## **Cost Shielding in Executive Bonus Plans**

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Draft: September 24, 2020

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Abstract: Executive bonus plans often incorporate performance measures that exclude particular costs—a practice we refer to as "cost shielding." Based on an agency theoretic framework, we predict that boards use cost shielding to (i) mitigate managerial myopia and (ii) encourage newer executives to disregard sunk costs associated with prior executives' actions. Consistent with our first prediction, we find evidence that boards use cost shielding to deter myopic underinvestment in intangibles and encourage managers to take advantage of growth opportunities. Consistent with our second prediction, we find that boards tend to shield newly hired executives from costs arising from prior executives' decisions, and this cost shielding diminishes over the course of executives' tenure. Collectively, our results provide insight into the purpose of bonus plans and are consistent with the notion that boards deliberately choose performance metrics that alleviate agency conflicts.

JEL classification: G34; J3; M12

*Keywords*: executive compensation; cost shielding; managerial incentives; performance measurement; bonus contracts; agency theory

## **1. Introduction**

We examine how boards select performance measures in executive bonus plans to mitigate agency conflicts between executives and shareholders. Although bonuses are ubiquitous in executive compensation, their full contracting usefulness is not well understood, particularly in light of incentives provided by equity portfolios. We posit that bonus plans allow boards to communicate and reward the achievement of specific actionable objectives linked to executives' actions, thereby mitigating agency conflicts in a targeted way that can be difficult for broader incentives to adequately address (e.g., Murphy and Jensen, 2011). For instance, equity-based incentives can exacerbate agency conflicts such as managerial myopia by encouraging excessive focus on short-term share price (e.g., Stein, 1989). We study whether and the extent to which specific agency conflicts—e.g., myopia arising from timing mismatches between when costs and their associated benefits are recognized—explain variation in boards' use of performance measures in executives' bonus plans.

Most of the variation in bonus plan performance measures arises from choices among different income statement-based ("IS") measures, such as net income versus earnings before interest, taxes, depreciation, and amortization ("EBITDA").<sup>1</sup> Although nearly every plan incorporates an IS measure, most are not "bottom line" net income, but rather an alternative measure such as EBITDA, operating income, or top-line revenue. The primary distinction among these different IS measures is the extent to which they exclude particular expenses (or costs).<sup>2</sup> For

<sup>&</sup>lt;sup>1</sup> Although a large literature examines performance measures in executive compensation plans, little is known about how boards select IS measures. For example, see Lambert and Larcker (1987), Dechow et al. (1994), Bushman et al. (1996), Ittner et al. (1997), Core et al. (2003), Banker et al. (2009), Indjejikian and Matějka (2009), Ederhof (2010), De Angelis and Grinstein (2015), Bennett et al. (2017), and Guay et al. (2019).

<sup>&</sup>lt;sup>2</sup> Conceptually, we are interested in studying how boards shield managers from costs. In practice, this typically occurs via shielding executives from particular expenses on the income statement, and therefore we use the terms "cost" and "expense" interchangeably.

example, revenue-based measures exclude most, if not all expenses, and EBITDA excludes more expenses than operating income, which, in turn, excludes more expenses than bottom-line net income. Thus, bonus plans that rely on IS measures other than net income effectively place less weight on particular expenses—a practice that we refer to as "cost shielding."<sup>3</sup>

We use a sample of executive compensation contracts from 8,000 publicly traded U.S. firm-years between 2006 and 2017 to develop and test two main predictions regarding the role of cost shielding in mitigating agency conflicts between executives and shareholders. First, we predict greater cost shielding when concerns about managerial myopia are more prominent. Value-maximizing corporate strategies frequently involve upfront costs with delayed benefits (e.g., investment in intangibles and/or growth options). If managers are held responsible for these upfront investment costs when incurred, but are not rewarded for the benefits until they materialize, managers likely will underinvest in these activities (e.g., Dye, 1988; Stein, 1989; Bushman et al., 1996; Goldman and Slezak, 2006). To encourage managers to make these investments, boards can shield managers from investment-related costs.<sup>4</sup> Consistent with our prediction, we find that the boards of firms with more intangible investments and growth options are more likely to shield executives from investment-related costs by selecting performance measures that are higher up the income statement (e.g., revenue and EBITDA). We also find a greater use of cost shielding at firms that receive more external scrutiny—e.g., firms targeted by

<sup>&</sup>lt;sup>3</sup> This line of reasoning assumes that all income statement items besides revenue reflect expenses (i.e., reduce income). In some cases, however, these non-revenue items may increase income, such as non-operating gains. Boards might also ignore these gains when selecting performance measures; that is, implement some "income shielding." We believe this is unlikely to affect our inferences because in our sample, non-operating gains are relatively rare and typically small—approximately 15% of firm-years have such gains, and the median gain is less than 1% of assets and revenue (untabulated).

<sup>&</sup>lt;sup>4</sup> To facilitate the theoretical interpretation of our arguments, in Appendix A we present a modification to the Stein (1989) model—in which stock price pressure incentivizes myopic cuts to investment—that shows how incorporating cost shielding can enable first-best investment.

SEC investigations or shareholder lawsuits—whose executives tend to experience more frequent turnover (e.g., Amiram et al., 2018) and are therefore more likely to exhibit myopic behavior.

Second, we predict that managers are more likely to be shielded from sunk costs that stem from their predecessors' decisions rather than their own. Sunk costs from prior investment decisions often reduce current (and future) net earnings, but may not accurately reflect managers' current actions and decisions (e.g., Reichelstein, 1997; Rogerson, 1997; Wagenhofer, 2003). This is especially the case for sunk costs that are a result of their predecessors' investment decisions. Managers who are evaluated according to performance measures that include sunk costs (e.g., net income) could allow these sunk costs to influence their investment and other decisions. To encourage better decision-making, boards might exclude such costs when evaluating managerial performance. Consistent with this prediction, we find greater cost shielding is used for newly hired executives. In particular, these executives are frequently evaluated based on EBITDA, but this become less likely over the course of their tenure. Moreover, newly hired executives from outside the firm are even more likely to be shielded from sunk costs than are their internally promoted counterparts because the former are highly unlikely to bear responsibility for prior investments.<sup>5</sup>

Variation in executive tenure—i.e., time since the prior executive's departure—can arise from a variety of factors, some of which may influence boards' use of cost shielding in current executives' bonus plans (e.g., changes in strategic focus are likely to result in executive turnover and boards' decisions to use different performance measures in successor CEOs' bonus plans). Consequently, our findings related to executive tenure and cost shielding could partially reflect these unobserved factors. To mitigate these concerns and better isolate how boards consider sunk

<sup>&</sup>lt;sup>5</sup> In our empirical analysis we also find similar results when we consider turnover across the top management team collectively, rather than only for the CEO. This result is consistent with boards using cost shielding to facilitate incentive cohesion across the top management team (e.g., Che and Yoo, 2001; Edmans et al., 2013; Bushman et al., 2016; Guay et al., 2019).

costs when designing bonus plans, we next examine a setting where variation in tenure likely reflects exogenous executive turnover. Specifically, we examine CEO turnover attributable to unexpected health-related causes (e.g., illness, death; Fee et al., 2013), which are unlikely related to firm or manager characteristics that drive bonus plan design. We find significant year-over-year increases in cost shielding following these CEO departures. These results provide evidence that our prior findings are attributable to variation in CEO tenure rather than correlated omitted factors.

Next, we examine the role of industry factors in shaping bonus plan design.<sup>6</sup> Similar to our first prediction, we examine the role that cost shielding plays in mitigating managerial myopia as it relates to industry-level product characteristics. As Stein (1989) discusses, sales of new products can be considered an "investment" in future demand (e.g., Klemperer, 1987). A myopic manager would be more inclined to keep product prices high to increase current earnings at the expense of long-term economic performance—a problem that cost shielding can help address. In contrast, current sales of durable goods beget future competition from the secondary durable goods market. Accordingly, a myopic manager would be inclined to set prices too low to increase current earnings at the expense of long-term economic performance—a problem that cost shielding in industries with more frequent new product launches and in non-durable goods industries. Our findings are consistent with these predictions, providing evidence that boards consider these industry factors when selecting the performance measures they incorporate in bonus plans.

We conduct additional tests to show that our findings are robust to alternative variable definitions and model specifications. For example, using several alternative summary cost shielding measures does not alter our inferences (e.g., using the actual bonus plan performance

<sup>&</sup>lt;sup>6</sup> We find that industry factors explain a substantial portion (roughly 23%) of boards' cost shielding choices.

measure weights), as well as when we base our tests on bonus plans for the firm's lowest-paid NEO rather than the CEO. Our inferences are also unchanged when we control for the number of performance measures in the executive's bonus plan indicating that our findings do not reflect a mechanical relation between cost shielding and the number of measures.

Our study contributes to the accounting and executive incentive-compensation literatures in four ways. First, we contribute to the literature on the role of bonus plans in implementing, incentivizing, and communicating corporate objectives (e.g., Armstrong et al., 2019a; Guay et al., 2019; Bloomfield, 2020). Contracts based on non-price performance measures allow boards to clearly communicate—internally and externally—and credibly commit to specific objectives. Cost shielding through the use of IS performance measures can provide meaningful and targeted incentives by encouraging executives to focus their efforts on achieving specific, directly actionable objectives (Murphy and Jensen, 2011). Thus, we respond to prior literature's call for research to explore the role of bonuses in motivating managers to focus their "efforts on performance measures more directly under their control" (Guay et al., 2019, p. 463).

Second, our study provides evidence of an important, but often overlooked, consequence of bonuses: namely their efficacy in counteracting myopic incentives. Prior literature frequently assumes that accounting-based bonus plans result in misbehavior (e.g., Healy, 1985). These studies suggest that accounting-based measures encourage myopic decision-making and that equity-based pay can discourage myopic behavior due to the forward-looking nature of market prices. In contrast, Stein (1989) shows that equity-based compensation—which accounts for the majority of most executives' monetary incentives (e.g., Core et al., 2003)—can induce myopic behavior. We show analytically how cost shielding within Stein's (1989) framework can mitigate the myopic behavior induced by equity incentives and provide corroborating empirical evidence that firms use cost shielding in executives' bonus plans to combat certain types of myopia. Our study suggests that, despite their relatively weak incentives, bonus plans complement the incentives from equity *vis-à-vis* mitigating managerial myopia (Hall and Liebman, 1998; Murphy and Jensen, 2011).

Third, our study contributes to the literature examining how boards change compensation contracts in response to the evolving nature of agency conflicts over a manager's tenure (e.g., Dechow and Sloan, 1991; Guay et al., 2019). In particular, we show that incoming executives are often protected initially from the sunk costs of their predecessors' prior investments, but are shielded less over their tenure as they become more responsible for the costs. These results are consistent with boards using cost shielding to encourage managers to disregard sunk costs to facilitate efficient stewardship of the firm's capital and other resources. However, such shielding is not a viable long-term solution, as it can undermine managerial discipline. Hence, managers are typically only shielded early in their tenure when most of the assets in place (and their associated costs that are recorded on the firm's income statement) reflect prior executives' decisions.

Finally, our study provides new insight into the measurement of the specific financial performance metrics included in executives' incentive-compensation plans and introduces several new measures of executive bonus plan characteristics. Although several studies find that boards use a diverse set of performance measures when evaluating executives (e.g., Banker et al., 2009; Indjejikian and Matějka, 2009; De Angelis and Grinstein, 2015), this literature typically relies on coarse classifications of performance measures, such as earnings versus cash flow and price versus non-price. As we show, these broad classifications mask much of the variation in executives' incentive-compensation contract design, and our new measures capture important differences in boards' choice of performance measure(s). Our results suggest that boards select IS performance measures in accordance with the incentive benefits of shielding executives from specific costs.

The remainder of this paper proceeds as follows. Section 2 discusses institutional features of our setting, related literature, and our empirical predictions. Section 3 describes our sample and measurement choices. Section 4 describes our research design and presents results. Section 5 provides concluding remarks.

## 2. Background and Empirical Predictions

## 2.1. Background on Bonus Plans

The purpose of executive bonus plans is not obvious given the significant incentives that executives have from equity portfolios. A long line of prior literature takes the position that a firm's primary objective is to maximize equity value and examines the role of executives' equity portfolios as incentivizing high effort while avoiding exposing executives to unnecessary risk (e.g., Holmström, 1979; Core and Guay, 1999). However, even if maximizing equity value is the end goal, equity incentives alone are unlikely to fully mitigate agency conflicts between executives and shareholders. In particular, while equity-based pay may be effective at eliciting managerial effort, executives face highly multidimensional choice sets and therefore broad objectives such as "maximize stock price" may be less effective at focusing managerial effort on the right actions. In line with this view, Murphy and Jensen (2011, p. 1) suggest that by incorporating performance measures more clearly linked to executive decisions, "bonus plans may well provide stronger incentives than equity-based plans, even when the magnitude of the payoff is smaller."

We conjecture that one of the primary functions of bonus plans is to facilitate productive executive action by (1) communicating actionable priorities to executives; and (2) rewarding executives for choosing actions that achieve these priorities. Thus, we do not view cash and equity compensation as competing with one another as efficient effort extractors. Rather, cash bonuses function as supplemental compensation to incentivize the achievement of more targeted goals compared to equity incentives, which provides less definitive guidance regarding the actions that managers should take (Paul, 1992; Murphy and Jensen, 2011). Although our view on the role of bonus plans is not conceptually new (e.g., Rogerson, 1997; Reichelstein, 1997; Murphy and Jensen, 2011), it differs from the theoretical underpinnings of most prior empirical work in the area, which largely examines bonus plan design through the lens of efficient risk-incentive tradeoffs (e.g., Lambert and Larcker, 1987; Sloan, 1993; Bushman et al., 1996; Ittner et al., 1997; Core et al., 2003).<sup>7</sup>

## 2.2. Background on Performance Measurement

Prior literature classifies the performance measures used in executive compensation contracts across a variety of dimensions. For instance, one of the most common classifications is stock price versus non-stock price-based measures, such as earnings (e.g., Lambert and Larcker, 1987; Sloan, 1993; Core et al., 2003; De Angelis and Grinstein, 2015). Another common classification differentiates between financial and non-financial performance measures (e.g., Bushman et al., 1996; Ittner et al., 1997; De Angelis and Grinstein, 2015), which represents a subclassification of non-price performance measures. These studies find that, similar to price-based measures, non-financial measures are given more weight when the firm has growth opportunities or noise in financial measures, such as when the firm has long product lifecycles. Some studies further classify financial performance measures by distinguishing between accrual-based and cash flow-based measures (e.g., Banker et al., 2009; Huang et al., 2017).

<sup>&</sup>lt;sup>7</sup> These channels are not mutually exclusive, nor do they represent an exhaustive list of the potential roles played by executive bonus plans—e.g., bonus plans can also facilitate team cohesion and mutual monitoring (e.g., Bushman et al., 2016; Guay et al., 2019).

These relatively coarse performance measure classifications typically ignore potentially important distinctions among different IS measures. For example, one board might choose to include net income as a performance measure in executives' bonus plans, while another might choose earnings before interest and taxes ("EBIT"). This heterogeneity in IS measures accounts for a large portion of the total variation in executive bonus plan performance measures. For example, while only 8% of bonus plans contain no IS measures, over 40% do not evaluate executives based on bottom-line net income, and plans based on other IS measures such as sales, EBITDA, and operating income are common (37%, 31%, and 14% of plans, respectively).<sup>8</sup> By ignoring these distinctions, prior studies discard a significant portion of the variation in performance measure choice.

We develop a new performance measure classification that focuses on variation among different IS measures (i.e., accrual-based financial performance measures). Using this classification, we examine how boards select from among different IS performance measures when designing executive bonus plans. Analyzing executives' bonus plan performance measures allows us to better understand boards' contract design intentions by focusing on their *ex ante* decisions regarding the specific expenses to include and exclude from these plans.

A common concern with examining performance measure choice is that the measure might be chosen after observing corporate performance. There are (at least) three types of deviations from the specified contract that are relevant. First, boards can remove unexpected gains or losses from performance measures *ex post*. This deviation could incentivize value enhancing actions, like restructuring a firm (Dechow et al., 1994), or be opportunistically used to asymmetrically include

<sup>&</sup>lt;sup>8</sup> These percentages do not sum to one because many firms incorporate multiple IS measures in their bonus plan (e.g., both sales and net income). In addition, the prevalence of IS measures in incentive plans is not limited to cash compensation, as performance-vested equity pay is also commonly based on IS measures (e.g., Bettis et al., 2018).

one-time gains and exclude one-time losses (Gaver and Gaver, 1998). More recently, Potepa (2020) and Curtis et al. (2020) both examine the determinants of *ex post* adjustments to performance measures in CEO bonus plans. They conclude that boards make *ex post* adjustments to earnings used for compensation purposes to mitigate the effect of unfavorable events that are outside of executives' control or less informative about future outcomes, although these adjustments are also frequently used to opportunistically increase executive bonuses.<sup>9</sup> Second, boards *ex post* could switch the performance measure; again, this switch could be an appropriate change to better measure effort or opportunism (e.g., "rigging" from Morse et al., 2011). Third, boards *ex post* could decide not to use an observable performance measure, e.g., discretionary bonus grants (Ederhof, 2010).

However, these *ex post* adjustments are unlikely to be a concern in our setting because we focus on the *ex ante* (i.e., pre-adjustment) performance measures in bonus plans, such as sales, earnings per share, or cash flows, which are typically chosen early in the firm's fiscal year. Specifically, incentive plans are typically established during the first three months of the fiscal year, at least in part to receive tax benefits that were available throughout our sample period. This institutional feature limits the concern that variation in performance measure choice captures opportunistic *ex post* selection of beneficial measures rather than boards' *ex ante* contracting objectives (e.g., Morse et al., 2011; Guest et al., 2019). We examine unadjusted IS performance measures that precede any of these potential *ex post* adjustments or discretionary bonuses, consistent with our interest in drawing inferences about boards' contract design intentions.

<sup>&</sup>lt;sup>9</sup> Specifically, Potepa (2020) examines the exclusion of nonrecurring items, such as gains or losses from the sale of assets or the early extinguishment of debt. Curtis et al. (2020) examine deviations from various earnings numbers in Compustat, including those that exclude certain costs, such as EBITDA or EBIT.

## 2.3. Empirical predictions

Variation in the choice of IS performance measures primarily reflects the extent to which boards choose to exclude particular expenses when evaluating executives. Importantly, shielding executives from particular costs is a way of assigning them less weight rather than ignoring them entirely. A manager with a sales revenue objective will almost always also have at least one earnings-based metric, as well as substantial equity incentives. Thus, the manager will still have incentives to minimize costs. The addition of a sales metric partially "shields" the manager from these costs, effectively reducing the weight on costs in the manager's objective function. However, the costs would only receive no weight in the extreme case where the manager's incentives are based solely on revenue, which is unlikely to be the case for senior executives of large public companies.

We focus on two channels through which cost shielding can resolve residual agency conflicts. First, we examine whether timing differences between costs and their associated benefits influence the extent to which bonus plans incorporate cost shielding. Shareholders and executives often have different time horizons since the latter tend to be more myopic than the former (e.g., Stein, 1989; Dechow and Sloan, 1991; Laverty, 1996; Grinyer et al., 1998; Chen et al., 2015). If this divergence in time horizons is not addressed, executives can have incentives to take actions that increase short-term profits at the expense of long-term firm value. For example, executives may neglect efficient R&D or advertising because the cost of these investments is recognized until they are realized, which typically occurs far in the future (e.g., Stein, 1989).

In Appendix A, we develop a simple model in a modified Stein (1989) framework that shows that insulating managers from these investment costs (i.e., cost shielding) can be an efficient way to counteract these myopic incentives and induce first-best investment levels. Thus, we expect that boards are more likely to shield executives from R&D and advertising costs when these particular costs are a more prevalent aspect of the firm's strategy.

The same economic forces apply in other decision contexts where current versus future profits can be traded off inefficiently. For example, by considering current sales volume as an "investment" in future demand (e.g., Klemperer 1987; Villas-Boas, 2004; Freimer and Horsky, 2008; Dubé et al., 2009; 2010), myopic "borrowing" can be achieved by setting higher than optimal product prices. In other words, setting higher prices can boost current profitability at the expense of long-term profitability. Stein (1989) discusses the issue as follows:

"[p]ricing decisions are another area where invisible investment is likely to be important. If switching costs (see Klemperer [1987]) are substantial, firms can "invest" in market share via temporarily reduced prices and profits. In this setting, "myopia" would mean setting prices too high" (Stein, 1989, p. 658).

At mature firms with established product lines and customer bases, the divergence between the near-term and long-term profit-maximizing actions is likely to be muted. For younger firms, and those with greater growth options, the divergence is likely to be more pronounced. Accordingly, we expect that cost shielding is more prevalent among high growth or younger firms.

Horizon mismatches between executives and shareholders can also arise during periods of heightened external scrutiny. For example, pending investigations by regulatory agencies or shareholder litigation often create myopic pressure on executives, as these circumstances generate significant uncertainty regarding managers' long-term prospects at the firm (Amiram et al., 2018). Thus, managers in these situations are likely to place greater emphasis on improving near-term results, even if doing so results in negative longer-term consequences, as their tenure will often terminate prior to the realization of these consequences. Based on this reasoning, we expect cost shielding to be more prevalent in situations where regulatory or legal concerns encourage managers to behave more myopically.

Although cost shielding can be useful for mitigating certain agency conflicts, it is unlikely to be effective in every circumstance that entails myopic behavior. For example, shielding a manager from investment-related costs could encourage overinvestment. Shielding the manager from these costs will be helpful for achieving a more efficient level of investment if existing frictions push towards underinvestment. In contrast, cost shielding would be an ineffective approach to solving the agency problems underlying overinvestment—such as empire building cost shielding would exacerbate such agency conflicts.

For our second prediction, we consider how managers' bonus plans can be structured to shield them from sunk costs. Through targeted cost shielding, managers can be shielded from sunk costs and have incentives that are more closely aligned with shareholders' preferences. For example, EBITDA-based bonuses shield managers from depreciation expenses, but not, for example, from material costs. Thus, shielding a manager from depreciation expense can in fact enhance managers' motivation to control material costs. In contrast, if sunk costs are instead included in these managers' compensation contracts, they will internalize these costs and may be encouraged to inefficiently liquidate the assets in order to avoid these associated costs (e.g., Reichelstein, 1997; Rogerson, 1997; Wagenhofer, 2003). Although cost shielding could initially facilitate better stewardship of assets in place, long-term cost shielding could be detrimental if managers do not believe they will ever be held responsible for the costs associated with their own investment decisions. Thus, we predict greater cost shielding in the early years of a manager's

tenure when more of the firm's capital stock is inherited from their predecessor—particularly for externally-hired managers who would not have been involved in previous investment decisions.<sup>10</sup>

One reason the preceding prediction may not hold is that shielding newly-appointed managers from previous management's actions may discourage efforts to assess or actively address the ongoing effects of these prior decisions. For example, if the board terminated the outgoing CEO for poor cost control, it might want to expose the incoming CEO to both prior and future costs to encourage the newly-hired CEO to focus on controlling both costs. Thus, to the extent that boards are primarily concerned with encouraging control over pre-existing costs, we may not find the relations with cost shielding that we would otherwise expect.

## 3. Sample, Variable Measurement, and Descriptive Statistics

#### 3.1. Sample construction and variable measurement

We obtain data on CEO cash bonus plans for 8,000 firm-years between 2006 and 2017 from Incentive Lab, comprising 1,442 distinct firms.<sup>11</sup> These data are from firms' proxy statements. Appendix B provides an illustrative example of the performance measures and outcomes in Macy's 2016 executive bonus plan, as disclosed in its proxy statement. This example illustrates how boards intend for IS performance measures to help align executive incentives with the firm's strategic objectives. For example, Macy's measures performance with sales and EBIT and writes, "[t]he EBIT measure focuses the executives on maximizing operating income [...] Sales, a priority for retailers, are a measure of growth [...] The heavier weighting for the EBIT and sales objectives [relative to cash flows] reflects our emphasis on profitable growth." We

<sup>&</sup>lt;sup>10</sup> For example, a recently hired executive typically inherits a capital stock and cost structure that does not reflect his or her own investment decisions, but rather those of previous managers (Wagenhofer, 2003).

<sup>&</sup>lt;sup>11</sup> Our results are qualitatively similar—i.e., of the same sign and statistically significant—if we also include performance-vested equity grants in our analysis.

supplement the Incentive Lab data with financial data from Compustat, stock price data from CRSP, executive compensation and tenure data from Execucomp, and data on the number of firms' new and existing products from FactSet Revere.<sup>12</sup> We winsorize all continuous variables at 1% and 99%.

To test our empirical predictions on the use of cost shielding in bonus plans, we define indicator variables for each firm-year observation based on the presence of each of the four most common IS performance metrics: *Earnings Metric*, *EBIT Metric*, *EBITDA Metric*, *Sales Metric*. For example, *Sales Metric* equals 1 if the plan contains a sales measure and 0 otherwise.<sup>13</sup> Because most bonus plans contain multiple performance measures, it is possible (and common) for multiple indicator variables to equal 1 for a given firm-year.

We then construct a firm-year summary measure of the degree of cost shielding in the executive's bonus plan, *Cost Shield*, by aggregating these four indicator variables. Specifically, for each performance measure included in the bonus plan, we first define a categorical variable based on the degree of cost shielding associated with the measure. We set the categorical variable equal to 3 for sales metrics, 2 for EBITDA metrics, 1 for EBIT metrics, and 0 for earnings and other metrics.<sup>14</sup> We then compute *Cost Shield* as the firm-year average of these categorical variables, such that greater values of *Cost Shield* correspond to a greater overall degree of cost shielding. For instance, a company that includes both EBITDA and Sales in its CEO's annual

<sup>&</sup>lt;sup>12</sup> We collect information on CEO tenure missing from Execucomp directly from firms' annual proxy statements obtained through the SEC's EDGAR website.

<sup>&</sup>lt;sup>13</sup> We classify Incentive Lab metrics coded as "Earnings," "EPS," "Profit Margin," "ROA," "ROE," "ROIC," and "EVA" as an *Earnings Metric*, metrics coded as "EBIT" or "Operating Income" as an *EBIT Metric*, metrics coded as "EBITDA" as an *EBITDA Metric*, and metrics coded as "Sales" as a *Sales Metric*. Sales, EBITDA, EBIT, and earnings metrics in our sample account for 71% of all bonus plan financial measures.

<sup>&</sup>lt;sup>14</sup> Most of these "other" financial metrics provide little or no cost shielding (e.g., balance sheet measures, market capitalization, etc.) that tend to reduce the weight on cost shielding in the bonus plan. Our results are robust to omitting all "other" metrics before taking the firm-year average of these indicators.

bonus plan would receive a *Cost Shield* value of (2+3)/2 = 2.5 for that firm-year, and a company that only includes net earnings in its CEO's annual bonus plan would receive a *Cost Shield* value of 0 for that firm-year. Consistent with prior work, in Table OA1 we find that boards tend to choose IS measures which are less volatile.<sup>15</sup>

Our *Cost Shield* measure implicitly assumes that all metrics in the bonus plan receive equal weight. We assess the sensitivity of our results to this measurement choice in the Online Appendix Table OA4 and OA5 (which we discuss in Section 4.5). In these analyses, we find similar results when computing our firm-year summary measure based on (i) the weights on individual performance measures provided in the firm's proxy statement, (ii) the magnitude of the costs excluded from the bonus plan (e.g., interest and tax expense for a plan that only uses EBIT), and (iii) the median or maximum cost shielding present in the executive's performance measures. We do not use these as our primary cost shielding measures for several reasons. First, performance measure weights are not always disclosed and therefore our resulting sample would be considerably smaller and limit our generalizability. Moreover, focusing on indicators comports with other studies using Incentive Lab data (e.g., Ma et al., 2019; Bloomfield, 2020). Second, actual cost magnitudes are potentially endogenous outcomes of the cost shielding decisions and so can obscure boards' *ex ante* contract design intentions. Third, the equal weighting that our main

<sup>&</sup>lt;sup>15</sup> A large body of prior work documents that performance measure usage is decreasing in the volatility of the performance measure, and interprets this as evidence supporting Holmström's (1979) "informativeness principle," which holds that a metric's contracting usefulness diminishes as it becomes a noisier signal of an agent's actions (e.g., Lambert and Larcker, 1987; Sloan, 1993; Bushman et al., 1996; Ittner et al., 1997). However, as noted in prior literature, volatility is jointly affected by both uncontrollable noise and business decisions (e.g., Bushman et al., 1996). As an empirical matter, disentangling these two is difficult, and there is no universally agreed upon measure of uncontrollable noise in the academic literature.

summary measure assumes reflects the most common weighting scheme in bonus plans (e.g., De Angelis and Grinstein, 2015).<sup>16</sup>

## *3.2. Descriptive statistics*

Table 1 presents descriptive statistics for our sample. All variables are defined in Appendix C. The mean (median) bonus plan includes 2.27 (2) IS metrics. However, the mean plan includes 1.01 "bottom-line" earnings metrics (e.g., earnings per share, return on assets, net earnings, etc.), while the remaining metrics in the plan shield the executive from some or all costs. Consistent with boards often shielding executives from some costs, the mean (median) value of *Cost Shield* is 0.73 (0.67). Cost shielding also differs substantially across industries, as Figure 1 illustrates; cost shielding is lowest in the utilities and financial industries, and highest in the healthcare and telecommunication industries.<sup>17</sup> Sales metrics (i.e., maximum cost shielding), are the most common form of shielding executives from costs, with an average of 0.50 metrics per plan. The next most commonly used metric, EBIT, shields executives from interest and tax costs, and the average plan includes 0.44 of these metrics that insulate executives from non-operating costs.<sup>18</sup> Collectively, these results indicate that classifying measures simply as "earnings-based," as is common in prior literature, discards much of the underlying variation in boards' incentive design choices.

In untabulated analyses, we find that the IS measures examined in Table 1 are the most common form of performance measure incorporated into bonus plans and correspond to

<sup>&</sup>lt;sup>16</sup> Furthermore, as discussed in Section 4.5, we also find that our inferences are also unchanged when we control for the number of performance measures in the executive's bonus plan by including fixed effects for the number of performance metrics, and therefore our findings do not reflect a mechanical relation between cost shielding and the number of performance measures included in a bonus plan.

<sup>&</sup>lt;sup>17</sup> We examine potential explanations for this industry-level heterogeneity in more detail in Section 4.4.

<sup>&</sup>lt;sup>18</sup> Costs shielded from bonus plans represent an economically important component of firms' earnings. In Table OA5 Panel A, we tabulate descriptive statistics on the magnitudes of the costs shielded from bonus plans and find the average interest & tax expense and depreciation & amortization expense represent 182% and 148% of earnings, respectively.

meaningful levels of variable cash pay. Specifically, IS measures account for 75% of the total 2.99 financial performance measures included in the average plan. IS measures are also the most important determinant of bonus payouts, accounting for the vast majority of total bonus pay. The average realized bonus pay tied to IS measures is \$1.44 million, with \$800 thousand tied to IS measures that shield some costs. These amounts represent 18% and 10%, respectively, of mean total pay in our sample of \$7.98 million (untabulated).

Figure 2 Panels A and B plot the annual average number of individual IS measures included in executive bonus plans during our sample period, while Panel C plots the annual average of our summary *Cost Shield* measure over the same period.<sup>19</sup> Over this time period, we find that executive bonus plans trended away from including bottom-line earnings and toward measures that offer a greater degree of cost shielding, such as sales or EBITDA, resulting in a nearly 40% increase in the average value of *Cost Shield* between 2006 and 2017. Specifically, in 2006, the mean number of EBIT and EBITDA metrics in bonus plans were about 0.33 and 0.15, respectively, while the mean number of bottom-line earnings metrics was slightly more than one. By 2015, the average bonus plan had about 0.43 EBIT and 0.28 EBITDA metrics (increases of about 30% and 90%, respectively), and about 0.86 bottom-line earnings metrics (a decrease of about 15%).<sup>20</sup>

Table 2 Panel A presents correlations for changes in the use of these metrics. We find negative correlations between all earnings-based metrics (i.e., EBITDA, EBIT, EBT, and Earnings), suggesting that boards tend to substitute among these measures. In contrast, we find a strong, positive correlation between sales metrics and earnings-based metrics, consistent with boards viewing sales as distinct from other earnings-based measures. This finding is consistent

<sup>&</sup>lt;sup>19</sup> In Panel B of Figure 1, all metrics are indexed at (i.e., begin at) 100%.

<sup>&</sup>lt;sup>20</sup> These changes in EBITDA usage are consistent with evidence from Huang et al. (2017) and Bettis et al. (2018).

with the notion that two broad classifications of performance metrics exist: primary and supplemental (e.g., Bloomfield, 2020). Earnings tend to be primary, while other measures, like revenue, tend to be supplemental. We observe negative correlations among primary metrics and positive correlations between primary and supplementary metrics, which is mostly driven by contract complexity.<sup>21</sup> In particular, most bonus plans, no matter how complex, have at least one primary (i.e., earnings) metric. Where they tend to differ is with respect to how many supplemental metrics are included. We observe in the data from 0 to 10 distinct financial performance metrics. More complicated plans are therefore more likely to have both a second earnings metric and additional supplementary metrics, such as revenue.

In Table 2 Panel B, we further explore these patterns by examining transition matrices for IS-based metrics. Specifically, we examine whether, conditional on a change in one specific IS-based metric (e.g., sales, EBITDA, etc.), boards are more likely to add or remove another IS-based metric. We find that boards are more likely to remove (add) earnings-based metrics when sales metrics are removed (added), consistent with such earnings- and sales-based measures complementing each other. In contrast, for each earnings-based metric, we find a higher likelihood of removing (adding) an existing earnings-based metric when a new earnings-based metric is added (removed). Overall, these descriptive findings suggest that boards tend to substitute earnings-based measures for each other but view sales measures as distinct from, and supplemental to, earnings-based measures.

<sup>&</sup>lt;sup>21</sup> In untabulated analyses, we find that all other financial performance measures are also positively correlated with both the use of and changes in the use of the earnings-based metrics we examine (10% and 16%, respectively). However, when we control for contract complexity using fixed effects for the number of metrics in the bonus plan, we find significantly negative associations between all types of IS performance measures.

## 4. Empirical Tests and Results

To test our theoretical predictions, we estimate a series of regressions of the following form:

$$Cost Shield_{i,t} = \alpha + \beta_1 Contracting Value_{i,t-1} + \beta_2 Ln(MVE)_{i,t-1} + \beta_3 Idio Vol_{i,t-1} + \beta_4 BTM_{i,t-1} + \beta_5 Ln(Firm Age)_{i,t} + \beta_6 Free Cash Flow_{i,t-1} + \beta_7 Ln(Delta)_{i,t-1} + \beta_8 Ln(Tenure)_{i,t} + \psi_j + \delta_t + \varepsilon_{i,t},$$
(1)

where *i* indexes the firm, *t* indexes the year, and *j* indexes the firm's industry. *Contracting Value* is a measure of a factor that our theoretical predictions suggest would increase or decrease the contracting value of a particular IS performance metric. We estimate this model using five different dependent variables, each reflecting the extent of bonus plan cost shielding. In the first specification, we use our main measure, *Cost Shield*, which summarizes the overall extent of cost shielding. In subsequent specifications for these tests, we decompose the aggregate cost shielding measure into its constituent parts in the following variant of Eq. (1):

$$\begin{aligned} \text{Measure}_{i,t} &= \alpha + \beta_1 \text{ Contracting Value}_{i,t-1} + \beta_2 \text{Ln}(MVE)_{i,t-1} + \beta_3 \text{ Idio Vol}_{i,t-1} \\ &+ \beta_4 \text{BTM}_{i,t-1} + \beta_5 \text{Ln}(\text{Firm Age})_{i,t} + \beta_6 \text{Free Cash Flow}_{i,t-1} + \beta_7 \text{Ln}(\text{Delta})_{i,t-1} \\ &+ \beta_8 \text{Ln}(\text{Tenure})_{i,t} + \Gamma \text{ Other Measures}_{i,t} + \psi_j + \delta_t + \varepsilon_{i,t}, \end{aligned}$$

$$(2)$$

and estimate the model separately for all four individual IS performance metrics as the dependent variable—i.e., *Measure* equal to *Sales Metric, EBITDA Metric, EBIT Metric,* or *Earnings Metric*— which allows us to assess which particular components of our aggregate *Cost Shield* measure drive our main results.<sup>22</sup>

<sup>&</sup>lt;sup>22</sup> For parsimony, we omit the least common IS performance measure, *EBT Metric*, in our regression analyses. In untabulated tests, we also estimate Eqs. (1) ands (2) including *EBT Metric* as a component of *Cost Shield* or as a separate dependent variable. Our inferences regarding how cost shielding considerations influence boards' choices of performance measures are qualitatively similar—i.e., of the same sign and statistically significant.

Consistent with prior incentive-compensation contract design literature (e.g., Guay et al., 2019), we also control for a standard set of firm and CEO characteristics: book-to-market (*BTM*), firm age (*Ln*(*Firm Age*)), size (*Ln*(*MVE*)), idiosyncratic stock volatility (*Idio Vol*), free cash flow (*Free Cash Flow*), CEO equity portfolio delta (*Ln*(*Delta*)), and CEO tenure (*Ln*(*Tenure*)).<sup>23</sup> We use the lagged values of each of these firm-level variables (other than CEO tenure), as they are measured at year-end and bonus contracts are typically determined early in the firm's fiscal year. That is, the bonus contract for year *t* is determined near the beginning of year *t* and therefore measures as of the end of year *t-1* represent the most recent values observable by the board at the time that the bonus plan is designed. Given that Figure 1 and Figure 2 indicates the relative frequency of specific IS measures varies across industry and has changed over the past 10 years, we also include industry and year fixed effects— $\psi_j$  and  $\delta_t$ , respectively—to account for common cost shielding within an industry and over time in contract design unrelated to our measures of contracting value.

When estimating Eq. (2), where the outcome variable is an indicator for a particular ISbased metric, we also control for the presence of the other IS-based metrics (*Other Measures*). For example, when the outcome variable is *Sales Metric*, we include controls for *EBITDA Metric*, *EBIT Metric*, and *Earnings Metric*. These controls are important because the metrics included in the bonus plan are jointly determined. For example, a firm may choose to compensate its executives with EBITDA-based pay to shield them from the financing and depreciation costs that investments require. Such a firm may also be less likely to use EBIT-based pay because EBIT and EBITDA act as substitutes. More generally, the choice of one earnings-based metric may indirectly

<sup>&</sup>lt;sup>23</sup> We take the natural log of size, CEO equity portfolio delta, and CEO tenure in our empirical tests, unless otherwise noted, due to the skewed nature of these variables (e.g., Core and Guay, 2002).

affect the use of other earnings-based metrics, like EBITDA and EBIT in this example, if boards perceive the various IS metrics to be complements or substitutes.

Given the joint determination among chosen metrics (as documented in Table 2), one concern with this is that controlling for other metrics can bias the estimated coefficients, because our tests identify the relation between economic circumstances and the use of a given metric, conditional on the other metrics included in the bonus plan (see: e.g., Gow, Larcker, and Reiss, 2016; Armstrong and Kepler, 2018). To assess the sensitivity of our inferences to this design choice, we further estimate these models without controls for the presence of other income statement metrics. We find similar results across all analyses, suggesting any potential simultaneity is unlikely to be a major concern in these tests. We tabulate these results in the Online Appendix, Table OA2.

## 4.1. Scope of managerial myopia: Horizon mismatch between managers and shareholders

Our first prediction is that cost shielding is more prevalent in situations where timing mismatches between upfront costs and delayed benefits are more prevalent. To test this prediction, we estimate Eqs. (1) and (2) using three sets of measures for potential timing mismatches between the costs and benefits of the firm's investments.

In our first set of tests, we use R&D and advertising intensity (defined as R&D expense and advertising expense scaled by total assets—*R&D Investment* and *Advertising Investment*, respectively) as our measures of *Contracting Value*. These expenditures tend to generate expected benefits over longer horizons than the timing of expense recognition (e.g., Hirschey, 1982; Hirschey and Weygandt, 1985). Table 3 presents results. In column 1, we find a significant positive relation between both *R&D Investment* and *Advertising Investment* and *Cost Shield*. Moreover, columns 2 through 5 suggest that this result arises from a shift away from the use of any earnings metrics, which include both R&D and advertising expenses, to the use of sales metrics, which exclude these expenses.<sup>24</sup>

In our second set of tests, we use two (inverse) measures for firm growth opportunities, Firm Age and Book-to-Market (e.g., Smith and Watts, 1992; Shin and Stulz, 1998; Armstrong et al., 2019b). Table 4 presents results. In column 1, we find that *Cost Shield* has a significant negative correlation with both Firm Age and Book-to-Market. When we decompose cost shielding into its component parts in columns 2 through 5, we find that the coefficients on *Book-to-Market* increase monotonically as the amount of cost shielding in the performance metric decreases (i.e., boards tend to progressively exclude more expenses as growth opportunities increase), while the coefficients on Firm Age are relatively consistent and negative in columns 2 through 4 and significantly positive in column 5. In other words, the usage of individual measures that shield executives from any costs-i.e., sales, EBITDA, and EBIT-are all negatively correlated with Firm Age, while earnings metric use, which involves no cost shielding, is positively correlated with *Firm Age*. To provide a sense of the economic magnitudes of these relations, a one standard deviation increase in *Firm Age (Book-to-Market)* is associated with a 4% increase (16% decrease) in Cost Shield relative to its sample mean. Examining individual metrics, a one standard deviation change in Firm Age (Book-to-Market) is related to a 3% (9%) decrease in the use of earnings (sales) metrics in incentive contracts.

Third, we consider the relation between cost shielding and firms' exposure to negative scrutiny from outsiders by estimating Eqs. (1) and (2) using *SEC Investigations*, after obtaining

Across each of our tests, we control for executives equity portfolio incentives (Log(*Delta*)) and find that equitybased incentives do not tend to co-move with cost shielding, consistent with Guay et al.'s (2019) finding that bonus and equity incentives are uncorrelated but intended to target different objectives. Moreover, in untabulated analyses we split the sample at the median CEO equity portfolio delta and do not find statistically significant differences across subsamples on the coefficients of interest, suggesting that cost shielding can be a valuable contracting mechanism irrespective of the magnitude of equity incentives.

raw data on all closed SEC investigations during our sample period from Blackburne et al. (2020) (see, also, Blackburne and Quinn, 2018), and Class Action Litigation, after obtaining data on all securities class action lawsuits during the same period the Stanford Law School Securities Class Action Clearinghouse (e.g., Fich and Shivdasani, 2007; Karpoff et al., 2017), as our measures of Contracting Value. We present these results in Table 5. As in prior tables, column 1 presents estimates for our main specification with our aggregate measure, Cost Shield; the coefficient estimate for SEC Investigation is 0.085, which is positive and statistically significant. Thus, firms and managers under investigation by the SEC during the year have 12% more cost shieldingrelative to the sample mean of Cost Shield-than firms and managers not under investigation. For Class Action Litigation, we find a weak positive relation with cost shielding. Firms experiencing lawsuits have 13% more cost shielding than the average firm in our sample. When we examine specific metrics, we find that SEC Investigations is positively correlated with the use of sales metrics. Other measures are not individually correlated with SEC Investigations or Class Action Litigation. Collectively, our results in Tables 3 through 5 provide consistent evidence that boards use more cost shielding when the potential scope for managerial myopia is greater, such as when upfront costs are expected to generate future benefits, and suggests that boards proactively shield managers from these costs (e.g., Stein, 1989; Dechow and Sloan, 1991).

#### *4.3. Executive tenure*

Our second empirical prediction is that new CEOs are shielded from sunk costs (e.g., depreciation expense) to prevent these economically irrelevant costs from factoring into managerial decisions. Before formally testing this prediction, we first examine trends in metric usage over the course of CEOs' tenure graphically. Specifically, we plot the average number of Sales, EBITDA, EBIT, and Earnings performance metrics separately for each year of CEO tenure

in our sample. These patterns are presented in Figure 3. Panel A presents the unscaled average number of metrics, Panel B presents the average number of metrics as a percentage of the average usage for a new CEO, and Panel C presents the average of our aggregate measure of cost shielding.<sup>25</sup> We find that, over the first 10 years of a CEO's tenure, the inclusion of Sales, EBIT and Earnings metrics in bonus plans remains fairly stable. In contrast, the use of EBITDA declines substantially over tenure, falling by roughly 50% over a 10-year period, resulting in a general trend of less cost shielding over the course of an average CEO's tenure.

In our next set of analyses, we examine the dynamics of cost shielding over the first several years of a new CEO's tenure, and, specifically, whether cost shielding tends to decrease over the course of a CEO's tenure. Similar to our turnover tests, we formally test this prediction by estimating Eqs. (1) and (2) using *CEO Tenure* as our measure of *Contracting Value*. Specifically, we create separate indicators for whether the CEO is in his or her first two years, third through fifth years, or sixth through eighth years of tenure (*CEO Tenure Years 0-2, CEO Tenure Years 3-5,* and *CEO Tenure Years 6-8,* respectively).<sup>26</sup> The excluded category is CEOs with nine or more years of tenure, so the interpretation of any coefficient is the amount of cost shielding relative to these long-tenured CEOs. If newer CEOs are more likely to be shielded from costs, we should observe that shorter-tenured CEOs (e.g., those with *CEO Tenure Years 0-2* equal to 1) have higher levels of cost shielding and are more likely to have metrics that exclude costs that tend to be out of their control, such as depreciation (e.g., sales or EBITDA metrics).

Table 6 Panel A presents the results from estimating Eqs. (1) and (2) with *CEO Tenure Years 0-2, CEO Tenure Years 3-5*, and *CEO Tenure Years 6-8* as our measures of *Contracting* 

<sup>&</sup>lt;sup>25</sup> In Panel B of Figure 3, all metrics are indexed at (i.e., begin at) 100%.

<sup>&</sup>lt;sup>26</sup> In untabulated tests, we also split our CEO tenure variable at the sample mean or median (i.e., CEOs with tenure greater than seven or five years, respectively), and find qualitatively similar results—i.e., of the same sign and statistically significant—for each of these tests under this alternative measurement choice.

*Value*. We omit our linear control for the natural log of CEO tenure in this specification. In column 1, we document more cost shielding for newer CEOs using our *Cost Shield* measure as the dependent variable. The extent of cost shielding decreases monotonically as the tenure increases, with the coefficients falling from 0.103 to 0.083 to 0.061 as tenure length increases from 0-2 years to 3-5 years to 6-8 years.

When we examine individual performance measures, we find our results for *Cost Shield* are predominately driven by greater use of EBITDA incentives among newer CEOs. These findings are consistent with the notion that relatively newly hired CEOs are shielded from depreciation expenses (i.e., evaluated based on EBITDA) because such expenses are likely the result of prior CEOs' actions. In particular, early in a CEO's tenure, depreciation expenses are often largely driven by fixed asset investments made by prior CEOs. While our prediction regarding cost shielding over executive tenure is perhaps the most intuitive in the context of EBITDA (where our result appears to be the strongest), depreciation expenses are unlikely to be the only ones that result from prior executives' actions. For example, EBIT might be useful for shielding a new CEO from interest expense that relates to capital structure choices made by prior executives. However, we do not find evidence of greater reliance on EBIT for newer CEOs.

To provide further evidence that our findings reflect boards' considerations over the controllability of specific costs when designing bonus plans, we differentiate between internally promoted and externally hired CEOs. The intuition behind these tests is that externally hired CEOs are unlikely to have had any control over the firm's prior investments. In contrast, because internally promoted CEOs were part of the existing management team prior to their installment as CEO, they often share at least some responsibility for—i.e., had at least some control over—prior investments and hence should tend to face greater accountability for historical costs than externally

hired CEOs do. Thus, the cost shielding patterns that we observe in Table 5 Panel A should arise primarily for externally hired CEOs.

We test this prediction by estimating Eq. (1) separately conditional on whether the firm's current CEO was internally promoted or externally hired (i.e., External Hire = 0 or External Hire = 1, respectively). Table 6 Panel B presents the results. We find that the negative relation between CEO tenure and cost shielding exists for both internally and externally hired CEOs in columns (1) and (2), respectively. However, this relation is significantly stronger for externally hired CEOs those *least* likely to have played any role in determining prior investment and financing decisions that determine the cost structure on the income statement. Within the first two years of a CEO's tenure, the CEO's short tenure has roughly four times the impact on cost shielding for externally hired CEOs. (0.291 vs. 0.072; untabulated *p*-value of the difference in coefficients < 0.05). Over years 3-5 and 6-8, externally hired CEOs continue to receive greater levels of cost-shielding, but the extent of the external versus internal disparity falls monotonically over time and becomes statistically insignificant by years 6-8. These results suggest that external hires, who are likely to have had little or no responsibility for previous decisions, are more likely to be initially shielded from pre-existing costs, such as depreciation on an existing capital stock. However, both types of CEOs eventually come to bear responsibility for all of the firm's costs as their tenure (and hence degree of responsibility) grows.

In addition to CEOs bearing responsibility over corporate performance, cost responsibility tends to be shared across the top management team. Turnover at lower ranks of the management team is therefore likely to create similar situations in which the firm's current cost structure does not reflect the current management team's choices. Guay et al. (2019) discuss how an important role of bonus plans is focusing the management team on a common set of objectives for which the team as a whole bears responsibility. Accordingly, we expect boards to consider the stability of the entire top management team, rather than only CEO-level turnover, when determining the appropriate level of cost shielding in executive bonus plans.

We test this prediction by estimating Eq. (1) using two measures of top management team stability as our measures of *Contracting Value: Top Management Team Length*, defined as the number of consecutive years the management team remains the same, where the count begins in the first year the firm enters the Execucomp sample (the end of the management team occurs when two of the original team members leave the team); and *Top Management Team Turnover*, defined as the proportion of the total number of top management team members who are not identified in the top management team during the following fiscal year (Bushman et al., 2016; Guay et al., 2019). Table 7 presents the results. Consistent with our prediction, we find a significantly negative relation between cost shielding and *Top Management Team Turnover*. In other words, greater top management team stability (i.e., longer team lengths or a lower probability of turnover) is associated with less cost shielding, as the management team as a whole is likely to bear more responsibility for the firm's cost structure in these circumstances.

#### 4.3. Shock to contracting value: CEO turnovers due to unexpected health-related causes

If firms with longer versus shorter tenured CEOs differ systematically in ways relevant to cost shielding, this could confound our tests. To address this concern, we examine CEO departures due to unexpected health-related causes (e.g., illness, death; Fee et al., 2013). These turnovers for health reasons are unlikely to be related to firm or manager characteristics that drive bonus plan design prior to the executive's departure and therefore plausibly exogenous. Thus, similar to our previous discussion, the contracting value of cost shielding for the incoming CEO is likely to be

greater because he or she is less likely to have control over the firm's current cost structure and investments.<sup>27</sup> We hand collect data on CEO departures due to death or other health-related reasons by manually examining press releases surrounding the announcement of each departing CEO in our sample. Using this data, we estimate a variation of Eq. (1) using an indicator for *CEO Health/Death Turnover* as our measure of contracting value.

To enhance identification in this specification, we augment Eq. (1) with firm fixed effects in addition to year fixed effects. With the addition of firm fixed effects, the analysis measures time series changes in cost shielding around these CEO turnover events benchmarked against other within-firm year-over-year changes in cost shielding. Table 8 presents results. We find that, when focusing on within-firm variation, CEO departures due to unexpected death or other health-related reasons are associated with an increase in cost shielding in the subsequent CEO's bonus plan. So long as the health/death events are uncorrelated with omitted determinants of cost shielding, this analysis provides complementary causal evidence on the relation between executive turnover, boards' contract design intentions, and cost shielding—and in particular, indicates that new CEOs tend to receive a significantly elevated degree of cost shielding in their first year at the firm.

## 4.4. Heterogeneity: Compensation consultants and industry-level forces

Our findings thus far provide evidence that boards view firm-level scope for managerial myopia and sunk costs as important considerations when selecting performance measures for executive bonus plans. Next, we consider the role of two broader influences in compensation

<sup>&</sup>lt;sup>27</sup> Some characteristics of the incoming CEO will be endogenously determined by his or her selection to replace the unexpectedly departing CEO. These characteristics may be associated with the performance measures in the bonus plan and, thus, this setting may not be an ideal experiment. To investigate whether these incoming CEOs tend to systematically differ from other newly appointed CEOs, we compare their observable characteristics (i.e., age, gender, realized tenure, and equity incentives), to new CEOs in other settings where the CEO recently departed (i) for any reason or (ii) because he or she was forced to resign (e.g., Peters and Wagner, 2014; Jenter and Kanaan, 2015). We find no differences in these characteristics for new CEOs appointed after the prior CEO departed due to unexpected health causes versus any other reason, suggesting the new CEOs appointed following the departure of a CEO for health causes do not appear to differ on observable characteristics.

practices—namely industry characteristics and compensation consultants. As Figure 1 illustrates, we find substantial between-industry heterogeneity in cost shielding, which our research design thus far has abstracted away from (i.e., via the inclusion of industry fixed effects). Furthermore, prior research suggests that compensation consultant preferences can also be an important factor in compensation design (e.g., Ma et al., 2019).

To explore the potential role of industry-level characteristics and compensation consultants in bonus plan cost shielding, we first conduct an analysis of the relative importance of these factors in explaining the overall variation in cost shielding. Specifically, we perform an analysis of variance (ANOVA) to decompose variation in cost shielding into between- and within- year, industry, firm and compensation consultant variation. Table 9 presents the results and indicates that a substantial portion of the overall variation in cost shielding (about one-quarter) arises between industries, suggesting that industry-wide factors could be important determinants of boards' cost shielding decisions. In contrast, between-compensation consultant variation explains much less of the overall variation in cost shielding (less than 10 percent). Moreover, compensation consultants only add an incremental 4% explanatory power over and above industry fixed effects. Thus, while consultants may help with identifying peer firms or providing data for comparison, our analysis suggests that they have a more limited role in performance measure selection.<sup>28</sup> Lastly, despite the graphical time trend in cost shielding observed in Figure 2, year fixed effects explain only 1% of the observed variation in cost shielding.

Based on these findings that industry effects capture a considerably larger source of variation in cost shielding choices compared to compensation consultants or time trends, we

<sup>&</sup>lt;sup>28</sup> In untabulated analyses we find that our results are qualitatively similar—i.e., of the same sign and statistically significant—when including compensation consultant fixed effects in our empirical models.

further investigate the role of industry-level factors by examining the association between industry-level differences in potential scope for myopic behavior and cost shielding. Stein (1989) argues that when firms introduce new products or attempt to gain market share, firms may be best served by sacrificing current-period profits by lowering prices below the current-period profitmaximizing level in exchange for future benefits (e.g., developing a loyal customer base). However, a myopic manager may be reluctant to sacrifice current period profits, and thus "underinvest" in generating future sales by keeping prices too high. We posit that cost shielding can be an effective approach to addressing this issue; by shielding managers against the greater total costs associated with lower prices (as a result of greater sales volume), cost shielding can induce managers to set lower prices.<sup>29</sup> We therefore expect industries with more new product launches—where myopic managers are likely to set prices too high—to exhibit more cost shielding.

In contrast, a myopic manager of a durable goods firm may set prices too low:

"[A] durable goods monopolist should respond to a temporary drop in demand by keeping prices up, in spite of the falloff in sales this entails. If he is overly concerned about current performance, however, he may cut prices in a suboptimal fashion, so as to smooth profits over time." Stein (1989, p. 658)

In this situation, cost shielding is likely to exacerbate myopia and therefore we expect less cost shielding in durable goods industries. Moreover, prior literature provides evidence that industry-level noise in performance measures decreases their contracting usefulness (e.g., Ittner et al., 1997), and therefore we expect firms in industries with inherently noisier cost structures to engage in more cost shielding.

<sup>&</sup>lt;sup>29</sup> Cost shielding will only be effective at shaping managers' pricing decisions if product prices affect costs. This is likely to be the case if, for example, prices drive sales volume (e.g., demand is downward sloping), which in turn drives cost.

We test these predictions by estimating Eqs. (1) and (2) using industry-level measures of new product launches (*Product Velocity*) and product lifetime (*Product Durability*), as well as industry depreciation, interest expense, and effective tax rate volatility (*Industry Depreciation Volatility, Industry Interest Volatility*, and *Industry ETR Volatility*, respectively) as our measures of *Contracting Value* (Dubé et al., 2009; 2010; Osborne, 2011). All variables are defined in Appendix C. Table 10 presents results. Consistent with our prediction, we find that boards tend to implement less cost shielding in industries where durable goods are more prevalent, while they tend to provide more cost shielding in industries characterized by frequent new product launches. These findings provide further evidence that boards use cost shielding in an effort to mitigate managerial myopia and help further explain the forces that shape the considerable heterogeneity between industries in the extent of cost shielding.

## 4.5. Additional analyses

We conduct several additional analyses, tabulated in our Online Appendix, to examine the robustness of our findings to alternative research design choices as well as assess alternative explanations for our results. Specifically, we examine (i) whether results pertain to cost shielding only for CEO bonus plans or for top management bonuses more generally, (ii) several alternative definitions of our summary cost shielding measure, (iii) whether variation in contract complexity explains our findings (e.g., more complex contracts tend to introduce additional performance measures beyond bottom-line earnings and hence greater cost shielding), and (iv) whether trends in non-GAAP *pro forma* reporting drive the cost shielding considerations we examine. To explain our collective results, the bias introduced by our design choices would need to systematically vary with each of the dimensions of contracting value we examine as well as CEO turnovers for

unexpected health-related causes. While we view this as unlikely, we nevertheless conduct a number of additional analyses designed to mitigate concerns about these forces in our setting.

First, in regard to the generalizability of our findings beyond the CEO, we re-estimate each of our primary analyses using the firm's lowest-paid named executive officer in the proxy statement to construct our cost shielding and contracting value measures. In Table OA3, we find that inferences are unchanged across each of our primary analyses from Tables 3 through 7, indicating that our findings appear to apply to all members of the firm's top management team, rather than the CEO specifically.

Second, with regard to noise in our measurement, we re-calculate our firm-year summary cost shielding measures—based on our categorical indicators of IS measures—using the weights on individual performance measures provided in the firm's proxy statement, rather than taking the equal-weighted average when computing our firm-year summary measure of bonus plan cost shielding. For example, if a board bases 75% of the executive's bonus on sales (which we code as 3) and 25% on net income (which we code as 0), we would compute our cost shielding measure as 75% \* 3 + 25% \* 0 = 2.25, in contrast to the simple average of 1.5. To do so, we exclude binary performance measures (e.g., the performance measure must be positive to receive any payout) and focus only on measures with (piecewise) linear payout structures.<sup>30</sup> In Table OA4, we find similar results across each of our primary analyses from Tables 3 through 7 with this alternative summary cost shielding measure. We also examine other points of the distribution besides the average when computing our firm-year summary cost shielding measure (i.e., the median or maximum cost shielding present in the executive's performance measures) and exclude loss firms (e.g., because

<sup>&</sup>lt;sup>30</sup> We also find qualitatively similar results—i.e., of the same sign and statistically significant—if we include these binary performance measures in these computations.

loss-making firms are less likely to use net income as performance measure) and continue to find that our inferences across each of our primary analyses are unchanged.

We also examine the magnitude of the costs excluded from the bonus plan due to the choice of performance measures. For example, if a plan uses only EBIT, we measure cost shielding as GAAP interest and tax expense as a proportion of total expenses. In Table OA5, we find qualitatively similar results under this alternative definition.<sup>31</sup> Collectively, these findings suggest that the construction of the *Cost Shield* variable or noise in our measurement techniques does not drive our results.

Third, with regard to contract complexity, we repeat our primary analyses after including fixed effects for the number of performance measures and our inferences are unchanged—if anything, our results become stronger when including this alternative fixed effect structure. Table OA6 presents results. In other words, holding fixed the number of performance measures present in the bonus plan, we continue to find variation in cost shielding due to the specific performance measures selected based on the contracting considerations we examine. These findings are inconsistent with the variation in cost shielding we observe being simply driven by differences in the number of performance measures.

Finally, we consider the possibility that recent trends in *pro forma* reporting—e.g., Bentley et al. (2018)—might drive the cost shielding considerations examined in this study. Conceptually, there are two primary distinctions between bonus plan performance measures and pro forma reporting: (1) *pro forma* reporting choices are typically driven by value relevance for investors whereas performance metrics in bonus plans are chosen according to contracting usefulness, and

<sup>&</sup>lt;sup>31</sup> In general, all of our aggregated measures of cost shielding are highly correlated. In particular, the correlation between our cost shielding measure based on equal weights and our measure based on weights from the proxy is 94.5%, and the correlation with our measure that uses the magnitudes of the excluded realized costs is 86.4%.
these two objectives often diverge (e.g., Paul, 1992; Gaver and Gaver, 1998; Black et al., 2020); and (2) *pro forma* reporting choices often leverage *ex post* discretion *vis-à-vis* exclusions of transitory items (e.g., Bhattacharya et al., 2003) while bonus plan metrics represent *ex ante* choices about inclusions and exclusions. To examine the implications of *pro forma* financial reporting for cost shielding, we repeat each of our primary analyses after controlling for an indicator for whether the firm reports non-GAAP performance measures in its earnings announcements, following Bentley et al. (2018), and report the results in Table OA7. Our inferences are identical in this alternative specification, and we find that, across all of our specifications, *pro forma* reporting is either insignificantly or marginally significantly associated with bonus plan cost shielding. This suggests that our findings are not simply capturing the effect of *pro forma* financial reporting on boards' compensation design choices.

### 5. Conclusion

We examine the economic forces that shape the bonus plan performance metrics that boards choose for evaluating executives. We posit that bonus plans function as supplemental compensation to incentivize the achievement of more actionable goals compared to equity incentives. We first show that there is substantial heterogeneity in the specific income statement measures incorporated into executive bonus contracts, effectively reducing executives' exposure to specific costs (i.e., cost shielding). We then develop and test predictions regarding the use of cost shielding. We find that boards use cost shielding to mitigate agency conflicts and deliberately select bonus plan performance measures based on the contracting value of shielding executives from particular expenses. Investment-related costs are more likely to be excluded when managers' incentives for myopic behavior are greater, as well as in the presence of sunk costs due to prior executives' decisions.

Collectively, our results highlight that boards appear to view bonus plans as an important part of executive pay packages and select performance measures with a degree of intentionality in order to address specific agency conflicts. We also note that "cost shielding" is likely only one of several considerations in bonus plan design. We view better understanding these other objectives of bonus plans and their consequences as promising directions for future research on the purposes of executive bonus plans.

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### Appendix A. Model of Cost Shielding and Managerial Myopia

### A.1 Model Setup

In this Appendix, we use a modified Stein (1989) framework to demonstrate how bonus plan cost shielding can be used to mitigate managerial myopia.

Consider a firm whose "natural" earnings,  $e^N$ , follow a random walk:

$$e_t^N = e_{t-1}^N + \varepsilon_t, \qquad (A1)$$

where  $\varepsilon \sim N(0, \sigma^2)$  are independent shocks to profitability.<sup>32</sup> We further assume that natural earnings can be decomposed into natural revenue and cost components, such that:

$$e_t^N = R_t^N - C_t^N \,. \tag{A2}$$

As in Stein (1989), there is a manager who can intervene in the firm's natural operations by inefficiently "borrowing" profits from the next period. The manager's borrowing decision is not observable. Increasing current profits by  $b_t$  reduces next period's profits by  $f(b_t)$ , where  $f(\cdot)$ is an everywhere continuous and differentiable function with f'' > 0 and f'(0) = 1 + r, where r is the firm's cost of capital. This leads to the following 'realized' earnings process:

$$e_{t} = e_{t}^{N} + b_{t} - f(b_{t-1}).$$
(A3)

There are many possible forms of "borrowing" that a manager might engage in. For ease of analysis, we focus on the canonical example of underinvesting in intangibles (e.g., inefficient cuts to R&D or advertising). We interpret  $b_t$  as the dollar value of underinvestment in intangibles, relative to the current optimal investment level, and  $f(b_{t-1})$  as the revenue consequence from

<sup>&</sup>lt;sup>32</sup> In Stein (1989), "natural" earnings has two components: a transitory component and a persistent component. In our analysis, we suppress the transitory component for simplicity. Re-introducing the transitory component does not affect our conclusions.

underinvestment. As such, realized earnings can be decomposed into realized revenues and costs as follows:

$$e_{t} = \overbrace{R_{t}^{N} - f(b_{t-1})}^{\text{realized revenue, } R_{t}} - \overbrace{(C_{t}^{N} - b_{t})}^{\text{realized cost, } C_{t}}$$
(A4)

The realized earnings are immediately paid out to investors as a dividend, at which point the market price becomes:

$$P_{t} = E_{t} \left[ \sum_{j=1}^{\infty} \frac{e_{t+j}}{(1+r)^{j}} \right],$$
 (A5)

where  $E_t$  denotes an expectation given information available at time t.

Since f'(0)=1+r and f''>0, the optimal level of borrowing (from the shareholders' perspective) is always zero. However, there exists an agency conflict between the manager and the shareholders in that the managers experiences "price pressure," and thus has an incentive to inflate the firm's current stock price even at the expense of long-term value. As in Stein (1989), we assume the manager has preferences each period over current cash receipts, current stock price, and expected long-run firm value:

$$U_{t} = R_{t} - (1 - \theta)C_{t} + \pi P_{t} + (1 - \pi)\frac{e_{t+1}}{(1 + r)},$$
(A6)

where  $\theta$  is the extent of cost shielding in the manager's bonus plan and  $\pi \in [0,1]$  is the weight the manager places on current stock price. This formulation is identical to Stein's (1989) Eq. (4) except for two distinctions that allow us to examine bonus plan cost shielding. First, we decompose earnings,  $e_t$ , into revenue and cost components,  $R_t$ , and  $C_t$ , respectively. Second, we allow for a coefficient,  $(1 - \theta)$ , on the cost component. With respect to interpretation, the cash receipts in Stein

(1989) refers to a dividend paid on the basis of earnings, while in our setting we consider it to be a cash bonus paid on the basis of revenues net of unshielded costs.<sup>33</sup>

In what follows, we analyze equilibrium borrowing behavior as a function of cost shielding, and demonstrate how cost shielding can mitigate the agency costs associated with managerial myopia.<sup>34</sup>

### A.2 Equilibrium without Cost Shielding

As a baseline, we first consider the case without cost shielding (i.e.,  $\theta = 0$ ). In this case, the manager's objective function is:

$$U_{t} = R_{t} - C_{t} + \pi P_{t} + (1 - \pi) \frac{e_{t+1}}{(1 + r)}$$
$$= R_{t} - (C_{t}^{N} - b_{t}) + \pi P_{t} + (1 - \pi) \frac{e_{t+1}}{(1 + r)},$$
(A7)

for which the first order condition ("FOC") is:

$$1 + \frac{\pi}{r} - \frac{(1 - \pi)}{1 + r} f'(b^*) = 0$$
  
$$\Rightarrow f'(b^*) = \frac{1 + \frac{\pi}{r}}{1 - \pi} (1 + r), \qquad (A8)$$

where  $b^*$  is the steady-state equilibrium choice of  $b_t$  in each period, t.

<sup>&</sup>lt;sup>33</sup> Because our approach is otherwise identical to Stein (1989), the manager we examine exhibits the same time inconsistencies as the manager in the Stein model. In particular, the manager (i) disregards the possibility of future price pressure and (ii) ignores the effects of current actions on future cash bonuses. Neither feature is qualitatively important for our predictions. We do not address these time inconsistencies in order to better adhere to the original Stein (1989) model.

<sup>&</sup>lt;sup>34</sup> To avoid superfluous complexity, we do not consider the bonus paid to the manager to be part of the shareholder's value function. Imbedding the model within a more holistic optimal contracting framework will not change our conclusions because the manager and the shareholders are both risk neutral. Thus, they each value a marginal dollar identically, and any wealth transfers between the two have no impact on efficiency.

The FOC shows  $f'(b^*)$  is proportional to the first-best case (where  $f'(b^*) = f'(0) = 1 + r$ ),

with a coefficient of proportionality equal to  $\left(1+\frac{\pi}{r}\right)/\left(1-\pi\right)$ . This coefficient is equal to one if  $\pi$ 

= 0 and increases monotonically, and without upper bound, as  $\pi$  approaches 1. Thus, when the manager experiences no price pressure, the first-best outcome is attained, and there is a positive level of borrowing (i.e., underinvestment in intangibles) for any  $\pi > 0$ .

### A.3 Equilibrium with Cost Shielding

We now consider the case where the manager's objective function can be augmented by shielding the manager from current costs. With cost shielding of  $\theta$ , the manager's objective function is:

$$U_{t} = R_{t} - (1 - \theta)C_{t} + \pi P_{t} + (1 - \pi)\frac{e_{t+1}}{(1 + r)}$$
$$= R_{t} - (1 - \theta)(C_{t}^{N} - b_{t}) + \pi P_{t} + (1 - \pi)\frac{e_{t+1}}{(1 + r)},$$
(A9)

which admits the following FOC:

$$(1-\theta) + \frac{\pi}{r} - \frac{(1-\pi)}{1+r} f'(b^*) = 0$$
  
$$\Rightarrow f'(b^*) = \frac{1 + \frac{\pi}{r} - \theta}{1-\pi} (1+r).$$
(A10)

As before, the FOC shows that  $f'(b^*)$  is proportional to the first-best case. However, the

coefficient of proportionality now includes the cost shielding parameter,  $\theta : \left(1 + \frac{\pi}{r} - \theta\right) / (1 - \pi)$ .

If the shareholders have the power to determine  $\theta$  (i.e., dictate the manager's bonus plan), they can

choose  $\theta = \frac{1+r}{r}\pi$ , to make the manager's FOC:

$$f'(b^*) = \frac{\frac{1+\frac{\pi}{r} - \frac{1+r}{r}}{1-\pi}}{1-\pi} (1+r)$$
  
= 1+r  $\Rightarrow b^* = 0.$  (A11)

Thus, cost shielding can yield the first-best solution, entirely eliminating the deleterious effects of short-term price pressure. Thus, the optimal level of cost shielding is directly tied to the manager's myopia,  $\pi$ . If  $\pi$  is nearly zero, cost shielding is hardly needed and would likely incentivize overinvestment rather than efficient investment. As  $\pi$  grows larger, extensive cost shielding is required to prevent inefficient underinvestment.

### A.4 Discussion

In this model, we demonstrate the potential for cost shielding to be used to combat managerial myopia. We document the value of cost-shielding in a principal-agent framework with neither risk aversion nor effort aversion; the only source of conflict is short-term price pressure experienced by the manager. The inclusion of other agency-theoretic features (e.g., effort aversion, risk aversion and stochastic performance shocks) could enhance or detract from the value of costshielding.

Notably, our framework provides insight into the complementary roles of equity incentives and bonus plans. It is common in the literature to assume that bonus plans are unnecessary because equity incentives are such a cheap method generating alignment between the CEO and the shareholders. However, our analysis highlights that some agency conflicts are not well-addressed by this approach. In fact, in our framework, it is price pressure (i.e., equity incentives) that cause the incentive misalignment in the first place. This misalignment can be addressed by introducing a complementary bonus plan which (partially) shields the manager from the upfront costs of investment. In our model, we present a stylized example of intangible investment to show the benefits of bonus plan cost shielding *vis-à-vis* mitigating managerial myopia. In this context, the importance of cost shielding is tied to two primary features: (i) the importance of forward-looking investments and (ii) the extent of managerial myopia. Cost shielding is most important in situations where forward-looking investment is most necessary (e.g., young firms with growth opportunities or intangible-heavy business models) and managers are most likely to down-weight future outcomes in current decisions.

One critical feature of the model is that  $b_i$  is unobservable. That is, we assume that the capital market has no way to disentangle the natural earnings process from the manipulation. One might reasonably question how the borrowing actions described above can be unobservable given that, for example, public firms must disclose their intangible investments. Here we rely on how  $b_i$  is defined;  $b_i$  represents the difference between how much the firm invested and how much the firm should have invested, optimally. To the extent that managers have private information about the optimal level of investment, departures from it will not be observable to outsiders.

While our model speaks most directly to intangible investments (e.g., R&D or advertising), the Stein (1989) framework we rely on is far more general. In particular, similar logic applies to any setting in which costs are incurred upfront, and (some of) the benefits are reaped in the future. For example, Stein (1989) discusses an application of the model to pricing decisions. If firms can "invest" in future market share by lowering current selling prices (e.g., Klemperer, 1987), then a myopic manager will likely keep product prices too high. If lowering prices would lead to increased costs (e.g., due to sales volume effects from downward sloping demand), a manager might be disinclined to lower prices to the dynamically optimal level. Cost shielding can improve long-run firm value by mitigating this possibility. However, cost shielding will not be useful in all cases. In particular, in situations where the benefits come first, and (some of) the costs are delayed, cost shielding will exacerbate the agency conflict. In such a situation, a myopic manager is likely to reap too much of the upfront benefits, ignoring the subsequent costs; cost shielding will only worsen this behavior. For example, Stein (1989) discusses the situation in which a durable goods firm sets prices too low, failing to recognize that doing so effectively results in greater competition in the future. For a durable goods manufacturer, cost shielding will exacerbate the effects of managerial myopia, and therefore should be avoided.

#### **Appendix B. Executive Bonus Plan Example**

This Appendix provides an illustrative example of bonus plans from our sample.

### Company: Macy's, Inc. Year: 2016 Named Executive Officer Bonus Plan

#### **Annual Incentive**

The Named Executives participated in the Senior Executive Incentive Compensation Plan, referred to as the Incentive Plan, in fiscal 2016. The Incentive Plan aligns executive compensation with our business strategy and operating performance objectives and is designed to motivate executives to meet or exceed annual corporate financial goals that are established by the CMD Committee and approved by the full Board.

The CMD Committee approved the annual performance goals for the fiscal 2016 annual incentive in March 2016 after the Board approved our fiscal 2016 business objectives and strategies. When setting fiscal 2016 performance goals, the CMD Committee considered the current economic conditions, potential events that could impact future sales and earnings levels and our performance relative to the performance of the peer companies. As discussed below, the CMD Committee set goals that were challenging yet reasonable, and would increase shareholder value if achieved.

54

Target Annual Incentive Opportunity. The CMD Committee made no changes to the target annual incentive opportunities for the Named Executives in fiscal 2016.

Maximum Annual Incentive Opportunity. The Named Executives become eligible for a maximum annual incentive award based on a percentage of EBIT achieved for the fiscal year. The maximum potential award for Mr. Lundgren for fiscal 2016 is equal to 0.45% of EBIT and the maximum potential award for each of the other Named Executives is equal to 0.25% of EBIT. No annual incentive award, however, can exceed the Incentive Plan's per-person maximum of \$7 million.

For purposes of determining performance results, EBIT is adjusted to eliminate the effects of asset impairments, restructurings, acquisitions, divestitures, other unusual or infrequently occurring items, store closing costs, unplanned material tax law changes and/or assessments and the cumulative effect of tax or accounting changes, as determined in accordance with generally accepted accounting principles, as applicable. If EBIT is positive, a portion of each dollar of EBIT is used to determine the participant's maximum award. If EBIT is negative, no incentive awards are paid.

The CMD Committee selected EBIT as the performance metric to ensure that the maximum potential payout is determined as a percentage of controllable profit. Excluding interest and taxes ensures that profit is defined based on operating results that the Named Executives can directly influence. The CMD Committee set the percentages of EBIT for the Named Executives at a level sufficient to enable reasonable award levels under all possible scenarios.

Reduction of the Maximum Annual Incentive Award. In determining actual incentive awards made under the Incentive Plan, the CMD Committee has the discretion to, and has in the past, paid actual incentive awards which are lower than the maximum awards described above. The CMD Committee may reduce the maximum incentive awards based on a "targeted" annual incentive award opportunity established for each Named Executive under the Incentive Plan and our overall performance during the fiscal year measured against pre-established financial goals or on such alternative or additional factors, if any, as it may deem appropriate.

The targeted annual incentive award opportunities for the Named Executives are expressed as a percent of year-end base salary and actual awards may range from 0% to 260% of the "target" award, not to exceed the maximum as determined under the above-referenced EBIT formula, depending upon actual performance relative to the pre-determined goals, as shown in the chart below (and on such alternative or additional factors, if any, as the CMD Committee deems appropriate). The calculation of performance results may be adjusted to eliminate the effects of asset impairments, restructurings, acquisitions, divestitures, other unusual or infrequently occurring items, store closing costs, unplanned material tax law changes and/or assessments and the cumulative effect of tax or accounting changes, as determined in accordance with generally accepted accounting principles, as applicable. The targeted annual incentive award opportunities are interpolated for performance results falling between "threshold" and "target" and between "target" and "outstanding".

		Annual	Annual Incentive as a % of Base Salary		
Position	Component	Threshold	Target	Outstanding	
Chief Executive Officer	EBIT \$	18.1%	90.7%	272.1%	
	Sales \$	18.1%	56.7%	124.7%	
	Cash Flow \$	9.1%	22.6%	45.2%	
	Total	45.3%	170.0%	442.0%	
President	EBIT \$	13.3%	66.7%	200.1%	
	Sales \$	13.3%	41.7%	91.7%	
	Cash Flow \$	6.6%	16.6%	33.2%	
	Total	33.2%	125.0%	325.0%	
Other Named Executives	EBIT \$	8.0%	40.0%	120.0%	
	Sales \$	8.0%	25.0%	55.0%	
	Cash Flow \$	4.0%	10.0%	20.0%	
	Total	20.0%	75.0%	195.0%	
	10				

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48
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#### Appendix B. Executive Bonus Plan Example (cont'd)

The CMD Committee selected the following levels of EBIT, Sales and Cash Flow as the financial goals for fiscal 2016 under the Incentive Plan for purposes of the targeted annual incentive opportunity for the Named Executives:

		Performance Range (\$ in millions)				
Performance Metric	Weight	Threshold	Target	Outstanding		
EBIT	53.3%	85% of Target	\$2,341.9	120% of Target		
Sales	33.3%	98% of Target	\$27,505.3	101% of Target		
Cash Flow	13.3%	\$50 below Target	\$1,677.6	\$150 above Target		

Reasons for Selecting These Metrics. The Incentive Plan financial metrics focus executives on maximizing growth, operating profit dollars and cash flow.

- The EBIT measure focuses the executives on maximizing operating income and is a good indicator of how effectively our annual business
  objectives and strategies, which focus on growth in profits, are being executed.
- Sales, a priority for retailers, are a measure of growth and provide opportunities for the achievement of various other financial measures, including EBIT and cash flow. The Sales target under the Incentive Plan includes sales of departments licensed to third parties and excludes certain items that are included in externally reported sales under GAAP, including licensed department income, shipping and handling fees and sales to thirdparty retailers.
- Cash Flow measures how much cash we generate from our operating activities net of our investing activities. This cash can be used to further
  invest in the business, to return to shareholders or to strengthen the balance sheet.

The heavier weighting for the EBIT and Sales objectives reflects our emphasis on profitable growth. The performance levels of EBIT, Sales and Cash Flow are determined annually, consistent with the economic environment at the time our annual business objectives and strategies are finalized and are set to help the Company achieve its longer term average EBITDA margin and average ROIC objectives under the long-term incentive program discussed below. These performance levels are intended to be aggressive but realistic, such that achieving threshold levels would represent minimum acceptable performance and achieving maximum levels would represent outstanding performance. The targeted Sales objective is based to a significant degree on an assumption regarding sales growth relative to projected General Merchandise, Apparel and Home Furnishings (GAF) growth. The sales growth assumption is based on recent history and is adjusted for the risks and opportunities that are embedded in our merchandising strategies. We then plan our EBIT/EBITDA and cash flow objectives to incorporate our cost reduction strategies and real estate monetization.

Fiscal 2016 Annual Incentive Awards. At its March 23, 2017 meeting, the CMD Committee determined the actual incentive awards to be paid to the Named Executives for fiscal 2016 performance.

Based on our financial results for fiscal 2016, the CMD Committee determined that we achieved positive EBIT (adjusted as described below) of \$1.946 billion. This resulted in a maximum potential incentive award of \$8.760 million for Mr. Lundgren (0.45% of EBIT) and \$4.866 million for each of the other Named Executives (0.25% of EBIT), in all instances subject to the Incentive Plan's per-person maximum of \$7 million.

Consistent with the design of the annual incentive award program described above, the CMD Committee exercised its discretion to reduce the maximum potential incentive awards, based on the level of achievement of the EBIT, Sales and Cash Flow metrics, as adjusted as described below in relation to amounts reported in our audited financial statements. The CMD Committee adjusted EBIT for costs associated with unplanned store closings and asset impairment charges, for costs associated with an unplanned restructuring and cost reduction program, for a timing shift of gain recognition related to the sale of a store in Brooklyn and for non-cash settlement charges associated with retirement plans. The CMD Committee adjusted Sales to account for unplanned store closings.

	2016 Performance (\$ in millions)		Annual Incentive Payout as a % of Base Salary			
Annual Incentive Component	Results	Achievement Level	Lundgren	President	Other Named Executives	
EBIT \$	\$1,946.8	Below Threshold	0%	0%	0%	
Sales \$	\$26,665.0	Below Threshold	0%	0%	0%	
Cash Flow \$	\$1,681.4	Between Target and Outstanding	23.17%	17.02%	10.25%	
Total Earned			23.17%	17.02%	10.25%	
Total Target Opportunity			170.00%	125.00%	75.00%	

# Appendix C. Variable Definitions

This Appendix defines the variables used in our primary analyses.

# Sales Metrics	Count of the CEO's annual bonus plan sales performance metrics
	(source: Incentive Lab).
# EBITDA Metrics	Count of the CEO's annual bonus plan earnings before interest, taxes,
	depreciation, and amortization performance metrics (source: Incentive Lab).
# EBIT Metrics	Count of the CEO's annual bonus plan earnings before interest and taxes performance metrics (source: Incentive Lab).
# EBT Metrics	Count of the CEO's annual bonus plan earnings before taxes performance metrics (data source: Incentive Lab).
#Earnings Metrics	Count of the CEO's annual bonus plan after-tax earnings performance metrics (source: Incentive Lab).
Total Metrics	Count of the total number of income-statement based performance metrics included in the CEO's bonus plan (source: Incentive Lab).
Sales Metric	Indicator equal to one if the CEO's annual bonus plan includes at least one sales performance metric, and zero otherwise (source: Incentive Lab).
EBITDA Metric	Indicator equal to one if the CEO's annual bonus plan includes at least one earnings before interest, taxes, depreciation, and amortization performance metric, and zero otherwise (source: Incentive Lab).
EBIT Metric	Indicator equal to one if the CEO's annual bonus plan includes at least one earnings before interest and taxes performance metric, and zero otherwise (source: Incentive Lab).
EBT Metric	Indicator equal to one if the CEO's annual bonus plan includes at least one earnings before taxes performance metric, and zero otherwise (source: Incentive Lab).
Earnings Metric	Indicator equal to one if the CEO's annual bonus plan includes at least one after-tax earnings performance metric, and zero otherwise (source: Incentive Lab).
Cost Shield	Firm-year average of a categorical variable that equals 0 if <i>Earnings</i> <i>Metric</i> equals 1, 1 if <i>EBIT Metric</i> equals 1, 2 if <i>EBITDA Metric</i> equals 1, and 3 if <i>Sales Metric</i> equals 1 (source: Incentive Lab).
\$ Bonus	Total annual CEO bonus payout (in \$ thousands) during the fiscal year.
Controls	
Book-to-Market	Book value of equity scaled by market value of equity of the firm at fiscal year-end (source: Compustat).

CEO Bonus Plan Measures

Appendix C. Variable I	bennitions (cont u)
Firm Age	Number of years the firm has existed in Compustat (source: Compustat).
Market Capitalization	Market capitalization of the firm at fiscal year-end (source: Compustat).
Idiosyncratic Volatility	Standard deviation of the residual return from a market model regression using daily stock returns during the 12 months prior to the fiscal year end (source: CRSP).
Free Cash Flow	Operating cash flow minus common and preferred dividends divided by average total assets (source: Compustat).
Delta	Computed following Core and Guay (2002) as the sensitivity of the CEO's stock and option portfolio to a 1% change in stock price (source: Execucomp).
CEO Tenure	Number of years the executive has been CEO of the firm (source: Execucomp).
CEO Tenure Years 0-2	Indicator equal to 1 if <i>CEO Tenure</i> is greater than between 0 and 2 (inclusive), and 0 otherwise (source: Execucomp).
CEO Tenure Years 3-5	Indicator equal to 1 if <i>CEO Tenure</i> is greater than between 3 and 5 (inclusive), and 0 otherwise (source: Execucomp).
CEO Tenure Years 6-8	Indicator equal to 1 if <i>CEO Tenure</i> is greater than between 6 and 8 (inclusive), and 0 otherwise (source: Execucomp).
Firm and Executive Turn	nover Characteristics
<i>R&amp;D Investment</i>	Annual R&D expense scaled by total assets as of the end of the fiscal year (source: Compustat).
Advertising Investment	Annual advertising expense scaled by total assets as of the end of the fiscal year (source: Compustat).
ETR Volatility	Standard deviation of annual tax expense scaled by pretax income during the fiscal year (source: Compustat; requires a minimum of three years).
Earnings Volatility	Standard deviation of annual net income before extraordinary items scaled by total assets as of the end of the fiscal year during the previous ten years (source: Compustat; requires a minimum of three wars)
	years).
External Hire	Indicator equal to 1 if the current CEO was <i>not</i> employed by the same firm prior to becoming CEO, and 0 otherwise (source: Execucomp).
External Hire R&D Investment	Indicator equal to 1 if the current CEO was <i>not</i> employed by the same firm prior to becoming CEO, and 0 otherwise (source: Execucomp). Annual research and development expense scaled by end of fiscal year total assets (source: Compustat).
External Hire R&D Investment Advertising Investment	Indicator equal to 1 if the current CEO was <i>not</i> employed by the same firm prior to becoming CEO, and 0 otherwise (source: Execucomp). Annual research and development expense scaled by end of fiscal year total assets (source: Compustat). Annual advertising expense scaled by end of fiscal year total assets (source: Compustat).

# **Appendix C. Variable Definitions (cont'd)**

# Appendix C. Variable Definitions (cont'd)

Class Action Litigation	Indicator equal to 1 if the firm-year is the target of a class-action suit, and 0 otherwise (source: Stanford Law School Class Action Clearinghouse).						
Top Management Team Length	Computed following Bushman et al. (2016) as the number of consecutive years the management team remains the same, where the count begins in the first year the firm enters the Execucomp sample. The end of the management team occurs when two of the original team members leave the team (source: Execucomp).						
Top Management Team Turnover	Indicator for whether the top management team members are different, during the following fiscal year, and 0 otherwise (source: Execucomp).						
CEO Health/Death	Indicator equal to one during the last fiscal year of the CEO's tenure						
Turnover	if the CEO departed due to death or for health reasons (source: Execucomp; hand collected).						
Product Durability	Indicator equal to 1 if the firm is in the "durable" or "manufacturing" industries (source: Compustat).						
Product Velocity	Total number of new products introduced by firms in the industry- year during the year (source: FactSet Revere).						
Industry Depreciation Volatility	Industry-year average of the standard deviation of annual depreciation expense scaled by total assets as of the end of the fiscal year during the previous ten years (source: Compustat).						
Industry Interest	Industry-year average of the standard deviation of annual interest						
Volatility	expense scaled by total assets as of the end of the fiscal year during the previous ten years (source: Compustat).						
Industry ETR Volatility	Industry-year average of the standard deviation of annual tax expense scaled by pretax income during the fiscal year (source: Compustat).						
Non-GAAP Reporting	Indicator for whether the firm reports non-GAAP performance measures in its earnings announcement during the fiscal year, and 0 otherwise (source: Bentley et al., 2018).						



Figure 1. Industry Breakdown of Cost Shielding

This figure plots the industry distribution of our aggregate *Cost Shield* measure, which is the firm-year average of a categorical variable that equals 0 if an earnings performance measure is used, 1 if an EBIT performance measure is used, 2 if an EBITDA performance measure is used, and 3 if a sales performance measure is used. We use the Fama-French 12 industry portfolios to measure industry membership. Sample consists of 8,009 firm-years from our final sample from 2006 to 2017.

# Figure 2. CEO Bonus Performance Measures over Time

# Panel A. Raw Performance Measures



Panel B. Indexed Performance Measures



### Figure 2. CEO Bonus Performance Measures over Time (cont'd)



Panel C. Average Cost Shielding

This figure plots the average number of sales, EBITDA, EBIT, and net earnings performance measures used each year in CEO bonus plans. Panel A plots raw performance measures included in CEO bonus plans, and Panel B plots performance measures indexed relative to their 2006 average values. Panel C plots our aggregate *Cost Shield* measure, which is the firm-year average of a categorical variable that equals 0 if an earnings performance measure is used, 1 if an EBIT performance measure is used, 2 if an EBITDA performance measure is used, and 3 if a sales performance measure is used. Sample consists of 9,832 firm-years appearing on Incentive Lab from 2006 to 2017.



Figure 3. CEO Bonus Performance Measures over Tenure

Panel A. Raw Performance Measures

**CEO** Tenure

Figure 3. CEO Bonus Performance Measures over Tenure (cont'd)





---- Cost Shield

This figure plots the average number of sales, EBITDA, EBIT, and net earnings performance measures used in CEO bonus plans for each year of CEO tenure. Panel A plots raw performance measures included in CEO bonus plans, and Panel B plots performance measures indexed relative to their average values when CEO tenure equals zero. Panel C plots our aggregate *Cost Shield* measure, which is the firm-year average of a categorical variable that equals 0 if an earnings performance measure is used, 1 if an EBIT performance measure is used, 2 if an EBITDA performance measure is used, and 3 if a sales performance measure is used. Sample consists of 9,832 firm-years appearing on Incentive Lab from 2006 to 2017.

# Table 1. Descriptive Statistics

This table presents the distribution of key variables used in our analysis. All variables are as defined in Appendix C. Sample period is 2006 - 2017.

			Std.			
Variable	Ν	Mean	Dev.	25th	50th	75th
CEO Bonus Plan Measures:						
Cost Shield	8,000	0.73	0.73	0.00	0.67	1.25
# Sales Metrics	8,000	0.50	0.80	0.00	0.00	1.00
# EBITDA Metrics	8,000	0.18	0.50	0.00	0.00	0.00
# EBIT Metrics	8,000	0.44	0.80	0.00	0.00	1.00
# EBT Metrics	8,000	0.09	0.35	0.00	0.00	0.00
# Earnings Metrics	8,000	1.01	1.18	0.00	1.00	1.00
Total Income Statement Metrics	8,000	2.27	1.68	1.00	2.00	3.00
\$ Bonus	8,000	1,897	1,929	737	1,409	2,390
Controls						
<u>Controls.</u> Rook to Market	8 000	0.47	0.27	0.24	0.40	0.64
Eirm Aga	8,000	20.71	12.64	10.24	20.50	42.00
Turm Age Markat Capitalization	8,000	29.71 12.824	25 885	2 426	29.30 5.037	42.00
Murket Cupitulization	8,000	0.07	23,885	2,420	0.06	0.08
Erea Cash Flow	8,000	0.07	0.04	0.04	0.00	0.08
Delta	8,000	0.09 878.06	1817.06	130.25	0.08 346.86	0.13
CEO Tomura	8,000	7 20	677	2 00	5.00	10.00
CEO Tenure	8,000	7.20	0.77	2.00	5.00	10.00
Firm Characteristics:						
<i>R&amp;D Investment</i>	8,000	0.02	0.04	0.00	0.00	0.02
Advertising Investment	8,000	0.01	0.02	0.00	0.00	0.01
SEC Investigation	8,000	0.19	0.39	0.00	0.00	0.00
Class Action Lawsuit	8,000	0.05	0.23	0.00	0.00	0.00
Top Management Team Length	8,000	4.56	3.36	2.00	4.00	6.00
Top Management Team Turnover	8,000	0.76	0.94	0.00	1.00	1.00
Product Durability	8,000	0.15	0.36	0.00	0.00	0.00
Product Velocity	8,000	1,457	2,180	214	684	1,724
Industry Depreciation Volatility	8,000	0.01	0.00	0.00	0.01	0.01
Industry Interest Volatility	8,000	0.01	0.00	0.00	0.01	0.01
Industry ETR Volatility	8,000	0.42	0.32	0.21	0.33	0.51

### **Table 2. Correlation and Transition Matrix**

This table presents a correlation matrix and transition table for CEO bonus plan measures. Panel A presents pairwise correlations between changes in CEO bonus plan measures. Panel B presents a transition matrix for the changes in *earnings–based* CEO bonus plan measures that are removed or added to CEO compensation contracts simultaneously with sales, EBITDA, EBIT, EBT, and net earnings types of bonus plan performance measures, respectively, compared to all other types of bonus plan measures added or removed during the same year. All other variables are as described in Appendix C. Sample period is 2006 – 2017. In Panel A, \* indicates statistical significance (two–sided) at the 5% level.

T unel A. Co.	T uner A. Correlation Maintx for Changes in CLOT erformance measures							
	⊿ #	⊿ #	⊿ #	⊿ #	⊿ #	⊿ #		
	Sales	EBITDA	EBIT	EBT	Earnings	Total		
Variable	Metrics	Metrics	Metrics	Metrics	Metrics	Metrics		
$\Delta$ # Sales Metrics	1.00	•						
△ # EBITDA Metrics	0.07*	1.00						
<i>∆</i> # EBIT Metrics	0.11*	-0.10*	1.00					
$\varDelta \# EBT Metrics$	0.05*	-0.04*	-0.10*	1.00				
∆ # Earnings Metrics	0.15*	-0.04*	-0.12*	-0.03*	1.00			
$\varDelta$ Total Metrics	0.61*	0.27*	0.37*	0.15*	0.62*	1.00		

Panel A. Correlation Matrix for Changes in CEO Performance Measures

Panel B. Transition Matrix

		Earnings-	-Based
		Removed	Added
Calaa	Removed	22.1	6.1
Sales	Added	9.0	23.0
		Other Earnii	ngs–Based
		Removed	Added
FRITDA	Removed	6.8	14.6
LDIIDA	Added	18.6	8.5
		Other Earnin	ngs–Based
		Removed	Added
FRIT	Removed	7.1	20.5
LBII	Added	22.5	6.5
		Other Earnin	ngs–Based
		Removed	Added
FRT	Removed	8.9	24.5
	Added	26.5	8.0
		Other Earnii	ngs–Based
		Removed	Added
Earnings	Removed	5.6	14.9
2	Added	12.7	6.3

### Table 3. Intangible Investment Levels and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan performance measures on measures of firm investment levels in research and development and advertising. Column (1) presents results using our aggregated categorical measure of cost shielding, and columns (2) through (5) present results using indicators for whether the CEO's bonus plan for the year includes (i) sales, (ii) earnings before interest, taxes, depreciation, and amortization, (iii) earnings before interest and taxes, or (iv) after–tax earnings as dependent variables, respectively, after including additional controls for indicators of other income–statement based bonus plan performance measure indicators. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. *t*– statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 - 2017.

	(1)	(2)	(3)	(4)	(5)
		Sales	ERITDA	ERIT	Earnings
Dependent Variable:	Cost Shield,	Metric <sub>t</sub>	Metric <sub>t</sub>	Metric <sub>t</sub>	Metric <sub>t</sub>
1					
<i>R&amp;D Investment</i> <sub>t-1</sub>	1.342**	0.887**	-1.196***	-0.199	-0.823**
	(2.06)	(2.12)	(-3.64)	(-0.42)	(-2.35)
Advertising Investment <sub>t-1</sub>	1.840**	1.632**	-0.439	-0.270	-0.302
	(2.59)	(2.39)	(-1.15)	(-0.46)	(-0.58)
$Book-to-Market_{t-1}$	-0.162**	-0.079*	-0.049	0.026	0.080*
	(-2.25)	(-1.79)	(-1.68)	(0.78)	(1.99)
$Ln(Firm Age_t)$	-0.137***	-0.023	-0.048 * *	-0.031*	0.047**
	(-3.21)	(-0.96)	(-2.52)	(-1.78)	(2.20)
Ln(Market Capitalization <sub>t-1</sub> )	-0.025	0.017*	-0.033***	0.022*	0.014
	(-1.67)	(1.68)	(-5.00)	(1.98)	(1.52)
<i>Idiosyncratic Volatility</i> <sub>t-1</sub>	1.232**	-0.393	0.994***	-0.001	-0.983***
	(2.44)	(-1.61)	(3.96)	(-0.01)	(-3.91)
Free Cash Flow <sub>t-1</sub>	-0.033	0.099	-0.291**	-0.048	0.228
	(-0.11)	(0.60)	(-2.50)	(-0.26)	(1.49)
$Ln(Delta_{t-1})$	-0.013	-0.009	0.007	-0.009	0.019
	(-0.98)	(-1.06)	(0.85)	(-1.21)	(1.67)
Ln( <i>CEO Tenure</i> <sub>t</sub> )	-0.043**	-0.012	-0.020**	0.000	-0.007
	(-2.13)	(-0.91)	(-2.48)	(0.04)	(-0.65)
Sales Metric <sub>t</sub>	•	•	0.038**	0.067***	0.082***
	•	•	(2.05)	(3.36)	(2.80)
EBITDA Metrict		0.076**	•	-0.413***	-0.396***
		(2.12)	•	(-10.80)	(-9.78)
EBIT Metric <sub>t</sub>		0.074***	-0.227***	•	-0.384***
	•	(3.36)	(-9.67)	•	(-10.79)
Earnings Metrict	•	0.086***	-0.209***	-0.369***	•
C .		(2.78)	(-8.42)	(-9.77)	
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
$\mathbb{R}^2$	0.279	0.269	0.296	0.266	0.325

### Table 4. Firm Growth Opportunities and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan performance measures on measures of growth opportunities. Column (1) presents results using our aggregated categorical measure of cost shielding, and columns (2) through (5) present results using indicators for whether the CEO's bonus plan for the year includes (i) sales, (ii) earnings before interest, taxes, depreciation, and amortization, (iii) earnings before interest and taxes, or (iv) after-tax earnings as dependent variables, respectively, after including additional controls for indicators of other income-statement based bonus plan performance measure indicators. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. *t*-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 - 2017.

	(1)	(2)	(3)	(4)	(5)
		Sales	EBITDA	EBIT	Earnings
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$
		0.000		0.000	
$Ln(Firm Age_t)$	-0.142***	-0.028	-0.047/**	-0.030*	0.048**
	(-3.39)	(-1.15)	(-2.49)	(-1.74)	(2.27)
Book-to-Market <sub>t-1</sub>	-0.186**	-0.09/**	-0.034	0.030	0.091**
	(-2.56)	(-2.21)	(-1.11)	(0.89)	(2.20)
Ln( <i>Market Capitalization</i> <sub>t-1</sub> )	-0.027*	0.015	-0.030***	0.022**	0.016*
	(-1.91)	(1.51)	(-4.33)	(2.07)	(1.76)
Idiosyncratic Volatility <sub>t-1</sub>	1.395**	-0.261	0.895***	-0.028	-1.064***
	(2.68)	(-1.09)	(3.62)	(-0.12)	(-4.23)
Free Cash Flow <sub>t-1</sub>	0.063	0.171	-0.342 **	-0.061	0.197
	(0.22)	(1.26)	(-2.61)	(-0.33)	(1.19)
$Ln(Delta_{t-1})$	-0.012	-0.008	0.006	-0.009	0.019
	(-0.92)	(-0.97)	(0.77)	(-1.21)	(1.61)
Ln( <i>CEO Tenure</i> <sub>t</sub> )	-0.046**	-0.014	-0.019**	0.001	-0.006
	(-2.20)	(-1.05)	(-2.38)	(0.07)	(-0.55)
Sales $Metric_t$	•	•	0.032	0.066***	0.078**
			(1.61)	(3.53)	(2.63)
EBITDA Metric <sub>t</sub>		0.063	•	-0.410***	-0.387***
		(1.64)		(-10.98)	(-10.06)
$EBIT Metric_t$		0.072***	-0.228***	•	-0.385***
		(3.53)	(-9.60)		(-10.75)
Earnings Metric <sub>t</sub>		0.082**	-0.206***	-0.368***	•
	•	(2.60)	(-8.32)	(-9.74)	•
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
$\mathbb{R}^2$	0.274	0.262	0.286	0.266	0.323

### Table 5. Concerns over Managerial Myopia and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan performance measures on measures of whether the firm is the target of an investigation by the SEC or shareholder class action lawsuit. Column (1) presents results using our aggregated categorical measure of cost shielding, and columns (2) through (5) present results using indicators for whether the CEO's bonus plan for the year includes (i) sales, (ii) earnings before interest, taxes, depreciation, and amortization, (iii) earnings before interest and taxes, or (iv) after–tax earnings as dependent variables, respectively, after including additional controls for indicators of other income–statement based bonus plan performance measure indicators. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. *t*–statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 - 2017.

	(1)	(2)	(3)	(4)	(5)
		Sales	ERITDA	EBIT	Earnings
Dependent Variable:	Cost Shield	Metric <sub>t</sub>	Metric <sub>t</sub>	Metric <sub>t</sub>	Metric <sub>t</sub>
Ĩ					
SEC Investigation <sub>t-1</sub>	0.085***	0.043*	0.017	0.022	-0.019
	(3.19)	(1.83)	(0.95)	(0.96)	(-0.91)
Class Action Litigation <sub>t-1</sub>	0.083*	0.015	0.024	0.001	-0.029
	(1.73)	(0.44)	(1.12)	(0.06)	(-0.78)
$Book-to-Market_{t-1}$	-0.194***	-0.101**	-0.035	0.028	0.093**
	(-2.72)	(-2.33)	(-1.16)	(0.82)	(2.24)
$Ln(Firm Age_t)$	-0.141***	-0.028	-0.047 **	-0.030*	0.048**
	(-3.37)	(-1.15)	(-2.46)	(-1.73)	(2.26)
Ln(Market Capitalization <sub>t-1</sub> )	-0.036**	0.012	-0.032***	0.021*	0.018**
	(-2.53)	(1.17)	(-4.60)	(1.81)	(2.14)
<i>Idiosyncratic Volatility</i> <sub>t-1</sub>	1.206**	-0.336	0.854***	-0.063	-1.015***
	(2.45)	(-1.55)	(3.66)	(-0.26)	(-4.10)
Free Cash Flow <sub>t-1</sub>	0.075	0.175	-0.340**	-0.059	0.194
	(0.26)	(1.28)	(-2.60)	(-0.32)	(1.17)
$Ln(Delta_{t-1})$	-0.012	-0.008	0.006	-0.009	0.019
	(-0.89)	(-0.94)	(0.78)	(-1.20)	(1.60)
Ln( <i>CEO Tenure</i> <sub>t</sub> )	-0.044**	-0.013	-0.019**	0.001	-0.007
	(-2.11)	(-0.98)	(-2.38)	(0.11)	(-0.60)
Sales Metric <sub>t</sub>			0.031	0.065***	0.079**
	•	•	(1.59)	(3.48)	(2.66)
EBITDA Metric <sub>t</sub>	•	0.062	•	-0.411***	-0.386***
	•	(1.62)	•	(-10.98)	(-10.14)
$EBIT Metric_t$	•	0.071***	-0.229***	•	-0.384***
	•	(3.48)	(-9.59)	•	(-10.75)
Earnings Metric <sub>t</sub>		0.083**	-0.206***	-0.368***	•
-	•	(2.63)	(-8.32)	(-9.74)	•
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
$\mathbb{R}^2$	0.276	0.263	0.286	0.266	0.323

### Table 6. CEO Tenure and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan performance measures on measures of CEO tenure. In Panel A, column (1) presents results using our aggregated categorical measure of cost shielding, and columns (2) through (5) present results using indicators for whether the CEO's bonus plan for the year includes (i) sales, (ii) earnings before interest, taxes, depreciation, and amortization, (iii) earnings before interest and taxes, or (iv) after–tax earnings as dependent variables, respectively, after including additional controls for indicators of other income–statement based bonus plan performance measure indicators. Panel B presents results for separate regressions conditional on whether the firm's current CEO was internally promoted or externally hired in columns (1) and (2), respectively. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. t-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

Panel A. Tenure Indicators							
	(1)	(2)	(3)	(4)	(5)		
		Sales	EBITDA	EBIT	Earnings		
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$		
CEO Tenure Years $0-2_t$	0.098**	0.032	0.041**	0.002	0.024		
	(2.17)	(1.17)	(2.38)	(0.10)	(0.96)		
CEO Tenure Years $3-5_t$	0.081*	0.032	0.035**	-0.005	0.020		
	(1.70)	(1.15)	(2.10)	(-0.26)	(0.72)		
CEO Tenure Years $6-8_t$	0.060	0.029	0.016	-0.027	-0.002		
	(1.50)	(1.05)	(1.02)	(-1.43)	(-0.09)		
$Book-to-Market_{t-1}$	-0.142***	-0.028	-0.047**	-0.029*	0.049**		
	(-3.37)	(-1.15)	(-2.48)	(-1.70)	(2.30)		
$Ln(Firm Age_t)$	-0.186**	-0.097**	-0.033	0.029	0.091**		
	(-2.56)	(-2.20)	(-1.11)	(0.88)	(2.20)		
Ln( <i>Market Capitalization</i> <sub>t-1</sub> )	-0.028*	0.015	-0.031***	0.022*	0.015		
	(-1.90)	(1.44)	(-4.38)	(1.99)	(1.62)		
<i>Idiosyncratic Volatility</i> <sub>t-1</sub>	1.399***	-0.262	0.896***	-0.028	-1.068***		
	(2.71)	(-1.11)	(3.62)	(-0.12)	(-4.27)		
<i>Free Cash Flow</i> <sub>t-1</sub>	0.067	0.172	-0.340**	-0.060	0.199		
	(0.23)	(1.27)	(-2.59)	(-0.33)	(1.20)		
$Ln(Delta_{t-1})$	-0.011	-0.007	0.007	-0.009	0.021*		
	(-0.75)	(-0.78)	(0.85)	(-1.10)	(1.73)		
Sales $Metric_t$	•	•	0.032	0.066***	0.078**		
			(1.61)	(3.53)	(2.62)		
EBITDA Metric <sub>t</sub>		0.063	•	-0.411***	-0.388***		
· ·		(1.63)		(-11.04)	(-10.10)		
EBIT Metric,		0.072***	-0.229***	•	-0.385***		
·		(3.54)	(-9.63)		(-10.73)		
Earnings Metric <sub>t</sub>		0.082**	-0.207***	-0.369***	•		
0 .		(2.59)	(-8.34)	(-9.76)	•		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	8,000	8,000	8,000	8,000	8,000		
R <sup>2</sup>	0.274	0.262	0.286	0.266	0.323		

Panel B. Internal versus External Hires					
	(1)	(2)			
Sample Restriction:	External $Hire_t = 0$	<i>External</i> $Hire_t = 1$			
Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>			
CEO Tenure Years $0-2_t$	0.065	0.285***			
	(1.28)	(3.92)			
CEO Tenure Years $3-5_t$	0.054	0.193***			
	(1.04)	(3.03)			
CEO Tenure Years $6-8_t$	0.044	0.147*			
	(1.06)	(1.92)			
$Book-to-Market_{t-1}$	-0.202**	-0.030			
	(-2.58)	(-0.28)			
$Ln(Firm Age_t)$	$-0.152^{***}$	-0.056			
	(-3.77)	(-0.44)			
Ln( <i>Market Capitalization</i> <sub>t-1</sub> )	-0.022	-0.035			
	(-1.28)	(-1.42)			
<i>Idiosyncratic Volatility</i> <sub>t-1</sub>	1.233**	1.915*			
	(2.39)	(1.95)			
Free Cash Flow <sub>t-1</sub>	-0.036	1.077*			
	(-0.12)	(1.92)			
$Ln(Delta_{t-1})$	-0.015	0.052*			
	(-0.82)	(1.79)			
Industry Fixed Effects	yes	yes			
Year Fixed Effects	yes	yes			
Ν	6,944	1,057			
$R^2$	0.270	0.371			

# Table 6. CEO Tenure and Bonus Plan Cost Shielding (cont'd)

## Table 7. Top Management Team Contracting and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan performance measures on measures top management team length and turnover. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. *t*-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

	(1)	(2)
Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>
Ton Management Team Length	0.007*	
Top Munagement Team Length <sub>t-1</sub>	(1.82)	
Top Managament Team Turnovar	(-1.82)	0.020***
Top Munugement Teum Turnover <sub>t-1</sub>		(2.78)
Rook_to_Market	_0 183**	
DOOK = 10 = Mar Kert-r	(-253)	(_2 59)
In(Firm Age.)	-0 138***	-0 142***
	(-3, 20)	(-3, 39)
Ln(Market Capitalization 1)	-0.029*	-0.029*
	(-2, 00)	(-2.01)
Idiosyncratic Volatility,	1.368**	1.349**
	(2.64)	(2.65)
Free Cash Flow,	0.073	0.089
	(0.25)	(0.31)
$Ln(Delta_{l-1})$	-0.011	-0.011
	(-0.87)	(-0.80)
$Ln(CEO Tenure_t)$	-0.045**	-0.038*
	(-2.16)	(-1.85)
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Ν	8,000	8,000
$R^2$	0.274	0.275

# Table 8. Within-Firm Shocks to Contracting Value:CEO Turnovers due to Health/Death

This table presents results from regressions of CEO bonus plan performance measures on within-firm shocks to executive turnover, using our hand-collected sample of CEO turnovers due to death or health reasons. Panel A presents descriptive statistics. Panel B presents results using our categorical measure of the degree of cost shielding in the CEO's bonus plan. Column (1) of Panel B presents results without controls, and Column (2) presents results with controls. Each column includes untabulated firm and year fixed effects. All variables are as defined in Appendix C. *t*-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 - 2017.

Panel A. Descriptive Statistics						
Std.						
Variable	Ν	Mean	Dev.	25th	50th	75th
CEO Health/Death Turnover	8,000	0.002	0.050	0.000	0.000	0.000
Conditional on <i>CEO Turnover</i> = 1						
CEO Health/Death Turnover	716	0.028	0.165	0.000	0.000	0.000
Panel B. Ge	eneralized l	Difference	-in-Differe	ences		
			(1)		(2)	
Dependent Variable:		(	Cost Shield		Cost Sh	ield
		C			COSi Sh	ieiu <sub>t</sub>
CEO Health/Death Turnover <sub>t-1</sub>			0.124**	¢	0.1	17**
			(2.53)		(2.3	8)
Book—to—Market <sub>t-1</sub>			•		-0.10	3***
			•		(-3.22	)
$Ln(Firm Age_t)$			•			2**
		·			(-2.48	)
$Ln(Market Capitalization_{t-1})$			•		0.18	7
			·			)
<i>Idiosyncratic Volatility</i> <sub>t-1</sub>						4
			•		(-0.44	)
Free Cash Flow <sub>t-1</sub>			•		-0.00	8
			•		(-0.80	)
$Ln(Delta_{l-1})$			•		0.05	1
			•		(0.71	)
$Ln(CEO Tenure_t)$			•		-0.00	2
			·		(-0.31	)
Firm Fixed Effects			yes		yes	
Year Fixed Effects			yes		yes	
N			8,000		8,00	0
$\mathbb{R}^2$			0.769		0.77	1

# Table 9. Sources of Variation in Bonus Plan Cost Shielding

This table presents results from an analysis of variance (ANOVA) of bonus plan cost shielding explained by year, industry, firm, and compensation consultant fixed effects. The explained variance is the "Between variance", estimated as the unadjusted  $R^2$  from a regression of *Cost Shield* (defined in Appendix A) on a vector of indicators. The variance left unexplained ("Within variance") is the residual variance in *Cost Shield* that is not explained by the indicators, and is computed as  $1 - R^2$ .

Model: Bonus plan cost shielding regressed on fixed effects						
Source of variation	Between variance	Within variance				
	$(\mathbf{R}^2)$	$(1-R^2)$				
Year fixed effect	0.01	0.99				
Industry fixed effect	0.23	0.77				
Firm fixed effect	0.76	0.24				
Compensation consultant fixed effect	0.08	0.92				
Year and compensation consultant fixed effects	0.09	0.91				
Industry and compensation consultant fixed effects	0.27	0.73				
Firm and compensation consultant fixed effects	0.77	0.23				

# Table 10. Industry Characteristics and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan cost shielding on measures of industry characteristics. Each column includes untabulated year fixed effects. All variables are as defined in Appendix C. *t*-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 - 2017.

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Cost Shield <sub>t</sub>				
Product Velocity <sub>t</sub>	-0.274***				
	(-3.44)				
Product Durability <sub>t</sub>	•	0.093***	•	•	•
	•	(4.18)	•	•	•
Industry Depreciation Volatility <sub>t</sub>	•	•	39.987***	•	•
	•	•	(5.43)	•	•
Industry Interest Volatility <sub>t</sub>	•	•	•	40.542***	•
	•	•	•	(2.79)	•
Industry ETR Volatility <sub>t</sub>	•	•	•	•	0.207
	•	•	•	•	(1.67)
Controls	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
N	8,000	8,000	8,000	8,000	8,000
$\mathbb{R}^2$	0.132	0.143	0.161	0.125	0.122

# **Cost Shielding in Executive Bonus Plans**

## **Online Appendix**

This appendix contains additional analyses referenced in our paper, and is organized as follows:

- Analysis of cost volatilities and bonus plan cost shielding (Table OA1)
- Analysis excluding controls for inclusion of other performance metrics (Table OA2)
- Analysis using lowest-paid named executive officer bonus plans (Table OA3)
- Alternative cost shielding aggregation: Weights in bonus plan (Table OA4)
- Alternative cost shielding aggregation: Actual costs shielded (Table OA5)
- Controlling for contract complexity (Table OA6)
- Controlling for *pro forma* reporting (Table OA7)

#### Table OA1. Cost Volatility and Bonus Plan Cost Shielding

This table presents results from regressions of CEO bonus plan performance measures on income statement cost and earnings volatilities. Panel A presents results for measures of cost volatilities. Column (1) of each panel presents results using our aggregated categorical measure of cost shielding, and columns (2) through (5) of each panel presents results using indicators for whether the CEO's bonus plan for the year includes (i) sales, (ii) earnings before interest, taxes, depreciation, and amortization, (iii) earnings before interest and taxes, or (iv) after–tax earnings as dependent variables, respectively, after including additional controls for indicators of other income–statement based bonus plan performance measure indicators. Panel B presents results after excluding controls for the use of other performance metrics. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. *t*–statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

Panel A. Cost Volatility							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
Depreciation Volatility <sub>t-1</sub>	6.317*	2.311	-0.365	-3.705***	-3.744**		
	(2.01)	(1.60)	(-0.30)	(-3.08)	(-2.49)		
Interest Volatility <sub>t-1</sub>	5.875	-4.013	10.603***	0.618	-3.153		
	(1.28)	(-1.57)	(4.30)	(0.25)	(-1.13)		
ETR Volatility <sub>t-1</sub>	0.022	-0.001	0.020**	0.009	0.004		
	(1.39)	(-0.07)	(2.52)	(0.88)	(0.54)		
Controls	yes	yes	yes	yes	yes		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	8,000	8,000	8,000	8,000	8,000		
R <sup>2</sup>	0.280	0.264	0.309	0.269	0.327		

Panel B. Cost Volatility Excluding Other Indicators					
	(1)	(2)	(3)	(4)	(5)
		Sales	EBITDA	EBIT	Earnings
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$
Depreciation Volatility <sub>t-1</sub>	6.317*	1.929	0.896	-2.903***	-2.810*
	(2.01)	(1.27)	(0.80)	(-2.89)	(-2.08)
Interest Volatility <sub>t-1</sub>	5.875	-3.871	12.339***	-2.001	-7.325*
	(1.28)	(-1.47)	(4.80)	(-0.80)	(-2.28)
ETR Volatility <sub>t-1</sub>	0.022	0.001	0.020**	0.002	-0.004
	(1.39)	(0.05)	(2.09)	(0.20)	(-0.54)
Controls	yes	yes	yes	yes	yes
Indicators for Other Metrics	yes	no	no	no	no
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes

8,000

0.257

8,000

0.215

8,000

0.100

8,000

0.186

8,000

0.280

 $\frac{N}{R^2}$
#### **Table OA2. Excluding Indicators for Other Performance Measures**

This table repeats each of our primary analyses in Tables 3 through 6 after estimating separate regressions for our bonus plan performance metric indicators while exclusing controls for the use of other performance metrics. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. For parsimony, we do not tabulate coefficients on control variables. t-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A. Intangible Investment Levels							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable	Cost Shield.	Sales Metric.	EBITDA Metric.	EBIT Metric.	Earnings Metric.		
	cost Shield	inclute <sub>l</sub>	men ve <sub>l</sub>	menner	mentel		
<i>R&amp;D Investment</i> <sub>t-1</sub>	1.342**	0.794*	-1.183***	0.524	-0.491		
	(2.06)	(1.82)	(-3.77)	(1.23)	(-1.62)		
Advertising Investment <sub>t-1</sub>	1.840**	1.602**	-0.373	0.000	-0.023		
	(2.59)	(2.30)	(-0.75)	(0.00)	(-0.04)		
Controls	yes	yes	yes	yes	yes		
Indicators for Other Metrics	no	no	no	no	no		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	8,000	8,000	8,000	8,000	8,000		
R <sup>2</sup>	0.279	0.262	0.192	0.099	0.180		

Panel B. Firm Lifecyci
------------------------

	(1)	(2)	(3)	(4)	(5)
		Sales	ERITDA	ERIT	Farnings
Dependent Variable:	Cost Shield <sub>t</sub>	<i>Metric</i> <sup>t</sup>	$Metric_t$	$Metric_t$	Metric <sub>t</sub>
$Ln(Firm Age_t)$	-0.141***	-0.027	-0.056 **	-0.039	0.083**
	(-3.36)	(-1.10)	(-2.50)	(-1.54)	(2.66)
Book-to-Market <sub>t-1</sub>	-0.184**	-0.092**	-0.060*	0.010	0.103**
	(-2.54)	(-2.07)	(-1.69)	(0.25)	(2.19)
Controls	yes	yes	yes	yes	yes
Indicators for Other Metrics	no	no	no	no	no
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
R <sup>2</sup>	0.274	0.256	0.182	0.098	0.179

<i>P</i>	anel C. Concerns	over Manag	gerial Myopia		
	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	$EBITDA$ $Metric_t$	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>
SEC Investigation <sub>t-1</sub>	0.085*** (3.19)	0.043* (1.82)	0.018 (0.98)	0.030 (1.12)	$-0.035^{*}$
Class Action Litigation <sub>t-1</sub>	0.083* (1.73)	0.013 (0.42)	0.032 (1.36)	0.005 (0.17)	-0.043 (-0.93)
Controls	yes	yes	yes	yes	yes
Indicators for Other Metrics	no	no	no	no	no
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
R <sup>2</sup>	0.276	0.257	0.183	0.098	0.180

# Table OA2. Excluding Indicators for Other Performance Measures (cont'd)

Panel D. CEO Tenure							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
CEO Tenure Years 0-2,	0.098**	0.035	0.043**	-0.020	0.018		
CEO Tenure Years $3-5_t$	(2.17) 0.081*	(1.34) 0.034	(2.05) 0.038*	(-0.76) -0.025	(0.67) 0.018		
CEO Tenure Years 6-8.	(1.70) 0.060	(1.26)	(1.96) 0.024	(-0.95) -0.037	(0.57) 0.005		
	(1.50)	(1.04)	(1.46)	(-1.60)	(0.19)		
Controls	yes	yes	yes	yes	yes		
Indicators for Other Metrics	no	no	no	no	no		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	8,000	8,000	8,000	8,000	8,000		
<b>R</b> <sup>2</sup>	0.274	0.256	0.182	0.098	0.179		

#### Table OA3. Cost Shielding in Lowest-Paid NEO Bonus Plans

This table presents results from measuring bonus plan cost shielding based on the firm's lowest-paid named executive officer's (NEO's) bonus plan. Panel A presents descriptive statistics for our aggregate measure of cost shielding based on the nowest-paid NEO's bonus plan. Panels B through F present results from repeating our primary analyses in Tables 3 through 7, respectively. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. For parsimony, we do not tabulate coefficients on control variables. t-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A. Descriptive Statistics						
			Std.			
Variable	Ν	Mean	Dev.	25th	50th	75th
Cost Shielding in Lowest-Paid NEO Bonus Plan						
Cost Shield	7,422	0.76	0.73	0.00	0.67	1.25

Panel B. Intangible Investment Levels							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
<i>R&amp;D Investment</i> <sub><i>i</i>-1</sub>	1.167* (1.80)	0.722 (1.59)	-1.289*** (-4.27)	-0.654 $(-1.50)$	-0.989*** (-2.97)		
Advertising Investment <sub>t-1</sub>	1.755** (2.38)	1.488** (2.02)	-0.449 (-1.14)	0.056 (0.09)	-0.153 (-0.30)		
Controls	yes	yes	yes	yes	yes		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	7,422	7,422	7,422	7,422	7,422		
R <sup>2</sup>	0.270	0.260	0.295	0.269	0.323		

Panel C. Firm Lifecycle							
	(1)	(2)	(3)	(4)	(5)		
		Sales	EBITDA	EBIT	Earnings		
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$		
$Ln(Firm Age_{t-1})$	-0.113**	-0.015	-0.042**	-0.021	0.034		
	(-2.42)	(-0.51)	(-2.18)	(-1.10)	(1.35)		
Book-to-Market <sub>t-1</sub>	-0.159**	-0.069*	-0.046	0.023	0.065		
	(-2.36)	(-1.85)	(-1.57)	(0.88)	(1.67)		
Controls	yes	yes	yes	yes	yes		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	7,422	7,422	7,422	7,422	7,422		
R <sup>2</sup>	0.270	0.255	0.286	0.268	0.320		

	Panel D. Concerns	over Mana	igerial Myopia	a			
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
SEC Investigation <sub>t-1</sub>	0.084*** (3.47)	0.030 (1.56)	0.018 (1.00)	0.028 (1.32)	-0.014 (-0.72)		
Class Action Litigation <sub>t-1</sub>	0.097* (1.84)	0.017 (0.51)	0.037* (1.99)	0.021 (0.80)	-0.028 (-0.81)		
Controls Industry Fixed Effects	yes yes	yes yes	yes yes	yes yes	yes yes		
Year Fixed Effects N	yes 7,422	yes 7,422	yes 7,422	yes 7,422	yes 7,422		
R <sup>2</sup>	0.273	0.255	0.287	0.268	0.321		
Panel E. CEO Tenure							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
CEO Tenure Years $0-2_t$	0.060	0.022	0.033*	-0.021	0.024		

### Table OA3. Cost Shielding in Lowest-Paid NEO Bonus Plans (cont'd)

- -

(1.11)

0.046

(1.00)

0.010

(0.31)

yes

yes

yes

7,422

0.270

CEO Tenure Years 3-5<sub>t</sub>

CEO Tenure Years 6-8<sub>t</sub>

Industry Fixed Effects

Year Fixed Effects

Controls

Ν

 $\mathbb{R}^2$ 

Panel F. Top Management Team Contracting

(0.74)

0.013

(0.48)

0.008

(0.34)

yes

yes

yes

7,422

0.255

(1)

(1.75)

(2.10)

0.014

(0.87)

yes

yes

yes

7,422

0.287

0.037\*\*

(-0.92)

-0.007

(-0.31)

(-1.86)

-0.034\*

yes

yes

yes

7,422

0.268

(2)

(0.81)

0.028

(0.98)

0.017

(0.80)

yes

yes

yes

7,422

0.321

Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>
<i>Top Management Team Length</i> <sub>t-1</sub>	-0.003	·
	(-0.74)	·
<i>Top Management Team Turnover</i> <sub>t-1</sub>	•	0.028***
		(2.80)
Controls	yes	yes
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Ν	7,422	7,422
$\mathbb{R}^2$	0.270	0.271

#### Table OA4. Alternative Measure of Cost Shielding: Bonus Plan Weights

This table presents results from measuring bonus plan cost shielding based on the actual contractual weights identified in the firm's proxy statement. Panel A presents descriptive statistics for our aggregate measure of cost shielding based on the weights from the proxy statement. Panels B through F present results from repeating our primary analyses in Tables 3 through 7, respectively. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. For parsimony, we do not tabulate coefficients on control variables. tstatistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A. Descriptive Statistics						
			Std.			
Variable	Ν	Mean	Dev.	25th 5	0th 75th	
Cost Shield Weighted by Bonus Pl	an Vesting Weight	t				
Cost Shield	7,997	0.71	0.73	0.00 0	.56 1.20	
	Panel B. Intang	ible Investm	ent Levels			
	(1)	(2)	(3)	(4)	(5)	
		Sales	ERITDA	ERIT	Earnings	
Dependent Variable:	Cost Shield,	Metric,	Metric,	Metric,	Metric,	
		inten req	112011001	11001001	112011001	
<i>R&amp;D Investment</i> <sub>t-1</sub>	1.478**	0.868**	-1.199***	-0.204	-0.813**	
	(2.23)	(2.11)	(-3.63)	(-0.43)	(-2.35)	
Advertising Investment <sub>t-1</sub>	1.495*	1.637**	-0.438	-0.269	-0.304	
	(1.99)	(2.40)	(-1.15)	(-0.46)	(-0.58)	
Controls	yes	yes	yes	yes	yes	
Industry Fixed Effects	yes	yes	yes	yes	yes	
Year Fixed Effects	yes	yes	yes	yes	yes	
Ν	7,997	7,997	7,997	7,997	7,997	
R <sup>2</sup>	0.256	0.268	0.292	0.265	0.323	
	Panel C.	Firm Lifecy	cle			
	(1)	(2)	(3)	(4)	(5)	
		Sales	EBITDA	EBIT	Earnings	
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$	
		·				
Ln( <i>Firm Age</i> <sub>t-1</sub> )	-0.162***	-0.028	-0.047**	-0.030*	0.048**	
	(-3.58)	(-1.15)	(-2.49)	(-1.74)	(2.27)	
Book-to-Market <sub>t-1</sub>	-0.166**	-0.097**	-0.033	0.030	0.091**	
	(-2.34)	(-2.21)	(-1.11)	(0.89)	(2.20)	
Controls	yes	yes	yes	yes	yes	
Industry Fixed Effects	yes	yes	yes	yes	yes	
Year Fixed Effects	yes	yes	yes	yes	yes	
Ν	7,997	7,997	7,997	7,997	7,997	
$\mathbb{R}^2$	0.266	0.268	0.296	0.266	0.325	

	Panel D. Concerns	over Manag	gerial Myopia		
	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>
SEC Investigation <sub>t-1</sub>	0.078*** (2.72)	0.042* (1.74)	0.016 (0.92)	0.022 (0.95)	-0.019 (-0.89)
Class Action Litigation <sub>t-1</sub>	0.075 (1.52)	0.011 (0.33)	0.023 (1.06)	0.000 (0.01)	-0.028 (-0.74)
Controls	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	7,997	7,997	7,997	7,997	7,997
R <sup>2</sup>	0.263	0.262	0.286	0.266	0.323

## Table OA4. Alternative Measure of Cost Shielding: Bonus Plan Weights (cont'd)

Panel E. CEO Tenure							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
CEO Tenure Years 0-2 <sub>t</sub>	0.104**	0.032	0.041**	0.002	0.024		
CEO Tenure Years 3-5,	(2.39) 0.086*	(1.17) 0.032	(2.38) 0.035**	(0.10) 0.006	(0.96) 0.020		
CEO Tonura Vaars 6.8	(1.95)	(1.14)	(2.09)	(-0.27)	(0.74)		
CLO Tenure Teurs 0-0t	(1.59)	(1.05)	(1.02)	(-1.43)	(-0.09)		
Controls	yes	yes	yes	yes	yes		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	7,997	7,997	7,997	7,997	7,997		
R <sup>2</sup>	0.261	0.262	0.286	0.266	0.323		

Panel F. Top Management Team Contracting

(1)

(2)

Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>
Top Management Team Length <sub>t-1</sub>	-0.007*	·
	(-1.99)	•
<i>Top Management Team Turnover</i> <sub>t-1</sub>	•	0.032***
	•	(2.85)
Controls	yes	yes
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Ν	7,997	7,997
$\mathbb{R}^2$	0.262	0.263

#### Table OA5. Alternative Measure of Cost Shielding: Actual Costs Shielded

This table presents results from measuring bonus plan cost shielding based on the proportion of actual costs shielded by the bonus plan. Panel A presents descriptive statistics for our aggregate measure of cost shielding based on the actual costs shielded by the bonus plan, in addition to the magnitudes of the expenses shielded as a proportion of earnings for firms with positive earnings. Panels B through F present results from repeating our primary analyses in Tables 3 through 7, respectively. Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. For parsimony, we do not tabulate coefficients on control variables. *t*–statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A. Descriptive Statistics									
Std.									
Variable	Ν	Mean	Dev.	25th	50th	75th			
Expenses Excluded (scaled by Earnings)									
Depreciation & Amortization									
Expense	7,018	1.48	15.44	0.24	0.45	0.88			
Interest & Tax Expense	7,018	1.82	27.66	0.46	0.68	1.05			
Total Expense	7,018	33.07	335.67	5.98	10.58	19.06			
Cost Shielding Weighted by Actual Expenses Shielded									
Cost Shield	7,989	0.17	0.20	0.00	0.05	0.33			

Panel B. Intangible Investment Levels

	(1)	(2)	(3)	(4)	(5)
		Sales	EBITDA	EBIT	Earnings
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$
<i>R&amp;D Investment</i> <sub>t-1</sub>	0.569***	0.843*	-1.211***	-0.217	-0.833**
	(2.85)	(1.99)	(-3.64)	(-0.45)	(-2.34)
Advertising Investment <sub>t-1</sub>	0.535**	1.628**	-0.442	-0.273	-0.307
	(2.35)	(2.38)	(-1.16)	(-0.47)	(-0.58)
Controls	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	7,989	7,989	7,989	7,989	7,989
$\mathbb{R}^2$	0.276	0.268	0.296	0.266	0.326

Panel C. Firm Lifecycle							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
Ln( <i>Firm Age</i> <sub>t-1</sub> )	-0.031***	-0.027	-0.047**	-0.030*	0.048**		
	(-2.85)	(-1.13)	(-2.48)	(-1.73)	(2.28)		
Book-to-Market <sub>t-1</sub>	-0.043**	-0.097**	-0.033	0.030	0.091**		
	(-2.13)	(-2.21)	(-1.11)	(0.89)	(2.20)		
Controls	yes	yes	yes	yes	yes		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	7,989	7,989	7,989	7,989	7,989		
R <sup>2</sup>	0.272	0.268	0.293	0.265	0.324		

Panel D. Concerns over Managerial Myopia						
	(1)	(2)	(3)	(4)	(5)	
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>	
SEC Investigation <sub>t-1</sub>	0.017**	0.041*	0.016	0.021 (0.94)	-0.019	
Class Action Litigation <sub>t-1</sub>	0.013 (0.90)	0.011 (0.33)	0.023 (1.04)	0.000 (0.02)	-0.026 (-0.69)	
Controls	yes	yes	yes	yes	yes	
Industry Fixed Effects	yes	yes	yes	yes	yes	
Year Fixed Effects	yes	yes	yes	yes	yes	
Ν	7,989	7,989	7,989	7,989	7,989	
R <sup>2</sup>	0.268	0.263	0.286	0.266	0.323	

## Table OA5. Alternative Measure of Cost Shielding: Actual Costs Shielded (cont'd)

Panel E. CEO Tenure							
	(1)	(2)	(3)	(4)	(5)		
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>		
CEO Tenure Years 0-2,	0.024**	0.031	0.041**	0.002	0.025		
CEO Tenure Years 3-5,	(2.13) 0.020	(1.14) 0.031	(2.35) 0.034**	(0.08) -0.006	(0.96) 0.020		
	(1.61)	(1.12)	(2.08)	(-0.28)	(0.74)		
CEO Tenure Years $6-8_t$	0.019* (1.90)	0.030 (1.09)	0.016 (1.04)	-0.026 (-1.42)	-0.001 (-0.05)		
Controls	yes	yes	yes	yes	yes		
Industry Fixed Effects	yes	yes	yes	yes	yes		
Year Fixed Effects	yes	yes	yes	yes	yes		
Ν	7,989	7,989	7,989	7,989	7,989		
R <sup>2</sup>	0.267	0.262	0.286	0.266	0.323		

Panel F. Top Management Team Contracting

(1)

(2)

Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>
<i>Top Management Team Length</i> <sub>t-1</sub>	-0.002	·
	(-1.48)	•
Top Management Team Turnover <sub>t-1</sub>	•	0.007**
	•	(2.37)
Controls	yes	yes
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Ν	7,989	7,989
R <sup>2</sup>	0.268	0.268

#### Table OA6. Controlling for Contract Complexity

This table repeats each of our primary analyses in Tables 3 through 7 after controlling for contract complexity by including fixed effects for the total number of performance metrics in the CEO's bonus plan. Each column includes untabulated Fama-French 48 industry, year fixed, and number of performance metric effects. All variables are as defined in Appendix C. For parsimony, we do not tabulate coefficients on control variables. *t*-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two–sided) at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A. Intangible Investment Levels						
	(1)	(2)	(3)	(4)	(5)	
		Sales	EBITDA	EBIT	Earnings	
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$	
<i>R&amp;D Investment</i> <sub>t-1</sub>	1.107**	0.285	$-1.209^{***}$	-0.452	$-0.907^{***}$	
Advertising Investment <sub>t-1</sub>	(2.43) 1.417* (2.00)	0.943 (1.62)	(-4.54) -0.559* (-1.81)	(-1.01) -0.502 (-0.96)	(-3.57) -0.539 (-1.20)	
Controls	yes	yes	yes	yes	yes	
No. of Metrics Fixed Effects	yes	yes	yes	yes	yes	
Industry Fixed Effects	yes	yes	yes	yes	yes	
Year Fixed Effects	yes	yes	yes	yes	yes	
Ν	8,000	8,000	8,000	8,000	8,000	
R <sup>2</sup>	0.371	0.479	0.401	0.426	0.528	

I unci $D$ . $I$ in $II$ $Dijecvent$	Panel	В.	Firm	Lifecvcl	le
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	(1)	(2)	(3)	(4)	(5)
		Salas		FRIT	Farnings
Dependent Variable:	Cost Shield	Sules	EDIIDA Matric	EDI1 Matric	Eurnings Motric
Dependent Variable.	Cost Shieiut	Metrici	Metrici	Metrici	Metrici
Ln( <i>Firm Age</i> <sub>t-1</sub> )	-0.130***	-0.019	-0.043***	-0.028*	0.030*
	(-3.40)	(-0.98)	(-2.70)	(-1.72)	(1.74)
Book-to-Market <sub>t-1</sub>	-0.181***	-0.073**	-0.033	0.015	0.056**
	(-2.73)	(-2.04)	(-1.19)	(0.54)	(2.21)
Controls	yes	yes	yes	yes	yes
No. of Metrics Fixed Effects	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
$\mathbb{R}^2$	0.368	0.477	0.390	0.424	0.525

Panel C. Concerns over Managerial Myopia								
	(1)	(2)	(3)	(4)	(5)			
		C 1			<b>.</b>			
	G	Sales	EBIIDA	EBII	Earnings			
Dependent Variable:	Cost Shield <sub>t</sub>	<i>Metric</i> <sup>t</sup>	<i>Metric</i> <sup>t</sup>	<i>Metric</i> <sub>t</sub>	<i>Metric</i> <sub>t</sub>			
SEC Investigation <sub>t-1</sub>	0.068***	0.031	0.011	0.015	-0.017			
	(2.80)	(1.63)	(0.63)	(0.72)	(-0.91)			
Class Action Litigation <sub>t-1</sub>	0.084*	0.023	0.022	0.006	-0.016			
	(1.69)	(0.79)	(1.06)	(0.26)	(-0.55)			
Controls	yes	yes	yes	yes	yes			
No. of Metrics Fixed Effects	yes	yes	yes	yes	yes			
Industry Fixed Effects	yes	yes	yes	yes	yes			
Year Fixed Effects	yes	yes	yes	yes	yes			
Ν	8,000	8,000	8,000	8,000	8,000			
R <sup>2</sup>	0.370	0.478	0.390	0.425	0.525			
Panel D. CEO Tenure								
	(1)	(2)	(3)	(4)	(5)			
		Salas		FRIT	Farnings			
Dependent Variable:	Cost Shield	Matric	Matric	Matric	Matric			
CEO Temuro Vegrs 0.2	0.008**	0.021	0.020**					
$CEO$ Tenure Teurs $0-2_t$	(2.17)	(0.021)	(2.05)	-0.000	0.009			
CEO Tomuno Vogue 2.5	(2.17)	(0.99)	(2.03)	(-0.28)	(0.43)			
CEO Tenure Tears 5-5t	(1.70)	(1.02)	(1.49)	-0.015	0.004			
	(1.70)	(1.08)	(1.48)	(-0.66)	(0.16)			
CEO Tenure Years 6-8 <sub>t</sub>	0.060	0.014	0.008	-0.029*	-0.011			
	(1.50)	(0.65)	(0.54)	(-1.79)	(-0.63)			
Controls	yes	yes	yes	yes	yes			
No. of Metrics Fixed Effects	yes	yes	yes	yes	yes			
Industry Fixed Effects	yes	yes	yes	yes	yes			
Year Fixed Effects	yes	yes	yes	yes	yes			
Ν	8,000	8,000	8,000	8,000	8,000			
R <sup>2</sup>	0.274	0.477	0.390	0.425	0.525			

## Table OA6. Controlling for Contract Complexity (cont'd)

Panel E. Top Management Team Contracting

	(1)	(2)
Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>
Top Management Team Length <sub>t-1</sub>	-0.007	•
	(-1.64)	•
Top Management Team Turnover <sub>t-1</sub>	•	0.030**
	•	(2.30)
Controls	yes	yes
No. of Metrics Fixed Effects	yes	yes
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Ν	8,000	8,000
$\mathbb{R}^2$	0.274	0.275

#### Table OA7. Controlling for Non-GAAP Reporting

This table repeats each of our primary analyses in Tables 3 through 7 after controlling for an indicator for whether the firm reports non-GAAP performance measures in its earnings announcements (*Non-GAAP Reporting*), following Bentley et al. (2018). Each column includes untabulated Fama-French 48 industry and year fixed effects. All variables are as defined in Appendix C. For parsimony, we do not tabulate coefficients on control variables. *t*-statistics appear in parentheses and are clustered by industry. \*, \*\*, \*\*\* indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively.

Panel A. Intangible Investment Levels					
	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	Cost Shield <sub>t</sub>	Sales Metric <sub>t</sub>	EBITDA Metric <sub>t</sub>	EBIT Metric <sub>t</sub>	Earnings Metric <sub>t</sub>
<i>R&amp;D Investment</i> <sub>t-1</sub>	1.259*	0.840*	-1.201***	-0.223	-0.864**
Advertising Investment <sub>t-1</sub>	(1.86) 1.849**	(2.00) 1.637**	(-3.60) -0.438	(-0.48) -0.267	(-2.57) -0.296
	(2.60)	(2.40)	(-1.15)	(-0.45)	(-0.56)
Non-GAAP Reporting <sub>t-1</sub>	0.044	0.024	0.002	0.013	0.022
	(1.39)	(1.24)	(0.20)	(0.59)	(0.90)
Controls	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
R <sup>2</sup>	0.279	0.269	0.296	0.266	0.326

Panel B.	Firm	Lifecycl	le
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	(1)	(2)	(3)	(4)	(5)
					_
		Sales	EBITDA	EBIT	Earnings
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$
$Ln(Firm Age_t)$	-0.140***	-0.027	-0.048 * *	-0.030*	0.049**
	(-3.35)	(-1.12)	(-2.48)	(-1.70)	(2.29)
Book-to-Market <sub>t-1</sub>	-0.192**	-0.101**	-0.033	0.028	0.089**
	(-2.64)	(-2.32)	(-1.07)	(0.87)	(2.20)
Non-GAAP Reporting <sub>t-1</sub>	0.053*	0.030	-0.007	0.011	0.016
	(1.75)	(1.58)	(-0.59)	(0.49)	(0.61)
Controls	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
R <sup>2</sup>	0.275	0.263	0.286	0.266	0.323

Panel C. Concerns over Managerial Myopia					
	(1)	(2)	(3)	(4)	(5)
		Sales	EBITDA	EBIT	Earnings
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$
SEC Investigation <sub>t-1</sub>	0.083***	0.042*	0.017	0.022	-0.020
	(3.14)	(1.80)	(0.96)	(0.93)	(-0.94)
Class Action Litigation <sub>t-1</sub>	0.083*	0.015	0.024	0.001	-0.029
	(1.75)	(0.44)	(1.12)	(0.06)	(-0.77)
Non-GAAP Reporting <sub>t-1</sub>	0.051	0.030	-0.007	0.011	0.016
	(1.67)	(1.54)	(-0.62)	(0.47)	(0.63)
Controls	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
$\mathbb{R}^2$	0.277	0.264	0.286	0.266	0.324
Panel D. CEO Tenure					
	(1)	(2)	(3)	(4)	(5)
		Sales	EBITDA	EBIT	Earnings
Dependent Variable:	Cost Shield <sub>t</sub>	$Metric_t$	$Metric_t$	$Metric_t$	$Metric_t$
CEO Tenure Years $0-2_t$	0.098**	0.032	0.041**	0.002	0.025
	(2.18)	(1.18)	(2.37)	(0.10)	(0.97)
CEO Tenure Years $3-5_t$	0.080*	0.032	0.035**	-0.005	0.020
	(1.70)	(1.14)	(2.10)	(-0.26)	(0.72)
CEO Tenure Years $6-8_t$	0.059	0.029	0.016	-0.027	-0.002
	(1.49)	(1.04)	(1.03)	(-1.44)	(-0.09)
Non-GAAP Reporting <sub>t-1</sub>	0.053*	0.030	-0.007	0.011	0.016
	(1.74)	(1.57)	(-0.60)	(0.50)	(0.62)
Controls	yes	yes	yes	yes	yes
Industry Fixed Effects	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes
Ν	8,000	8,000	8,000	8,000	8,000
<u>R<sup>2</sup></u>	0.267	0.262	0.282	0.266	0.321

## Table OA7. Controlling for non-GAAP Reporting (cont'd)

Panel E. Top Management Team Contracting

	(1)	(2)
Dependent Variable:	Cost Shield <sub>t</sub>	Cost Shield <sub>t</sub>
Top Management Team Length <sub>t-1</sub>	-0.007*	•
	(-1.80)	•
Top Management Team Turnover <sub>t-1</sub>	•	0.029***
	•	(2.77)
Non-GAAP Reporting <sub>t-1</sub>	0.052*	0.051*
	(1.73)	(1.69)
Controls	yes	yes
Industry Fixed Effects	yes	yes
Year Fixed Effects	yes	yes
Ν	8,000	8,000
$\mathbb{R}^2$	0.276	0.276