

Cost Shielding in Executive Bonus Plans*

Matthew Bloomfield
mjbloom@wharton.upenn.edu
The Wharton School
University of Pennsylvania

Brandon Gipper
gipperbr@stanford.edu
Graduate School of Business
Stanford University

John D. Kepler
jdkepler@stanford.edu
Graduate School of Business
Stanford University

David Tsui[†]
david.tsui@marshall.usc.edu
Marshall School of Business
University of Southern California

Draft: October 25, 2019

* We thank Chris Armstrong, Jon Bonham, Shane Dikolli, Wayne Guay, and Kevin Smith for helpful comments and suggestions. We thank the authors of Peters and Wagner (2014) and Jenter and Kanaan (2015) for providing the data used in their papers. We thank our respective schools for financial support.

[†] Corresponding author.

Cost Shielding in Executive Bonus Plans

Abstract: Boards of directors incorporate a wide variety of performance measures into executive bonus plans. The vast majority of this variation reflects heterogeneity in the choice of specific income statement-based measures (e.g., EBITDA versus net income)—and thus the extent to which boards disregard certain costs when evaluating executives—but the reasons for these differences are not well understood. We develop a measure of cost shielding in executive bonus plans and examine whether boards use cost shielding to alleviate agency conflicts between executives and shareholders. Consistent with theoretical predictions, we find that boards select performance measures to shield executives from costs that are (i) noisier signals of executives' actions; (ii) recognized prior to their associated benefits (i.e., revenues); or (iii) the result of previous executives' actions, and therefore outside of the current executive's control. Our results suggest that heterogeneity in executive bonus plan performance measures reflects boards' efforts to mitigate agency conflicts through cost shielding.

JEL classification: G34; J3; M12

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

1. Introduction

Executive bonus plans provide an important source of many executives' incentives by linking their pay to performance on specific corporate objectives (Murphy and Jensen, 2011; Guay et al., 2019). The majority of the variation between firms in these bonus plan performance measures arises from heterogeneity in the choice of specific income statement ("IS") measures, such as net income versus earnings before interest, taxes, depreciation, and amortization ("EBITDA"). For instance, although nearly all plans incorporate an IS performance measure, the majority of these measures are not "bottom line" net income, but rather performance measures "higher up" on the income statement, such as EBITDA or operating income. While a large literature in accounting and finance examines performance measures in executive compensation plans, little is known about how boards select from among different IS measures.¹

The primary distinction among different IS measures is the extent to which they exclude particular expenses (or costs).² For example, sales-based measures, such as total revenue and gross margin, exclude the most expenses, while EBITDA excludes more expenses than operating income, which in turn excludes more expenses than net income. Thus, when executives are compensated based on metrics higher up on the income statement, certain expenses are either given less weight or ignored entirely—which we refer to as "cost shielding."³ In this paper, we examine

¹ 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).

² In this study, we use the terms "cost" and "expense" synonymously.

³ This discussion assumes that all income statement items besides revenue reflect expenses (i.e., reduce income). In some cases, however, these non-revenue-based items may increase income (e.g., non-operating gains), and boards might also choose to ignore these gains when choosing performance measures (i.e., "income shielding"). In our sample, non-operating gains are relatively rare and typically small in magnitude—approximately 15% of firm-years have such gains, and the median gain is less than 1% of assets and sales (untabulated).

whether—and to what extent—boards use cost shielding to facilitate incentive alignment between their executives and shareholders.⁴

Our empirical analysis uses a broad sample of CEO compensation contracts from 8,009 public U.S. firm-years between 2006 and 2017.⁵ Consistent with recent literature on executive bonuses, we focus on performance measures in executives' cash bonus plans (e.g., Guay et al., 2019). Because the specific expenses included in or excluded from these performance measures are determined early in the year, prior to the realization of the firm's actual performance, these plans reflect boards' *ex ante* decisions rather than responses to *ex post* shocks to the firm and are therefore more indicative of their contract design intentions. We use the expenses excluded from executives' performance measures to develop a summary measure of bonus plan cost shielding as well as examine the use of specific IS measures in isolation.

We begin by examining the composition of performance metrics, descriptively. We find that over our sample period, cost shielding has increased significantly and the relative frequency of each IS measure has varied substantially. There has been a secular trend away from bottom line earnings toward higher lines on the income statement, such as sales or EBITDA, indicating that in recent years boards have become increasingly likely to shield executives from particular expenses (e.g., depreciation/amortization) when designing executives' cash-based bonus plans. We also find

⁴ Prior literature suggests several potential explanations for the observed nature of compensation contracts in addition to mitigating agency conflicts between shareholders and managers, such as inefficient rent-seeking behavior (e.g., Bebchuk and Fried, 2003), value relevance (e.g., Banker et al, 2009), or strategic delegation (e.g., Fershtman and Judd, 1987; Bloomfield, 2019). Our analysis explores the extent to which optimal contracting theory appears descriptive of compensation plans in practice, but does not explicitly rule out these other explanations. We focus on agency theory in this study, but acknowledge the possibility that other factors also affect the choice of bonus plan performance measures.

⁵ While we use data from CEO bonus contracts in our empirical tests, bonus contracts are designed to incentivize all top executives to pursue firm-wide strategies (e.g., Murphy, 2001; Guay et al., 2019), and our results apply more generally to other named executive officers. We focus on CEO contracts in our tests because the board has the most *direct* influence over setting CEO compensation structures and, in many cases, delegates compensation structure design for lower-level employees to the CEO.

that boards tend to *substitute* among different types of earnings-based measures (i.e., IS measures that incorporate at least some expenses), such that the addition of one earnings-based measure often corresponds to the removal of another. In contrast, sales measures (i.e., earnings excluding *all* expenses) tend to *complement* earnings-based measures, such that the addition of an earnings-based measure often coincides with the addition of a sales measure. Thus, variation in cost shielding in bonus plans largely reflects the extent to which boards add sales measures and substitute among different earnings-based measures.

Next, we develop and test three specific hypotheses concerning the role of cost shielding in improving executive-shareholder incentive alignment. First, we predict that volatility in specific expenses influences incentive-compensation contract design. Optimal incentive contracts put smaller relative weights on noisier performance measures because they provide less precise signals of executives' actions and can expose the executive to unnecessary and uncontrollable risk (e.g., Holmström, 1979; Lambert and Larcker, 1987; Banker and Datar, 1989; Sloan, 1993). Based on this theoretical prediction, we examine whether boards shield executives from more costs when expenses are more volatile in order to (i) test whether prior findings on how noise influences performance measure choice extend to the choice of IS measures in executive bonus plans and (ii) validate our summary empirical measure of cost shielding. Consistent with economic theory and prior empirical evidence, we find more cost shielding in bonus plans when costs are more volatile (Bushman et al., 1996; Ittner et al., 1997). We further find that bonus plans tend to exclude the specific costs that are most volatile. For example, firms with high R&D volatility are much more likely to evaluate performance based on sales (i.e., exclude R&D expenses), while firms with higher depreciation or interest expense volatility are more likely to use IS measures that exclude

these expenses (e.g., sales or EBITDA) and less likely to use IS measures that include them (e.g., net income) in their executive bonus plans.

Second, we examine whether growth options, product lifecycle, and firm maturity influence specific choices of IS measures in incentive design. Investments in growth options or the introduction of new products can diminish the contracting value of net earnings as a performance measure, because these activities are likely to result in a temporal mismatch between when the costs and their associated benefits are recognized. Contracting on net earnings can therefore encourage myopic behavior by managers (e.g., Dye, 1988; Stein, 1989; Bushman et al., 1996; Ittner et al., 1997; Goldman and Slezak, 2006). To avoid adverse incentive consequences from these temporal mismatches and encourage executives to pursue growth options and invest in new products, boards can shield executives from investment-related costs, such as depreciation, amortization, and interest expenses. Consistent with these arguments, we find that when firms have more growth options, are younger, or have recently-introduced products, boards select performance measures that are higher up the income statement (e.g., sales or EBITDA), which shield executives from investment-related costs. These results are consistent with boards using cost shielding as a mechanism to mitigate agency conflicts that arise due to differences in the time horizons of managers and shareholders.

Third, we examine the role of historical or “sunk” costs in boards’ choice of IS measures in executive bonus plans. Sunk costs from prior investment choices tend to reduce current net earnings but do not reflect the executives’ current actions or efforts. As a result, boards might choose to exclude such costs when evaluating executive performance, especially for relatively new

executives who are unlikely to have had control over those prior investment decisions.⁶ Consistent with boards shielding newer executives from sunk costs, we find greater cost shielding among newly hired executives. In particular, measuring performance based on EBITDA (i.e., excluding depreciation and amortization costs from prior investments) is common for new executives, but becomes decreasingly likely over the course of an executive’s tenure. Furthermore, this pattern of greater cost shielding for new executives is more pronounced when (i) the new executive is externally hired or (ii) the departed executive was forced out, both of which reflect situations where the incoming executive should bear less responsibility for prior investments. These results suggest that boards use cost shielding to reduce the sensitivity of executives’ pay to the consequences of their predecessors’ actions. Collectively, our results from testing the three previous hypotheses are consistent with boards deliberately selecting among a “menu” of IS performance measures in order to minimize agency conflicts between executives and shareholders.

Our findings contribute to the accounting and executive incentive-compensation literatures in three primary ways. First, our study provides new insight into the nature and purpose of the specific financial performance measures included in executives’ incentive-compensation plans. Several accounting and corporate finance studies find that boards use a diverse set of performance measures (e.g., Lambert and Larcker, 1987; Ittner et al., 1997; Banker et al., 2009; Indjejikian, and Matějka, 2009; De Angelis and Grinstein, 2015).⁷ However, studies in this literature typically rely

⁶ Alternatively, if the performance effect of these sunk costs is perfectly forecastable (e.g., straight-line depreciation), the board could reduce the performance target to offset the impact of these costs rather than adjust the performance metric. However, the precise performance effects of these costs are often uncertain and therefore solely adjusting the target would not fully account for them. For example, changes to the firm’s strategy could result in disposal, impairments, and/or changes in the productive horizon of these legacy assets, creating uncertainty surrounding the exact timing of cost recognition. In these cases, selecting performance measures that exclude these costs would be more effective than adjusting performance targets to shield executives from sunk costs.

⁷ Economic theory also posits that performance measures in compensation contracts should vary based on the “informativeness” of the measures as well their congruity with shareholders’ objectives (e.g. Holmström 1979;

on relatively coarse classifications of performance measures, such as earnings versus cash flow or price versus non-price. Our results show that these broad classifications mask much of the underlying variation in executives' incentive-compensation contract design; even within non-price earnings measures, there is a great deal of economically meaningful variation.⁸ Moreover, our results suggest that boards deliberately select specific IS performance measures based on the incentive benefits of shielding executives from specific costs on the income statement. In other words, boards appear to recognize the contracting deficiencies of bottom-line earnings (e.g., including irrelevant or sunk costs; recognizing many costs prior to the associated economic benefits) and exclude specific costs accordingly.

Second, our findings contribute to the broader literature on executive pay and incentive contract design (see Edmans et al., 2017, for a recent review). While prior literature indicates that much of senior executives' financial incentives come from stock price due to their large stock and option portfolios (Murphy, 1999; Core et al., 2003), contracts based on non-price financial performance measures such as bonus plans allow boards to clearly communicate—both to executives and capital market participants—and provide incentives to achieve specific objectives. These non-price-based contracts can often provide meaningful incentives by, for example, providing executives with more directly controllable objectives despite the presence of stock price-based incentives (Murphy and Jensen, 2011). Our results suggest that boards rely on both cash- and equity-based incentives to motivate executives and, for cash-based pay, deliberately select among IS measures in order to improve incentive alignment between executives and shareholders.

Banker and Datar, 1989; Feltham and Xie, 1994). Empirical work generally supports these theories and classifies performance measures based on (i) price versus non-price measures (e.g., Lambert and Larcker 1987; Sloan 1993; Core et al., 2003), (ii) financial versus non-financial measures (e.g., Ittner et al., 1997), as well as (iii) earnings-based versus cash flow measures (e.g., Banker et al., 2009, Huang et al., 2017).

⁸ For example, 99% and 77% of bonus plans in our sample do not include any price or cash flow performance measures, respectively.

In this regard, we respond to Guay et al.'s (2019, p. 463) call for research to explore the role of bonuses in motivating managers to focus their “efforts on performance measures more directly under their control.”

Third, we contribute to an emerging literature that analyzes the determinants of senior executives' financial performance measures disclosed in proxy statements following the increased compensation disclosure rules imposed by the SEC in 2006 (e.g., Bennett et al., 2017; Armstrong et al., 2019; Bloomfield, 2019; Gipper, 2019; Guay et al., 2019). For instance, Potepa (2014) and Curtis et al. (2018) both examine the determinants of *ex post* adjustments to performance measures in CEOs' bonus plans and find that boards make *ex post* adjustments to earnings used for compensation purposes in order to mitigate the effect of unfavorable events that are outside of executives' control. However, these studies are inherently unable to distinguish whether these outcomes are due to opportunism by executives or efficient contracting decisions by boards because these performance measures and adjustments are selected after earnings are realized. Our study, on the other hand, focuses on cost exclusions from executives' incentive-compensation plans that are determined *ex ante*. One study that examines *ex ante* performance measure choice is Huang et al. (2017), who focus on the relative use of earnings and non-earnings measures.⁹ Our study differs from theirs by focusing on variation among different lines on the income statement and providing evidence that this variation arises from boards' efforts to use cost shielding in ways consistent with agency-theoretic predictions.

⁹ For instance, Huang et al. (2017) show that cash flow is used more often in CEO bonus contracts when CEOs are younger than 63 and for firms with greater distress and capital intensity. They also show that EBITDA is more common in younger firms, which we replicate and extend with our tests on product lifecycles and growth opportunities more generally. Additionally, we use a richer set of performance measures for our tests to evaluate when boards exclude specific costs.

The remainder of this paper proceeds as follows. Section 2 discusses institutional features of our setting, related literature, and 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

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). Studies using this classification predict and show that measures with relatively less noise are more frequently used for cash compensation (Adams, 1986; Lambert and Larcker, 1987; Sloan, 1993) but not total compensation (Core et al., 2003), and price is given more weight when the firm has greater growth opportunities.

Another common classification differentiates between financial versus 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). Banker et al. (2009) predict and find that the value relevance of cash flows and earnings

are correlated with their “incentive relevance” for cash compensation, while Huang et al. (2017) predict and find that boards consider their firm’s liquidity needs, whether from capital intensity or financial constraints, when choosing between earnings and cash flow performance measures.

These relatively coarse performance measure classifications from prior studies typically ignore distinctions among different income statement-based (“IS”) performance 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, taxes, depreciation, and amortization (“EBITDA”). 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).¹⁰ 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 income statement-based (“IS”) measures (i.e., accrual-based financial performance measures). Using this classification, we examine how boards select from among different IS performance measures in 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 included in or excluded from these plans.

¹⁰ These percentages do not sum to 1 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).

A common concern with examining performance measure choice is that the measure might be chosen after observing corporate performance.¹¹ However, this is unlikely to be a concern in our setting, because the performance measures in bonus plans are typically determined within the first three months of the firm’s fiscal year, at least partly due to tax incentives in place 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 *ex ante* contracting objectives (e.g., Morse et al., 2011). We examine IS performance measures that precede these deviations, consistent with our interest in design intentions.

2.2. 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—which we refer to as “cost shielding.” For example, sales measures exclude the most expenses, while EBITDA excludes more expenses than operating income, which in turn excludes more expenses than net income. Accordingly, we focus on cost shielding theories of incentive-compensation contract design. Contract theory suggests that performance measures should be used if they, among other things, (i) provide incremental information about an executive’s actions; (ii) encourage the executive to take value-creating actions, or (iii) facilitate efficient risk sharing (e.g., Holmström, 1979; Diamond and Verrecchia, 1982; Banker and Datar, 1989; Feltham and Xie, 1994). Using this economic framework, we develop and test three specific hypotheses regarding boards’ choice of

¹¹ There are at least three types of deviations from the specified contract, i.e., a response to an *ex post* shock, that could have some relation to our analysis. First, boards give themselves the option *ex ante* to remove unexpected gains or losses *ex post*. This deviation could incentivize value enhancing actions, like restructuring a firm (Dechow et al., 1994), or be opportunistically used to asymmetrically include one-time gains and exclude one-time losses (Gaver and Gaver, 1998). 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.

performance measures from among the various IS measures that involve varying degrees of cost shielding.¹²

First, we consider how boards can use cost shielding to protect risk-averse executives from noisy costs. Contract theory, as well as extant empirical evidence, suggests that noisy performance measures generate outcome risk that is more efficiently borne by principals (e.g., shareholders), who are typically thought of as relatively less risk-averse than corporate executives (see Lambert, 2001, for a review). Moreover, noisy performance measures should receive lower weights in an aggregate performance measure (e.g., Banker and Datar, 1989), and therefore should likely be excluded from executives' IS compensation performance measures. Even if noisy performance measures provide a valuable signal of managerial effort, they may impose excessive risk on the executive (i.e., the necessary risk premium may be large relative to the incentive benefit), and therefore have little or no contracting value. These lines of reasoning indicate that executives should be shielded from highly noisy costs in their compensation contracts. Thus, we expect that bonus plans are more likely to shield executives from costs when costs are noisier signals of performance.

Second, we consider the role of the firm's life-cycle and product market offerings in determining the performance measures in executives' bonus plans. Shareholders and executives often differ with respect to their time horizons (i.e., discount rates), as executives tend to be relatively more myopic than shareholders (e.g., Dechow and Sloan, 1991; Laverly, 1996; Grinyer

¹² We acknowledge that agency theory is only one of several possible frameworks for examining executive pay. Incentive pay could also be designed according to other considerations, such as inefficient rent-seeking behavior (e.g., Bebchuk and Fried, 2003), value relevance (e.g., Banker et al, 2009), or strategic delegation (e.g., Fershtman and Judd, 1987; Bloomfield, 2019). Predictions from these frameworks could overlap with predictions from agency theory; for instance, a firm might both try to influence competitors—e.g., by signaling product market strategy—and incentivize executives to build market share when introducing a new product. As another example, a firm might exclude a particular expense from a bonus plan if the executive has little ability to control that expense *and* undue influence when setting pay.

et al., 1998; Chen et al., 2015). If this divergence in time horizons is not addressed, executives can have incentives to take nearsighted actions that increase near-term profits at the expense of long-term firm value. For example, corporate executives may neglect efficient R&D or advertising, because the benefits of a successful investment do not accrue until too far into the future (e.g., Stein, 1989).

Similarly, managers might sacrifice value by setting product prices too high, because they fail to internalize the long-term benefits of building brand loyalty (e.g., Dubé et al., 2009; 2010). For mature firms with established product lines, the divergence between the near-term profit-maximizing action and the value-maximizing action are muted. For younger firms, and/or those with new product offerings, the divergence is more pronounced—demand for the firm’s products or services tends to build upon itself, thus a value-maximizing young firm should market its product(s) more aggressively than would be profit maximizing in the near-term (e.g., Klemperer, 1987; Villas-Boas, 2004; Freimer and Horsky, 2008). Similar arguments can be made for firms with relatively more growth options in general. Because pursuing growth can be costly due to timing mismatches of costs and benefits, shielding executives from the costs of marketing, research, and/or production (e.g., through the use of revenue-based pay) can be an effective way to mitigate agency conflicts between executives and shareholders. That is, deliberate cost shielding can incentivize an otherwise myopic executive to maximize long-term value. Accordingly, we expect that cost shielding is more prevalent among high growth or younger firms, as well as for firms with newer products.

Third, we consider how executives’ bonus plans can be used to shield managers from costs for which they are arguably not responsible. Agency theory argues that executives should be evaluated based on outcomes over which they have control—i.e., executives should be shielded

from costs over which they do not have control (e.g., Antle and Demski, 1988; Lambert, 2001). For example, a recently hired executive typically inherits a capital stock that does not reflect his or her own investment decisions, but rather those of previous managers (Wagenhofer, 2003). Therefore, the legacy costs associated with existing capital investments—e.g., the depreciation on PP&E or amortization and impairments of existing goodwill—are often outside the executive’s control. Based on the notion that an optimal contract shields executives from costs that are beyond their control, we expect greater cost shielding for CEOs with less involvement in prior investment decisions. Specifically, we predict greater cost shielding among shorter-tenured CEOs compared to longer-tenured CEOs—particularly for externally hired executives who would not have been involved in previous decisions—as well as following CEO turnover, particularly following forced turnover (i.e., when the outgoing CEO’s actions are viewed as unsatisfactory).

3. Sample, Variable Measurement, and Descriptive Statistics

3.1. Sample Construction and Variable Measurement

We obtain data on CEO cash bonus plans for 8,009 firm-years between 2006 and 2017 from Incentive Lab, comprising 1,442 distinct firms.¹³ Appendix A provides an illustrative example of the performance measures and outcomes in Nike’s 2018 executive bonus plan, as disclosed in proxy statements. We 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.¹⁴ We winsorize all continuous variables at 1% and 99%.

¹³ Our inferences are unchanged if we also include equity grants in our analysis.

¹⁴ We hand collect information on missing CEO tenure directly from firms’ annual proxy statements obtained through the SEC’s EDGAR website.

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. 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 0 for earnings metrics, 1 for EBIT metrics, 2 for EBITDA metrics, and 3 for sales metrics. 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 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. This calculation implicitly assumes that all metrics in the bonus plan receive equal weight, an assumption that is valid for many, though not all, firms in our sample (e.g., De Angelis and Grinstein, 2015). Nevertheless, for the firms in our sample at which this assumption does not hold, it is unlikely that any confound would induce spurious inferences; if anything, violations of this assumption are likely to add noise to the true extent of cost shielding, which will tend to attenuate our results.

3.2. Descriptive Statistics

Table 1 presents descriptive statistics for our sample. All variables are defined in Appendix B. The mean (median) bonus plan includes 2.27 (2) IS metrics. However, the mean plan includes only 1.01 “bottom-line” earnings metrics, 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). Sales metrics (i.e., full 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.

In untabulated analyses, we find that IS measures are the most common form of performance measure incorporated into bonus plans, accounting for 62% of the total 3.64 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. 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.

Figure 1 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.¹⁵ 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

¹⁵ In Panel B of Figure 1, all metrics are indexed at (i.e., begin at) 100%.

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%).¹⁶ These changes over the past decade in the relative frequency of each measure suggest that boards do not simply roll forward prior year measures with updates to targets. Instead, these trends suggest that boards consider other factors when determining which specific IS metrics to employ when evaluating executives and often replace one measure with another as circumstances change (i.e., due to changes in their contracting usefulness).

To more directly evaluate whether boards appear to replace one metric with another when adjusting bonus plans, we examine both correlations between different IS-based measures and transition probabilities (i.e., times-series variation). 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.¹⁷ 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 and suggesting that boards may view sales as complementary to, rather than a substitute for, earnings-based measures.¹⁸

In Table 2 Panel B, we further explore these patterns of complementarity and substitution by examining transition matrices for IS-based metrics. Specifically, we examine whether

¹⁶ These changes in EBITDA usage are consistent with evidence from Huang et al. (2017) and Bettis et al. (2018).

¹⁷ We include EBT in Tables 1 and 2 for descriptive purposes but exclude this performance measure in subsequent tests and aggregate cost shielding computations due to its relatively limited use in executive bonus plans in our sample.

¹⁸ One possible explanation for this finding is that sales metrics are used for both moral hazard and strategic reasons (Bloomfield, 2019), while earnings metrics may be predominantly used to solve moral hazard problems. This explanation could also add noise to our sales metric indicator for empirical tests that provide evidence for agency hypotheses, reducing our ability to find results consistent with cost shielding explanations.

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 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 complementary to, earnings-based measures.

4. Empirical Tests and Results

Collectively, the evidence in Section 3 suggests that boards view sales-based measures (a metric which excludes *all* costs) as distinct from earnings-based measures and use them to complement some earnings-based measures.¹⁹ This evidence also suggests at least two possible explanations for boards' choices of earnings-based performance measures (metrics which exclude *some or no* costs): 1) boards view these measures as largely interchangeable and haphazardly select among them; or 2) each measure provides unique contracting uses and boards weigh the pros and cons of each measure when designing incentive plans. We next evaluate whether boards appear to purposefully choose which earnings-based metrics to use to facilitate cost shielding in accordance with optimal contracting theory by estimating a series of regressions of the following form:

¹⁹ Compensation plans often include positive weights on both sales and earnings but very rarely include positive weights on sales and negative weights on costs, even though the two may be economically identical (for example, weights of 50% on sales and 50% on net earnings are equivalent to weights of 100% sales and negative 50% on costs). One explanation for this phenomenon is that executives have negative behavioral responses to negative weights, which can be interpreted as “penalties” (e.g., Murphy and Jensen, 2011). Alternatively, investors might respond positively when they observe compensation disclosures about incentive design choices that are consistent with their valuation model inputs (e.g., Black et al., 2017; Ferri et al., 2018), causing the board to cater to these investor demands.

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

where *Contracting Value* is a measure of a factor that agency theory suggests 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):

$$\begin{aligned}
Measure_{i,t} = & \alpha + \beta_1 Contracting\ Value_{i,t-1} + \beta_2 Ln(MVE)_{i,t-1} + \beta_3 Idio\ Vol_{i,t-1} \\
& + \beta_4 BTM_{i,t-1} + \beta_5 Free\ Cash\ Flow_{i,t-1} + \beta_6 Ln(Delta)_{i,t-1} + \beta_7 Ln(Tenure)_{i,t} \\
& + \Gamma Other\ Measures_{i,t} + \delta_t + \varepsilon_{i,t},
\end{aligned} \tag{2}$$

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.²⁰

Consistent with prior incentive design literature (e.g., Guay et al., 2019), we also control for a standard set of firm and CEO characteristics: book-to-market, size, idiosyncratic stock volatility, free cash flow, CEO equity portfolio delta, and CEO tenure.²¹ We use the lagged values of each of these firm-level variables (other than CEO tenure), as they are measured at year-end

²⁰ For parsimony, we omit the least common IS performance measure, *EBT Metric*, in our regression analyses. In untabulated tests, we also estimate Eqs. (1) and (2) including *EBT Metric* as a component of *Cost Shield* or its own separate dependent variable. Our inferences regarding how cost shielding considerations influence boards' choices of performance measures are unchanged.

²¹ 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).

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 the bonus plan is designed. Given that Figure 1 indicates the relative frequency of specific IS measures has changed substantially over the past 10 years, we also include year fixed effects (δ_t) to account for common changes over time in contract design unrelated to our measures of contracting value.²²

When estimating Eq. (2), where the outcome variable is an indicator for a particular IS-based metric, we also control for the presence of the other IS-based metrics. For example, when the outcome variable is *Sales Metric*, we include controls for *EBITDA Metric*, *EBIT Metric*, and *Earnings Metric*.²³

We control for these other metrics used to assess whether i) boards systematically choose among metrics based on their contracting usefulness, and ii) the contracting value of one metric is associated with boards' use of other performance metrics in the bonus plan. This latter consideration is important given our findings above that boards tend to substitute among different IS metrics. Even if a particular firm or executive characteristic does not directly affect the contracting value of a specific IS metric, the characteristic could change the marginal contracting value of another measure and therefore have an indirect effect on metric choice if boards view different measures as complements or substitutes. For example, consider a young firm with ample growth opportunities. To encourage management to take advantage of investment opportunities, such a firm may choose to compensate its executive with EBITDA-based pay, to shield the

²² We do not include cross-sectional effects, though common in papers that examine executive pay levels (e.g., Core et al., 1999). Because we are interested in contract design, across industry (or across firm) variation in cost volatility, firm or product age, CEO turnover, etc. is useful when examining our hypotheses. Consistent with this reasoning, specifications that include industry effects have similar but attenuated findings as our main results (untabulated).

²³ Our results are qualitatively similar if we do not control for the other metrics in these specifications.

executive from the financing and depreciation costs that investments require. Such a firm may also be *less* likely to use EBIT-based pay, not because EBIT is an inherently poor measure for young firms, but rather because EBITDA is a somewhat better measure, and EBIT and EBITDA act as substitutes. More generally, the choice of one earnings-based metric (e.g., EBITDA) may indirectly affect the use of other earnings-based metrics (e.g., EBIT), if boards perceive the various earnings-based metrics to be substitutes.

4.1. Noise in Performance Measures

Our first prediction is that boards are more likely to shield executives from costs when costs are noisier. We test this hypothesis by estimating Eqs. (1) and (2) with several measures of cost volatility for *Contracting Value*. In particular, we construct measures of volatility for several expenses that are included in some IS measures but excluded from others. For example, interest expense is included in Earnings metrics but excluded from the other metrics, which are “higher” on the income statement. The specific cost volatilities we examine are *R&D Volatility*, *Depreciation Volatility*, *Interest Volatility*, and *ETR Volatility*, defined as the standard deviation over the preceding 10 years of the corresponding expense, scaled by assets for the first three volatilities and pre-tax income for the final volatility measure.²⁴ For R&D and depreciation expense, the “lowest” levels of the income statement that exclude the corresponding costs are sales and EBITDA, respectively. For interest expense and ETR, EBIT is the lowest level of the income statement that excludes the corresponding costs.. If boards design bonus plans to shield executives from noisier costs, we should observe that metrics including (excluding) these costs are less (more) likely as volatility increases.

²⁴ We require at least three non-missing observations over this 10-year window when computing these volatility measures.

These initial tests serve two primary purposes. First, the results from these tests help validate our cost shielding measures and empirical setting. Prior empirical incentive contract design research consistently documents a negative relation between performance measure volatility and performance measure weight (Lambert and Larcker, 1987; Bushman et al., 1996; Ittner et al., 1997; Core et al., 2003). This well-established finding in other settings serves as a benchmark for our measure of cost shielding and the use of specific IS performance measures. Second, it is not *a priori* obvious that the logic underlying performance metric selection in other contexts (e.g., price versus non-price) extends to choices *among* different IS performance measures. These tests provide initial evidence about whether boards deliberately choose among IS measures in order to improve contracting efficiency.

Table 3 presents the results from estimating Eqs. (1) and (2) with our cost volatility measures for *Contracting Value*. In column (1), *Cost Shield* is positively associated with *R&D Volatility*, *Depreciation Volatility*, and *Interest Volatility*. *Cost Shield* and *ETR Volatility* are positively related but not at conventional levels of significance (p -value = 0.15).²⁵ In terms of economic magnitude, the standard deviations for R&D, depreciation, and interest volatility are about 1 to 2% of assets, while the standard deviation for ETR is about 103% of pre-tax income. Thus, one standard deviation increases in R&D, depreciation, interest, and ETR volatility are associated with a 12%, 14%, 10%, and 33% increase in *Cost Shield* relative to its sample mean, respectively.

²⁵ A plausible explanation for a weaker correlation between *Cost Shield* and *ETR Volatility* is that boards typically delegate tax responsibilities to a tax director, rather than the CEO (Armstrong et al., 2012). Additionally, in Table 3 Panel B, we find that *EBITDA Metric* and *EBIT Metric* are positively associated with *ETR Volatility*, which provides some evidence consistent with boards using measures that exclude tax expenses when those costs are volatile, conditioning on other measures. However, *Sales Metric* and *Earnings Metric* both have an (insignificant) association that does not correspond with this prediction.

In columns (2) through (5) of Table 3, we disaggregate *Cost Shield* into its component parts (i.e., *Sales Metric*, *EBITDA Metric*, *EBIT Metric* and *Earnings Metric*) in order to more precisely describe how cost volatilities and metric choices interrelate. We find that the use of a sales metric—which shields against all costs—is positively associated with R&D volatility as well as depreciation volatility. However, it is also negatively associated with interest volatility. The use of EBITDA metrics is negatively associated with depreciation volatility, but positively associated with RR&D, interest and tax rate volatilities. These findings for EBITDA related to interest and tax rate volatilities are consistent with our predictions, although our findings for R&D and depreciation volatility suggest that shielding executives from excessively noisy operating costs is not a primary purpose of incorporating EBITDA metrics. Similar to our results for EBITDA, we observe a positive relation between tax rate volatility and the use of EBIT. One explanation for these patterns is that EBITDA and EBIT are considered by boards to be relatively close substitutes for each other in terms of shielding executives from volatile tax costs. Consistent with this interpretation, we observe that the use of EBIT and EBITDA are strongly negatively associated (p -value < 0.001). Lastly, bottom line earnings metrics (*Earnings Metric*), which offer no cost shielding, are negatively associated with R&D and depreciation volatility, and marginally negatively associated with interest expense volatility (p -value = 0.10).

These findings are consistent with results from prior literature that noise in particular performance measures is associated with use of *other* performance measures (e.g., Bushman et al., 1996; Ittner et al., 1997). Because our findings are closely related to these findings in prior studies, we consider the results in Table 3 to be an important validation of our cost shielding measures. However, our analysis extends beyond known results from the literature by providing a finer classification of performance metrics than has been used previously. As discussed above, prior

studies tend to group financial statement measures into a single category and compare them with “non-financial” measures, e.g., share price or individual measures of performance.

As a whole, our findings in Table 3 are consistent with our first prediction and suggest that boards select specific IS measures to shield executives from noisier expenses. Specifically, we find that more volatile costs are associated with increased (decreased) use of IS-based measures that exclude (include) these costs. This finding is consistent with boards designing performance measures according to optimal contracting theory, emphasizing higher quality signals of executives’ efforts (Banker and Datar, 1989) and reducing payout risk (and therefore required the risk premium) for risk-averse executives (Lambert, 2001). Having established an association that is consistent with prior studies in this area (e.g., Bushman et al., 1996; Ittner et al., 1997; Core et al., 2003), we continue by shifting our focus to previously untested predictions for agency-theoretic explanations of *ex ante* cost shielding in executive pay packages.

4.2. Firm and Product Lifecycle

Next, we examine whether cost shielding is more prevalent among firms that are younger and/or have greater growth opportunities. To test this prediction, we estimate Eqs. (1) and (2) using measures of growth opportunities as our *Contracting Value* variables. We use two traditional measures for growth opportunities, *Sales Growth* and *Book-to-Market* (e.g., Smith and Watts, 1992; Shin and Stulz, 1998). We further incorporate two measures of firm and product lifecycle: *Firm Age*, the number of years the firm has existed in Compustat, and *% New Products*, the proportion of the number of new products introduced by the firm relative to the firm’s total products offered during the year. If boards are more likely to shield executives from costs when the firm has greater growth opportunities, we expect bottom-line earnings to be less common and replaced with other IS measures that exclude some or all of the firm’s costs.

Table 4 presents the results from estimating Eqs. (1) and (2) using our measures of growth opportunities for *Contracting Value*. For *Sales Growth*, in column 1 we find that *Cost Shield* has a significant positive correlation with sales growth and a significant negative association with the book-to-market ratio. When we decompose cost shielding into its component parts in columns 2 through 5, we observe a relatively monotonic trend toward more negative associations with growth opportunities as performance metrics shield executives from fewer costs. Specifically, *Sales Metric* is strongly negatively associated with book-to-market, and marginally positively associated with sales growth (p -value = 0.11). As the cost shielding present in the performance metric decreases, the coefficient on book-to-market becomes larger (i.e., less negative/more positive), while the coefficient on sales growth becomes smaller (i.e., less positive/more negative). For example, in the fifth specification, *Earnings Metric* is negatively associated with sales growth, and positively associated with book-to-market. To provide a sense of the economic magnitudes of these relations, a one standard deviation increase in *Sales Growth (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 *Sales Growth (Book-to-Market)* is related to a 2% (7%) decrease in the use of earnings (sales) metrics in incentive contracts.

Table 5 presents the results from estimating Eqs. (1) and (2) with our measures of product and firm lifecycle to measure *Contracting Value* (*% New Products* and *Firm Age*). In column 1, we estimate our main specification with our aggregate measure, *Cost Shield*; the coefficient estimate for *% New Products* is 0.173, which is positive and statistically significant. Thus, firms selling only new products during the year have 24% more cost shielding—relative to the sample mean of *Cost Shield*—than firms with no new products. When we examine specific metrics, we find that *% New Products* is positively correlated with the use of sales and EBITDA metrics. In

other words, the use of sales and EBITDA metrics appear to drive the relation between *% New Products* and *Cost Shield*, consistent with a firm using such metrics to establish market share early in products' lifecycle and so benefit through channels such as brand loyalty (e.g., Dubé et al., 2010).

When we examine firm lifecycle in Table 5, we find a strong negative relation between *Firm Age* and cost shielding. In particular, a doubling of firm age is associated with a 34% decrease in *Cost Shield* relative to its sample mean. We also find that the individual usage of 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*. The coefficients for individual metrics in columns 2 through 5 on *Firm Age* essentially represent elasticities in propensity to use the metric, ranging from 11% less (8% more) likely to use sales (earnings) as *Firm Age* doubles. Thus, boards of older firms are relatively more likely to include all expenses when evaluating CEO performance.

Collectively across our results in Tables 4 and 5, we find strong and consistent evidence that firms with more growth opportunities, as well as young firms or firms with new products, are more likely to shield executives from costs in bonus plans. These results are consistent with the board selecting specific IS measures for bonus contracts that shield from costs when executives are likely to be relatively more myopic compared to shareholders (e.g., Stein, 1989; Dechow and Sloan, 1991) or to incentivize growing market share to capture future brand rents (e.g., Dubé et al., 2009; 2010).

4.3. *CEO Tenure*

Our third empirical prediction is that newer CEOs are more likely to be shielded from costs than longer-tenured CEOs. Before formally testing this hypothesis, we first examine trends in

metric usage graphically. Specifically, we plot the average number of Sales, EBITDA, EBIT and Earnings performance metrics, by year of CEO tenure. These patterns are presented in Figure 2. 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.²⁶ 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.

We formally test our third prediction by estimating Eqs. (1) and (2) using *CEO Tenure* as our measure of *Contracting Value*. Specifically, we create an indicator for whether the CEO was hired seven or more years in the past (*CEO Tenure Years 7+*), the mean in our sample.²⁷ If newer CEOs are more likely to be shielded from costs, we should observe that shorter-tenured CEOs (i.e., those with *CEO Tenure Years 7+* equal to 0) 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 7+* as our measure of *Contracting Value*. We omit our linear control for the natural log of CEO tenure in this specification. In column 1, we find more cost shielding for newer CEOs using our *Cost Shield* measure as the dependent variable. Specifically, for CEOs with less than seven years of tenure, bonus plans tend to have about 13% more cost shielding (relative to the sample

²⁶ In Panel B of Figure 2, all metrics are indexed at (i.e., begin at) 100%.

²⁷ In untabulated tests, we also split our CEO tenure variable at its sample at the median (i.e., CEOs with tenure greater than five years), and find qualitatively similar results for each of these tests under this alternative measurement choice.

mean). Within individual IS metrics, newer CEOs are significantly more likely to have cash incentive pay tied to sales, EBITDA, and earnings metrics, while we find no relation at conventional levels of significance between CEO tenure and the use of EBIT metrics. 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.

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 6 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 (coefficients of -0.067 , -0.238 , t -statistics of -1.96 , -2.90). 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 (untabulated p -value of the difference in coefficients = 0.05). 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. 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.

4.4 Executive Turnover

In addition to differentiating between shorter- and longer-tenured CEOs, we also examine whether executives are more likely to be shielded from costs immediately following CEO turnover. Similar to the intuition for our tenure tests, we expect greater cost shielding in executive compensation contracts following CEO turnover, particularly when the prior CEO was forced out. We formally test this conjecture by estimating Eqs. (1) and (2) using *Forced CEO Turnover* and *Voluntary CEO Turnover* as our measures of *Contracting Value*. Specifically, we create an indicator for whether CEO turnover occurred during the prior fiscal year, and we identify the turnover as “forced” or “voluntary” following Peters and Wagner (2014) and Jenter and Kanaan (2015).²⁸ Table 7 Panel A presents the results. We find that boards tend to shield incoming CEOs from more costs when the prior CEO was forced out, but not when the prior CEO voluntarily departed (and hence the new CEO is more likely to reflect a planned succession). These findings, together with the evidence in Table 6, suggest that insulating new CEOs from existing costs outside their control is an important consideration for boards designing executive bonus plans.

To further isolate differences in the degree of succession planning and hence the extent to which the incoming CEO is likely to bear responsibility for the firm’s previous actions, we next

²⁸ Classifications for whether CEO departures are forced or voluntary are hand collected from press releases surrounding the announcement of CEO departures. Turnovers are classified as forced if the press release states the CEO was fired, forced out, resigns due to pressure, are under age 60 and not reported to depart for health reasons or being hired by another firm or if the CEO suddenly retires. For further details, see Peters and Wagner (2014) and Jenter and Kanaan (2015). We are grateful to Florian Peters for providing us with these data.

separately examine forced turnovers for CEOs younger than 60 years old and voluntary turnovers for CEOs older than 60. Departures by CEOs who are older than 60 are most likely to represent retirements that involve a greater degree of succession planning, whereas forced turnovers by relatively younger CEOs are least likely to involve extensive succession planning (Parrino, 1997; Peters and Wagner, 2014; Jenter and Kanaan, 2015). Consistent with this reasoning and our findings in Panel A, Table 7 Panel B shows that cost shielding is more prevalent in newly hired CEOs' contracts after a CEO under 60 is forced out but less prevalent after a CEO over 60 voluntarily leaves the firm. The magnitude of these relations are larger than and statistically different from (untabulated p -value < 0.01 in both cases) our findings in Panel A, consistent with reduced measurement error in the extent to which the new CEO bears responsibility for previous actions when we focus on these finer turnover classifications.

Finally, we also repeat our turnover analysis by estimating Eq. (1) using measures of top management team stability to measure *Contracting Value* (e.g., Bushman et al., 2016). Prior literature suggests that bonus plans can be used to motivate top management teams, in addition to the CEO specifically (Guay et al., 2019). We expect cost shielding in executive bonus plans to be a more useful contracting mechanism when the management team as a whole is less stable. In particular, when the management team tends to change more it is likely more beneficial to shield new executives from costs, since it is more likely that members of the management team will face costs that they are not responsible for. We measure management team stability in two ways. First, following Bushman et al. (2016) and Guay et al. (2019), we compute the number of consecutive years the current top management team has served, allowing for at most one departure (*Top Management Team Length*). Second, we compute the number of top management team members

who are not identified as a named executive officer the following year (*Top Management Team Length*).

Table 7 Panel C presents results. We find that boards are more likely to shield executives from costs when the management team as a whole is less stable. In particular, we find a negative relation between top management team length and cost shielding, and a positive relation between top management team turnover and cost shielding in columns (1) and (2), respectively (coefficients of -0.010 , 0.053 , t -statistics of -2.46 , 5.37). Collectively, the results in Table 7 suggest that boards use cost shielding to reduce the sensitivity of executives' pay to the consequences of their predecessors' actions.

5. Conclusion

We examine the economic forces that shape the performance metrics that boards choose for evaluating executives. In contrast to prior literature, which predominately classifies performance metrics into broad categories such as (stock) price versus non-price or financial versus non-financial, we explore variation *within* income statement performance metrics (e.g., earnings versus EBIT versus EBITDA versus sales). We first show that there is substantial heterogeneity in the specific income statement measures incorporated into executive bonus contracts, and these metrics receive significant weights in executives' pay packages. Therefore, the classifications in prior literature, which fail to distinguish among financial metrics, discard a great deal of important variation in executive incentives. We then develop and test hypotheses regarding the role of "cost shielding" in explaining the choice of specific income statement measures used in executive bonus plans.

We document evidence that boards use cost shielding to mitigate agency conflicts and deliberately select performance measures based on the desirability of shielding executives from various expenses. We find that when evaluating executives' performance, boards are more likely to exclude highly volatile costs. Moreover, investment-related costs are more likely to be excluded when growth opportunities or timing mismatches between the costs and benefits of investment decisions are greater, and/or costs are likely to be "uncontrollable" or due to prior executives' decisions or actions. Thus, boards appear to carefully consider the firm's contracting environment and select the appropriate IS-based measure, giving weight to some costs while discarding others, to improve contracting efficiency and better align executives' and shareholders' incentives.

Collectively, our results are consistent with the notion that boards view cash-based pay as an important source of executives' incentives and purposefully choose to include or exclude specific metrics based on agency-theoretic considerations. In particular, boards appear to view *ex ante* cost shielding as an important mechanism to improve incentive alignment between executives and shareholders. Lastly, our results highlight the degree of intentionality with which boards select particular executive performance measures to design bonus plans and how carefully considering the heterogeneity in the explicit measures incorporated in these plans—particularly measures from the income statement—can provide new insights into the design and consequences of executives' incentive-compensation contracts.

References

- Adams, H., 1986. Factors affecting the use of performance variables in executive compensation contracts. Working paper.
- Antle, R and Demski, J., 1988. The controllability principle in responsibility accounting. *The Accounting Review* 63.4: 700-718.
- Armstrong, C., Blouin, J., and Larcker, D., 2012. The incentives for tax planning. *Journal of Accounting & Economics* 53.1-2: 391-411.
- Armstrong, C., Chau, J., Ittner, C., and Xiao, J., 2019. Earnings per share goals and CEO incentives. Working paper.
- Banker, R. and Datar, S., 1989. Sensitivity, precision, and linear aggregation of signals for performance evaluation. *Journal of Accounting Research* 27.1: 21-39.
- Banker, R., Huang, R., and Natarajan, R., 2009. Incentive contracting and value relevance of earnings and cash flows. *Journal of Accounting Research* 47.3: 647-678.
- Bebchuk, L. and Fried, H., 2003. Executive compensation as an agency problem. *Journal of Economic Perspectives* 17.3:71-92.
- Bennett, B., Bettis, J., Gopalan, R., and Milbourn, T., 2017. Compensation goals and firm performance. *Journal of Financial Economics* 124.2: 307-330.
- Bettis, J., Bizjak, J., Coles, J., and Kalpathy, S., 2018. Performance-vesting provisions in executive compensation. *Journal of Accounting & Economics* 66.1: 194-221.
- Black, D., Black, E., Christensen, T., and Gee, K., 2017. The Use of Non-GAAP Performance Measures in Executive Compensation Contracting and Financial Reporting. Working paper.
- Bloomfield, M., 2019. Compensation disclosures and the weaponization of executive pay: evidence from revenue-based performance evaluation. Working paper.
- Bushman, R., Dai, Z., Zhang, W., 2016. Management team incentive: dispersion and firm performance. *The Accounting Review* 91, 21-45.
- Bushman, R., Indjejikian, R., and Smith, A., 1996. CEO compensation: the role of individual performance evaluation. *Journal of Accounting & Economics* 21.2:161-193.
- Chen, X., Cheng, Q., Lo, A., and Wang, X., 2015. CEO contractual protection and managerial short-termism. *The Accounting Review* 90.5: 1871-1906.
- Core, J. and Guay, W., 2002. Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. *Journal of Accounting Research* 40, 613-630.
- Core, J., Guay, W., and Verrecchia, R., 2003. Price versus non-price performance measures in optimal CEO compensation contracts. *The Accounting Review* 78.4: 957-981.
- Core, J., Holthausen, R., and Larcker, D., 1999. Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics* 51.3: 371-406.
- Curtis, A., Li, V., and Patrick, P., 2018. The use of adjusted earnings in performance evaluation. Working paper.
- De Angelis, D. and Grinstein, Y., 2015. Performance terms in CEO compensation contracts. *Review of Finance* 19: 619-651.
- Dechow, P., Huson, M., and Sloan, R., 1994. The effect of restructuring charges on executives' cash compensation. *The Accounting Review* 69.1: 138-156.
- Dechow, P. and Sloan, R., 1991. Executive incentives and the horizon problem: an empirical investigation. *Journal of Accounting & Economics* 14.1: 51-89.
- Diamond, D. and Verrecchia, R., 1982. Optimal managerial contracts and equilibrium security prices. *Journal of Finance* 37.2: 275-287.

- Dubé, J., Hitsch, G., and Rossi, P., 2009. Do switching costs make markets less competitive? *Journal of Marketing Research* 46.4: 435-445.
- Dubé, J., Hitsch, G., and Rossi, P., 2010. State dependence and alternative explanations for consumer inertia. *RAND Journal of Economics* 41.3: 417-445.
- Dye, R., 1988. Earnings management in an overlapping generations model. *Journal of Accounting Research* 26.2: 195-235.
- Edmans, A., Gabaix, X., and Jenter, D., 2017. Executive compensation: A survey of theory and evidence. Working paper.
- Ederhof, M., 2010. Discretion in bonus plans. *The Accounting Review* 85.6: 1921-1949.
- Feltham, G. and Xie, J., 1994. Performance measure congruity and diversity in multi-task principal/agent relations. *The Accounting Review* 69.3: 429-453.
- Ferri, F., Zheng, R., and Zou, Y., 2018. Uncertainty in managers' reporting objectives and investors' response to earnings reports: evidence from the 2006 executive compensation disclosures. *Journal of Accounting & Economics* 66.2-3: 339-365.
- Fershtman, C. and Judd, K., 1987. Equilibrium incentives in oligopoly. *American Economic Review* 77.5: 927-940.
- Freimer, M. and Horsky, D., 2008. Try it, you will like it—does consumer learning lead to competitive price promotions? *Marketing Science*, 27.5: 796-810.
- Gaver, J. and Gaver, K., 1998. The relation between nonrecurring accounting transactions and CEO cash compensation. *The Accounting Review* 73.2: 235-253.
- Gipper, B., 2019. The economic effects of expanded compensation disclosures. Working paper.
- Goldman, E., and Slezak, S., 2006. An equilibrium model of incentive contracts in the presence of information manipulation. *Journal of Financial Economics* 80.3: 603-626.
- Grinyer, J., Russell, A., and Collison, D., 1998. Evidence of managerial short-termism in the UK. *British Journal of Management* 9.1: 13-22.
- Guay, W., Kepler, J., and Tsui, D., 2019. The role of executive cash bonuses in providing individual and team incentives. *Journal of Financial Economics* 133.2: 441-471.
- Holmström, B., 1979. Moral hazard and observability. *The Bell Journal of Economics* 10.1: 74-91.
- Huang, Y., Ningzhong L., and Ng, J., 2017. Relative use of accounting performance measures in CEO annual bonus contracts. Working paper.
- Indjejikian, R. and Matějka, M., 2009. CFO fiduciary responsibilities and annual bonus incentives. *Journal of Accounting Research*, 47.4:1061-1093.
- Ittner, C., Larcker, D., and Rajan, M., 1997. The choice of performance measures in annual bonus contracts. *The Accounting Review* 72.2: 231-255.
- Jenter, D. and Kanaan, F., 2015. CEO turnover and relative performance evaluation. *Journal of Finance*, 70.5: 2155-2184.
- Klemperer, P., 1987. Markets with consumer switching costs. *Quarterly Journal of Economics*, 102.2: 375-394.
- Lambert, R., 2001. Contracting theory and accounting. *Journal of Accounting & Economics* 32.1-3: 3-87.
- Lambert, R. and Larcker, D., 1987. An analysis of the use of accounting and market measures of performance in executive compensation contracts. *Journal of Accounting Research* 25: 85-125.

- Laverty, K., 1996. Economic ‘short-termism’: the debate, the unresolved issues, and the implications for management practice and research. *Academy of Management Review* 21.3: 825-860.
- Morse, A., Nanda, V., and Seru, A., 2011. Are incentive contracts rigged by powerful CEOs? *Journal of Finance* 66.5: 1779-1821.
- Murphy, K., 1999. Executive compensation. *Handbook of Labor Economics* 3: 2485-2563.
- Murphy, K., 2001 Performance standards in incentive contracts. *Journal of Accounting & Economics* 30.3: 245-278.
- Murphy, K. and Jensen, M., 2011. CEO bonus plans: and how to fix them. Working paper.
- Parrino, R., 1997. CEO turnover and outside succession: A cross-sectional analysis. *Journal of Financial Economics* 46.2: 165-197.
- Peters, F. and Wagner, A., 2014. The executive turnover risk premium. *Journal of Finance*, 69.4: 1529-1563.
- Potepa, J., 2014. The treatment of special items in determining CEO cash compensation. Working paper.
- Shin, H. and Stulz, R., 1998. Are internal capital markets efficient? *Quarterly Journal of Economics* 113.2: 531-552.
- Sloan, R., 1993. Accounting earnings and top executive compensation. *Journal of Accounting & Economics* 16.1-3: 55-100.
- Smith Jr., C. and Watts, R., 1992. The investment opportunity set and corporate financing, dividend, and compensation policies. *Journal of Financial Economics* 32.3: 263-292.
- Stein, J., 1989. Efficient capital markets, inefficient firms: a model of myopic corporate behavior. *Quarterly Journal of Economics* 104.4: 655-669.
- Villas-Boas, J., 2004. Consumer learning, brand loyalty, and competition. *Marketing Science*, 23.1: 134-145.
- Wagenhofer, A., 2003. Accrual-based compensation, depreciation and investment decisions. *European Accounting Review* 12.2: 287-309.

Appendix A. Executive Bonus Plan Example

Company: Nike, Inc.

Year: 2018

Named Executive Officer Bonus Plan

Performance-Based Annual Cash Incentive

Annual awards are paid to the Named Executive Officers under our Executive Performance Sharing Plan ("PSP"). Our "pay for performance" philosophy for such awards is simple and applies to all global employees who are eligible to share in the Company's success through incentive bonuses; if we exceed our financial objectives, we will pay more; if we fail to reach them, we will pay less or nothing at all. The PSP for all executives is based 100% on overall corporate performance each year against a target based on the Company's annual financial objective, as measured by income before income taxes ("PTI"), excluding the effect of any acquisitions, divestitures, accounting changes, restructurings or other extraordinary, unusual or infrequently occurring items in accordance with the PSP terms and conditions. The Committee selected PTI as the performance measure as it aligns with the Company's operational financial targets for the individual fiscal year. By focusing on driving strong operational performance each year, the plan supports our goal of delivering sustainable, profitable growth. In support of our culture, the Committee retains the discretion to reduce or eliminate PSP award payouts based on individual or Company performance. Basing our annual cash incentive award program for all executives on overall corporate performance is intended to foster teamwork and send the message to each executive that his or her role is to help ensure overall organizational success and maximize shareholder value.

Each year the Committee establishes a PSP target award for each Named Executive Officer based on its judgment of the impact of the position in the Company and what it believes to be competitive against market data as described in "Use of Market Survey Data", while considering internal pay equity for comparable positions. For fiscal 2018, the Committee maintained Messrs. Parker, Campion, and Sprunk's target awards. Ms. Krane's and Mr. Slusher's target awards were set at 90%. Mr. Edwards' target award remained the same. The fiscal 2018 PSP target awards were:

Named Executive Officer	Fiscal 2018 PSP Target Award (% of base salary)
Mark G. Parker	180%
Andrew Campion	100%
Eric D. Sprunk	100%
Hilary K. Krane	90%
John F. Slusher	90%
Trevor A. Edwards	110%

In June 2017, the Committee established performance goals for the fiscal 2018 PSP awards based on its evaluation of our business plan and prospects for the year. When setting these goals, the Committee considered evolving business dynamics, achievability to support engagement, and appropriate stretch to drive growth consistent with NIKE's long-term financial model. The target for fiscal 2018 was set at \$4,717 million. The table below summarizes the fiscal 2018 PSP performance goals established by the Committee. For fiscal 2018, NIKE achieved a PTI of \$4,325 million, which was below the threshold performance goal established by the Committee. As a result, no executive officer was paid an annual cash incentive award for fiscal 2018.

(Dollars in millions)

Fiscal 2018 PSP									
Performance Goal	Threshold Performance	Threshold % Payout	Target Performance	Target % Payout	Maximum Performance	Maximum % Payout	Actual Performance	Actual % Payout	
PTI	\$4,528	50%	\$4,717	100%	\$5,094	150%	\$4,325	0%	

Performance-Based Long-Term Cash Incentive

The first component in our long-term portfolio mix is performance-based awards payable in cash under our Long-Term Incentive Plan ("LTIP"). As with the performance-based annual cash incentive, the LTIP follows our "pay for performance" philosophy. If we exceed our targets, we will pay more; if we fall short, we will pay less or nothing at all. This program focuses executives on overall, long-term financial performance, and is intended to reward them for delivering revenue growth and diluted earnings per share ("EPS") growth over a three-year performance period. At the beginning of each fiscal year, the Committee establishes performance goals and potential cash payouts for the next three fiscal years for all executives under the LTIP. LTIP performance measures for all executives are based 50% on cumulative revenues and 50% on cumulative EPS for the three-year performance period, in each case excluding generally the effect of acquisitions, divestitures, accounting changes and other extraordinary, unusual or infrequently occurring items. The Committee selected revenue and EPS as LTIP performance measures to encourage executives to focus on delivering profitable, sustainable growth. Strong revenue growth is the foundation of the Company's financial strategy, requiring investments in key business drivers to sustain growth. EPS growth is essential to delivering value for our shareholders, requiring investments be targeted to those areas with the highest potential for return. By balancing revenue growth and EPS growth, the plan supports the Company's objective of delivering long-term shareholder value. In support of our culture, the Committee retains the discretion to reduce or eliminate LTIP award payouts based on individual or Company performance.

Appendix A. Executive Bonus Plan Example (cont'd)

During the compensation review in June 2017, the Committee approved LTIP target awards for all Named Executive Officers for the fiscal 2018-2020 performance period. The Committee set these targets based on its judgment of what it believes to be a desirable mix of long-term compensation, the impact of the position in the Company, and what it finds to be competitive against market data as described in "Use of Market Survey Data", while maintaining internal pay equity for comparable positions. For the fiscal 2018-2020 performance period, the Committee maintained the target for Mr. Parker and increased the targets for each of Messrs. Campion and Sprunk to \$1,000,000. Ms. Krane's and Mr. Slusher's targets were set at \$700,000. Mr. Edwards' target increased to \$1,500,000. The target awards for the fiscal 2018-2020 performance period are as follows:

Named Executive Officer	Fiscal 2018-2020 LTIP Award Target (\$)
Mark G. Parker	3,500,000
Andrew Campion	1,000,000
Eric D. Sprunk	1,000,000
Hilary K. Krane	700,000
John F. Slusher	700,000
Trevor A. Edwards	1,500,000

In June 2017, the Committee established performance goals for the fiscal 2018-2020 LTIP. The Committee considered our long-term financial goals of high single-digit revenue growth and continued EPS growth in setting performance goals for the target award payout level. Additionally, goals were set to provide appropriate stretch to drive growth while balancing sustained engagement over the performance period. The total payout percentage will be the average of the payout percentages determined for cumulative revenues and cumulative EPS, respectively. Payout below the threshold payout level may occur if either the revenue or EPS related percentage achievement is less than 50%. If both revenue and EPS fall below the threshold level, there is no payout. The table below summarizes the fiscal 2018-2020 LTIP performance goals.

(Dollars in millions, except per share data)

Fiscal 2018-2020 Performance Goals	Threshold Performance	Threshold % Payout	Target Performance	Target % Payout	Maximum Performance	Maximum % Payout
Revenue	\$113,703	50%	\$118,162	100%	\$127,430	200%
EPS	\$7.53	50%	\$8.15	100%	\$9.49	200%

For fiscal 2018, executive officers were eligible to receive LTIP award payouts based on performance targets set in June 2015 covering the fiscal 2016-18 performance period. In June 2018, the Committee determined a payout of 37% under these awards was earned based on the average of the payout percentages for cumulative revenues and cumulative EPS for the performance period shown in the table below. For non-executive officers, the Committee adjusted the payout to 74% primarily to offset the impact of the Tax Cuts and Jobs Act, which negatively impacted EPS.

(Dollars in millions, except per share data)

Fiscal 2016-2018 Performance Goals	Threshold Performance	Threshold % Payout	Target Performance	Target % Payout	Maximum Performance	Maximum % Payout	Actual Performance	Actual % Payout
Revenue ¹	\$101,293	50%	\$105,266	100%	\$113,521	200%	\$103,123	73%
EPS ²	\$6.61	50%	\$7.12	100%	\$8.23	200%	\$5.70	0%
							Total Payout	37%

¹ Cumulative revenues for fiscal 2016, fiscal 2017, and fiscal 2018.

² Cumulative EPS for fiscal 2016, fiscal 2017, and fiscal 2018 adjusted for adoption of stock compensation accounting change in the first quarter of fiscal 2018 (FASB Accounting Standard Update 2016-09).

In July of 2018, in connection with the determination of the payout for the fiscal 2016-2018 LTIP, the Committee elected to normalize the payouts for the non-executive officers and the Continuing Officers by awarding a discretionary cash bonus to each of the Continuing Officers equal to 37% of their individual award target. The adjustment for the Continuing Officers was structured in the form of a discretionary cash bonus rather than a LTIP adjustment as the terms of the Company's LTIP, as applicable to the Named Executive Officers, did not contemplate the impact of the Tax Cuts and Jobs Act. The Committee viewed these awards as integral to its efforts to drive sustained performance, viewed holistically, engagement, retention, and motivation of the Continuing Officers.

Appendix B. Variable Definitions

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

Appendix B. Variable Definitions (cont'd)

<i>Free Cash Flow</i>	Operating cash flow minus common and preferred dividends divided by average total assets (source: Compustat).
<i>Delta</i>	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).
<i>CEO Tenure</i>	Number of years the executive has been CEO of the firm (source: Execucomp).
<i>CEO Tenure 7+</i>	Indicator equal to 1 if <i>CEO Tenure</i> is greater than 7, and 0 otherwise (source: Execucomp)
Firm and Executive Turnover Characteristics	
<i>R&D Volatility</i>	Standard deviation of annual R&D expense scaled by total assets as of the end of the fiscal year during the previous ten years (source: Compustat; requires a minimum of three years).
<i>Depreciation Volatility</i>	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; requires a minimum of three years).
<i>Interest Volatility</i>	Standard deviation of annual interest expense scaled by total assets as of the end of the fiscal year during the previous ten years (source: Compustat; requires a minimum of three years).
<i>ETR Volatility</i>	Standard deviation of annual tax expense scaled by pretax income during the fiscal year (source: Compustat; requires a minimum of three years).
<i>Sales Growth</i>	Annual percentage change in sales over the previous fiscal year (source: Compustat).
<i>External Hire</i>	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)
<i>Early CEO Turnover</i>	Indicator equal to 1 during the last fiscal year of the CEO's tenure, if the CEO was less than 60 years old, and 0 otherwise (source: Execucomp).
<i>% New Products</i>	Number of new products introduced scaled by current products offered by the firm during the fiscal year (source: FactSet Revere).
<i>Firm Age</i>	Number of years the firm has existed in Compustat (source: Compustat).
<i>Forced CEO Turnover</i>	Indicator equal to one during the last fiscal year of the CEO's tenure if the CEO was identified as forced out, following Peters and Wagner (2014) and Jenter and Kanaan (2015), and zero otherwise (source: Peters and Wagner (2014) and Jenter and Kanaan (2015)).
<i>Voluntary CEO Turnover</i>	Indicator equal to one during the last fiscal year of the CEO's tenure if the CEO voluntarily left, following Peters and Wagner (2014) and Jenter and Kanaan (2015), and zero otherwise (source: Peters and Wagner (2014) and Jenter and Kanaan (2015)).

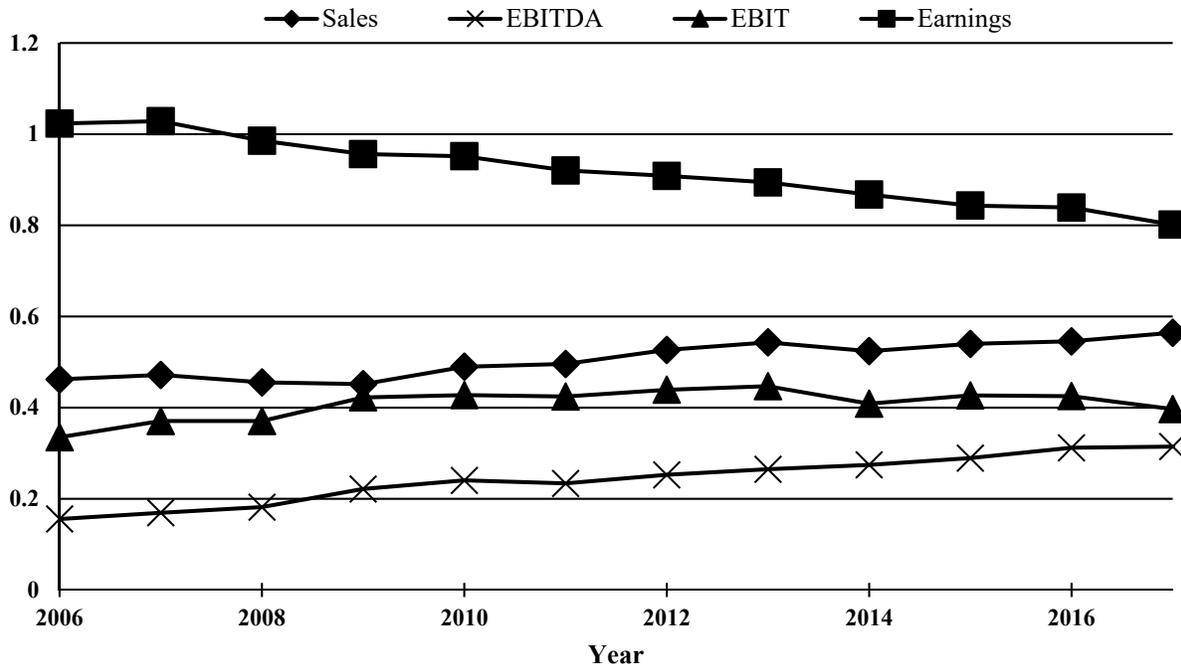
Appendix B. Variable Definitions (cont'd)

<i>Early Forced CEO Turnover</i>	Indicator equal to one if <i>Forced CEO Turnover</i> equals one and the CEO is younger than 60, and zero otherwise (source: Execucomp; Peters and Wagner (2014) and Jenter and Kanaan (2015)).
<i>Late Voluntary CEO Turnover</i>	Indicator equal to one if <i>Voluntary CEO Turnover</i> equals one and the CEO is younger than 60, and zero otherwise (source: Execucomp; Peters and Wagner (2014) and Jenter and Kanaan (2015)).
<i>Top Management Team Length</i>	Computed following Bushman et al. (2016) and Guay et al. (2019) 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).
<i>Top Management Team Turnover</i>	Number of top management team members who are not identified in the top management team during the following fiscal year (source: Execucomp).

Notes. This table presents variable definitions for our empirical tests.

Figure 1. CEO Bonus Performance Measures over Time

Panel A. Raw Performance Measures



Panel B. Indexed Performance Measures

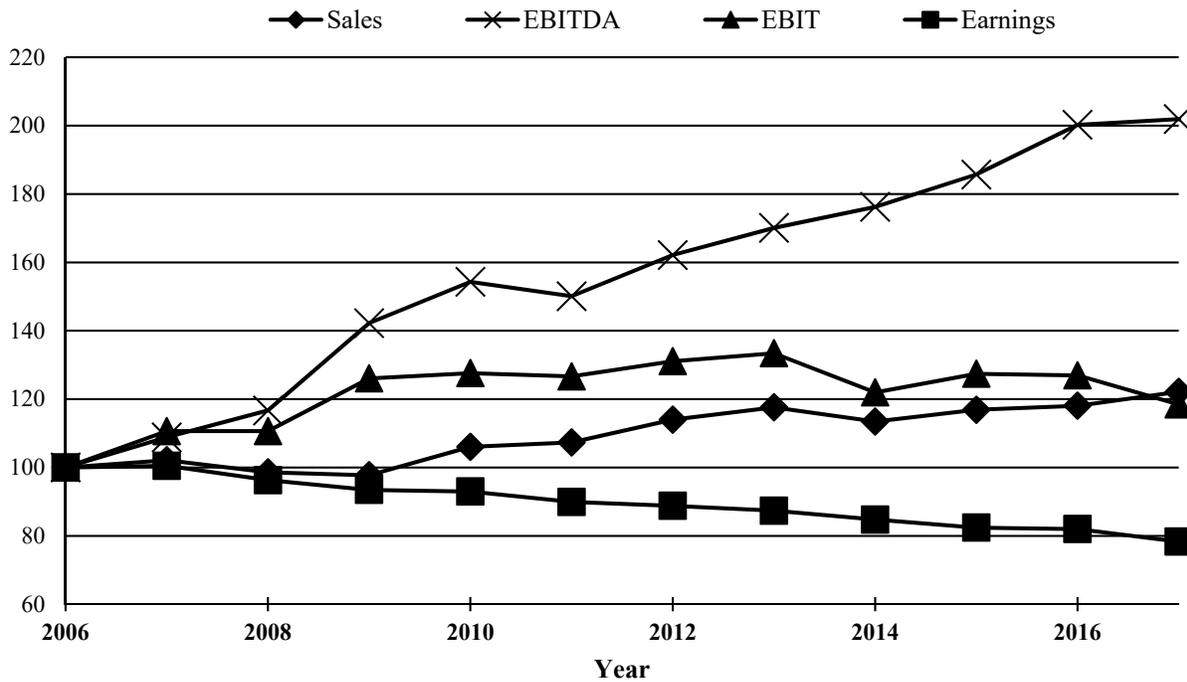
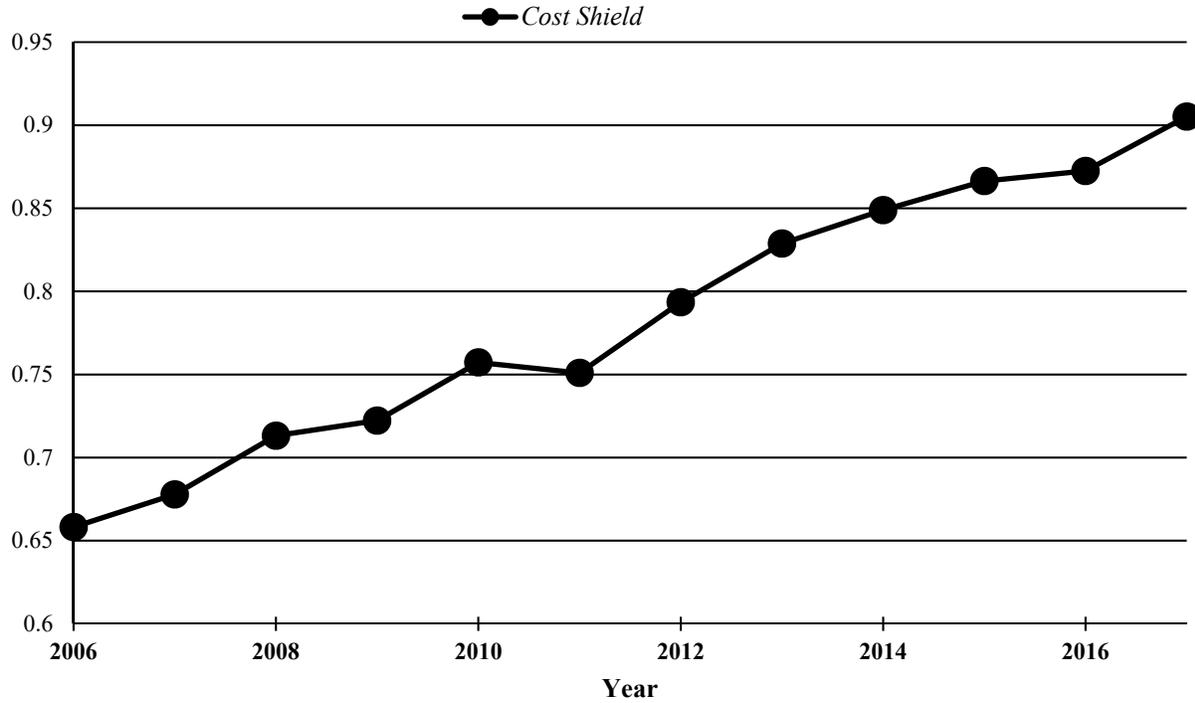


Figure 1. CEO Bonus Performance Measures over Time (cont'd)

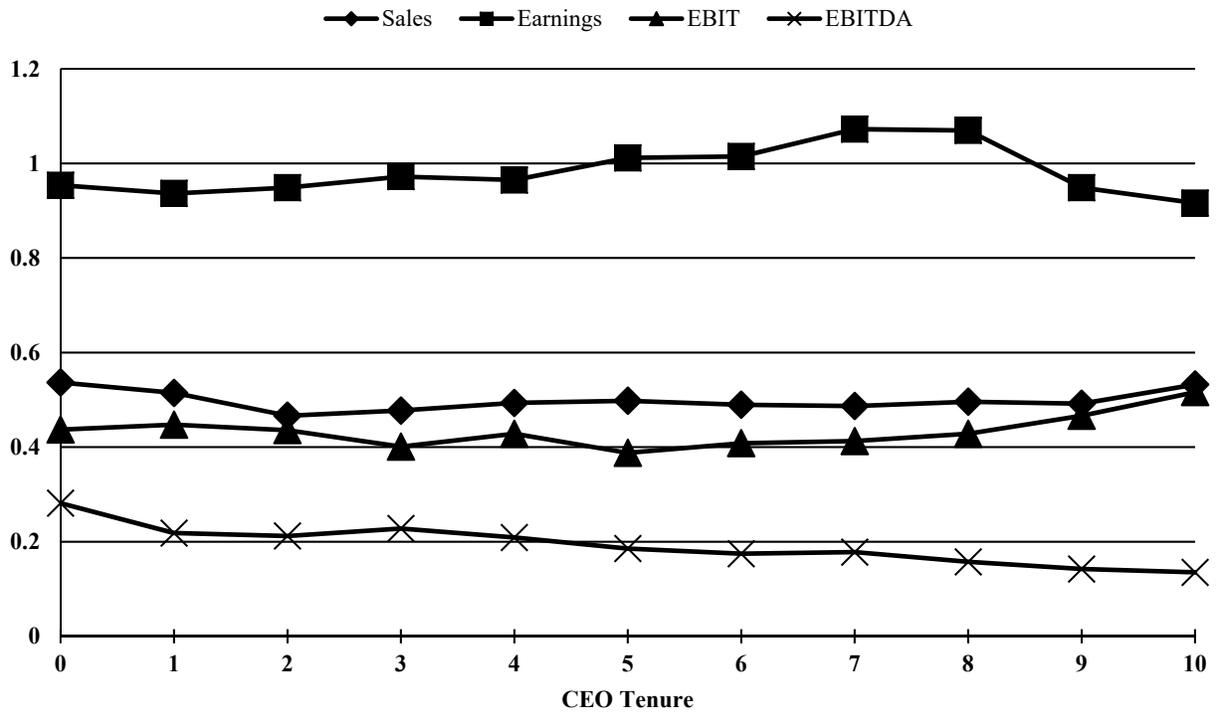
Panel C. Average Cost Shielding



Notes. 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, Panel B plots performance measures indexed relative to their 2006 average values, and Panel C plots the average of our aggregate *Cost Shield* measure. Sample consists of 9,832 firm-years appearing on Incentive Lab from 2006 to 2017.

Figure 2. CEO Bonus Performance Measures over Tenure

Panel A. Raw Performance Measures



Panel B. Indexed Performance Measures

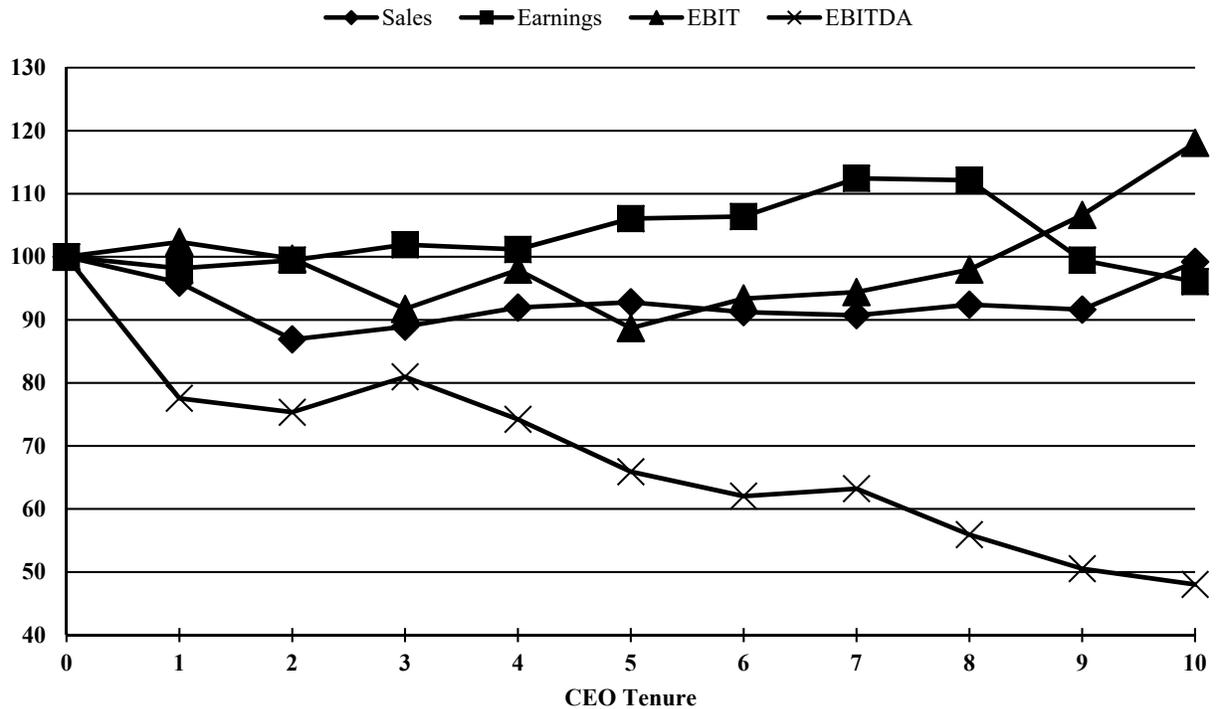
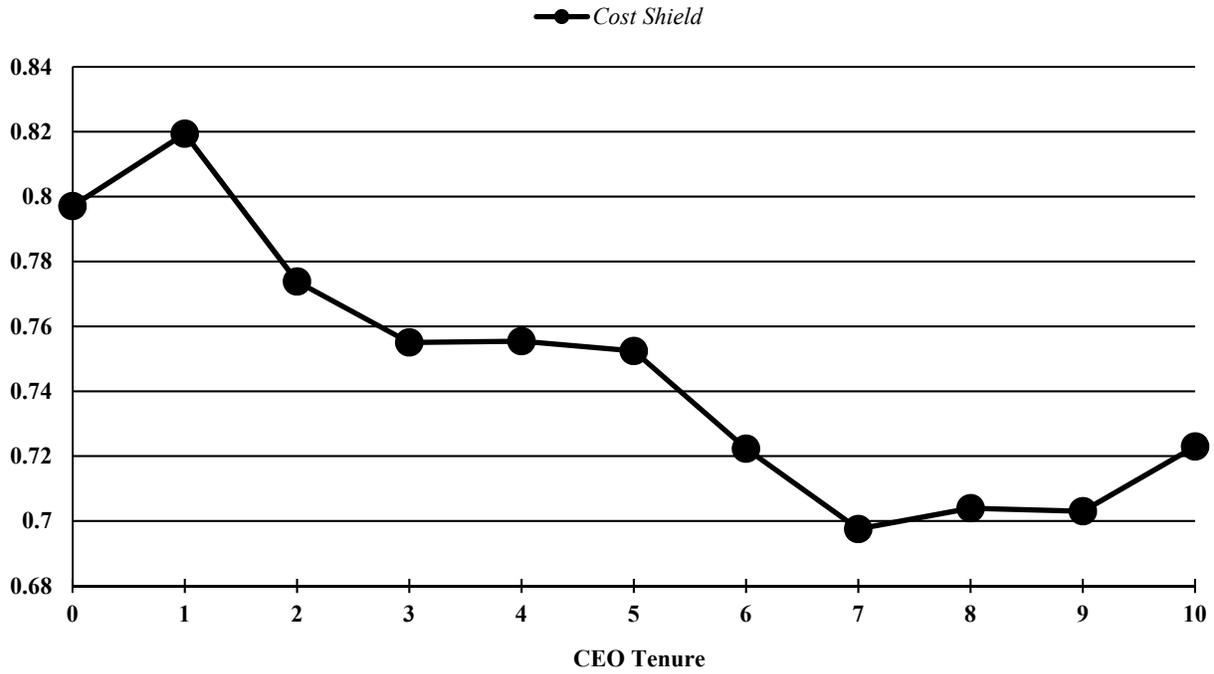


Figure 2. CEO Bonus Performance Measures over Tenure (cont'd)

Panel C. Aggregate Cost Shielding



Notes. 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, Panel B plots performance measures indexed relative to their average values when CEO tenure equals zero, and Panel C plots the average of our aggregate *Cost Shield* measure. Sample consists of 9,832 firm-years appearing on Incentive Lab from 2006 to 2017.

Table 1. Descriptive Statistics

Variable	N	Mean	Std. Dev.	25th	50th	75th
<u>CEO Bonus Plan Measures:</u>						
<i>Cost Shield</i>	8,009	0.73	0.73	0.00	0.67	1.25
<i># Sales Metrics</i>	8,009	0.50	0.80	0.00	0.00	1.00
<i># EBITDA Metrics</i>	8,009	0.18	0.50	0.00	0.00	0.00
<i># EBIT Metrics</i>	8,009	0.44	0.80	0.00	0.00	1.00
<i># EBT Metrics</i>	8,009	0.09	0.35	0.00	0.00	0.00
<i># Earnings Metrics</i>	8,009	1.01	1.18	0.00	1.00	1.00
<i>Total Income Statement Metrics</i>	8,009	2.27	1.68	1.00	2.00	3.00
<u>Controls:</u>						
<i>Book-to-Market</i>	8,009	0.47	0.37	0.24	0.40	0.64
<i>Market Capitalization</i>	8,009	13,824	25,885	2,426	5,037	13,005
<i>Idiosyncratic Volatility</i>	8,009	0.07	0.04	0.04	0.06	0.08
<i>Free Cash Flow</i>	8,009	0.09	0.07	0.04	0.08	0.13
<i>Delta</i>	8,009	878.06	1817.96	139.25	346.86	782.83
<i>CEO Tenure</i>	8,009	7.20	6.77	2.00	5.00	10.00
<u>Firm Characteristics:</u>						
<i>R&D Volatility</i>	7,716	0.01	0.01	0.00	0.01	0.01
<i>Depreciation Volatility</i>	8,009	0.01	0.02	0.00	0.00	0.00
<i>Interest Volatility</i>	7,600	0.01	0.01	0.00	0.00	0.01
<i>ETR Volatility</i>	8,009	0.41	1.03	0.03	0.10	0.29
<i>Sales Growth</i>	8,005	0.05	0.17	-0.02	0.05	0.12
<i>% New Products</i>	6,546	0.23	0.23	0.00	0.18	0.39
<i>Firm Age</i>	6,546	29.69	12.56	19.00	30.00	42.00
<u>Executive Turnover Measures:</u>						
<i>Forced CEO Turnover</i>	8,009	0.02	0.14	0.00	0.00	0.00
<i>Voluntary CEO Turnover</i>	8,009	0.07	0.26	0.00	0.00	0.00
<i>Early Forced CEO Turnover</i>	8,009	0.02	0.13	0.00	0.00	0.00
<i>Late Voluntary CEO Turnover</i>	8,009	0.05	0.21	0.00	0.00	0.00
<i>Top Management Team Length</i>	8,009	4.55	3.36	2.00	4.00	6.00
<i>Top Management Team Turnover</i>	8,009	0.76	0.94	0.00	1.00	1.00

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

Table 2. Correlation and Transition Matrix

Panel A. Correlation Matrix for Changes in CEO Performance Measures

Variable	Δ # <i>Sales</i> <i>Metrics</i>	Δ # <i>EBITDA</i> <i>Metrics</i>	Δ # <i>EBIT</i> <i>Metrics</i>	Δ # <i>EBT</i> <i>Metrics</i>	Δ # <i>Earnings</i> <i>Metrics</i>	Δ # <i>Total</i> <i>Metrics</i>
Δ # <i>Sales Metrics</i>	1.00
Δ # <i>EBITDA Metrics</i>	0.0700*	1.00
Δ # <i>EBIT Metrics</i>	0.1093*	-0.0952*	1.00	.	.	.
Δ # <i>EBT Metrics</i>	0.0505*	-0.0356*	-0.0982*	1.00	.	.
Δ # <i>Earnings Metrics</i>	0.1458*	-0.0387*	-0.1155*	-0.0336*	1.00	.
Δ # <i>Total Metrics</i>	0.6119*	0.2665*	0.3735*	0.1457*	0.6194*	1.00

Panel B. Transition Matrix

		Earnings–Based	
		Removed	Added
<i>Sales</i>	Removed	22.1	6.1
	Added	9.0	23.0
		Other Earnings–Based	
		Removed	Added
<i>EBITDA</i>	Removed	6.8	14.6
	Added	18.6	8.5
		Other Earnings–Based	
		Removed	Added
<i>EBIT</i>	Removed	7.1	20.5
	Added	22.5	6.5
		Other Earnings–Based	
		Removed	Added
<i>EBT</i>	Removed	8.9	24.5
	Added	26.5	8.0
		Other Earnings–Based	
		Removed	Added
<i>Earnings</i>	Removed	5.6	14.9
	Added	12.7	6.3

Notes. This table presents correlation matrices and a transition table for CEO bonus plan measures. Panel A presents pairwise correlations between changes in CEO bonus plan measures. For Panel A, * indicates statistical significance (two-sided) at the 5% level. 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 measures, respectively, compared to all other types of bonus plan measures added or removed during the same year. All variables are as described in Appendix B. Sample period is 2006 – 2017.

Table 3. Cost Volatility and Bonus Plan Cost Shielding

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>R&D Volatility_{t-1}</i>	8.977*** (3.62)	4.219*** (2.83)	1.998* (1.82)	-3.228** (-2.55)	-4.282*** (-3.27)
<i>Depreciation Volatility_{t-1}</i>	5.178*** (3.88)	5.295*** (6.56)	-3.041*** (-6.04)	-0.677 (-0.91)	-1.639** (-2.11)
<i>Interest Volatility_{t-1}</i>	7.252* (1.87)	-4.663* (-1.91)	11.663*** (6.12)	-0.032 (-0.02)	-3.391* (-1.65)
<i>ETR Volatility_{t-1}</i>	0.024 (1.23)	-0.008 (-0.67)	0.025*** (2.85)	0.019* (1.83)	0.012 (1.06)
<i>Book-to-Market_{t-1}</i>	-0.218*** (-4.44)	-0.158*** (-4.69)	0.002 (0.06)	-0.002 (-0.07)	0.038 (1.24)
<i>Ln(Market Capitalization_{t-1})</i>	-0.036* (-1.84)	0.014 (1.06)	-0.019*** (-2.81)	-0.007 (-0.63)	0.004 (0.38)
<i>Idiosyncratic Volatility_{t-1}</i>	1.475*** (3.36)	-0.285 (-1.02)	0.888*** (4.45)	-0.009 (-0.04)	-1.341*** (-5.12)
<i>Free Cash Flow_{t-1}</i>	0.584** (2.05)	0.285* (1.74)	-0.117 (-1.00)	0.202 (1.40)	0.133 (0.84)
<i>Ln(Delta_{t-1})</i>	0.017 (1.05)	0.010 (0.94)	0.006 (0.87)	-0.001 (-0.07)	0.009 (0.94)
<i>Ln(CEO Tenure_t)</i>	-0.040** (-2.06)	-0.018 (-1.40)	-0.012 (-1.44)	-0.005 (-0.43)	-0.009 (-0.78)
<i>Sales Metric_t</i>	.	.	0.030* (1.84)	0.088*** (3.82)	0.058** (2.57)
<i>EBITDA Metric_t</i>	.	0.071* (1.85)	.	-0.444*** (-16.51)	-0.435*** (-12.38)
<i>EBIT Metric_t</i>	.	0.112*** (3.82)	-0.241*** (-13.36)	.	-0.407*** (-15.59)
<i>Earnings Metric_t</i>	.	0.070** (2.56)	-0.224*** (-10.70)	-0.385*** (-15.40)	.
Fixed Effects	Year	Year	Year	Year	Year
N	7,318	7,318	7,318	7,318	7,318
R ²	0.107	0.095	0.276	0.215	0.257

Notes. This table presents results from regressions of CEO bonus plan performance measures on measures of income statement cost volatilities. Column (1) presents results using a categorical measure of the degree of cost shielding in the CEO's bonus plan, 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 year fixed effects. All variables are as defined in Appendix B. *t*-statistics appear in parentheses and are clustered by firm. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

Table 4. Growth Options and Bonus Plan Cost Shielding

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>Sales Growth_{t-1}</i>	0.164*** (2.67)	0.055 (1.43)	0.008 (0.26)	-0.118*** (-3.42)	-0.117*** (-2.97)
<i>Book-to-Market_{t-1}</i>	-0.309*** (-6.77)	-0.187*** (-6.04)	-0.032 (-1.32)	0.001 (0.03)	0.089*** (2.96)
<i>Ln(Market Capitalization_{t-1})</i>	-0.060*** (-3.14)	0.002 (0.17)	-0.027*** (-4.02)	-0.001 (-0.08)	0.015 (1.41)
<i>Idiosyncratic Volatility_{t-1}</i>	2.595*** (6.38)	0.206 (0.76)	1.196*** (5.81)	0.040 (0.17)	-1.489*** (-5.72)
<i>Free Cash Flow_{t-1}</i>	1.170*** (4.46)	0.681*** (4.35)	-0.109 (-0.95)	0.252* (1.80)	0.190 (1.21)
<i>Ln(Delta_{t-1})</i>	0.021 (1.35)	0.012 (1.21)	0.006 (1.00)	0.000 (0.03)	0.013 (1.32)
<i>Ln(CEO Tenure_t)</i>	-0.060*** (-3.38)	-0.023* (-1.87)	-0.024*** (-2.99)	-0.008 (-0.77)	-0.015 (-1.32)
<i>Sales Metric_t</i>	.	.	0.011 (0.70)	0.085*** (3.99)	0.053** (2.48)
<i>EBITDA Metric_t</i>	.	0.025 (0.70)	.	-0.424*** (-16.72)	-0.434*** (-13.18)
<i>EBIT Metric_t</i>	.	0.110*** (4.00)	-0.241*** (-13.47)	.	-0.402*** (-16.07)
<i>Earnings Metric_t</i>	.	0.064** (2.48)	-0.228*** (-10.99)	-0.372*** (-15.70)	.
Fixed Effects	Year	Year	Year	Year	Year
N	8,005	8,005	8,005	8,005	8,005
R ²	0.088	0.059	0.209	0.204	0.240

Notes. This table presents results from regressions of CEO bonus plan performance measures on measures of growth options. Panel A presents results using our main set of control variables. Column (1) presents results using a categorical measure of the degree of cost shielding in the CEO's bonus plan, 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 year fixed effects. All variables are as defined in Appendix B. *t*-statistics appear in parentheses and are clustered by firm. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

Table 5. Product Age, Firm Age, and Bonus Plan Cost Shielding

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>% New Products_t</i>	0.173*** (3.84)	0.132*** (4.43)	0.041** (1.97)	0.008 (0.28)	0.047 (1.55)
<i>Ln(Firm Age_t)</i>	-0.238*** (-6.29)	-0.108*** (-4.13)	-0.029* (-1.71)	-0.033 (-1.34)	0.079*** (3.31)
<i>Book-to-Market_{t-1}</i>	-0.344*** (-6.95)	-0.197*** (-5.70)	-0.051* (-1.94)	0.001 (0.04)	0.102*** (2.94)
<i>Ln(Market Capitalization_{t-1})</i>	-0.046** (-2.24)	0.013 (0.93)	-0.029*** (-4.12)	-0.001 (-0.09)	0.011 (0.91)
<i>Idiosyncratic Volatility_{t-1}</i>	1.944*** (4.13)	0.007 (0.02)	0.985*** (4.21)	-0.267 (-0.99)	-1.506*** (-5.04)
<i>Free Cash Flow_{t-1}</i>	1.059*** (3.75)	0.645*** (3.75)	-0.146 (-1.20)	0.141 (0.91)	0.159 (0.92)
<i>Ln(Delta_{t-1})</i>	0.008 (0.49)	0.004 (0.37)	0.006 (0.82)	0.003 (0.26)	0.016 (1.56)
<i>Ln(CEO Tenure_t)</i>	-0.047** (-2.45)	-0.016 (-1.19)	-0.021** (-2.47)	-0.014 (-1.24)	-0.022* (-1.89)
<i>Sales Metric_t</i>	.	.	0.014 (0.85)	0.080*** (3.28)	0.056** (2.32)
<i>EBITDA Metric_t</i>	.	0.035 (0.85)	.	-0.414*** (-13.68)	-0.408*** (-10.70)
<i>EBIT Metric_t</i>	.	0.099*** (3.29)	-0.212*** (-11.07)	.	-0.394*** (-14.42)
<i>Earnings Metric_t</i>	.	0.066** (2.32)	-0.199*** (-9.11)	-0.375*** (-14.05)	.
Fixed Effects	Year	Year	Year	Year	Year
N	6,498	6,498	6,498	6,498	6,498
R ²	0.121	0.076	0.191	0.198	0.243

Notes. This table presents results from regressions of CEO bonus plan performance measures on measures of firm and product age. Panel A presents results using our main set of control variables. Column (1) presents results using a categorical measure of the degree of cost shielding in the CEO's bonus plan, 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 year fixed effects. All variables are as defined in Appendix B. *t*-statistics appear in parentheses and are clustered by firm. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

Table 6. CEO Tenure and Bonus Plan Cost Shielding

<i>Panel A. Long Tenure Indicator</i>					
	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>CEO Tenure Years 7+_t</i>	-0.096*** (-2.99)	-0.039* (-1.78)	-0.040*** (-2.79)	-0.012 (-0.64)	-0.035* (-1.72)
<i>Book-to-Market_{t-1}</i>	-0.314*** (-6.88)	-0.189*** (-6.10)	-0.032 (-1.32)	0.004 (0.15)	0.093*** (3.09)
<i>Ln(Market Capitalization_{t-1})</i>	-0.057*** (-2.99)	0.003 (0.22)	-0.026*** (-3.88)	-0.000 (-0.03)	0.015 (1.35)
<i>Idiosyncratic Volatility_{t-1}</i>	2.661*** (6.51)	0.224 (0.82)	1.213*** (5.90)	0.035 (0.15)	-1.502*** (-5.75)
<i>Free Cash Flow_{t-1}</i>	1.237*** (4.71)	0.703*** (4.48)	-0.099 (-0.87)	0.222 (1.60)	0.160 (1.02)
<i>Ln(Delta_{t-1})</i>	0.021 (1.33)	0.012 (1.23)	0.006 (0.96)	-0.001 (-0.16)	0.013 (1.36)
<i>Sales Metric_t</i>	.	.	0.011 (0.71)	0.085*** (3.98)	0.053** (2.44)
<i>EBITDA Metric_t</i>	.	0.026 (0.71)	.	-0.424*** (-16.66)	-0.435*** (-13.12)
<i>EBIT Metric_t</i>	.	0.109*** (3.98)	-0.240*** (-13.41)	.	-0.400*** (-15.94)
<i>Earnings Metric_t</i>	.	0.063** (2.44)	-0.228*** (-10.96)	-0.370*** (-15.59)	.
Fixed Effects	Year	Year	Year	Year	Year
N	8,009	8,009	8,009	8,009	8,009
R ²	0.086	0.059	0.208	0.202	0.238

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

<i>Panel B. Internal versus External Hires</i>		
	(1)	(2)
Sample Restriction:	<i>External Hire_t = 0</i>	<i>External Hire_t = 1</i>
Dependent Variable:	<i>Cost Shield_t</i>	<i>Cost Shield_t</i>
<i>CEO Tenure Years 7+_t</i>	−0.067** (−1.96)	−0.238*** (−2.90)
<i>Book-to-Market_{t-1}</i>	−0.333*** (−6.62)	−0.182** (−2.00)
<i>Ln(Market Capitalization_{t-1})</i>	−0.054*** (−2.70)	−0.056 (−1.34)
<i>Idiosyncratic Volatility_{t-1}</i>	2.416*** (5.38)	3.384*** (4.04)
<i>Free Cash Flow_{t-1}</i>	1.156*** (4.10)	1.824*** (3.28)
<i>Ln(Delta_{t-1})</i>	0.022 (1.31)	0.047 (1.43)
Fixed Effects	Year	Year
N	6,949	1,060
R ²	0.081	0.122

Notes. This table presents results from regressions CEO bonus plan performance measures on measures of CEO tenure. Panel A presents results using our main set of control variables. Column (1) presents results using a categorical measure of the degree of cost shielding in the CEO's bonus plan, 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 year fixed effects. All variables are as defined in Appendix B. *t*-statistics appear in parentheses and are clustered by firm. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.

Table 7. Executive Turnover and Bonus Plan Cost Shielding

Panel A. Forced versus Voluntary CEO Turnover

	(1)	(2)	(3)	(4)	(5)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Sales Metric_t</i>	<i>EBITDA Metric_t</i>	<i>EBIT Metric_t</i>	<i>Earnings Metric_t</i>
<i>Forced CEO Turnover_{t-1}</i>	0.181*** (2.67)	0.049 (1.12)	-0.008 (-0.27)	0.064 (1.58)	-0.070* (-1.65)
<i>Voluntary CEO Turnover_{t-1}</i>	-0.083* (-1.85)	-0.039 (-1.30)	-0.044** (-2.26)	-0.002 (-0.09)	-0.013 (-0.47)
<i>Book-to-Market_{t-1}</i>	-0.314*** (-6.90)	-0.189*** (-6.10)	-0.031 (-1.27)	0.003 (0.12)	0.094*** (3.13)
<i>Ln(Market Capitalization_{t-1})</i>	-0.060*** (-3.09)	0.001 (0.11)	-0.028*** (-4.04)	-0.001 (-0.06)	0.014 (1.30)
<i>Idiosyncratic Volatility_{t-1}</i>	2.583*** (6.33)	0.199 (0.73)	1.193*** (5.78)	0.019 (0.08)	-1.495*** (-5.72)
<i>Free Cash Flow_{t-1}</i>	1.241*** (4.75)	0.703*** (4.49)	-0.101 (-0.88)	0.224 (1.61)	0.156 (0.99)
<i>Ln(Delta_{t-1})</i>	0.026 (1.55)	0.015 (1.36)	0.010 (1.34)	-0.001 (-0.09)	0.013 (1.27)
<i>Ln(CEO Tenure_t)</i>	-0.070*** (-2.70)	-0.029* (-1.65)	-0.033*** (-2.91)	-0.008 (-0.51)	-0.021 (-1.31)
<i>Sales Metric_t</i>	.	.	0.011 (0.69)	0.084*** (3.95)	0.053** (2.46)
<i>EBITDA Metric_t</i>	.	0.025 (0.69)	.	-0.424*** (-16.65)	-0.434*** (-13.10)
<i>EBIT Metric_t</i>	.	0.109*** (3.95)	-0.240*** (-13.41)	.	-0.400*** (-15.93)
<i>Earnings Metric_t</i>	.	0.063** (2.46)	-0.228*** (-10.94)	-0.370*** (-15.57)	.
Fixed Effects	Year	Year	Year	Year	Year
N	8,009	8,009	8,009	8,009	8,009
R ²	0.088	0.059	0.208	0.202	0.238

Table 7. Executive Turnover and Bonus Plan Cost Shielding (cont'd)

Panel B. Early versus Late CEO Turnover

Dependent Variable:	(1)	(2)
	<i>Cost Shield_t</i>	<i>Cost Shield_t</i>
<i>Early Forced CEO Turnover_{t-1}</i>	0.335*** (4.69)	. .
<i>Late Voluntary CEO Turnover_{t-1}</i>	. .	-0.177*** (-3.80)
<i>Book-to-Market_{t-1}</i>	-0.319*** (-7.04)	-0.309*** (-6.78)
<i>Ln(Market Capitalization_{t-1})</i>	-0.057*** (-3.00)	-0.062*** (-3.23)
<i>Idiosyncratic Volatility_{t-1}</i>	2.596*** (6.36)	2.587*** (6.34)
<i>Free Cash Flow_{t-1}</i>	1.245*** (4.78)	1.230*** (4.70)
<i>Ln(Delta_{t-1})</i>	0.021 (1.34)	0.030* (1.86)
<i>Ln(CEO Tenure_t)</i>	-0.050*** (-2.74)	-0.083*** (-3.77)
Fixed Effects	Year	Year
N	8,009	8,009
R ²	0.089	0.089

Table 7. Executive Turnover and Bonus Plan Cost Shielding (cont'd)

Panel C. Top Management Team Stability

	(1)	(2)
Dependent Variable:	<i>Cost Shield_t</i>	<i>Cost Shield_t</i>
<i>Top Management Team Length_{t-1}</i>	-0.010** (-2.46)	.
<i>Top Management Team Turnover_{t-1}</i>	.	0.053*** (5.37)
<i>Book-to-Market_{t-1}</i>	-0.309*** (-6.81)	-0.312*** (-6.89)
<i>Ln(Market Capitalization_{t-1})</i>	-0.060*** (-3.14)	-0.060*** (-3.17)
<i>Idiosyncratic Volatility_{t-1}</i>	2.596*** (6.36)	2.541*** (6.26)
<i>Free Cash Flow_{t-1}</i>	1.240*** (4.75)	1.254*** (4.83)
<i>Ln(Delta_{t-1})</i>	0.023 (1.51)	0.024 (1.58)
<i>Ln(CEO Tenure_t)</i>	-0.057*** (-3.18)	-0.044** (-2.46)
Fixed Effects	Year	Year
N	8,009	8,009
R ²	0.089	0.091

Notes. This table presents results from regressions of CEO bonus plan performance measures on measures of executive turnover and top management team stability. Panel A presents results for forced versus voluntary CEO turnover. Panel B presents results separately for early forced CEO turnover and late voluntary CEO turnover. Panel C presents results for our measures of top management team stability. In Panel A, Column (1) presents results using a categorical measure of the degree of cost shielding in the CEO's bonus plan, 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. In Panels B and C we only present results using our categorical measure of the degree of cost shielding in the CEO's bonus plan. Each column includes untabulated year fixed effects. All variables are as defined in Appendix B. *t*-statistics appear in parentheses and are clustered by firm. *, **, *** indicate statistical significance (two-sided) at the 0.1, 0.05, and 0.01 levels, respectively. Sample period is 2006 – 2017.