managerial style and talent, too, impact voluntary disclosure and earnings guidance (Bamber, Jiang, & Wang, 2010; Brochet, Faurel, & McVay, 2011; Yang, 2012), earnings management (Dejong & Ling, 2013; Ge, Matsumoto, & Zhang, 2011), executive compensation (Graham, Li, & Qiu, 2012), tone of conference calls (Davis, Ge, Matsumoto, & Zhang, 2015), and firms' competitive position (Molina, del Pino, & Rodríguez, 2004).

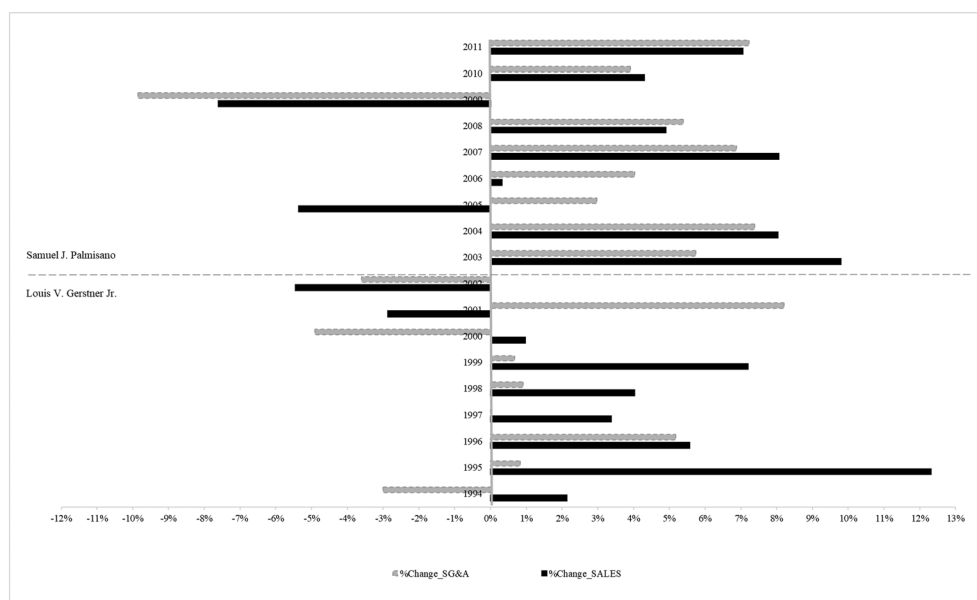
Although the direct impact of CEOs is not obvious in the case of cost adjustment decisions, as resource allocation decisions take place at different levels of the firm (e.g., business unit level), there is reasonable proof to sustain this assumption. First, prior literature has shown that tone at the top matters (Merchant, 1990; Rotemberg & Saloner, 2000; Schaubroeck et al., 2012) and that it can influence how lower-level managers make organizational decisions. Similarly, there is evidence that CEOs play a role at division level through their capital allocation decisions, causing lower level managers to base their organizational decisions on the allocated resources (Gaspar & Massa, 2011; Xuan, 2009). Second, beyond the theoretical arguments, there is also supporting anecdotal and practice evidence. Figure 1 depicts the development of sales and corresponding SG&A costs at The International Business Machines Corporation (IBM) between 1994 and 2011, when Louis V. Gerstner Jr. and Samuel J. Palmisano served as CEOs. Louis V. Gerstner Jr. was in charge from 1994 to 2002, and his leadership style was based on the idea that “the last thing IBM needs right now is a vision” (Charan & Colvin, 1999). He focused on

execution, decisiveness, and changes to simplify the organization and to regain advantage through efficiency. This leadership style is also observable in the way SG&A costs behaved relative to changes in sales. Even in years with high sales increases, SG&A costs exhibited only a slight increase or even a decrease, indicating the results of an efficiency-based strategy. However, we observe a drastic change in 2003, when Samuel J. Palmisano took over as CEO. Unlike his predecessor, Palmisano's leadership strategy was innovation-driven. He argued that IBM needs to “go to a space where” it would be “uniquely positioned” (Lohr, 2011), thus focusing on developing unique products with high profit margins and reinventing IBM as a whole. As before, the SG&A cost behavior in relation to sales reflects this strategy. In most years, the increase in SG&A costs was almost as high as or even exceeded the increase in sales, in 1 year even increasing although sales declined.<sup>5</sup>

Building on Bertrand and Schoar (2003), the aforementioned theory, and anecdotal evidence, we assume that an additional part of SG&A cost asymmetry at the firm level results from differences in style due to a CEO's idiosyncratic characteristics:

**Hypothesis 1.** *CEO fixed effects contribute significantly to excess SG&A cost asymmetry at firm level.*

The assumption that CEO fixed effects significantly contribute to the level of SG&A cost asymmetry at firm level provides a setting that allows us to address an important under-researched part of the literature on cost asymmetry: the potential economic consequences of asymmetric cost behavior. To the best of our knowledge, only two studies exist in this area of research. Weiss (2010) explores the influence of cost stickiness on analysts' earnings forecasts and finds that on average, firms with stickier costs have less accurate analysts' earnings forecasts, lower analyst coverage, and a weaker market response to their earnings surprises. Similarly, Ciftci, Mashruwala, and Weiss (2016) analyze the implications of cost



**FIGURE 1** The International Business Machine Corporation (IBM) example of selling, general, and administrative cost behavior in relation to changes in sales based on the management styles of two different CEOs

behavior on analysts' earnings forecasts and find that analysts do not fully understand cost asymmetry, which leads to lower earnings forecast accuracy. We extend this part of cost asymmetry literature by investigating how CEO fixed effects on cost asymmetry are associated with shareholder value.

Prior research on the effect of individual management characteristics on firm value has found that managerial decisions concerning discretionary general and administrative expenses (Capozza & Seguin, 1998) as well as excessive CEO compensation (Brick, Palmon, & Wald, 2006) are negatively associated with firm value (Capozza & Seguin, 1998). Conversely, female representation in top management (Dezsö & Ross, 2012), CEO ownership (Griffith, 1999), and CEO talent (Falato, Li, & Milbourn, 2015; Gabaix & Landier, 2008; Jung & Subramanian, 2017) all improve firm value. Lastly, Berson, Oreg, and Dvir (2008) find that CEOs' psychological characteristics, as a form of tone at the top, are indirectly associated with firms' financial performance. We extend this literature stream by linking CEO style in cost asymmetry to shareholder value.

In analogy to the literature on abnormal audit fees (Choi, Kim, & Zang, 2010) and abnormal accruals (Bartov, Gul, & Tsui, 2000), we assume that firm-specific and macroeconomic variables determine the firm-specific level of SG&A cost asymmetry. However, we assume that CEO-fixed effects represent a deviation from this firm-specific level, defined as CEO-related excess SG&A cost asymmetry. Extensions of standard agency models show that top managers can impose their own idiosyncratic style on a company, especially if they have enough decision-making power within the company (Bertrand & Schoar, 2003). Placing this in the SG&A cost asymmetry setting, managers may choose a suboptimal SG&A cost management strategy due to personal empire-building aspirations, bounded rationality, or cognitive limitation (Cyert & March, 1963; March & Simon, 1993), which could either lead to excess cost stickiness or anti-stickiness. Possibly, the CEO-related excess SG&A cost anti-stickiness is due to CEOs myopically chasing short-term gains (Cadman & Sunder, 2014; Edmans, Fang, & Lewellen, 2015; Graham, Harvey, & Rajgopal, 2005), which leads them to sacrificing long-term shareholder value. However, if capital markets also focus on current earnings and thus short-term gains, this would even maximize current shareholder value, making a case for a neutral or even positive relationship between CEO-related excess SG&A cost-anti stickiness and current market valuation. Conversely, managers dislike the negative emotions associated with laying off employees or closing production sites (Cascio, 1993; Clair & Dufresne, 2004; Gandolfi & Hansson, 2015). Here, the adjustment costs perceived by the CEO are too high compared with the potential savings from cutting resources. In this case, we expect the resulting excess SG&A cost stickiness to be negatively related to shareholder value, given that even if capital markets focused mainly on the short-term, not cutting resources would lead to lower current earnings per share. Furthermore, managers have certain incentives to act in their own interest without regard for the company's shareholders. Numerous empirical studies suggest that the resulting agency costs are directly imposed on the firm and its shareholders (Lang & Stulz, 1994; Malmendier & Tate, 2008; Rajan, Servaes, & Zingales, 2000; Schoar,

2002). Thus, we expect that, regardless of the direction of the deviation, CEO-related excess cost asymmetry on average is harmful to shareholder value. Furthermore, Van der Stede (2000) finds that corporate management can mandate more slack (i.e., reserve of available resources for operating costs) depending on the budget strategy they follow. Although we acknowledge that CEOs' cost adjustment decisions could also stem from stewardship, as would be the case of CEOs possessing private information that leads them to not adjust costs downwards, we conjecture that, on average, the effects described by agency theory dominate. Thus, we formulate our second hypothesis as follows:

**Hypothesis 2.** *The CEO-related excess level of SG&A cost asymmetry is negatively associated with shareholder value.*

### 3 | METHODOLOGY AND SAMPLE

#### 3.1 | Cost asymmetry model

For the first step of our analysis, we use an extended version of the ABJ model to identify asymmetric SG&A cost behavior<sup>6</sup>:

$$\begin{aligned} \log(\Delta SG\&A)_{it} = & \beta_0 + \beta_1 \log(\Delta Sale)_{it} + \beta_2 D_{it} + \beta_3 D_{it} \log(\Delta Sale)_{it} \quad (1) \\ & + \sum \beta_k DET_{it} + \sum \beta_l DET_{it} \log(\Delta Sale)_{it} + \sum \beta_m D_{it} DET_{it} \\ & + \sum \beta_n DET_{it} D_{it} \log(\Delta Sale)_{it} + \mu_i + \tau_t + \varepsilon_{it}, \end{aligned}$$

where  $\log(\Delta Sale)_{it}$  represents the logarithm of the annual change in sales revenue and  $\log(\Delta SG\&A)_{it}$  represents the corresponding annual change in SG&A costs.  $D_{it}$  is an indicator variable, which takes the value of one if sales decrease in the current period and zero otherwise.  $DET_{it}$  represents the list of cost asymmetry determinants identified by prior literature,  $\mu_i$  and  $\tau_t$  are firm- and time-fixed effects. The change in sales is a proxy for changes in activity levels, which drive the changes in SG&A costs, as these are not directly observable. We follow prior literature and use a logarithmic specification to alleviate heteroscedasticity and to facilitate the economic interpretation of the estimated coefficients. Additionally, the ratio form of the dependent variable and the driver variable, change in sales revenue, improves comparability across firms.

For the second step of our analysis, we include CEO-fixed effects (Bertrand & Schoar, 2003):

$$\begin{aligned} \log(\Delta SG\&A)_{it} = & \beta_0 + \beta_1 \log(\Delta Sale)_{it} + \beta_2 D_{it} + \beta_3 D_{it} \log(\Delta Sale)_{it} \quad (2) \\ & + \sum \beta_k DET_{it} + \sum \beta_l DET_{it} \log(\Delta Sale)_{it} + \sum \beta_m D_{it} DET_{it} \\ & + \sum \beta_n DET_{it} D_{it} \log(\Delta Sale)_{it} + \sum \beta_k CEO_{jt} \\ & + \sum \gamma_l CEO_{jt} \log(\Delta Sale)_{it} + \sum \gamma_m D_{it} CEO_{jt} \\ & + \sum \gamma_n CEO_{jt} D_{it} \log(\Delta Sale)_{it} + \mu_i + \tau_t + \varepsilon_{it}, \end{aligned}$$

where  $CEO_{jt}$  are indicator variables for each individual CEO in our sample of 3,989 different CEOs. The use of indicator variables for CEO-fixed effects allows us to estimate these for all moving CEOs within our sample (i.e., CEOs employed by at least two different firms

in our sample over the observed period).<sup>7</sup> We include firm- and time-fixed effects in all our equations to account for possible correlation between CEO-fixed effects and other firm- and time-specific characteristics, which would lead to a biased estimation (Bertrand & Schoar, 2003). The estimation of Equation (2) thus allows us to identify each moving CEO in our sample, each represented by a dummy variable, as an additional determinant of SG&A cost asymmetry, similar to previously identified firm-specific determinants with proxies in the form of dummy variables (e.g., successive sales decrease or incentives to meet earnings targets). To test our first hypothesis, we follow Bertrand and Schoar (2003) and perform an *F* test of the joint statistical significance of the identified CEO-fixed effects on cost asymmetry, represented by the estimated coefficients  $\gamma_n$  on the three-way interaction terms  $CEO_{it}D_{it}\log(\Delta Sale)_{it}$ . Additionally, we test whether the increase in explanatory power of the model by including CEO-fixed effects is statistically significant by running a firm-cluster robust version of the Vuong (1989) test.

We select the cost asymmetry determinants for our model based on prior research. The complete definitions of the variables are provided in Table 1. Anderson et al. (2003) identify four main determinants of cost stickiness: asset intensity (AINT), employee intensity (EINT), economic growth ( $\Delta GDP$ ), and successive sales decrease (SUC). They argue that when SG&A activities rely more on assets owned and staff employed, the adjustment costs are likely to be higher, which would lead to higher SG&A cost stickiness, as managers are not willing to incur those costs given the uncertainty about the permanence of the change in activity level. However, Chen et al. (2012) find a positive association between the degree of SG&A cost stickiness and employee intensity, arguing that in more recent years firms have come to use more temporary labor, which allows for more flexibility. A successive sales decrease is a proxy for a more permanent change in activity levels, which would lead to lower cost stickiness. Conversely, during periods of economic growth, managers consider decreases in sales to be more transitory, which should lead to a higher degree of SG&A cost stickiness. Further, we control for the impact of stock performance (STOCK\_RET) on SG&A cost asymmetry which is, however, ambiguous (Chen et al., 2012). Either firms with good stock performance are better at cutting unutilized resources, leading to lower SG&A cost stickiness, or good stock performance may signal positive expectations about future earnings, meaning a higher activity level in the future and thus higher SG&A cost stickiness. Kama and Weiss (2013) argue that management incentives to meet expectations/targets lead to lower SG&A cost stickiness, as managers are more willing to cut (refrain from increasing) costs if sales decrease (increase). We use two dummy variables to proxy for these incentives, AVOID\_LOSS and AVOID\_DECREASE. Next, following Chen et al. (2012), we use FCF and CEO\_HORIZON to proxy for CEOs' empire-building incentives. We expect a positive coefficient on the three-way interaction term containing FCF following Anderson and Lee (2016). Because empire-building incentives arise mostly in the case of CEOs who expect to be in office for a long time, we expect a negative coefficient on the three-way interaction term of CEO\_HORIZON. We use the measure for LIFE\_CYCLE as

defined in Dickinson (2011) to control for resource adjustment needs across different life stages of a company, given that introduction-, growth-, and decline-stage firms tend to hold more slack resources than mature firms (Anderson & Lee, 2016). Thus, we expect the coefficient on the three-way interaction term to be negative. We follow Dierynck et al. (2012) and include ABN\_ACCRUAL (defined by following DeFond and Park (2001)) to control for the level of accrual-based earnings management, although we cannot predict the sign of the coefficient as accruals can be used for both decreasing and increasing earnings, depending on the incentives available to management. We also include an indicator variable (PR\_LOSS) expected to lead to lower cost stickiness, following the same intuition as in the case of successive sales decreases. Anderson et al. (2016) argue that changes in SG&A costs are also driven by assets managed and markets reserved. To control for this, we use the logarithm of  $\Delta PP\&E$  and an interaction term (INT\_PPE) defined as the  $\Delta PP\&E$  variable times an indicator variable taking the value of one if PP&E decreases in the current year and zero otherwise. We expect a significant positive coefficient on the  $\Delta PP\&E$  variable and a negative one on the interaction term.

### 3.2 | Shareholder value model

We use the previously estimated CEO-fixed effects for our main analysis of the association between CEO-related excess SG&A cost asymmetry and shareholder value by estimating the following model:

$$Q_{it} = \alpha + \delta_1 |CEO_{it}| + \delta_2 CS.\hat{DET}_{it} + \delta_3 \hat{\epsilon}_{it} + \Sigma \delta_2 Controls_{it} + \mu_i + \tau_t + \epsilon_{it}, \quad (3)$$

where  $Q_{it}$  is either Tobin's *Q* as defined in Kaplan and Zingales (1997)<sup>8</sup> or *Total Q* as defined by Peters and Taylor (2017)<sup>9</sup>,  $| |$  are the absolute values of the estimated CEO-fixed effects on SG&A cost asymmetry ( $\gamma_n$ ) from Equation (2),  $CS.\hat{DET}_{it}$  is the firm-specific cost asymmetry attributable to previously identified factors (i.e., excluding CEO-fixed effects on SG&A cost asymmetry and calculated as  $\hat{\beta}_3 + \Sigma \hat{\beta}_n \hat{DET}_{it}$ , estimated in Equation (2)),  $\hat{\epsilon}_{it}$  are the error terms of the estimation of Equation (2) and represent abnormal changes in SG&A costs,  $\mu$  and  $\tau$  are firm- and time-fixed effects, and *Controls* represent a set of control variables identified by prior research. We use absolute values of CEO-fixed effects on SG&A cost asymmetry, as we interpret any deviation from the level of SG&A cost asymmetry attributable to economic and firm-specific factors as excess individual CEO-induced cost asymmetry (i.e., excess cost stickiness or excess cost anti-stickiness) that is expected to be negatively associated with shareholder value. According to Hypothesis 2, we expect a significant negative coefficient  $\delta_1$ . In additional analysis, we also differentiate between positive and negative values of CEO-fixed effects.

We follow prior corporate finance literature and use Tobin's *Q* as a proxy for shareholder value (Baxter, Bedard, Hoitash, & Yezegel, 2013; Gompers, Ishii, & Metrick, 2003; Servaes & Tamayo, 2013) as it is said to dominate other performance measures such as stock return or other accounting measures because it does not require any risk

**TABLE 1** Definition of variables

Variable name	Definition
log ( $\Delta$ SG&A)	Log-change in selling, general, and administrative (SG&A) costs (Compustat item XSGA) defined as the ratio of current year's SG&A costs to prior year's SG&A costs.
log ( $\Delta$ Sale)	Log-change in sales revenue (Compustat item SALE) defined as the ratio of current year's sales revenue to prior year's sales revenue.
AINT	Asset intensity: log-ratio of current year's total assets (Compustat item AT) to current year's sales revenue.
EINT	Employee intensity: log-ratio of current year's number of employees (Compustat item EMP) to current year's sales revenue.
SUC	Indicator variable taking the value of 1 if sales revenue in year t-2 is higher than the sales revenue in year t-1, 0 otherwise.
PR_LOSS	Indicator variable taking the value of 1 if prior year's net income (Compustat item NI) was negative, 0 otherwise.
$\Delta$ GDP	% GDP growth in current year.
FCF	Operating cash flow (Compustat item OANCF) less common and preferred dividends (DVC and DVP), all scaled by total assets.
AVOID_DECREASE	Indicator variable taking the value of 1 if the change in net income in the current year compared to the prior year is between 0% and 1% of beginning-of-year market value of equity (Compustat item PRCC_F * CSHO), 0 otherwise.
AVOID_LOSS	Indicator variable taking the value of 1 if the current year's net income is between 0% and 1% of beginning-of-year market value of equity, 0 otherwise.
ABN_ACCRUAL	Annual measure of abnormal accruals following the model in DeFond and Park (2001).
LIFE_CYCLE	Indicator variable defined as in Dickinson (2011), based on cash flows. Takes the value of 1 if the firm is in the initial, growth, or decline stage, 0 otherwise.
$\Delta$ PP&E	Log-change in gross property, plant, and equipment (Compustat item PPEGT) defined as the ratio of current year's gross PP&E to prior year's gross PP&E.
INT_PP&E	Interaction term between $\Delta$ PP&E and an indicator variable taking the value of 1 if current year's gross PP&E is higher than prior year's PP&E, 0 otherwise.
STOCK_RET	Annualized raw stock returns (CRSP monthly file) over the 12 months prior to the fiscal year-end.
CEO_HORIZON	Indicator variable taking the value of 1 if the current year is a year of CEO change or a year immediately preceding a CEO change, 0 otherwise.
SIZE	Logarithm of lagged total assets.
LEVERAGE	Ratio of total liabilities (Compustat items DLC and DLTT) divided by total assets.
BETA	Market Model Beta calculated based on all available daily returns for each firm-year observation from CRSP daily files. For each fiscal year, we keep the last value estimated for that year.
CF	Operating cash flow (Compustat item OANCF) divided by total assets.
MKT_SHARE	Firm sales revenue divided by total industry sales, based on four-digit industry SIC codes.
DIVIDENDS	Cash dividends (Compustat item DV) divided by the market value of equity.
R&D	Research and development expenses (Compustat item XRD) divided by sales revenue.
ADVERT	Advertising expenses (Compustat item XAD) divided by net property, plant, and equipment (Compustat item PPENT).
CAPITAL_INTENSITY	Gross PP&E divided by total assets.
ROA	Ratio of operating income (Compustat item IB) to total assets.
Tobin's Q	Tobin's Q defined as total assets plus market value of equity less book value of common equity (Compustat item CEQ) and deferred taxes (Compustat item TXDB), all scaled by total assets.
Total Q	Total Q measure as developed by Peters and Taylor (2017). Available for download on WRDS—Peters and Taylor Total Q.
Tobin's Q (Chung & Pruitt, 1994)	Tobin's Q defined as total debt (Compustat items DLC + DLTT) plus liquidation value of preferred stock (Compustat item PSTKL) plus market value of equity (Compustat items PRCC_F * CSHO), all scaled by total assets (Compustat item AT)
Tobin's Q Klapper and Love (2004)	Tobin's Q defined as market value of equity (Compustat items PRCC_F * CSHO) plus total liabilities (Compustat item LT), scaled by total assets (Compustat item AT)

(Continues)

**TABLE 1** (Continued)

Variable name	Definition
VP	Difference between total pay and fixed pay as defined by Chen et al. (2012)
$ CEO_{it} $	Absolute values of the estimated CEO-fixed effects on SG&A cost asymmetry from Equation (2), $ \gamma_1 $ , representing CEO-related excess SG&A cost asymmetry.
$\widehat{CSDET}$	Firm-specific SG&A cost asymmetry determined by macroeconomic and firm-specific factors (excluding CEO-related excess SG&A cost asymmetry), calculated based on estimated coefficients from the model in Equation (2) as $\hat{\beta}_3 + \sum \hat{\beta}_n DET_{it}$ .
$\hat{\epsilon}_{it}$	Abnormal (i.e., unexplained) change in SG&A costs, represented by the error term of the estimation of the model in Equation (2).
CEO_overconfidence	Equals 1 if the average intrinsic value of the CEO stock options exceeds 67% of the average exercise price at least twice over the sample period, starting with the first time an option has been held too long, zero otherwise.

adjustment or normalization (Lang & Stulz, 1994). We run additional analyses with the recently developed Total Q measure by Peters and Taylor (2017). They argue that, especially in recent years as the economy has shifted toward service- and technology-based industries, the level of intangible assets at firm level has increased considerably and that traditional Tobin's Q measures do not account for differences in the speed of response to changes in investment opportunities of intangible versus physical capital.

We also include the firm-specific SG&A level of cost asymmetry that is attributable to economic and firm-specific determinants (excluding CEO-related excess SG&A cost asymmetry). Its association with shareholder value has not been examined before; thus, it is challenging to express expectations regarding its coefficient. However, we acknowledge the possibility that it may be negatively associated with shareholder value, as the factors determining the firm-specific level of cost asymmetry may potentially harm shareholder value (e.g., if top management have incentives to achieve current targets, this will be reflected in firm-level cost asymmetry, but it may also harm long-term shareholder value because of short-term-oriented decisions). In addition, we include the abnormal (i.e., unexplained) change in SG&A costs, proxied by the error term of the estimation of the model in Equation (2), to further alleviate any omitted variable bias concern.

Table 1 provides definitions of control variables. We control for SIZE as previous research has found a significant negative association between market value and firm size (Allayannis & Weston, 2001; Baxter et al., 2013; Chen & Steiner, 2000; Lang & Stulz, 1994). We also include LEVERAGE to control for the relationship between capital structure and firm value (Allayannis & Weston, 2001; Hoyt & Liebenberg, 2011). We include BETA to control for variation in Tobin's Q due to greater stock volatility (Hoyt & Liebenberg, 2011; Huselid, Jackson, & Schuler, 1997). Further, we include  $\log(\Delta SALE)$ , defined as in the cost asymmetry models, and R&D expenditures as well as advertising expenses (ADVERT) to control for the effect of growth opportunities (Chen & Steiner, 2000; Himmelberg, Hubbard, & Palia, 1999; Huselid et al., 1997; La Porta, Rafael, Lopez-De-Silanes, Shleifer, & Vishny, 2002). Given that firms are not required to disclose non-material research and development or advertising expenses, we follow prior literature and assign the value of zero to any observations with missing R&D or advertising expenses (Harjoto & Laksmana,

2018; Servaes & Tamayo, 2013; Woitke, 2002). Following Allayannis and Weston (2001) and Lang and Stulz (1992), we include a dividend payment indicator (DIVIDEND) to control for access to financial markets. We also include CF to control for better investment opportunities due to higher cash flow (Bates, Kahle, & Stulz, 2009). Additionally, we include MKT\_SHARE to control for a firm's negotiating power (Vomberg, Homburg, & Bornemann, 2015) and CAPITAL\_INT to control for managerial discretionary spending opportunities (Himmelberg et al., 1999). Lastly, we include return on operating assets as a measure of profitability, which is expected to positively impact market value (Allayannis & Weston, 2001; Chen & Steiner, 2000; Hall, 1993; Hirschey, 1982).

### 3.3 | Sample selection

We construct our data set using annual data for industrial firms from the COMPUSTAT Annual Files and the Federal Reserve Bank of St. Louis database, from which we obtain data on SG&A costs, sales revenue, and determinants of cost asymmetry. Data from the ExecuComp Annual Compensation files are used to estimate CEO-fixed effects on SG&A cost asymmetry. Because the ExecuComp data start in 1992, our sample covers the period 1992-2016.

We start with 307,429 firm-year observations in the COMPUSTAT annual files. Following prior research, we exclude financial companies (SIC code 6000-6999) because the structure of their financial statements is not comparable with that of other companies (Kama & Weiss, 2013), as well as observations with missing data on SG&A costs and sales revenue, with negative SG&A costs or negative sales revenue, and observations for which SG&A costs are higher than sales revenue (Anderson et al., 2003; Banker & Byzalov, 2014; Chen et al., 2012). This results in a sample of 146,549 firm-year observations. Next, we exclude any observations with missing data on any of our explanatory variables and trim the top and bottom one percentile of observations with extreme values in all dependent and independent variables. This result in a sample of 72,493 firm-year observations.

The main limitation of our sample is the lower coverage of CEO data in ExecuComp (first year of data is 1992; 3,300 firms compared with 24,000 in COMPUSTAT). We merge the data from COMPUSTAT



with the CEO data in ExecuComp and exclude any observations for which CEO information is unavailable, which reduces our sample to 26,544 firm-year observations. Last, we exclude any singleton groups.<sup>10</sup> Our final test sample consists of 24,234 observations for 2,252 different firms, with an average of around 11 observations per firm, which is substantially larger than the samples used in prior studies also executive information (e.g., Chen et al., 2012).

Data availability for the main part of our analysis is mostly dependent on the number of identified CEO-fixed effects in the first step of our analysis. We exclude all observations for which we cannot estimate CEO-fixed effects on cost asymmetry, which reduces our sample to 13,020 firm-year observations. Due to missing financial data, we cannot compute Tobin's Q for a further 960 firm-year observations. We exclude another 35 due to missing data for independent variables. We also exclude 823 extreme observations by trimming our variables at the first and 99th percentile. This results in a final sample of 11,202 observations for the main regression in the second part of the analysis. The number of observations differs slightly for each of the used Tobin's Q measures based on differences in data availability for their computations. Table 2 shows the data selection procedure.

## 4 | RESULTS AND DISCUSSION

### 4.1 | Estimating CEO-fixed effects on cost asymmetry

#### 4.1.1 | Descriptive statistics

Table 3 provides descriptive statistics and correlations of the variables for the first step of the analysis. Table 3, Panel A provides descriptive statistics on annual sales revenue and SG&A costs. On average, firms have \$4,913.04 million in annual sales revenue (median = \$1,164.55

million) and \$950.17 million in SG&A costs (median = \$222.2 million). The mean value of SG&A costs represents 25.2% of sales revenue (median 22.03%), highly comparable with Anderson et al. (2003) and Chen et al. (2012). Our sample also shows a frequency of sales declines of 22.9%, just slightly lower than those reported in Anderson and Lanen (2007) –27.8%, Kama and Weiss (2013)–27.4%, and Anderson et al. (2003)–27%, which could be because our sample is more recent and includes additional 10 years. The mean and median values presented in Table 3, Panel B for the control variables are in line with the values reported in prior research. For example, the mean and median values of AINT, EINT, FCF, and STOCK\_RET are in line with the ones reported in Anderson et al. (2016) and Chen et al. (2012), and the values for ΔPP&E are in line with Anderson et al. (2016).

Table 3, Panel C presents the Pearson and Spearman correlations for our continuous variables. The majority of the correlations are significant but small in magnitude, though comparable with those reported in existing literature (Chen et al., 2012). The distribution of our sample across years and industries (not tabulated) is fairly equal.

#### 4.1.2 | Regression results

Table 4 presents the results of the fixed effects models in Equations (1) and (2). The first column presents the results of the model in Equation (1), which includes the known determinants of SG&A cost asymmetry and only controls for firm- and time-fixed effects. The second column presents the results of the estimation of the model in Equation (2) also including CEO-fixed effects. The coefficients and *p* values reported are based on firm-clustered standard errors, which address the heteroscedasticity and intrafirm error correlation problems associated with panel data.

**TABLE 2** Data selection procedure for estimating CEO-fixed effects on SG&A cost asymmetry

Criteria	Observation
Available unique firm-year observations in Compustat Annual file (1990–2015)	307,429
1) - Less firm-year observations for financial companies (SIC 60–69)	83,669
2) - Less firm years with missing SG&A costs and sales revenue information	45,258
3) - Less firm years with SG&A costs higher than sales revenue or SG&A or sales negative	31,953
4) - Less firm years with missing accounting data	67,251
5) - Less firm years with extreme observations	6,805
6) - Less firm years for which no CEO information is available	45,949
7) - Less firm-year observations which are singletons	2,310
= Final number of firm-year observations used in estimating CEO-fixed effects on SG&A cost stickiness	24,234
8) - Less firm-year observations for which no estimated CEO-fixed effects are available	11,214
9) - Less firm years for which Tobin's Q cannot be computed	960
10) - Less firm years with missing accounting data on control variables for Tobin's Q	35
11) - Less firm years with extreme observations	823
= Final number of firm-year observations used to analyze the association between the CEO-related excess level of SG&A cost asymmetry and Tobin's Q	11,202

**TABLE 3** Descriptive statistics for the variables used to estimate CEO-fixed effects on SG&A cost asymmetry

Variable	N	Mean	SD	Median					
<b>Panel A: Revenue and SG&amp;A costs</b>									
Sales revenue (\$mil)	24,234	4,913.04	15,717.59	1,164.55					
SG&A costs (\$mil)	24,234	950.17	3,065.34	222.20					
SG&A as % of revenue	24,234	25.20%	16.68%	22.03%					
<b>Panel B: Summary statistics</b>									
log( $\Delta$ SG&A)	24,234	0.091	0.190	0.075					
log( $\Delta$ Sale)	24,234	0.094	0.212	0.079					
AINT	24,234	0.016	0.594	-0.008					
EINT	24,234	-5.488	0.804	-5.461					
SUC	24,234	0.245	0.430	0.000					
PR_LOSS	24,234	0.163	0.369	0.000					
$\Delta$ GDP	24,234	0.024	0.016	0.026					
FCF	24,234	0.092	0.080	0.089					
AVOID_DECREASE	24,234	0.196	0.397	0.000					
AVOID_LOSS	24,234	0.029	0.169	0.000					
ABN_ACCRUAL	24,234	-0.048	0.099	-0.047					
LIFE_CYCLE	24,234	0.656	0.475	1.000					
log( $\Delta$ PP&E)	24,234	0.106	0.194	0.075					
INT_PP&E	24,234	-0.018	0.080	0.000					
STOCK_RET	24,234	0.176	0.500	0.115					
CEO_HORIZON	24,234	0.141	0.348	0.000					
<b>Panel C: Pearson and Spearman correlations</b>									
	1	2	3	4	5	6	7	8	9
1. log( $\Delta$ SG&A)	1	0.7365 (.0000)	0.0276 (.0000)	0.0137 (.0329)	0.1898 (.0000)	0.1310 (.0000)	0.0276 (.0000)	0.1353 (.0000)	0.5628 (.0000)
2. log( $\Delta$ Sale)	0.7329 (.0000)	1	0.0140 (.0292)	-0.0073 (.2562)	0.2164 (.0000)	0.1406 (.0000)	0.0826 (.0000)	0.2211 (.0000)	0.5444 (.0000)
3. AINT	0.0308 (.0000)	-0.0003 (.9616)	1	-0.1799 (.0000)	-0.0899 (.0000)	-0.0847 (.0000)	-0.0027 (.6759)	-0.0216 (.0008)	0.0459 (.0000)
4. EINT	0.0052 (.4216)	-0.0104 (.1054)	-0.1556 (.0000)	1	0.2137 (.0000)	-0.0050 (.4347)	-0.0327 (.0000)	-0.0090 (.1625)	0.0316 (.0000)
5. $\Delta$ GDP	0.1916 (.0000)	0.2327 (.0000)	-0.0666 (.0000)	0.1433 (.0000)	1	-0.0288 (.0000)	0.0101 (.1174)	0.0860 (.0000)	0.01427 (.0000)
6. FCF	0.0969 (.0000)	0.1213 (.0000)	-0.0753 (.0000)	-0.0139 (.0301)	-0.0363 (.0000)	1	-0.2936 (.0000)	0.1450 (.0000)	0.1557 (.0000)
7. ABN_ACCRUAL	0.0144 (.0251)	0.0767 (.0000)	-0.0207 (.0012)	-0.0086 (.1796)	0.0328 (.0000)	-0.2417 (.0000)	1	0.0544 (.0000)	-0.0031 (.6313)
8. STOCK_RET	0.1249 (.0000)	0.2093 (.0000)	-0.0219 (.0007)	-0.0059 (.3565)	0.0755 (.0000)	0.1297 (.0000)	0.031 (.0000)	1	0.0849 (.0000)
9. log( $\Delta$ PP&E)	0.5836 (.0000)	0.5621 (.0000)	0.0696 (.0000)	0.0247 (.0001)	0.1185 (.0000)	0.0917 (.0000)	0.0102 (.1107)	0.1038 (.0000)	1

Note. Descriptive statistics for variables used in the first step of the analysis. All variable definitions are provided in Table 1. N represents the number of unique firm-year observations included. The column SD presents the standard deviation of each of the variables. Panel C presents Pearson (bottom triangle) and Spearman (upper triangle) correlations. *p* values provided in parentheses.

**TABLE 4** Results for estimation of the models in Equations (1) and (2)—Estimation of CEO-related excess level of SG&A cost asymmetry

Variable	Expected sign	(1)	(2)
		log ( $\Delta$ SG&A)	log ( $\Delta$ SG&A)
log ( $\Delta$ Sale)	+	1.083*** (.000)	0.0673 (.791)
<i>D</i>		0.00962 (.623)	–
<i>D</i> log ( $\Delta$ Sale)	–	–0.600*** (.000)	0.737 (.323)
Three-way interaction terms ( <i>D</i> log ( $\Delta$ Sale) <i>DET</i> )			
AINT	+	–0.00573 (.753)	0.0795 (.330)
EINT	?	–0.0585*** (.000)	0.0867 (.273)
SUC	+	0.268*** (.000)	0.0769 (.124)
$\Delta$ GDP	–	2.590*** (.000)	–1.286 (.275)
STOCK_RET	?	0.0704*** (.000)	0.0140 (.715)
LIFE_CYCLE	–	–0.181*** (.000)	–0.139*** (.004)
PR_LOSS	+	0.235*** (.000)	0.216*** (.000)
ABN_ACCRUAL	?	0.375*** (.000)	0.713*** (.002)
AVOID_LOSS	+	–0.0130 (.829)	–0.0928 (.439)
AVOID_DECREASE	+	–0.0652 (.233)	–0.0124 (.913)
FCF	?	0.190* (.095)	0.794*** (.001)
CEO_HORIZON	–	–0.0276 (.366)	–0.324*** (.000)
Two-way interaction terms (log ( $\Delta$ Sale) <i>DET</i> )			
AINT		–0.0669*** (.000)	–0.0393 (.227)
EINT		0.0729*** (.000)	–0.0362 (.217)
SUC		–0.0861*** (.000)	–0.0490** (.027)
$\Delta$ GDP		0.733 (.108)	2.129*** (.001)
STOCK_RET		–0.0352*** (.000)	–0.00259 (.830)
LIFE_CYCLE		0.0335* (.056)	0.0633*** (.007)
PR_LOSS		–0.168*** (.000)	–0.0725*** (.002)
ABN_ACCRUAL		–0.184*** (.000)	–0.114** (.019)
AVOID_LOSS		0.0971*** (.000)	0.118*** (.005)
AVOID_DECREASE		0.0559*** (.002)	0.0114 (.613)
FCF		–0.318*** (.000)	–0.293** (.015)
CEO_HORIZON		0.0446** (.023)	0.0913*** (.008)
Two-way interaction terms ( <i>D</i> <i>DET</i> )			
AINT		0.000321 (.943)	–0.00278 (.877)
EINT		0.00242 (.466)	–0.0222 (.218)
SUC		0.000804 (.884)	0.00158 (.838)
$\Delta$ GDP		0.505*** (.001)	–0.122 (.588)
STOCK_RET		0.00346 (.507)	0.00755 (.315)
LIFE_CYCLE		0.00516 (.316)	0.0103 (.171)
PR_LOSS		–0.0120* (.071)	–0.00225 (.822)
ABN_ACCRUAL		–0.0773*** (.006)	0.0130 (.768)
AVOID_LOSS		0.0264* (.062)	0.00861 (.671)
AVOID_DECREASE		–0.00679 (.418)	–0.0207 (.109)
FCF		–0.116*** (.001)	–0.0183 (.768)
CEO_HORIZON		–0.00225 (.734)	–0.00690 (.552)
Standalone variables			
AINT		0.0252*** (.000)	0.0237*** (.005)

(Continues)

TABLE 4 (Continued)

Variable	Expected sign	(1)	(2)
		log ( $\Delta$ SG&A)	log ( $\Delta$ SG&A)
EINT		-0.000604 (.871)	0.0167** (.029)
SUC		0.00243 (.467)	-0.00178 (.655)
$\Delta$ GDP		-	-
STOCK_RET		-0.00610** (.029)	-0.0129*** (.000)
LIFE_CYCLE		-0.00190 (.511)	-0.00253 (.473)
PR_LOSS		-0.0323*** (.000)	-0.0424*** (.000)
ABN_ACCRUAL		0.00957 (.481)	-0.0117 (.466)
AVOID_LOSS		-0.00141 (.857)	0.00177 (.848)
AVOID_DECREASE		-0.00690** (.037)	-0.00298 (.429)
FCF		0.0525** (.013)	0.0709** (.018)
CEO_HORIZON		-0.00506 (.184)	-0.0149*** (.007)
INT_PPE		-0.0653*** (.000)	-0.0563*** (.004)
log ( $\Delta$ PP&E)		0.157*** (.000)	0.117*** (.000)
Observations		24,324	24,234
R-squared		66.69%	84.61%
Firm-fixed effects		YES	YES
Year-fixed effects		YES	YES
CEO-fixed effects		NO	YES
log ( $\Delta$ Sale) $\times$ CEO-fixed effects		NO	YES
$D \times$ CEO-fixed effects		NO	YES
$D \times$ log ( $\Delta$ Sale) $\times$ CEO-fixed effects		NO	YES
Number of firms		2,252	2,252
Available unique CEOs			3,989
Estimated unique CEO-fixed effects			1,793

Note. Results of the regression following Equations (1) and (2), corresponding to the first step of the analysis. Our sample consists of 2,252 different firms and 3,989 CEOs. However, as the approach we take in estimating CEO-fixed effects only allows the estimation of fixed effects for moving CEOs, we estimate only 1,793 unique CEO-fixed effects. Definitions of all variables provided in Table 1.  $p$  values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ . \*\*Significance levels at  $p < .05$ . \*Significance levels at  $p < .1$ .

The results for the model in Equation (1) are in line with prior research. The variables of interest are the three-way interaction terms, which indicate the degree of SG&A cost asymmetry determined by the different firm-specific or macroeconomic factors. Although many have significant coefficients with the expected signs, the results also reveal that the coefficients on some of the most acclaimed determinants, such as AINT, CEO\_HORIZON, AVOID\_LOSS, and AVOID\_DECREASE, become insignificant once a complete model is estimated. To eliminate any concerns that this is due to our sample, we estimate a cost asymmetry model exactly as defined in Anderson et al. (2003). Model 3, for our sample period (1992 to 2016) and obtain highly comparable results (i.e., coefficients on AINT, EINT, SUC, and  $\Delta$ GDP are significant and have the expected signs).<sup>11</sup> Another important reason for the different results may be the use of firm- and time-fixed effects, which are absent in most of the prior models (Anderson et al., 2003; Banker & Byzalov, 2014; Kama & Weiss, 2013).<sup>12</sup> The  $R^2$  of the model is 66.69%, exceeding most of the values reported in

prior literature (Anderson et al., 2003; Banker, Byzalov, Ciftci, & Mashruwala, 2014; Chen et al., 2012). The results of the estimation of the SG&A cost asymmetry model including CEO-fixed effects (Equation (2)) are presented in Table 4, column 2.<sup>13</sup> The results of the test of joint significance of the coefficients estimated on CEO-related excess cost asymmetry<sup>14</sup> confirm their statistical significance with an F-statistic of 1.91 (Prob>F = 0.000). Furthermore, we observe a noticeable increase of  $R^2$  to 84.6%. By running a firm cluster-robust Vuong (1989) test, we find that the difference in explanatory power between the two models is statistically significant with a t-statistic of 22.52 (not tabulated).<sup>15</sup> These results support our first hypothesis that CEO fixed effects have a significant impact on the level of SG&A cost asymmetry at firm level.

Interestingly, we observe that most of SG&A cost asymmetry is explained by the CEO-fixed effects used and some of the firm-specific determinants, while the coefficients on others, such as those on EINT,  $\Delta$ GDP, STOCK\_RET or log ( $\Delta$ Sale), become insignificant.<sup>16</sup> Thus, the

cost asymmetry thought to exist due to these determinants could actually be attributable to CEO-specific decisions.

Data on 3,989 different CEOs are available for estimating CEO-fixed effects in this step of the analysis. However, as our approach towards estimating CEO-fixed effects only allows us to estimate fixed effects for moving CEOs, we do so for only 1,793 unique CEO-fixed effects.<sup>17</sup>

## 4.2 | CEO-related excess level of SG&A cost asymmetry and shareholder value

### 4.2.1 | Descriptive statistics

The mean (median) values of the absolute values of CEO-fixed effects, which are tabulated in Panel A of Table 5 and which we consider—following agency theory—CEO-related excess SG&A cost asymmetry, are 1.659 (.742). The untabulated mean (–0.167) and median (–0.232) values of the CEO-fixed effects are negative, indicating that CEOs contribute on average to cost stickiness. The firm-specific level indicates anti-stickiness (mean = 0.197, median = 0.206). The mean and median values of Tobin's Q for our sample are 1.760 and 1.473, comparable with those reported in prior literature (Baxter et al., 2013; Chen & Steiner, 2000; Hoyt & Liebenberg, 2011). The mean and median values for our control variables are also similar to those reported in prior research (Hoyt & Liebenberg, 2011; Jo & Harjoto, 2011).

Panel B of Table 5 presents Pearson and Spearman correlations of Tobin's Q and its determinants. The generally low correlation coefficients between the variables used in the shareholder value equation suggests that multicollinearity should not be a problem in our analysis. Although both of the correlation coefficients between Tobin's Q and CEO-related excess cost asymmetry are negative, neither is statistically significant.<sup>18</sup>

### 4.2.2 | Regression results

Our hypothesis predicts that CEO-related excess cost asymmetry is negatively associated with shareholder value (Equation (3)). We focus on the coefficient on the absolute values of CEO-fixed effects on cost asymmetry, which represent the CEO-related excess SG&A cost asymmetry at firm level. Table 6 reports the estimation results.

The results in Column 1 of Table 6 confirm our hypothesis. The negative significant coefficient  $\delta_1$  (coefficient = –0.0121,  $p$  value = .024) implies that CEO-related excess SG&A cost asymmetry is associated with a lower Tobin's Q and thus lower shareholder value. This confirms our expectations that CEOs act in their own interest and thus impose the related agency costs on the firm and its shareholders. Column 2 of Table 6 reports the results of the regression based on Equation (3) with Total Q as the dependent variable.<sup>19</sup> The coefficient of CEO-related excess SG&A cost asymmetry (coefficient = –0.0154,  $p$  value = .057) is negative and statistically significant at the 10% level,

which reinforces the robustness of our results. As an additional robustness check, we also run the regression in Equation (3) with two additional yet not widely used versions of Tobin's Q (see detailed definitions in Table 1), as defined in Chung and Pruitt (1994) and in Klapper and Love (2004). The results, reported in Columns 3 and 4 of Table 6, are qualitatively similar to those reported in the first two columns. The coefficient on CEO-related excess SG&A cost asymmetry in the third (fourth) column is –0.0121 (–0.0130) and is statistically significant with a  $p$  value of .020 (.012). We complement our main analysis by performing an additional test equivalent to those in Bertrand and Schoar (2003), Table 7, where we estimate a separate set of CEO-fixed effects directly on shareholder value<sup>20</sup> and correlate these with the estimated CEO-fixed effects on SG&A cost asymmetry. Untabulated correlation analysis shows that the two CEO-fixed effects sets are negatively correlated (–0.1043,  $p$  value = .006), supporting the results of our main analysis.

Overall (although not fully consistent in terms of statistical significance), we observe a negative coefficient on the level of SG&A cost asymmetry attributable to previously identified economic and firm-specific factors. This is in line with our prediction that the firm-specific SG&A cost asymmetry level is not necessarily neutrally associated with shareholder value, due to its determinants also potentially contributing to lower shareholder value. However, all coefficients on abnormal changes in SG&A costs,  $\varepsilon_{it}$ , are negative and statistically significant (coefficient in main model = –1.810,  $p$  value = .038) in all four model specifications.

The  $R^2$  of our main model (and the ones of the additional models) is similar to that reported in some of the prior literature on Tobin's Q (Jo & Harjoto, 2011; La Porta et al., 2002) however comparatively lower than that reported in other studies such as Baxter et al. (2013). One explanation could be the reduced number of observations we have for this part of the study. With regard to the control variables, we note that most of their coefficients are significant and have the expected signs.

Our results provide the first empirical evidence that overall cost asymmetry, on average, also incorporates a so-called “bad” part, as indicated by Banker and Byzalov (2014). We show that the excess CEO-related SG&A cost asymmetry represents bad cost asymmetry, that is, cost asymmetry in excess of the optimal level, which is negatively associated with shareholder value and thus harmful to the firm and its shareholders.

## 4.3 | Additional analysis

We conduct a series of additional tests and robustness checks to eliminate potential alternative explanations regarding the origin of the identified CEO fixed effects on cost asymmetry and to shed light on CEOs' potential characteristics that drive cost asymmetry. First, we split our sample based on the sign of the CEO-fixed effects to examine whether there are any differences between the associations of shareholder value with excess CEO-related SG&A cost stickiness (negative CEO-fixed effect) versus excess CEO-

**TABLE 5** Descriptive statistics for the variables used to analyze the association between the CEO-related excess SG&A cost asymmetry and shareholder value

Variable	N	Mean	SD	Median															
<i>Panel A: Summary statistics</i>																			
Tobin's Q	11,202	1.795	1.152	1.488															
CEO-related excess cost asymmetry ( $CEQ_{it}$ )	11,202	1.559	2.749	0.742															
CS <sub>DE</sub> $T_{it}$	11,202	0.197	0.178	0.206															
$\hat{\epsilon}_{it}$	11,202	0.004	0.009	0.001															
SIZE	11,202	7.086	1.461	6.957															
LEV	11,202	0.185	0.166	0.169															
BETA	11,202	1.130	0.529	1.096															
RD	11,202	0.042	0.074	0.005															
CAP_INT	11,202	0.586	0.388	0.497															
log ( $\Delta$ Sale)	11,202	0.041	0.221	0.038															
ROA	11,202	0.036	0.106	0.048															
DIVIDEND	11,202	0.558	0.497	1.000															
ADVERT	11,202	0.094	0.278	0.000															
MKT_SHARE	11,202	0.004	0.005	0.002															
CF	11,202	0.098	0.077	0.097															
Total Q	10,839	1.124	1.585	0.739															
Tobin's Q (Chung & Pruitt, 1994)	12,087	1.524	1.139	1.223															
Tobin's Q (Klapper & Love, 2004)	12,090	1.811	1.131	1.513															
<i>Panel B: Pearson and Spearman correlations</i>																			
1. Tobin's Q	1.00																		
2. $CEQ_{it}$	-0.00 (70)	1.00																	
3. CS <sub>DE</sub> $T_{it}$	-0.01 (12)	-0.03 (00)	1.00																
4. $\hat{\epsilon}_{it}$	-0.03 (00)	-0.03 (00)	0.03 (00)	1.00															
5. SIZE	-0.11 (00)	-0.00 (38)	-0.04 (00)	0.03 (00)	1.00														
6. LEV	-0.20 (00)	0.03 (00)	0.01 (12)	0.02 (11)	0.34 (00)	1.00													
7. BETA	0.09 (00)	-0.10 (00)	0.04 (00)	0.04 (00)	0.02 (03)	0.02 (03)	1.00												
8. CF	0.36 (00)	0.00 (73)	0.05 (00)	-0.03 (01)	0.08 (00)	0.08 (00)	-0.06 (00)	1.00											
9. MKT_SHARE	-0.04 (00)	-0.03 (00)	-0.06 (00)	-0.09 (00)	0.41 (00)	0.41 (00)	0.11 (00)	-0.04 (00)	1.00										
10. R&D	0.23 (00)	-0.03 (01)	0.05 (00)	0.03 (01)	-0.15 (00)	-0.15 (00)	-0.27 (00)	0.22 (00)	-0.10 (00)	1.00									
11. ADVERT	0.07 (00)	0.00 (99)	-0.03 (00)	-0.04 (00)	-0.07 (00)	-0.07 (00)	-0.07 (00)	-0.04 (00)	0.01 (52)	-0.10 (00)	1.00								
12. CAP_INT	-0.17 (00)	0.04 (00)	0.05 (00)	0.09 (00)	0.17 (00)	0.17 (00)	0.27 (00)	-0.09 (00)	0.14 (00)	0.01 (20)	-0.02 (02)	1.00							
13. log $\Delta$ Sale	0.24 (00)	0.01 (37)	-0.08 (00)	0.08 (00)	-0.09 (00)	-0.09 (00)	-0.04 (00)	0.02 (09)	0.15 (00)	-0.07 (00)	-0.30 (00)	-0.19 (00)	1.00						
14. ROA	0.34 (00)	-0.00 (98)	0.01 (44)	-0.04 (00)	0.05 (00)	0.05 (00)	-0.13 (00)	-0.06 (00)	0.50 (00)	0.08 (00)	-0.17 (00)	0.01 (15)	-0.08 (00)	0.34 (00)	1.00				

Note. Summary statistics for variables used in the second part of the analysis. All variable definitions are provided in Table 1. *N* represents the number of unique firm-year observations included. The slight deviations in the total number of available observations for the different Tobin's *Q* measures is due to differences in how the measures are computed. The column *SD* presents the standard deviation of each of the variables. Panel C presents Pearson (lower triangle) and Spearman (upper triangle) correlations. *p* values provided in parentheses.

**TABLE 6** Results for estimation of model in Equation (3)—Analyzing the association between the CEO-related excess level of SG&A cost asymmetry and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung and Pruitt (1994)	Tobin's Q Klapper and Love (2004)
$ CEO_{jt} $	−0.0121** (.024)	−0.0154* (.058)	−0.0121** (.020)	−0.0130** (.012)
CS.DET <sub>it</sub>	−0.0615 (.205)	−0.172** (.018)	−0.0835* (.068)	−0.0905** (.049)
$\hat{\epsilon}_{it}$	−1.810** (.038)	−2.353* (.075)	−1.846** (.026)	−2.005** (.016)
SIZE	−0.538*** (.000)	−0.562*** (.000)	−0.459*** (.000)	−0.499*** (.000)
LEVERAGE	−0.288*** (.001)	−0.173 (.167)	−0.236*** (.002)	−0.316*** (.000)
BETA	0.253*** (.000)	0.377*** (.000)	0.237*** (.000)	0.238*** (.000)
R&D	0.345 (.241)	−2.212*** (.000)	0.468* (.089)	0.385 (.168)
ADVERT	−0.0200 (.721)	−0.134 (.156)	−0.0259 (.634)	−0.0143 (.793)
CF	2.257*** (.000)	2.204*** (.000)	2.215*** (.000)	2.258*** (.000)
MKT_SHARE	33.01*** (.000)	20.50*** (.000)	27.49*** (.000)	28.83*** (.000)
CAPITAL_INT	−0.225*** (.000)	−1.305*** (.000)	−0.304*** (.000)	−0.217*** (.000)
DIVIDEND	0.00501 (.870)	−0.0154 (.739)	0.00816 (.777)	−0.00340 (.906)
log ( $\Delta$ Sale)	0.434*** (.000)	0.755*** (.000)	0.403*** (.000)	0.423*** (.000)
ROA	0.830*** (.000)	0.901*** (.000)	0.987*** (.000)	0.873*** (.000)
Constant	4.893*** (.000)	5.363*** (.000)	4.257*** (.000)	4.725*** (.000)
Observations	11,202	10,839	12,087	12,090
R-squared (%)	22.9	19.7	22.3	22.5
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Results of the regression following Equation (3) corresponding to the second part of the analysis. Definitions of all variables provided in Table 1. P-values presented in parentheses.

\*\*\*Significance level at  $p < .01$ . \*\*Significance level at  $p < .05$ . \*Significance level at  $p < .1$ .

related SG&A cost anti-stickiness (positive CEO-fixed effects). The former is the result of CEOs selfishly chasing personal benefits due to agency problems in the form of empire-building incentives; the latter is the result of CEO myopia, which could result from incentives to meet or beat certain earnings targets, such as performance bonuses. We use the model in Equation (3) and present the results in Table 7. To preserve space, the coefficients on all of the control variables, except firm-level SG&A cost asymmetry and abnormal change in SG&A costs, are suppressed in the table as they remain essentially unchanged.

Panel A presents the results based on the subsample of negative CEO-fixed effects. For each of the four models, the coefficients on CEO-related excess cost stickiness are negative and highly significant with a  $p$  value lower than .01. Panel B of Table 7 presents the results for the subsample of positive CEO-fixed effects. None of the coefficients on excess CEO-related cost anti-stickiness is statistically significant, which may be explained by capital markets focusing on the short-term, therefore not punishing firms for overcutting current costs, as this leads to higher current earnings. The findings in the subsample analysis indicate that the negative association between CEO-related excess cost asymmetry and shareholder value is mainly driven by CEOs contributing to higher-than-necessary SG&A cost stickiness, thus confirming the agency theory

implication that CEOs act in their own interest and satisfy their empire-building aspirations.

Second, if we consider agency problems as the main driver of our results for the second hypothesis, we expect the documented effects to be less pronounced if CEO compensation is tied more heavily to shareholder value creation, as CEOs would then care more about shareholder value (Firth, 1996; Griffith, 1999). We test this by splitting our sample based on the median CEO variable pay component and expect a negative association between CEO-related excess SG&A cost asymmetry and shareholder value for CEOs with a below-median variable pay component. The results in Table 8 confirm our intuition. The coefficient on  $|CEO_{jt}|$  is insignificant (negative and significant; coefficient in main specification =  $-0.0135$ ,  $p$  value = .029) for the subsample of CEOs with above-median (below-median) variable pay.

Similarly, we expect the documented effects in the shareholder value model to become weaker in the presence of strong corporate governance (i.e., if the CEO has less power within the firm). To test this, we split our sample based on the median Entrenchment Index developed by Bebchuk, Cohen, and Ferrell (2009), a higher value representing weaker corporate governance and thus more CEO power. Table 9 presents the results. CEO-related excess cost stickiness (Panel A) drives the association with shareholder value for firms with weak

**TABLE 7** Subsample analysis of the association between the CEO-related cost asymmetry and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung and Pruitt (1994)	Tobin's Q Klapper and Love (2004)
<i>Panel A: Regression including only negative CEO-fixed effects – CEOs contributing to excess cost stickiness</i>				
CEO <sub>it</sub>	−0.0432*** (.000)	−0.0773*** (.000)	−0.0496*** (.000)	−0.0520*** (.000)
CS.DET <sub>it</sub>	0.0037 (.949)	−0.117 (.232)	0.0038 (.945)	−0.0119 (.830)
$\hat{\epsilon}_{it}$	−2.662*** (.007)	−3.235* (.054)	−2.351** (.013)	−2.500*** (.008)
Constant	4.792*** (.000)	5.638*** (.000)	4.345*** (.000)	4.765*** (.000)
Controls	YES	YES	YES	YES
Observations	6,956	6,755	7,481	7,481
R-squared	26.1%	21.0%	25.8%	25.7%
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES
<i>Panel B: Regression including only positive CEO-fixed effects – CEOs contributing to excess cost anti-stickiness</i>				
CEO <sub>it</sub>	−0.0037 (.700)	0.0022 (.858)	−0.0028 (.769)	−0.0041 (.671)
CS.DET <sub>it</sub>	−0.137 (.124)	−0.195* (.094)	−0.187** (.026)	−0.198** (.019)
$\hat{\epsilon}_{it}$	−0.697 (.678)	−1.369 (.537)	−1.257 (.437)	−1.465 (.365)
Constant	5.443*** (.000)	5.490*** (.000)	4.422*** (.000)	4.919*** (.000)
Controls	YES	YES	YES	YES
Observations	4,246	4,084	4,606	4,609
R-squared	17.4%	16.6%	16.6%	16.9%
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Note. Results of the regression following Equation (3) using different subsamples. Panel A presents the results of the estimation of Equation (3) using the subsample containing only negative CEO-fixed effect (represent excess CEO-related SG&A cost stickiness). Panel B presents the results of the estimation of Equation (3) using the sub-sample containing only positive CEO-fixed effects (represent excess CEO-related SG&A cost anti-stickiness). Definitions of all variables provided in Appendix A. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ .

\*\*Significance levels at  $p < .5$

\*Significance levels at  $p < .1$ .

**TABLE 8** Subsample analysis of the association between the CEO-related cost asymmetry and shareholder value based on CEO variable pay

Variable	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Tobin's Q		Tobin's Q		Tobin's Q Chung and Pruitt (1994)		Tobin's Q Chung and Pruitt (1994)		Tobin's Q Klapper and Love (2004)		Tobin's Q Klapper and Love (2004)		Total Q		Total Q	
	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)	VP < med (VP)	VP > med (VP)
CEO <sub>it</sub>	−0.0135** (.029)	−0.0126 (.211)	−0.0128** (.037)	−0.0125 (.202)	−0.0143** (.020)	−0.0126 (.199)	−0.0149 (.121)	−0.0196 (.198)								
CS.DET <sub>it</sub>	−0.0215 (.707)	−0.0512 (.543)	−0.0509 (.343)	−0.0620 (.434)	−0.0534 (.323)	−0.0769 (.333)	−0.0620 (.478)	−0.152 (.227)								
$\hat{\epsilon}_{it}$	−1.176 (.213)	−2.521 (.115)	−1.570* (.079)	−2.428 (.112)	−1.619* (.073)	−2.463 (.107)	−2.175 (.128)	−1.487 (.545)								
Constant	4.833*** (.000)	5.486*** (.000)	4.258*** (.000)	4.982*** (.000)	4.670*** (.000)	5.469*** (.000)	5.449*** (.000)	6.376*** (.000)								
Controls	YES	YES	YES	YES	YES	YES	YES	YES								
Observations	5,545	5,410	6,116	5,970	6,116	5,973	5,486	5,352								
R-squared (%)	28.2	23.5	27.1	24.5	26.9	24.7	24.2	20.7								
Firm-fixed effects	YES	YES	YES	YES	YES	YES	YES	YES								
Year-fixed effects	YES	YES	YES	YES	YES	YES	YES	YES								

Note. Results of the regression following Equation (3) using different subsamples based on the value of variable pay (lower or higher than the median variable pay) as the difference between total pay and fixed pay as defined by Chen et al. (2012). Definitions of all variables provided in Appendix A. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ . \*\*Significance levels at  $p < .05$ . \*Significance levels at  $p < .1$ .

corporate governance (coefficient in main specification = −0.0437,  $p$  value < .01), in line with agency costs being imposed on shareholders in the absence of strong corporate governance. Conversely,

CEO-related excess cost anti-stickiness (Panel B) drives the association with shareholder value for firms with strong corporate governance (coefficient in main specification = −0.0704,  $p$  value < .01). This



**TABLE 9** Subsample analysis of the association between the CEO-related cost asymmetry and shareholder value based on the Entrenchment Index

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tobin's Q		Tobin's Q Chung and Pruitt (1994)		Tobin's Q Klapper and Love (2004)		Total Q	
Variable	EI > med (EI)	EI < med (EI)	EI > med (EI)	EI < med (EI)	EI > med (EI)	EI < med (EI)	EI > med (EI)
<i>Panel A: Regression including only negative CEO-fixed effects—CEOs contributing to excess cost stickiness</i>							
$ CEO_{it} $	-0.0654 (.241)	-0.0437*** (.000)	-0.0543 (.331)	-0.0515*** (.000)	-0.0654 (.242)	-0.0524*** (.000)	-0.0482*** (.000)
CS.DET <sub>it</sub>	0.150 (.297)	-0.0388 (.495)	0.104 (.448)	-0.0546 (.321)	0.0972 (.480)	-0.0794 (.152)	-0.0425 (.862)
$\hat{\epsilon}_{it}$	-1.629 (.471)	-0.651 (.526)	-1.234 (.574)	-0.639 (.522)	-2.056 (.356)	-0.359 (.722)	-1.168 (.314)
Constant	4.823*** (.000)	3.866*** (.000)	4.262*** (.000)	3.353*** (.000)	4.649*** (.000)	3.955*** (.000)	2.506*** (.000)
Controls	YES	YES	YES	YES	YES	YES	YES
Observations	1,660	3,594	1,816	3,847	1,815	3,845	3,415
R-squared	22.5%	25.0%	21.7%	24.5%	21.7%	24.9%	21.0%
Firm-fixed effects	YES	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES	YES
<i>Panel B: Regression including only positive CEO-fixed effects—CEOs contributing to excess cost anti-stickiness</i>							
$ CEO_{it} $	-0.0704*** (.001)	-0.00427 (.603)	-0.0619*** (.009)	-0.00401 (.625)	-0.0633*** (.008)	-0.00491 (.549)	-0.00734 (.490)
CS.DET <sub>it</sub>	0.0778 (.635)	-0.115* (.086)	-0.0647 (.698)	-0.104 (.107)	-0.0610 (.715)	-0.117* (.069)	-0.0667 (.445)
$\hat{\epsilon}_{it}$	0.999 (.737)	1.075 (.402)	-0.392 (.900)	0.232 (.856)	-0.599 (.848)	0.177 (.889)	-0.667 (.696)
Constant	7.100*** (.000)	3.990*** (.000)	6.877*** (.000)	3.477*** (.000)	7.441*** (.000)	3.990*** (.000)	4.015*** (.000)
Controls	YES	YES	YES	YES	YES	YES	YES
Observations	1,008	2,230	1,108	2,394	1,109	2,393	2,091
R-squared	30.1%	23.6%	29.1%	23.5%	29.9%	23.4%	21.0%
Firm-fixed effects	YES	YES	YES	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES	YES	YES	YES

Results of the regression following Equation (3) using different subsamples based on the value of the Entrenchment Index (EI) as defined by BebchukBebchuk et al. (2009). Definitions of all variables provided in Appendix A. *p* values presented in parentheses.

\*\*\*Significance levels at *p* < .01.

\*\*Significance levels at *p* < .05.

\*Significance levels at *p* < 0.1.

may be due to CEOs not maintaining excess capacities in the case of a sales decline if they have less power or if they are even inclined to over-adjust costs to meet or beat short-term performance targets set by the board of directors.

Third, although we argue in the hypothesis development section that cost asymmetry arising from CFOs' decisions is not expected to play a significant role for shareholder value (as CFOs' ability to make resource related decisions is restricted), we run our main analysis with CFO- instead of CEO-fixed effects to provide a complete picture. Untabulated results confirm that the identified CFO-fixed effects on SG&A cost asymmetry are not significantly associated with shareholder value (coefficient in main model =  $-0.0075$ ,  $p$  value = .306).

Next, we examine alternative explanations for the existence of the identified CEO-fixed effects on cost asymmetry.<sup>21</sup> First, our identified CEO-fixed effects on SG&A cost asymmetry could be the result of the effect of CEO overconfidence on SG&A cost asymmetry, rather than the product of a CEO's managing style. Chen et al. (2013) claim that overconfident CEOs are more likely to overestimate future demand as well as their ability to restore future demand, thus being less likely to cut SG&A costs when sales decline. We follow Chen et al. (2013) and include CEO overconfidence (see definition in Table 1) as an additional determinant in our SG&A cost asymmetry model. Untabulated results confirm that our identified CEO-fixed effects do not represent CEO overconfidence but do capture the excess level of SG&A cost asymmetry arising due to CEOs' personal style. The coefficients on CEO-related excess SG&A cost asymmetry in the shareholder value model are still negative and statistically significant (coefficient in main specification =  $-0.0156$ ,  $p$  value = .010).

Second, the identified CEO fixed effects on SG&A cost asymmetry may occur mainly in the first year of a CEO on the job and thus are not representative of CEOs' style over the entire duration of their tenure. CEOs may be tempted to apply so-called "big-bath" accounting techniques during their first year of tenure to wipe the slate clean in preparation for the remainder of their tenure, or they may not yet be completely familiar with the firm's needs and tend to not adjust SG&A costs properly. Although we partly eliminate these possibilities by only estimating CEO-fixed effects for moving CEOs and by controlling for CEO horizon in our model, one way to directly eliminate this possibility is to exclude the firm-year observations corresponding to each CEO's first year of tenure in each of the firms they have worked for. Our untabulated results are robust to this alternative specification, the coefficients on CEO-related excess SG&A cost asymmetry in the shareholder value model still being negative and statistically significant (coefficient in main model =  $-0.0144$ ,  $p$  value = .016).

Last, we analyze whether the identified CEO-fixed effects of cost asymmetry vary depending on CEO characteristics. For this, we regress the absolute values of CEO-fixed effects on CEO gender, CEO age, and CEO tenure. (Untabulated) results show that male CEOs, older CEOs, and CEOs with a shorter tenure contribute to higher SG&A cost asymmetry levels.

## 5 | CONCLUSION

In this study, we examine how excess SG&A cost asymmetry resulting from individual CEOs' decisions is associated with shareholder value. Following extensions of agency theory and of neo-classical theory, we expect CEOs to contribute significantly to the level of cost asymmetry due to their idiosyncratic management style. After identifying CEO-fixed effects on SG&A cost asymmetry, we test our main prediction of the negative association between excess CEO-related cost asymmetry and shareholder value. Agency theory offers a strong theoretical foundation for the hypothesized association. Cost management decisions of individual CEOs that lead to excess levels of SG&A cost asymmetry can be thus interpreted as arising from CEOs' intentions to derive personal gains from empire-building or from myopically trying to meet or beat earnings targets. Our results confirm these predictions. We find that CEOs significantly contribute to the level of SG&A cost asymmetry and that this CEO-related excess cost asymmetry is associated with lower shareholder value. We also find that our results are mainly driven by CEOs who contribute to higher-than-necessary levels of SG&A cost stickiness, whereas CEOs contributing to excess levels of cost anti-stickiness have no significant association with shareholder value when this aspect is analyzed separately. Furthermore, we find that the negative association with shareholder value is driven by CEOs whose compensation is less tied to shareholder value creation and by powerful CEOs who underadjust SG&A costs (CEO-related SG&A cost stickiness), as well as CEOs with less power who overadjust SG&A costs (CEO-related excess SG&A cost anti-stickiness) in the case of a decrease in activity levels. Finally, an additional analysis helps us strengthen the identification of CEO-fixed effects on SG&A cost asymmetry as arising from individual CEOs' idiosyncratic style, mitigating concerns that they exist due to CEOs' overconfidence or unusual behavior of newly appointed CEOs.

Our study contributes to the literature on cost asymmetry in two ways. First, we identify an additional important determinant of asymmetric cost behavior and extend the findings of Chen et al. (2012), who are the first to explore the cost asymmetry phenomenon from an agency perspective. By documenting the effect individual CEOs' decisions have on SG&A cost asymmetry, we offer additional proof of systematic differences in top managers' corporate decision-making behavior. Second, we extend the rather scarce research on the potential consequences of asymmetric cost behavior by providing the first large-sample empirical evidence on the relationship between cost asymmetry and shareholder value, thus linking managerial accounting to financial literature. We show that the excess level of SG&A cost asymmetry induced by decisions of individual CEOs is associated with lower shareholder value. The implication is that CEOs do sometimes act in their own interest if they have the necessary power in the firm they lead. By doing so, they impose the related agency costs on the firm and its shareholders.

There are certain caveats to our analysis. In the absence of theory, it is challenging to build a model that controls for all possible

economic determinants; also, our proxies may not be perfect. Nonetheless, we believe that our findings provide evidence of individual top manager discretion in cost management. Additionally, our methodology follows the suggestion of Banker and Byzalov (2014) and contributes to the development of an empirical model which can identify bad (i.e., excessive) cost asymmetry.

## ACKNOWLEDGMENTS

We are grateful for feedback and suggestions from Joseph Comprix, David Harris, and Peter Koveos, as well as from participants of workshops held at Syracuse University (United States), the University of Oldenburg (Germany), and the University of Luxembourg. We also thank conference participants of the 16th CICA International Accounting and Auditing Congress Aveiro (Portugal), 2018 Annual Conference of the British Accounting and Finance Association (London, UK), the 41st Annual Congress of the European Accounting Association (Milan, Italy), and the 2018 Annual Meeting of the American Accounting Association (Washington, DC, USA).

## CONFLICT OF INTEREST

None.

## DATA ACCESSIBILITY

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

## NOTES

- <sup>1</sup> The focus on SG&A costs is justified as they play a significant role, representing approximately 27% of the total cost of operations (Chen et al., 2012).
- <sup>2</sup> Hereafter, the "ABJ model."
- <sup>3</sup> That is, CEOs who worked for at least two different firms over the observed period.
- <sup>4</sup> CEOs, unlike CFOs, are directly responsible for resource allocation decisions. Bertrand and Schoar (2003) also find that CEOs have a larger impact on organizational strategy than CFOs.
- <sup>5</sup> Three of the years in our example exhibit unusual SG&A cost and sales behavior. In 2001 and 2002, the dotcom bubble burst, explaining the decreasing sales and the corresponding SG&A cost behavior. The financial crisis peaked in 2009, explaining the decrease in both sales and SG&A costs.
- <sup>6</sup> We choose the ABJ model as it the most accepted and validated model on cost asymmetry in prior literature and can be seen as state of the art in cost asymmetry-related empirical analysis.
- <sup>7</sup> Although we initially include all CEOs in our sample in the regression (whether they moved or not), we only obtain estimated coefficients for the moving CEOs because our regression includes firm-fixed effects. Thus, if a CEO is only employed in one single firm over our sample period, the fixed effect of that particular CEO would already be captured by the firm-fixed effect and the variables corresponding to that CEO would thus be omitted from the estimation. Furthermore, we follow Bertrand and Schoar (2003) and keep observations with nonmoving CEOs in our sample to improve the accuracy of the estimated coefficients on other variables that are not related to CEO fixed effects. The results remain qualitatively unchanged if we restrict our sample to observations with moving CEOs.

- <sup>8</sup> This version of Tobin's Q is the most widely accepted, being used in numerous prior studies such as Baxter et al., 2013, Bebchuk & Cohen, 2005, Chen et al., 2012, Gompers et al., 2003, and Servaes & Tamayo, 2013.
- <sup>9</sup> This measure can be downloaded directly from COMPUSTAT.
- <sup>10</sup> Singleton groups are groups which, based on the multiple levels of fixed effects regressions, consist of only one observation. Keeping them in the sample would lead to overstated statistical significance of the coefficients and thus incorrect inference of results Correia, 2015.
- <sup>11</sup> The results are not tabulated, however available upon request.
- <sup>12</sup> We run the regression in Equation (2) without any firm- or time-fixed effects. The results remain similar, although some of the coefficients on the three-way interaction terms gain significance, for example the coefficient on the free cash flow determinant, which goes from being marginally significant at the 10% level to having a  $p$  value lower than .001 (results are not tabulated).
- <sup>13</sup> Table 4 does not report the estimated coefficients on each of the CEO dummies, as this would mean having a results table with roughly 1,800 different variables, which is not practicable.
- <sup>14</sup> The coefficients  $\gamma_n$  on the three-way interaction terms  $CEO_{it} * D_{it} * \log(\Delta Sale)_{it}$ .
- <sup>15</sup> Because we have two nested regression models (Equation (1) is nested in Equation (2)), we use a cluster-robust version of the Vuong test. The corresponding statistic is in this case a  $t$  statistic and not the traditional Z statistic.
- <sup>16</sup> From an econometrical point of view, introducing multiple interaction terms with  $\log(\Delta Sale)$  inflates the standard errors of coefficients and thus diminishes statistical power. In untabulated correlation analysis we observe that the mean (median) correlation between  $\log(\Delta Sale)$  and CEO dummies is 0.564 (.639), with a maximum (minimum) value of 0.999 (-0.999).
- <sup>17</sup> Although we are not able to estimate CEO-fixed effects for nonmoving CEOs, we estimate SG&A cost asymmetry (based on a simple ABJ model) for firms with and without moving CEOs separately to see whether/how they are different. Untabulated results show that firms without moving CEOs have stickier SG&A costs overall (coefficient on  $D^* \log(\Delta Sale) = -0.373$ ) than firms with moving CEOs (coefficient on  $D^* \log(\Delta Sale) = -0.248$ ). Thus, excluding these firms from our analysis would only make it less likely to find significant results.
- <sup>18</sup> Untabulated Pearson and Spearman correlation coefficients between total Q and CEO-related excess cost asymmetry are also negative however still not statistically significant.
- <sup>19</sup> Because the Total Q measure is available only up to 2015, the number of firm-year observations used for this estimation is slightly lower.
- <sup>20</sup> For this, we use the following model:  $Q_{it} = \alpha + \sum \delta_k CEO_{it} + \sum \delta_z Controls_{it} + \mu_i + \tau_t + \epsilon_{it}$
- <sup>21</sup> We choose not to incorporate either of these two alternative specifications in our main analysis because (a) limited data availability on stock options awarded to CEOs and (b) the exclusion of each first year of CEO tenure would significantly decrease our sample size.

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**How to cite this article:** Lopatta K, Kaspereit T, Gastone L-M. Managerial style in cost asymmetry and shareholder value. *Manage Decis Econ*. 2020;41:800–826. <https://doi.org/10.1002/mde.3139>

## APPENDIX A

## Reviewer appendix

**TABLE A1** Results for estimation of the alternative specification of models in Equations (1) and (2) including CEO overconfidence as an additional determinant of the average firm-level SG&A cost asymmetry: Estimation of CEO-related excess level of SG&A cost asymmetry

Variable	(1)	(2)
	log ( $\Delta$ SG&A)	log ( $\Delta$ SG&A)
log ( $\Delta$ Sale)	1.149 <sup>***</sup> (.000)	0.247 (.366)
D	0.0102 (.644)	—
D <sup>*</sup> log ( $\Delta$ Sale)	−0.658 <sup>***</sup> (.000)	−1.153 (.999)
Three-way interaction terms (D <sup>*</sup> log ( $\Delta$ Sale) <sup>*</sup> DET)		
AINT	0.00501 (.809)	0.202 <sup>**</sup> (.031)
EINT	−0.0673 <sup>***</sup> (.000)	0.0781 (.382)
SUC	0.302 <sup>***</sup> (.000)	0.108 <sup>*</sup> (.056)
$\Delta$ GDP	1.876 <sup>***</sup> (.009)	−1.414 (.292)
STOCK_RET	0.0744 <sup>***</sup> (.000)	0.0537 (.193)
LIFE_CYCLE	−0.204 <sup>***</sup> (.000)	−0.220 <sup>***</sup> (.000)
PR_LOSS	0.255 <sup>***</sup> (.000)	0.261 <sup>***</sup> (.000)
ABN_ACCRUAL	0.375 <sup>***</sup> (.001)	0.369 (.157)
AVOID_LOSS	−0.0579 (.385)	−0.120 (.356)
AVOID_DECREASE	−0.0628 (.285)	−0.0787 (.530)
FCF	0.223 <sup>*</sup> (.087)	0.945 <sup>***</sup> (.001)
CEO_HORIZON	−0.0561 (.132)	−0.443 <sup>***</sup> (.000)
CEO_OVERCONFIDENCE	0.00762 (.792)	−0.188 (.133)
INT_PPE	−0.0624 <sup>***</sup> (.000)	−0.027 (.221)
log ( $\Delta$ PP&E)	0.157 <sup>***</sup> (.000)	0.119 <sup>***</sup> (.000)
Two-way interaction terms (log ( $\Delta$ Sale) <sup>*</sup> DET)	INCLUDED	INCLUDED
Two-way interaction terms (D <sup>*</sup> DET)	INCLUDED	INCLUDED
Standalone variables:	INCLUDED	INCLUDED
Observations	19,867	19,867
Adjusted R-squared	62.1%	71.7%
Firm-fixed effects	YES	YES
Year-fixed effects	YES	YES
CEO-fixed effects	NO	YES
log ( $\Delta$ Sale) $\times$ CEO-fixed effects	NO	YES
D $\times$ CEO-fixed effects	NO	YES
log ( $\Delta$ Sale) $\times$ D $\times$ CEO-fixed effects	NO	YES

Note. Results of the regression following alternative specifications of Equations (1) and (2) in which we also control for CEO overconfidence as an alternative determinant of the average firm-level SG&A cost asymmetry, corresponding to the first step of the analysis. CEO overconfidence is a binary variable defined based on managers' stock option exercising behavior. The CEO overconfidence variable takes the value of 1 starting with the first time an option has been held too long if the average intrinsic value of their options exceeds 67% of the average exercise price at least twice over the sample period. Definitions of all other variables are provided in Table 1. *p* values presented in parentheses.

\*\*\* Significance levels at  $p < .01$ . \*\* Significance levels at  $p < .05$ . \* Significance levels at  $p < .1$ .

**TABLE A2** Results for estimation of model in Equation (3): Analyzing the association between the CEO-related excess level of SG&A cost asymmetry and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung and Pruitt (1994)	Tobin's Q Klapper and Love (2004)
CEO <sub>it</sub>	-0.0166*** (.005)	-0.0109 (.189)	-0.0158*** (.006)	-0.0167*** (.003)
CS.DET <sub>it</sub>	-0.0764* (.061)	-0.131** (.016)	-0.103*** (.006)	-0.113*** (.003)
$\hat{\epsilon}_{it}$	-1.963* (.054)	-3.079** (.024)	-1.859* (.056)	-1.895* (.052)
CONTROLS	YES	YES	YES	YES
Constant	4.496*** (.000)	4.001*** (.000)	3.715*** (.000)	4.161*** (.000)
Observations	8,501	8,342	9,200	9,204
R-squared (%)	20.1	18.0	19.6	19.8
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Note. CEO-related excess level of SG&A cost asymmetry estimated based on the alternative specification of model in Equation (2) including CEO overconfidence as an additional determinant. Results of the regression following Equation (3) corresponding to the second part of the analysis using the CEO-fixed effects estimated through the alternative specification of the SG&A cost asymmetry model including CEO overconfidence as an additional determinant of the average firm-level SG&A cost asymmetry. Definitions of all variables provided in Table 1. *p* values presented in parentheses, \*\*\*Significance levels at  $p < .01$ . \*\*Significance levels at  $p < .05$ . \*Significance levels at  $p < .1$ .

**TABLE A3** Results for estimation of the alternative specification of models in Equations (1) and (2) excluding all firm-year observations corresponding to each CEO's first year of tenure in each of the firms in the sample: Estimation of CEO-related excess level of SG&A cost asymmetry

Variable	(1)	(2)
	log ( $\Delta$ SG&A)	log ( $\Delta$ SG&A)
log ( $\Delta$ Sale)	1.174*** (.000)	0.190 (.523)
<i>D</i>	0.0183 (.405)	—
<i>D</i> 'log ( $\Delta$ Sale)	-0.587*** (.000)	-269.3 (.661)
Three-way interaction terms ( <i>D</i> ' log ( $\Delta$ Sale)'DET)	—	—
AINT	-0.0557** (.010)	0.0318 (.739)
EINT	-0.0552*** (.001)	0.183** (.048)
SUC	0.219*** (.000)	0.0357 (.533)
$\Delta$ GDP	3.507*** (.000)	-3.245** (.013)
STOCK_RET	0.0473** (.023)	-0.0104 (.804)
LIFE_CYCLE	-0.160*** (.000)	-0.0753 (.159)
PR_LOSS	0.210*** (.000)	0.258*** (.000)
ABN_ACCRUAL	0.506*** (.000)	0.326 (.228)
AVOID_LOSS	-0.0796 (.261)	0.0184 (.888)
AVOID_DECREASE	-0.131** (.027)	-0.278* (.054)
FCF	0.493*** (.001)	0.833*** (.005)
CEO_HORIZON	-0.210*** (.000)	-0.467*** (.000)
INT_PPE	-0.0721*** (.000)	-0.0340 (.146)
log ( $\Delta$ PP&E)	0.142*** (.000)	0.101*** (.000)
Two-way interaction terms (log ( $\Delta$ Sale)'DET)	INCLUDED	INCLUDED
Two-way interaction terms ( <i>D</i> 'DET)	INCLUDED	INCLUDED

(Continues)



**TABLE A3** (Continued)

Variable	(1)	(2)
	log ( $\Delta$ SG&A)	log ( $\Delta$ SG&A)
Standalone variables	INCLUDED	INCLUDED
Observations	19,414	19,414
Adjusted R-squared (%)	61.5	69.8
Firm-fixed effects	YES	YES
Year-fixed effects	YES	YES
CEO-fixed effects	NO	YES
log ( $\Delta$ Sale) $\times$ CEO-fixed effects	NO	YES
D $\times$ CEO-fixed effects	NO	YES
log ( $\Delta$ Sale) $\times$ D $\times$ CEO-fixed effects	NO	YES

Note. Results of the regression following alternative specifications of Equations (1) and (2) in which we exclude all firm-year observations corresponding to every CEO's first year of tenure in each of the firms in our sample. Definitions of all other variables are provided in Table 1. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ .

\*\*Significance levels at  $p < .05$ .

\*Significance levels at  $p < .1$ .

**TABLE A4** Results for estimation of model in Equation (3): Analyzing the association between the CEO-related excess level of SG&A cost asymmetry and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung and Pruitt (1994)	Tobin's Q Klapper and Love (2004)
CEO <sub>it</sub>	-0.0176*** (.002)	0.00241 (.761)	-0.0154*** (.005)	-0.0168*** (.002)
CS.DET <sub>it</sub>	-0.0844* (.064)	-0.279*** (.000)	-0.130*** (.002)	-0.115*** (.007)
$\hat{\epsilon}_{it}$	-1.925* (.054)	-3.084** (.021)	-2.063** (.031)	-2.331** (.015)
CONTROLS	YES	YES	YES	YES
Constant	-13.34 (.282)	-70.54*** (.000)	-26.88** (.022)	-22.05* (.061)
Observations	8,339	8,112	9,011	9,012
R-squared	20.5%	18.6%	20.4%	20.3%
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Note. CEO-related excess level of SG&A cost asymmetry estimated based on the alternative specification of model in Equation (2) excluding all firm-year observations corresponding to each CEO's first year of tenure in each of the firms in the sample. Results of the regression following Equation (3) corresponding to the second part of the analysis using the CEO fixed effects estimated through the alternative specification of the SG&A cost asymmetry model excluding all firm-year observations corresponding to each CEO's first year of tenure in each of the firms in the sample. Definitions of all variables provided in Table 1. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ .

\*\*Significance levels at  $p < .05$ .

\*Significance levels at  $p < .1$ .

**TABLE A5** Results for estimation of the alternative specification of models in Equations (1) and (2) including CFO-fixed effects: Estimation of chief financial officer-related excess level of SG&A cost asymmetry

Variable	(2)	(2)
	log ( $\Delta$ SG&A)	log ( $\Delta$ SG&A)
log ( $\Delta$ Sale)	1.232 <sup>***</sup> (16.65)	-0.0613 (-0.132)
D	0.0395 <sup>*</sup> (1.704)	--
D <sup>*</sup> log ( $\Delta$ Sale)	-0.553 <sup>***</sup> (-4.764)	-2.444 (-1.638)
Three-way interaction terms (D <sup>*</sup> log ( $\Delta$ Sale) <sup>*</sup> DET)		
AINT	-0.142 <sup>***</sup> (-5.830)	-0.263 <sup>**</sup> (-2.077)
EINT	-0.0729 <sup>***</sup> (-3.830)	-0.0813 (-0.571)
SUC	0.175 <sup>***</sup> (5.388)	0.0495 (.672)
$\Delta$ GDP	2.151 <sup>**</sup> (2.257)	-1.279 (-0.761)
STOCK_RET	0.106 <sup>***</sup> (3.845)	0.0440 (.742)
LIFE_CYCLE	-0.161 <sup>***</sup> (-4.978)	0.101 (1.443)
PR_LOSS	0.273 <sup>***</sup> (7.854)	0.193 <sup>**</sup> (2.391)
ABN_ACCRUAL	0.800 <sup>***</sup> (5.600)	-0.224 (-0.558)
AVOID_LOSS	-0.123 (-1.470)	-0.0906 (-0.518)
AVOID_DECREASE	-0.155 <sup>*</sup> (-1.701)	-0.0223 (-0.121)
FCF	0.273 <sup>*</sup> (1.897)	-0.185 (-0.399)
CEO_HORIZON	-0.00942 (-0.325)	-0.0621 (-0.833)
INT_PPE	-0.000173 (-0.00924)	-0.0392 (-1.283)
log ( $\Delta$ PP&E)	0.124 <sup>***</sup> (11.36)	0.0695 <sup>***</sup> (4.909)
Two-way interaction terms (log ( $\Delta$ Sale) <sup>*</sup> DET)	INCLUDED	INCLUDED
Two-way interaction terms (D <sup>*</sup> DET)	INCLUDED	INCLUDED
Standalone variables:	INCLUDED	INCLUDED
Observations	11,438	11,438
Adjusted R-squared	57.5%	68.0%
Firm-fixed effects	YES	YES
Year-fixed effects	YES	YES
CEO-fixed effects	NO	YES
log ( $\Delta$ Sale) $\times$ CEO-fixed effects	NO	YES
D $\times$ CEO-fixed effects	NO	YES
log ( $\Delta$ Sale) $\times$ D $\times$ CEO-fixed effects	NO	YES

Note. Results of the regression following alternative specifications of Equations (1) and (2) in which we include chief financial officer-fixed effects. Definitions of all other variables are provided in Table 1. T statistics presented in parentheses.

<sup>\*\*\*</sup>Significance levels at  $p < .01$ .

<sup>\*\*</sup>Significance levels at  $p < .05$ .

<sup>\*</sup>Significance levels at  $p < .1$ .

**TABLE A6** Results for estimation of model in Equation (3) with CFO-fixed effects: Analyzing the association between the CFO-related excess level of SG&A cost asymmetry and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung&Pruitt (1994)	Tobin's Q Klapper&Love (2004)
CFO <sub>it</sub>	-0.00757 (.306)	-0.00821 (.226)	-0.0110 (.109)	-0.00345 (.737)
CS.DET <sub>it</sub>	0.574*** (.000)	0.492*** (.000)	0.570*** (.000)	0.364*** (.001)
$\hat{\epsilon}_{it}$	-0.264 (.284)	-0.267 (.265)	-0.252 (.299)	-0.375 (.215)
SIZE	-0.353*** (.000)	-0.266*** (.000)	-0.330*** (.000)	-0.192*** (.000)
LEVERAGE	-0.459*** (.000)	-0.416*** (.000)	-0.473*** (.000)	-0.442*** (.000)
BETA	0.0637*** (.009)	0.0574** (.013)	0.0578** (.014)	0.115*** (.001)
R&D	0.461 (.290)	0.551 (.160)	0.644 (.105)	-0.761 (.158)
ADVERT	-0.178* (.052)	-0.161* (.063)	-0.181** (.039)	-0.233* (.069)
CF	-0.169** (.017)	-0.214*** (.001)	-0.145** (.032)	-0.710*** (.000)
MKT_SHARE	1.588*** (.000)	1.627*** (.000)	1.649*** (.000)	1.169*** (.000)
CAPITAL_INT	18.04*** (.002)	10.07* (.054)	13.66*** (.009)	9.301 (.159)
DIVIDEND	0.0620* (.059)	0.0653** (.034)	0.0705** (.024)	0.0369 (.399)
log ( $\Delta$ Sale)	0.134*** (.005)	0.145*** (.001)	0.147*** (.001)	0.358*** (.000)
ROA	0.362*** (.001)	0.458*** (.000)	0.380*** (.000)	0.274* (.050)
Constant	5.462*** (.000)	4.445*** (.000)	5.317*** (.000)	3.504*** (.000)
Observations	4,926	5,280	5,287	4,469
Adjusted R-squared	0.245	0.246	0.247	0.180
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Note. CFO-related excess level of SG&A cost asymmetry estimated based on the alternative specification of model in Equation (2) including CFO- instead of CEO-fixed effects. Results of the regression following Equation (3) corresponding to the second part of the analysis using the CFO-fixed effects estimated through the alternative specification of the SG&A cost asymmetry model. Definitions of all variables provided in Table 1. *p* values presented in parentheses.

\*\*\*Significance levels at *p* < .01.

\*\*Significance levels at *p* < .05.

\*Significance levels at *p* < .1.

**TABLE A7** Results for estimation of model in Equation (3) with negative CFO-fixed effects: Analyzing the association between the CFO-related excess level of SG&A cost stickiness and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung&Pruitt (1994)	Tobin's Q Klapper&Love (2004)
CFO <sub>it</sub>   <sub>neg</sub>	-0.0237 (.439)	-0.0287 (.333)	-0.0241 (.420)	-0.0167 (.680)
CS.DET <sub>it</sub>	0.385 (.183)	0.384 (.140)	0.490* (.061)	-0.0178 (.961)
$\hat{\epsilon}_{it}$	3.665 (.183)	1.450 (.574)	1.988 (.444)	1.651 (.622)
Controls	YES	YES	YES	YES
Constant	7.063*** (.000)	6.220*** (.000)	7.056*** (.000)	6.222*** (.000)
Observations	566	624	624	518
Adjusted R-squared	0.365	0.341	0.349	0.194
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Note. CFO-related excess level of SG&A cost asymmetry estimated based on the alternative specification of model in Equation (2) including CFO- instead of CEO-fixed effects. Results of the regression following Equation (3) corresponding to the second part of the analysis using the negative CFO-fixed effects estimated through the alternative specification of the SG&A cost asymmetry model. Definitions of all variables provided in Table 1. *p* values presented in parentheses.

\*\*\*Significance levels at *p* < .01.

\*\*Significance levels at *p* < .05.

\*Significance levels at *p* < .1.

**TABLE A8** Results for estimation of model in Equation (3) with positive CFO-fixed effects: Analyzing the association between the CFO-related excess level of SG&A cost anti-stickiness and shareholder value

Variable	(1)	(2)	(3)	(4)
	Tobin's Q	Total Q	Tobin's Q Chung&Pruitt (1994)	Tobin's Q Klapper&Love(2004)
$ CFO_{it} _{pos}$	-0.00842 (.321)	-0.00508 (.533)	-0.00985 (.234)	-0.00002 (.999)
CS.DET <sub>it</sub>	0.608*** (.000)	0.534*** (.000)	0.600*** (.000)	0.443*** (.000)
$\hat{\epsilon}_{it}$	-0.272 (.265)	-0.259 (.277)	-0.255 (.292)	-0.370 (.221)
Controls	YES	YES	YES	YES
Constant	5.219*** (.000)	4.199*** (.000)	5.070*** (.000)	3.135*** (.000)
Observations	4,360	4,656	4,663	3,951
Adjusted R-squared	0.236	0.239	0.238	0.187
Firm-fixed effects	YES	YES	YES	YES
Year-fixed effects	YES	YES	YES	YES

Note. CFO-related excess level of SG&A cost asymmetry estimated based on the alternative specification of model in Equation (2) including CFO- instead of CEO-fixed effects. Results of the regression following Equation (3) corresponding to the second part of the analysis using the positive CFO-fixed effects estimated through the alternative specification of the SG&A cost asymmetry model. Definitions of all variables provided in Table 1. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ .

\*\*Significance levels at  $p < .05$ .

\*Significance levels at  $p < .1$ .

**TABLE A9** Results for estimation of the regression of identified CEO-fixed effects in the model in Equation (2) on CEO characteristics

Variable	(1)  CEOFE
Gender	3.307** (.010)
Age	0.110* (.062)
Tenure	-0.295*** (.008)
Constant	-4.382 (.179)
Observations	13,124
Adjusted R-squared	0.3%
Year-fixed effects	YES

Note. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ .

\*\*Significance levels at  $p < .05$ .

\*Significance levels at  $p < .1$ .

**TABLE A10** Seemingly unrelated regression results for firms with moving CEOs (Column 2) versus firms with nonmoving CEOs (Column 1)

Variable	(1)	(3)
	log ( $\Delta$ SG&A) nonmoving CEO firms	log ( $\Delta$ SG&A) moving CEO firms
log ( $\Delta$ Sale)	0.762*** (.000)	0.717*** (.000)
<i>D</i>	-0.0124* (.079)	-0.0152*** (.000)
<i>D</i> 'log ( $\Delta$ Sale)	-0.374*** (.000)	-0.249*** (.000)
Constant	0.0171*** (.000)	0.0164*** (.000)
Observations	24,234	24,234

Note. *p* values presented in parentheses.

\*\*\*Significance levels at  $p < .01$ .

\*\*Significance levels at  $p < .05$ .

\*Significance levels at  $p < .1$ .