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**GREATER- AND LESSER-PAID CHIEF EXECUTIVE OFFICERS:
IMPLICATIONS FOR SUBSEQUENT FIRM OUTCOMES**

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Business Administration

by

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ABSTRACT

One of the most prevalent assumptions regarding chief executive officer (CEO) compensation is that the most talented CEOs will command premium pay on the executive labor market. From an economics perspective, this statement is self-evident; the existence of a reasonably efficient labor market hinges upon this assumption. If such a market exists, it follows that higher-paid CEOs should generally outperform their lower-paid peers in subsequent years. Yet, scarce empirical evidence exists to either support or cast doubt upon this supposition. My dissertation, in which I delve into this fundamental issue, consists of two major sections. In the first essay, I focus on a basic question: Do higher-paid CEOs outperform their lower-paid CEO peers? Finding no consistent evidence of a meaningful relationship, I then examine whether contextual factors at the industry and organization levels moderate the link between pay and subsequent performance. I find little evidence that the pay-performance relationship is accentuated by the industry- or firm-level attributes incorporated in my analyses. In the second essay, I shift the focus to more proximal outcomes of CEO actions, investigating how pay influences firm outcomes other than performance. I specifically examine the associations between persistent CEO underpayment and three organizational outcomes: unrelated diversification, corporate attention to non-shareholder stakeholders, and corporate misconduct. Here, too, my results collectively suggest that persistently underpaid CEOs do not systematically differ from their higher-paid peers, at least in terms of the strategic actions examined.

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Chapter 1

INTRODUCTION

Few topics in strategic management – or business scholarship in general – generate the front page headlines so routinely grabbed by executive pay. This is especially true in the United States, where CEOs tend to be paid far more than their counterparts in other countries (Abowd & Bognanno, 1995; Conyon & Murphy, 2000). Noted executive compensation scholar Kevin Murphy (1995, 1997, 1999) has posited a number of interrelated factors driving this rise in public and scholarly interest, including the meteoric increase in CEO pay over the last several decades; the populist attack on wealth following the 1980s excesses, coupled with the perception that high CEO pay is related to layoffs, plant closings, and corporate downsizing; and the bull market of the 1990s that saw huge windfalls for CEOs holding enormous quantities of company stock options. Recently, a heated debate unfolded in one of the *Academy of Management* journals on the topic of whether U.S. CEOs are overpaid (see Bogle, 2008; Kaplan, 2008a, b; Walsh, 2008, 2009); variations on this debate have been ongoing for decades (e.g., Bebchuk & Fried, 2004; Hall & Liebman, 1998; Kerr & Bettis, 1987; Murphy, 1986b). Whatever the reason, people are interested in what executives – especially CEOs – earn.

What is it about CEO pay that evokes such strong responses, though? The income earned by the CEO of a public firm typically represents a miniscule fraction of the overall revenues of the company; in 2005, for example, the CEOs of the top 1,000 U.S. public firms took home pay worth, on average, less than 0.1% of their companies' total sales (Kaplan, 2008b). One of the biggest companies in the world, Exxon Mobil, paid its CEO just over \$22 million during 2008 – its revenues, by comparison, were almost a half *trillion* dollars. In the majority of cases, the

CEO's compensation only marginally affects the bottom line of the average public firm. Why the fascination with pay, then? Does it really matter?

It turns out that pay matters quite a bit. Scholars have long been interested in the effects of CEO pay on organizational outcomes, and have studied the issue in great detail over the last several decades (for reviews, see Devers, Cannella, Reilly, & Yoder, 2007; Finkelstein, Hambrick, & Cannella, 2009). Among other things, CEO pay is thought to influence the caliber of the individual hired for the position (Harris & Helfat, 1997), the pay (Wade, Porac, Pollock, & Graffin, 2006b) and interpersonal dynamics of the top management team (Siegel & Hambrick, 2005), the impression management behaviors of the board of directors (Wade, Porac, & Pollock, 1997), and – of primary interest to strategic management scholars – CEOs' strategic decision making (Larcker, 1983; Sanders, 2001; Sanders & Hambrick, 2007) and company performance (Fong, Misangyi, & Tosi, 2010; Hayes & Schaefer, 2000). Thus, although the sheer size of some CEOs' incomes tend to pique public interest (and often scorn), the implications of these pay arrangements go well beyond their direct impact on the bottom line.

Among the most widely assumed implications of CEO pay is that higher-quality CEOs will tend to command higher levels of pay on the executive labor market (Fama, 1980; Finkelstein & Boyd, 1998; Hubbard & Palia, 1995; Jin, 2002; Palia, 2000; Rose & Shepard, 1997; Rosen, 1982; Tervio, 2008). An economist would hold this statement as self-evident; the existence of any sort of efficient labor market (in which the most talented executives are slotted into the highest-paying jobs) is contingent upon this relationship (e.g., Fama, 1980). Yet, scarce empirical evidence exists to either support or cast doubt upon this claim. Does higher CEO pay ultimately lead to better company performance? Do moderating conditions exist that shape the degree to which the best CEOs are sorted into the highest-paying jobs? And, if incomplete

sorting indeed exists, what are the implications for organizations? My dissertation, which rests upon the idea that this sorting is present but far from complete in the CEO labor market, will address these research questions.

It is worth clarifying that I am focusing on the effects of current pay levels on *subsequent* organizational outcomes (including performance), rather than examining the influence of *previous* performance on current pay levels. The prior performance-current pay relationship has received an enormous amount of attention from scholars (see Tosi, Werner, Katz, & Gomez-Mejia, 2000 for a meta-analysis), and the aggregate body of research on the topic is characterized by decidedly mixed findings. Any relationship between past performance and current pay levels sheds little light on the effects of pay levels on *subsequent* performance, however; it is this latter causal direction in which I am interested.

Before continuing, a brief overview of the history of executive pay research is warranted. Perhaps owing to the publicly available nature of compensation data, research in this domain has proliferated (Gomez-Mejia, Berrone, & Franco-Santos, 2010). Although a comprehensive review of the literature on executive pay is beyond the scope of this introduction, a number of scholars have undertaken this task and published excellent syntheses of existing research (see Devers et al., 2007; Finkelstein et al., 2009; Gomez-Mejia & Wiseman, 1997). To frame my dissertation within the broader compensation literature, however, it is useful to briefly trace the path that executive pay research has followed since its inception nearly eighty years ago.

The rise of the modern public corporation in the early part of the twentieth century presented scholars with an intriguing new question: How can companies with widely dispersed owners (the principals) ensure that the individuals charged with running their firms (the agents) act in the best interests of the firm's shareholders? Berle and Means (1932) were the first to

address the issue in detail, characterizing the modern corporation as “ownership of wealth without appreciable control and control of wealth without appreciable ownership.” (66) If (as economists widely assume) the individuals managing the firm are driven by self-interested motives, a serious problem exists when these self-interests run counter to the interests of the organizations’ owners (Berle & Means, 1932) – especially when the owners are not able to monitor the day-to-day activities of managers, which is the case in most public corporations.

This “managerial capitalism” view characterized most of the research on executive pay during the middle to later part of the twentieth century. Influential scholars such as Baumol (1959), Marris (1964), Williamson (1964), and McEachern (1975) pioneered the development of this theoretical perspective, which argued that in the absence of effective oversight by owners, CEOs and top executives will seek to maximize their incomes and pursue their own objectives, which often clash with the goals of the organization’s (widely dispersed) owners (Hunt, 1986; Tosi et al., 1999). For example, because executive pay tends to be linked to firm size, CEOs are presumably motivated (in the absence of close oversight by owners) to maximize sales growth instead of profits (Marris, 1964). Personal income-maximizing decisions along these lines fall under the larger umbrella of a manager’s “expense preferences,” or the resource allocations that maximize the manager’s (rather than the owners’) personal utilities (Williamson, 1963).

Starting in the 1970s, a number of prominent scholars from the University of Chicago began advocating an incentives-based solution to this problem. Namely, they argued that it was possible to design compensation contracts such that the interests of managers would align with the interests of owners by using incentive-based pay vehicles that closely tie income to company performance (Holmstrom, 1979; Jensen & Meckling, 1976). This perspective – which came to be known as agency theory – was concerned with two overarching problems: (1) the conflict of

interest between agents and principals; and (2) the problem of risk sharing that occurs when agents and principals differ in their attitudes toward risk (Eisenhardt, 1989). Here, the principal-agent contract is the primary unit of analysis, and researchers tend to focus on compensation *structure* as the means to shape executive behaviors, especially as they pertain to risk taking. Over thirty years later, agency theory remains the paradigm of choice for researchers studying executive pay.

Agency theory is primarily concerned with the conflicts of interest that inevitably exist when the managers making decisions within organizations are not the firm's primary security holders. Agency theorists argue that this relationship, characterized by information asymmetry and an assumed divergence in risk preferences, can be effectively managed by a board of directors through a combination of monitoring and incentive contracts designed to align the interests of the relevant parties (Fama & Jensen, 1983; Jensen & Meckling, 1976). By offering incentive instruments that tie pay to performance, boards can presumably increase the likelihood that CEOs and their management teams are giving maximum effort, engaging in appropriate risk-taking behaviors, and acting in the best interests of shareholders rather than focusing on extracting rents for themselves.

This emphasis on risk warrants elaboration. Classic agency theory logic holds that organizations can effectively align the interests between a chief executive and shareholders by offering incentive packages that reward the CEO for gains in shareholder value (Fama & Jensen, 1983; Jensen & Meckling, 1976; Jensen & Murphy, 1990). Such incentives, which usually include stock options or shares in the company, are considered useful in counterbalancing a CEO's natural tendency toward risk-averse behaviors (Eisenhardt, 1989). This risk aversion stems from a desire to avoid the large losses that could result from risky strategic initiatives –

including, importantly, the loss of one's job. Avoiding risk-taking behavior diminishes the chances of a CEO's dismissal but challenges the presumed wishes of organizational shareholders, who themselves maintain a diversified portfolio (as opposed to the CEO, whose livelihood is largely tied to his or her continued employment by the firm) and prefer risk-neutral behaviors that maximize the chance of positive returns (Milgrom & Roberts, 1992).

This prescription, widely heeded by boards of directors of U.S. firms over the past thirty years (e.g., Davis, 2009; Ghoshal, 2005), has triggered an explosion in the use of equity instruments in compensating CEOs. It has also given rise to a proliferation of academic research on the relationship between incentives and executive risk-taking. Scholars have linked incentive pay (e.g., instruments that tie compensation to company performance) to organizational outcomes such as increases in capital expenditures, bigger investment spending, more and bigger acquisitions, riskier acquisitions, and less hedging behavior (Larcker, 1983; Rajgopal & Shevlin, 2002; Sanders, 2001; Sanders & Hambrick, 2007; Wright, Kroll, Krug, & Pettus, 2007). These and many other studies collectively suggest that CEOs respond to incentive pay by increasing their risk-taking behaviors – including, at times, engaging in deviant activities such as financial misrepresentation (Harris & Bromiley, 2007; Peng & Roell, 2008; Zhang, Bartol, Smith, Pfarrer, & Khanin, 2008) and stock option backdating (Heron & Lie, 2007). In short, the *structure* of pay clearly matters in influencing executive actions, and can at times prompt behaviors that are exactly opposite of the incentives' intended effects.

The effects of CEO pay *level* – especially pay level relative to peers – on subsequent CEO actions, on the other hand, have received less scholarly attention. This is not to say that researchers have ignored pay level – far from it, in fact. A voluminous literature exists on the antecedents of executive pay; it is among the most researched areas in all of the organizational

sciences. Research has shown that a combination of technically rational factors (e.g., company size and complexity, executive discretion, and industry pay norms) and socio-political factors (e.g., the composition of board compensation committees, co-optation of executive compensation consulting firms, and CEO power) contribute somewhat to explaining CEO pay packages (e.g., Finkelstein & Boyd, 1998; Henderson & Fredrickson, 1996; Hubbard & Palia, 1995; Main, O'Reilly, & Wade, 1995; O'Reilly, Main, & Crystal, 1988). The relationship receiving perhaps the most attention, however, is that between prior performance and current pay.

Indeed, the idea that well-performing CEOs should be highly compensated has been around for a long time (for some early studies, see Lewellen & Huntsman, 1970; McGuire, Chiu, & Elbing, 1962; Roberts, 1959). Researchers have subsequently investigated the relationship in great detail. The logic behind rewarding CEOs for prior performance is that past results are thought to provide useful information about a CEO's abilities, and particularly about his or her suitability to current business challenges (Hambrick & Fukutomi, 1991; Miller, 1991). Studies have consistently shown that there is a positive relationship between past performance and current pay (Finkelstein & Hambrick, 1989; Fulmer, 2009; Gibbons & Murphy, 1990; Hill & Phan, 1991; Miller, 1995; Murphy, 1986a). Somewhat puzzlingly, however, the link between past performance and current pay has consistently shown to be modest, at least when compared to the effects of other factors such as firm size (Tosi et al., 2000).

This perspective ignores a perhaps more basic question: To what degree does higher pay *cause* superior firm performance? Almost all of the research on pay level reverses this causal direction by looking at how well CEOs are rewarded for how they have performed. It stands to reason, however, that boards are primarily interested in how CEOs will perform in the future, and not the past. With rare exceptions (e.g., Fong et al., 2010; Hayes & Schaefer, 2000), and

despite the large number of studies examining the past performance-current pay relationship, this question has received little attention in the executive pay literature. Scholars often view CEO pay level as a proxy for talent (e.g., Hubbard & Palia, 1995; Jin, 2002; Rose & Shepard, 1997), under the assumption that better CEOs will command a higher wage in return for their services (Fama, 1980) – which, ultimately, should contribute to better performance for their firms. Yet, the issue of how pay level relative to peers influences CEO behavior has received surprisingly limited scrutiny from executive compensation scholars.

Why, then, do researchers use pay as a proxy for executive ability? The prevailing belief is that paying higher employee wages will benefit organizations in two ways: by attracting high-ability individuals to the job (the “sorting” effect) and by motivating maximum levels of effort among current employees (the “incentive” effect) (Gerhart & Rynes, 2003). Here, the most talented individuals – i.e., who have invested the most in acquiring valuable human capital – will demand a high wage for their services (e.g., Becker, 1964; Mincer, 1974; Spence, 1973). Once hired, attractive incentives (e.g., higher pay) will be used to mitigate the natural tendency for individuals to shirk, and instead promote a high level of effort (e.g., Jensen & Meckling, 1976; Lazear, 1979). These twin concepts rest upon the assumption that an efficient executive labor market exists where the most able CEOs are efficiently sorted into the highest paying jobs (Fama, 1980); the highest paid CEOs are therefore expected to deliver the best results.

1.1. Research Questions

- 1) Do higher-paid CEOs outperform their lower-paid peers? And how do conditions at the industry and organization levels moderate the relationship between pay and future performance?

- 2) Do persistently underpaid CEOs differ from their higher-paid peers in terms of the strategic actions they take?

1.2. Dissertation Overview

Thus, in spite of the large body of research investigating the effects of pay mix on organizational outcomes (including performance), and research on the influence of past performance on current pay level, there is a paucity of work to date investigating whether the highest-paid CEOs really deliver the best subsequent performance for their firms. Chapter 2, entitled “Do Well-Paid CEOs Deliver the Goods? On the Link between CEO Pay and Subsequent Performance” addresses the following question: Does higher CEO pay lead to better subsequent performance? Starting with the assumption of the existence of a somewhat efficient labor market (e.g., one where the most talented CEOs tend to gravitate toward the highest-paying positions), I posit that while high CEO pay will generally lead to better subsequent organizational performance, the relationship will be moderated by a number of factors. In this paper, I focus on moderators at the industry and organization level; the second essay (discussed below) will delve into the individual-level factors that preclude an efficient sorting of the best CEOs into the highest-paying jobs.

Chapter 3 consists of my second essay, entitled “Leaving Money on the Table: The Strategic Consequences of Employing Persistently Underpaid CEOs.” This paper investigates whether and how persistently underpaid CEOs differ from their higher-paid peers in terms of their behaviors on the job. I examine three strategic outcomes: unrelated diversification, corporate attention to non-shareholder stakeholders, and corporate misconduct. Using a stewardship theory lens, I propose that CEOs willing to accept below-market pay over a period

of several years represent a specific subset of CEOs who are less motivated by extrinsic rewards than the CEOs depicted by most other theories used to explain executive responses to pay (e.g., agency theory, equity theory, etc.). Here, I test whether persistently underpaid CEOs are more likely to engage in strategic actions that protect the overall well-being of their organizations.

In Chapter 4, I summarize the two preceding essays while highlighting a number of areas for future research.

Chapter 2

DO WELL-PAID CEOS DELIVER THE GOODS? ON THE LINK BETWEEN CEO PAY AND SUBSEQUENT PERFORMANCE

Scholars have had a long and abundant interest in the association between organizational performance and the compensation of chief executive officers (CEOs) (e.g., Ciscel & Carroll, 1980; Lewellen & Huntsman, 1970; McGuire et al., 1962; Roberts, 1956; also see Finkelstein et al., 2009 for a review). Such research, however, has been devoted almost entirely to examining the degree to which performance affects CEO pay, with barely any attention to the more consequential, obverse question: *To what extent do CEO pay levels affect subsequent performance?* Typically couched in the logic of agency theory, the prevailing concern has been with whether CEOs are rewarded (or penalized) for what they have delivered (e.g., Jensen & Murphy, 1990; Miller, 1995; Murphy, 1986a). But if pay is viewed as an inducement – for attracting and retaining talented CEOs and for motivating them to put forth their best efforts – it makes sense to consider the association between the amounts that CEOs are paid and the performance that follows. Although researchers have considered how specific forms of executive pay (e.g., incentive plans or stock options) affect organizational outcomes (e.g., Larcker, 1983; Rajgopal & Shevlin, 2002; Sanders, 2001; Sanders & Hambrick, 2007), little is known about whether boards enhance the likelihood of high performance by paying above-market rates for their CEOs and, conversely, whether they damage the chances of favorable outcomes by paying their CEOs less than market norms suggest as warranted.

Labor economists have developed “efficiency wage theory” as a way to account for persistent heterogeneity of pay levels within job categories (summarized in Gerhart & Rynes,

2003). Efficiency wage theory (often described as a class of theories) stipulates that (1) workers in a category may have varied levels of skill; (2) those with more skills must be paid higher wages; and (3) firms might benefit from paying such premium wages. According to Krueger and Summers (1988: 260-261), the defining proposition of efficiency wage theories is that “some firms find that increasing wages above the going rate is profitable.” Translating the broad contours of efficiency wage theory to the context of CEO pay, one would envision that CEOs differ in their ability levels; the better ones will command more pay; and firms may benefit from paying more.

In the logic of neoclassical economics, more broadly, it is essentially axiomatic that buyers will pay more for goods and services that they believe will provide them greater benefits (Marshall, 1965). Buyers rely on first-hand experience, referrals, and signals to infer the quality or value of individual offerings (Friedman, 1976); and, according to the laws of supply and demand, buyers must pay, and will be willing to pay, more for those scarce offerings that they believe will provide greater benefit. Although buyers are sometimes disappointed when the benefits from expensive offerings fall short of expectations, and they are sometimes pleasantly surprised when cheap offerings yield superior results, in general there is widespread subscription to the adage: “You get what you pay for.”

It is perhaps because of this seeming obviousness that scholars have not studied whether higher-paid CEOs deliver superior results. Certainly, when corporate directors are asked to defend large pay packages for their CEOs, they often respond in a way that emphasizes the silliness of the question, as when Silicon Valley veteran George Wells (who has served on more than 20 boards) remarked about CEO pay, “...if you need someone badly enough – and it’s the board’s job to find these people – you end up having to pay.” (quoted in Buss, 2007) Moreover,

one can point to numerous cases of CEOs who received outsized pay and went on to deliver outsized results. For instance, in a legendary case that pay-for-talent proponents commonly invoke (e.g., Kaplan, 2008a), Louis Gerstner, who had exceptional credentials, was paid an unprecedented amount to become IBM's CEO in 1993 and then oversaw the dramatic resurgence of the firm over the course of the next decade.

Yet, contradictory and puzzling examples abound, as well. Compare, for instance, the pay of Steve Odland and Sam Duncan. In March 2005, Odland was lured from his post as CEO of AutoZone to become CEO of Office Depot, a leading distributor of office products. He was paid \$36 million in his first year, and he collected another \$34 million from 2006 through 2008. Just one month after Odland's hiring, Duncan was hired by Office Max – one of Office Depot's primary competitors, and similar in size and scope of operations – after a three-year term as CEO of ShopKo Stores. Duncan, however, received a far less lucrative pay package: he was given \$5.5 million during 2005, and another \$12.6 million from 2006 through 2008. In total, Odland was paid almost \$70 million over his first four years, far exceeding Duncan's \$18 million over the same period. Both executives received well over half of their pay in equity (combinations of restricted stock and stock options), so it cannot be said that Odland deserved more pay to offset the riskiness of his pay package. Instead, it appears that Office Depot thought much more highly of Odland's talents than Office Max thought of Duncan's. Did Office Depot get more for its money? Judging by market performance, it would appear not: both firms averaged around -10% in annual return to shareholders from 2005 through 2008. This raises an intriguing question: Could Office Depot have saved \$50 million by employing Duncan instead of Odland?

Difficult to answer in retrospect, of course, the above example does serve to highlight the heterogeneity in pay found among CEOs (e.g., Murphy, 1999). In spite of such immense

variance, however, surprisingly little research has addressed the role of relative CEO pay levels in influencing organizational outcomes. Far more common is the study design where researchers empirically test the impact of prior performance on current pay levels (see Tosi et al., 2000 for a meta-analysis of CEO pay studies), which invariably leads to the conclusion that the link between the two is weak (e.g., Coughlan & Schmidt, 1985; Gomez-Mejia, Tosi, & Hinkin, 1987; Hambrick & Finkelstein, 1995; Hill & Phan, 1991; Jensen & Murphy, 1990; Kerr & Bettis, 1987). Such studies, while informative, do not address the fundamental question faced by boards of directors every year when they meet to set their CEOs' compensation: To what degree does higher pay *cause* superior firm performance?

The implicit economic logic underlying this decision is relatively straightforward: market factors – specifically the supply and demand for quality CEOs – will drive CEO wages such that higher-quality CEOs (who presumably contribute more positively to company performance) will warrant higher pay levels than their lesser-talented counterparts (Ciscel & Carroll, 1980; Fama, 1980; Finkelstein & Hambrick, 1988). If one assumes a reasonably efficient market for CEO talent, then paying a CEO less than his or her market rate may result in the CEO leaving the firm for an organization willing to compensate him or her accordingly (or a prospective CEO turning down an offer for another CEO position elsewhere). It is thus reasonable to suggest that better performance is expected from higher-paid (relative to peers) CEOs. Surprisingly, as basic as this assumption may seem, almost no empirical work has directly addressed the issue.

By comparison, a burgeoning stream of research has focused on how CEOs respond to specific elements of pay, such as stock options or shares, especially as they pertain to risk-taking behaviors (e.g., Devers, McNamara, Wiseman, & Arrfelt, 2008; Larcker, 1983; Rajgopal & Shevlin, 2002; Sanders, 2001; Sanders & Hambrick, 2007). Some have included performance as

a dependent variable, but usually only as it pertained to a specific pay vehicle (e.g., Mehran (1995) found that higher levels of stock ownership are associated with better subsequent performance). From these and other studies it seems reasonable to conclude that different types of pay instruments vary in their effects on CEOs, and that pay influences such outcomes as company performance, strategic decision making, executive motivation, turnover, and behavior (Finkelstein et al., 2009; Gomez-Mejia et al., 2010). Yet, one of the overarching logics behind CEO compensation – that paying above-market rates now will lead to better performance in the future – has received scant empirical attention.

This study examines the degree to which CEO pay level influences subsequent organizational performance, and also the degree to which industry- and organization-level factors moderate this link. I first review the theory and logic behind executive pay, and then develop arguments regarding the conditions under which the relationship between pay level and future performance will be strongest and weakest. I go on to argue that context moderates the influence of pay level on future performance, such that in some situations, paying a CEO more (or less) than the going rate will have little positive (or negative) effects on performance. Then, anticipating that the link will be less than complete – perhaps modest at best – I specify two major factors that can be expected to dampen the association between pay and performance: 1) Some contexts allow CEOs relatively little discretion, limiting how much they can affect organizational outcomes (e.g., Hambrick & Finkelstein, 1987; Lieberman & O'Connor, 1972); and 2) Boards sometimes have incomplete or inaccurate data about CEOs' abilities (e.g., Fama, 1980; Murphy, 1986a). For each of these two broad moderating conditions, I develop hypotheses which identify tangible factors that can be expected to diminish the link between CEO pay and subsequent performance. The theoretical model can be seen below in Figure 1.

INSERT FIGURE 1 HERE

Before proceeding, it is useful to note three clarifications. First, I will be analyzing the influence of multiple years of pay on multiple years of subsequent performance, rather than the typical single-year snapshots of pay and performance examined by executive compensation researchers. Annual measures of both pay and performance include a significant amount of noise (e.g., Fama, 1980; Murphy, 1986a), and widening the observation window to include multiple years allows for a broader examination of the pay-performance relationship. Second, I focus on *ex ante* pay values rather than *ex post* values; this reflects an emphasis on the value of compensation as it is paid to the CEO, rather than the actual dollar amounts realized by the CEO in the future.¹ As I will be examining the degree to which pay levels predict future performance, such a design is appropriate; this method is also consistent with the vast majority of theory and research investigating the influence of pay on future organizational outcomes (e.g., Carpenter, 2000; Devers et al., 2008; Rajgopal & Shevlin, 2002; Sanders, 2001; Sanders & Hambrick, 2007). Third, I include a control for prior performance to ensure that my analysis cleanly captures the influence of CEO pay on subsequent performance. Thus, I will be examining the influence of CEO pay on subsequent performance *over and above* the effect of prior performance. I will elaborate further on this point in the methods section, as it is a crucial factor to consider.

In sum, this study thus addresses a notable void in the executive pay literature: *Do higher-paid CEOs outperform their lower-paid peers over time?* By reversing the customary

¹ This is especially important when considering stock and option grants, which are not cashed in by the CEO until several years have passed from the time of granting (during which time the respective values of the pay instruments have moved in lockstep with company performance).

causal logic of pay-performance research, I examine the consequences, rather than the determinants, of CEO pay.

2.1. Theory and Hypotheses

2.1.1. Theoretical Underpinnings of Extant Executive Pay Research

Scholars studying the effects of CEO pay most often espouse an agency theory perspective, which is primarily concerned with the conflicts of interest that exist when the managers making decisions within organizations (the agents) are not the firm's primary security holders (the principals) (see Gomez-Mejia & Wiseman, 1997 for a review). This relationship, characterized by information asymmetry and an assumed divergence in risk preferences, can be effectively managed by an organization's board of directors via a combination of monitoring and incentive contracts designed to align the interests of the relevant parties (Fama, 1980; Fama & Jensen, 1983; Jensen & Meckling, 1976; Shavell, 1979; Zajac & Westphal, 1994). By offering incentive instruments that tie pay to performance, boards can presumably increase the likelihood that CEOs and their management teams are giving maximum effort, engaging in appropriate risk-taking behaviors, and acting in the best interests of shareholders rather than focusing on extracting rents for themselves.

Agency theory logic has guided most of the research on the consequences of executive pay, and over the course of the last twenty years has greatly influenced how executives are paid (Ghoshal, 2005). This theoretical lens, however, reflects an emphasis on pay *structure* rather than pay *level*. For instance, knowing that a CEO is predominantly paid in stock options (as a proportion of total pay) rather than fixed salary suggests that he or she will be more prone to

taking risks (Rajgopal & Shevlin, 2002; Sanders, 2001; Sanders & Hambrick, 2007); still unexplored, though, is the issue of whether it matters that the total pay package is worth \$30 million or \$5 million. Put differently, most research in this area focuses on how pay can be structured to induce the optimal level of risk-taking on the part of executives – regardless of how beneficial such risk-taking ultimately proves to be to shareholder wealth. Despite such important consequences, little is known about whether the best-paid CEOs ultimately prove to be the best investments for their firms. (Office Depot shareholders might argue otherwise.) Yet, abundant evidence exists suggesting that immense variance in pay exists among CEOs, even after considering factors such as company size and industry (e.g., Fong et al., 2010).

Indeed, I am aware of only two notable studies that have explored the association between CEO pay level and subsequent firm performance. With theoretical agendas different from mine, these studies are informative but only suggestive for my purposes. Hayes and Schaefer (2000) tested implicit contract theory, arguing that current CEO compensation is more positively associated with future financial performance to the extent that observable measures of current performance are imprecise indicators of managerial achievement (as when significant product innovation is being undertaken); as such, this is more a study of the timing of rewards than a study of managerial quality. The authors included only CEO salary and bonus in their pay calculations, thus omitting a substantial portion of total compensation; employing first-differences analysis, the authors only examined the effects of pay change from year $t-1$ to t on changes in return on equity between t and $t+1$, thus examining very narrow slices of pay and performance. Also, they excluded the first two years of CEOs' tenures, in the process omitting any consideration of widely varying pay levels for new CEOs.

Fong, Misangyi, and Tosi (2010) drew on equity theory to explore the effects of a CEO's pay on subsequent behaviors and performance. The authors found that CEOs who were underpaid in a given year (relative to comparable peers) tended to either increase the size of the firm or to depart the firm in the following year (in essence, trying to remedy the perceived inequity or "get even" for being poorly paid); those CEOs who were overpaid in a given year showed performance improvements in the following year (presumably reflecting their increased effort in response to the generous pay). As such, this study also only examined the effects of pay in a single year on outcomes in the next year, which are narrow slices of the phenomena at hand. Although the authors of these two papers had good reasons for their theoretical and methodological decisions, their findings allow little insight into the aptness of efficiency wage theory in the context of CEO pay.

2.1.2. Efficiency Wage Theory: Higher Pay Leads to Higher Performance

Efficiency wage theorists have proposed four possible reasons that firms may elect to pay more than the market-clearing rate for talent (Campbell, 1993). With the caveat that the following conditions are not mutually exclusive, higher wages are thought to (1) attract a more talented pool of applicants (Weiss, 1980); (2) induce maximum effort out of a sense of gratitude (Akerlof, 1982); (3) induce maximum effort out of a heightened cost of losing one's job (Shapiro & Stiglitz, 1984); and (4) reduce turnover costs for the organization, assuming that employees are less apt to leave high paying positions (Stiglitz, 1974).

Building on the logic of efficiency wage theory, scholars have broadly argued that paying higher wages will benefit organizations in two ways: by attracting high-ability individuals to the job (the "sorting" effect) and by motivating maximum levels of effort among current employees

(the “incentive” effect) (Gerhart & Rynes, 2003). Under the logic of the sorting effect, the most highly skilled potential employees require higher wages as returns on their presumably greater investments in human capital inputs (such as education, job training, etc.) (e.g, Becker, 1964; Mincer, 1974). The incentive effect, on the other hand, stipulates that paying higher wages mitigates the natural tendency for individuals to shirk and promotes a high level of effort (e.g., Jensen & Meckling, 1976; Lazear, 1979). Decades of research have shown that pay levels are indeed an important influence on the attraction, retention, and motivation of employees (e.g., Barber & Bretz, 2000; Feldman & Arnold, 1978; Levine, 1993; Rottenberg, 1956).

Drawing on efficiency wage logic, I begin with a baseline hypothesis that CEOs (after controlling for industry, company size, and other known predictors of pay) will outperform their lower-paid peers. This is another way of saying that the most talented CEOs will command the highest pay rates in the CEO labor market; firms that are unwilling to pay high wages will be forced to settle for less talented CEOs, who will have a diminished likelihood of delivering superior performance compared to their higher-paid peers.

To attract a skilled CEO, a firm must be willing to pay a wage at or above that offered elsewhere; the highest-ability CEOs will cost the most to employ. This is one of the core premises of efficiency wage theory – by paying higher wages, firms attract more talented individuals to the position. High pay also serves as a powerful incentive to perform well; when a CEO is paid more than he or she could reasonably expect to receive elsewhere, the CEO is highly motivated to deliver superior performance in order to reduce the risk of losing his or her job. Moreover, boards use their own qualitative, tacit criteria to identify the best CEOs for their organizations; once identified, boards will pay handsomely to get these CEOs (Khurana, 2002). It thus follows that higher CEO pay should lead to higher subsequent performance.

Hypothesis 1: There will be a positive association between CEO pay and subsequent organizational performance.

I anticipate that this link is far from complete, however. The relationship between pay and subsequent performance may be quite weak – or even nonexistent – in certain instances. Below, I discuss the two broad classes of moderators hypothesized to attenuate the positive main effect of pay on subsequent performance: the level of managerial discretion afforded the CEO and the accuracy of the board's *ex ante* information on CEO ability.

2.1.3. Managerial Discretion

The idea that certain situations offer executives more control to influence organizational outcomes has a long history in management research (e.g., Child, 1972; Crossland & Hambrick, 2007; Hambrick & Finkelstein, 1987; Lieberman & O'Connor, 1972; Pfeffer & Salancik, 1978; Thompson, 1967), and the thrust of this research stream has more recently come to center not on whether managers matter, but *when*. The concept of managerial discretion, introduced by Hambrick and Finkelstein (1987), focuses on this issue of how and when executives can influence organizational outcomes. Formally defined as the latitude of managerial action, discretion is thought to emanate from three sources (Hambrick & Finkelstein, 1987):

(1) the degree to which the environment allows variety and change, (2) the degree to which the organization itself is amenable to an array of possible actions and empowers the chief executive to formulate and execute those actions, and (3) the degree to which the chief executive personally is able to envision or create multiple courses of action. (379)

The assumption that managers can and do matter is the central theme in the upper echelons literature (Hambrick & Mason, 1984), which holds that strategic decisions and firm performance are influenced by the individual attributes of a firm's top executives (e.g. Carpenter, Sanders, & Gregersen, 2001; Eisenhardt & Schoonhoven, 1990; Hambrick, Cho, & Chen, 1996).

Managerial discretion has often been conceptualized as a moderator in upper echelons research, in that the link between individual characteristics and organizational outcomes will be stronger when discretion is high, and weaker when discretion is low (Finkelstein & Hambrick, 1990; Haleblan & Finkelstein, 1993). The logic here is that because managers matter more in high-discretion contexts, their actions will be more strongly reflected in strategic and performance outcomes (and vice versa in low-discretion settings). High-discretion contexts allow CEOs – both talented and untalented – to more readily make their mark on their firms, which subsequently affects strategic and performance outcomes.

Since the introduction of this concept, researchers have examined how discretion varies at the environmental (Crossland & Hambrick, 2007; Finkelstein & Hambrick, 1990; Hambrick & Abrahamson, 1995), organizational (Finkelstein & Boyd, 1998; Rajagopalan & Finkelstein, 1992), and individual (Carpenter & Golden, 1997) levels. Of particular relevance to this study, researchers have shown that managerial discretion greatly affects executive compensation (Finkelstein & Boyd, 1998; Magnan & St-Onge, 1997). In line with the twin ideas that high-discretion contexts allow CEOs to place bigger marks on their firms – for good and for ill – and that CEO pay is a proxy for talent, studies have shown that CEOs in high-discretion settings are generally paid more than those in low-discretion settings (Rajagopalan & Finkelstein, 1992). A logical but unexplored extension is that discretion moderates the relationship between CEO pay and subsequent performance.

An intuitive hypothesis might be that high CEO pay will be more positively associated with subsequent performance when task environment discretion is high. Once we consider the idea that boards must have an accurate sense of CEO ability in order for this relationship to hold, however, the picture becomes less clear. Some aspects of task environment discretion may serve

to strengthen the pay-performance relationship, whereas others may do the opposite – especially when they make signals of managerial quality hard to decipher from the board’s perspective.

Below I outline how some of the drivers of managerial discretion that I argue will influence the pay-performance relationship.

2.1.3.1. Discretion at the Industry Level

Industry product differentiability. The degree of product differentiability, or the extent to which firms in an industry vary in the features and positioning of their offerings, is considered an important influence on managerial discretion (Hambrick & Finkelstein, 1987). Some industries afford CEOs a wide range of options regarding pricing, product style and quality, promotion, and marketing (e.g., computers, pharmaceuticals, and scientific instruments), whereas other industries more closely resemble commodity goods and offer relatively little latitude to CEOs (e.g., natural gas production, steel mills, and trucking) (Hambrick & Abrahamson, 1995). In the former category, means-ends linkages are ambiguous and numerous avenues to profitability exist; in the latter, standard strategic formulas prevail and CEOs have fewer degrees of freedom when making strategic choices (Hambrick & Finkelstein, 1987).

The potential marginal contribution of a CEO in a commodity goods industry is thus smaller in magnitude than that of a CEO in a highly differentiable industry. When CEOs have to adhere to standard “industry recipes” (Spender, 1989) when making decisions, little opportunity exists to differentiate one organization from another; this homogenization will narrow the performance gaps between the best and worst CEOs, and will diminish the need for superior talent in the CEO suite. Highly differentiable industries, on the other hand, call for more creativity from the CEO. This will result in a higher premium on CEO ability, and firms will be

willing to pay more to retain the services of the most capable individual. Therefore, industries characterized by high capital intensity, low levels of research and development spending, and low levels of advertising (all signs of a commodity goods industry) should show a weaker relationship between CEO pay and subsequent performance:

It follows that the potential marginal product of a CEO in a commodity goods industry is smaller in magnitude than that of a CEO in a highly differentiable industry. In a commodity industry, little opportunity exists to differentiate one firm from another; this homogenization will narrow the performance gaps between the best and worst CEOs, and will diminish the need for superior talent in the CEO position. Highly differentiable industries, on the other hand, call for more creativity from the CEO. This will result in a higher premium on CEO ability, and firms will benefit from paying more to secure the services of the most capable CEOs.

Hypothesis 2a: Product differentiability will moderate the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive in highly differentiable industries than in less differentiable industries.

Industry market growth. Similarly, rapidly growing industries afford CEOs greater latitude of action, in that decisions tend to be unprogrammed and entrepreneurial in nature (Mintzberg, 1973). Here, too, means-ends linkages are poorly understood, and such environments are characterized by “brisk activity, market opportunities, funding sources, and competitive variation.” (Hambrick & Finkelstein, 1987: 381) In their seminal study, Lieberman and O’Connor (1972) found that managers had more influence on profit margins in high growth industries; in other words, the talented CEO can make a greater impact on performance when industry growth is robust. Slow growth industries, on the other hand, constrain the discretion of the CEO. Here, decision making is more programmed and means-ends linkages clearer. In these contexts, talented CEO will not have as positive an impact on performance, and untalented CEOs

cannot do much harm. As such, I anticipate a more positive relationship between pay and performance in high growth industries.

Hypothesis 2b: Market growth will moderate the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive in high growth industries than in low growth differentiable industries.

Industry competitiveness. The influence of industry structure on discretion is less clear (Finkelstein & Boyd, 1998; Hambrick & Finkelstein, 1987). Some scholars have posited that firms in oligopolistic industries are limited in their repertoires of strategic choices because they are subject to powerful norms that guide behavior and protect the industry participants' positions (e.g., Scherer & Ross, 1990). Others have suggested the opposite, arguing that firms in highly concentrated industries have greater means to pursue their own strategic objectives (Burt, 1988). In their seminal paper introducing the managerial discretion construct, Hambrick and Finkelstein (1987) offered competing propositions on the effects of industry structure on discretion. Thus, prior research offers less guidance in specifying *a priori* the role of competition in either enhancing or limiting executive discretion.

In constructing my hypothesis, however, I draw on the logic of Hubbard and Palia (1995), who argued that greater competition heightens the need for a more talented CEO. More fierce competition diminishes the "room for error" for CEOs making strategic decisions, as missteps may be quickly and ruthlessly capitalized upon by the abundant number of firms all jockeying for the same piece of market share. This should especially compel organizations to pay more to attract talented CEOs, who are under greater pressure to win in the crowded marketplace. In such environments, hiring a subpar CEO could have particularly negative consequences for a firm facing abundant threats from competitors.

Hypothesis 2c: Industry competitiveness will moderate the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive in highly competitive industries than in less competitive industries.

Industry regulation. Quasi-legal constraints also play a role in determining managerial discretion at the industry level, as higher levels of industry regulation are commonly associated with lower levels of managerial discretion (Finkelstein & Boyd, 1998; Hambrick & Finkelstein, 1987). Specifically, CEOs of firms in highly regulated industries face more stringent boundaries vis-à-vis strategic actions than their peers in unregulated industries; constraints may include restrictions on existing business strategies and prohibitions against entering new lines of business (Hambrick & Finkelstein, 1987). As such, CEOs who are not subject to significant regulatory constraints have a higher level of discretion to affect firm outcomes. In keeping with the larger body of research linking high-discretion contexts to increased levels of CEO pay, scholars have consistently found that CEOs of firms in unregulated industries are paid more than their counterparts in regulated industries (e.g., Finkelstein & Boyd, 1998; Joskow, Rose, & Wolfram, 1996; Rajagopalan, 1996; Rajagopalan & Finkelstein, 1992). These studies, in one way or another, all rest upon the assumption that an organization is willing to pay a CEO more when the CEO's potential marginal product is high – which is precisely the case in unregulated industries.

If CEOs matter less in regulated industries, it follows that the relationship between CEO pay and subsequent performance will be weaker as well. Because higher levels of regulation limit the strategic actions available to CEOs (Hambrick & Finkelstein, 1987), there will be less differentiation between the best and worst CEOs in regulated industries. This is another way of saying that the potential marginal product for these CEOs is relatively small compared to that of CEOs in unregulated or lightly-regulated industries. Not only will overall CEO pay levels be lower in tightly-regulated industries (as has been repeatedly shown), but pay levels will also

exhibit less variance. There is no need to pay top dollar for the best CEO when that CEO would effectively have his or her hands tied by regulatory constraints; the combination of smaller variance in pay levels and lower potential marginal products of CEOs will result in a weaker relationship between CEO pay and subsequent performance. Thus:

Hypothesis 2d: Industry regulation will moderate the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive in less regulated industries than in highly regulated industries.

Industry dynamism. Depending on the foreseeability of demand within a given industry, a CEO may or may not have numerous courses of action regarding, for example, capacity and staffing decisions (Hambrick & Finkelstein, 1987). When demand instability is high, means-ends linkages are ambiguous and managerial discretion is enhanced (Hambrick & Abrahamson, 1995). In such situations, however, it becomes more difficult for boards to determine *ex ante* the fit between their CEOs and the external environment. Scholars have argued that CEOs have finite repertoires, and that these repertoires can and do become obsolete depending on the conditions faced by the firm (Hambrick & Fukutomi, 1991; Miller, 1991). When conditions are changing rapidly, the potential misfit between the CEO and his or her context increases (Henderson, Miller, & Hambrick, 2006). As such, it is less clear how demand instability will affect the pay-performance relationship. Higher demand instability simultaneously increases discretion and decreases the board's accuracy of information on CEO ability, making it difficult to hypothesize *a priori* the direction of the interaction.

2.1.3.2. Discretion at the Organization Level

Internal inertial forces, resource availability, and political conditions. Turning next to factors within organizations that influence the CEO pay-subsequent performance relationship,

the internal conditions faced by CEOs (regardless of industry context) will also shape a given CEO's latitude of action (Hambrick & Finkelstein, 1987). In either limiting the options available to CEOs, or limiting the CEO's role within the organization, certain organizational characteristics (such as large company size and limited firm slack) are associated with weaker relationships between executive characteristics and strategic outcomes (Finkelstein & Hambrick, 1990). This echoes the marginal product argument – organizations vary in the degree to which they afford their CEOs the latitude to make substantive decisions, such that some CEOs will matter more than others depending on organizational context.

Specifically, I posit that organizational sources of discretion resulting from inertial forces, resource availability, and internal political conditions will attenuate the relationship between CEO pay and future performance. CEOs leading organizations characterized by strong inertial forces, limited resource availability, and powerful inside forces will have little latitude to affect firm outcomes; in these cases, the relationship between CEO pay and future performance will be weakened by the limited scope of actions available to the CEO. The converse will be true for CEOs with high levels of organization level discretion; these CEOs will have far more latitude to influence organizational outcomes, and in turn I expect to find a stronger relationship between CEO pay and future performance.

Hypothesis 2e: Organization-level discretion will moderate the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive under conditions of low internal inertial forces, high resource availability, and high levels of CEO influence.

2.1.4. Boards' Firsthand Experience with Their CEOs

Now I consider the possibility that boards sometimes have inaccurate or incomplete information on a CEO's ability, causing them to pay out of line with the CEO's level of talent. At the time of CEO selection, boards will (implicitly or explicitly) make a determination of the ideal mix of skills desired in an incoming CEO (Finkelstein & Hambrick, 1996). This profile will depend upon the firm's context both at present (e.g., the state of a company's industry, the firm's prior performance, etc.) and expected in the future (e.g., anticipated market trends, the overall rate of change in the industry, etc.). Once a board has decided that a new CEO is needed, they must make a critical decision: whether to hire an insider or outsider to lead the firm.

The selection of insider versus outsider CEOs has long been a central issue in the management literature (Finkelstein et al., 2009). When choosing an outsider CEO, a board makes its best estimates of the individual's abilities, but without having actually observed his or her behavior directly; this is presumably driven by a desire for wholesale change in company direction (Lorsch & MacIver, 1989; Vancil, 1987). Here, the board is making a tradeoff between the need for change and the desire for continuity. In the former case, boards are more willing to gamble that they can select the right CEO without a great deal of firsthand knowledge of his or her ability; in the latter case, boards have the luxury of looking inside the firm at known talent, which they have been able to observe over time.

Specifically, companies that hire CEOs from inside their own firms will have more accurate understandings of the CEOs' skill sets than companies that hire outsider CEOs. Having employed the internal CEO candidate for some period of time, the board selecting an insider will have a more comprehensive picture of the CEO's talent.

A firm hiring an outsider, in contrast, will not have this benefit. Although the board may know of the new outsider CEO's accomplishments through press accounts or personal acquaintances, no day-to-day record (within the company) exists on which to measure the CEO's abilities. Khurana (2002) offers great insight on this issue:

A second risk inextricably interwoven into external CEO succession arises from the way the process requires decisions to be based on incomplete and often defective information...its second-hand quality makes it a poor substitute for the kind that is available *within the bounds of a given company* (italics added). (189)

As such, there is far more uncertainty surrounding the outsider's ability than with an internal candidate. This uncertainty will increase the odds of the firm miscalculating in their selection – especially considering that outsider CEOs are paid more than internal CEO hires (Hambrick & Finkelstein, 1995; Khurana, 2002), which in turn raises the likelihood of paying generously for a subpar CEO (which, of course, is only revealed after the fact).

When an organization elects to hire an inside candidate, more complete knowledge of the CEO's ability will allow the board to accurately compensate the CEO based on the well-known skills that he or she brings to the position. I thus expect to find a weaker association between CEO pay and subsequent performance among outsider CEOs than among insider CEOs.

Hypothesis 3a: CEO outsider status will moderate the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive for insider CEOs than for outsider CEOs.

In a similar vein, a board will develop a more accurate understanding of its CEO's capabilities as the executive's tenure lengthens. As Fama (1980) originally argued, the passage of time allows a board more opportunities to observe and judge a CEO's level of talent; this 'settling up' process will be manifested in the annual pay revisions experienced by CEOs (Murphy, 1985). During the early years of a CEO's tenure, the board will have an incomplete

picture of a CEO's abilities (Zhang, 2008). It is during this time, in which a CEO's talent has yet to be fully revealed, that the relationship between pay and subsequent performance will likely be especially weak. As a CEO advances in tenure, however, the board will have more opportunity to observe an ever-growing track record of performance on which to assess the CEO's worth to the firm. This will result in a stronger relationship between CEO pay and subsequent performance as a CEO's tenure progresses.

Put differently, early in a CEO's tenure a board will be making its best estimate as to the CEO's relative value to the firm; but, over time, adjustments will be made as the board learns about the capabilities of its CEO and compensates the CEO in closer accordance with his or her ability level relative to peers (Murphy, 1985). The advancement of tenure will bring with it a higher likelihood that the best CEOs have been identified and are being rewarded accordingly. A board setting pay for, say, a tenth-year CEO has a much more complete picture of its CEO's abilities and how they will benefit (or hinder) the firm than does a board setting pay for a second-year CEO, who is still a relatively unknown quantity. I therefore anticipate a weaker association between CEO pay and subsequent performance early in a CEO's tenure than during the later years of a CEO's tenure.

Hypothesis 3b: CEO tenure moderates the association between CEO pay and subsequent organizational performance. Specifically, the association between CEO pay and subsequent organizational performance will be more positive later in a CEO's tenure than early in a CEO's tenure.

2.2. Research Methods

2.2.1. Sample Construction

I drew my sample of CEOs from Execucomp, an archival database offered via the Wharton Research Data Services website (WRDS). Execucomp is well-known as the primary source of data for most research investigating executive compensation (e.g., Bebchuk & Grinstein, 2005; Sanders, 2001; Sanders & Hambrick, 2007), and contains executive compensation data on a comprehensive set of large, public corporations. The time period under study ranged from 1993, the first year of Execucomp data, to 2008, the last year for which some of my data were available. For the sake of comparability among firms, I constrained the sample to companies incorporated and headquartered in the United States. I also required that they were publicly traded for at least two years (measured as the time since inclusion in the CRSP database) at the time of CEO appointment, as I needed at least two years of historical stock performance data to perform my analysis. I only included companies with annual sales and assets of at least \$10 million, a size threshold consistent with prior research (e.g., McGahan & Porter, 1997; McNamara, Vaaler, & Devers, 2003).

I further constrained the sample to CEOs who took office at least 90 days prior to the closing date of their first fiscal year (to allow for a valid predicted pay estimate for the first year, which I describe later in my discussion of over(under)payment). I only included CEOs who served at least three years by 2008, as shorter tenures would not allow meaningful tests of my hypotheses (which, at a minimum, examined performance in years $t+1$ and $t+2$). To further ensure comparability, I excluded co-CEOs and any CEOs serving a second term at the same company. Finally, following prior research investigating firm profitability (e.g., McGahan &

Porter, 1997), I excluded CEOs of financial services firms (2-digit SIC codes 60, 61, 62, 63, 64, 65, and 67), both because of their unique financial reporting conventions and because they fall outside the theoretical scope of several of my industry-level discretion moderators (e.g., financial firms do not report research and development expenses, which is one of my primary measures of product differentiability).

Subsequent to these screens, the final sample included panel data for between 696 and 933 CEOs depending on the statistical test employed (some tests required longer windows of tenure, which necessarily reduced the sample size). The CEOs in my sample were 98% male, averaged 53 years of age, had held the CEO position for 3.1 years, and led firms that reported about \$5.8 billion per year in annual sales. Approximately 31% percent were outsider CEOs, in that they joined their firms less than three years after taking office (e.g., Fulmer, 2009; Wade et al., 2006b), and around 60% of them chaired their own boards (this figure does not take into consideration the first year of their tenure, as it can be difficult to pinpoint exactly when a CEO assumes chairmanship during a transition year; when including the first year, the proportion drops to 53%). Approximately 41% of the CEO-year observations consisted of firms belonging to the S&P 500 during the year in question. As such, the generalizability of my findings may be limited when moving beyond the population of large, publicly visible firms.

2.2.2. Data Sources

All of my data were collected from publicly available archival sources downloadable from internet websites. Stock price data came from the Center for Research in Security Prices (CRSP), company financial information was obtained from the Compustat/CRSP merged database (CCM), and governance data was collected from company proxy statements and the

RiskMetrics database. All financial and pay variables throughout this analysis were inflation-adjusted to 2000 dollars using the U.S. Bureau of Labor Consumer Price Index (CPI).²

Additionally, most of the continuous variables in this analysis were winsorized at plus and minus four standard deviations (after appropriate transformations) to minimize the influence of outliers.

2.2.3. Dependent Variables

Market performance. To measure stock market performance, I used total shareholder returns (TSR), a widely-used measure of company market performance (e.g., Coughlan & Schmidt, 1985; Jensen & Murphy, 1990). Annual TSR reflects the twelve-month compounded return to shareholders (assuming continuous reinvestment of dividends and adjusting for any stock splits) for a given fiscal year, and was calculated using CRSP monthly stock return data (specifically, the “ret” variable in CRSP). Thus, a firm had to be listed on one of the stock exchanges covered by CRSP (the NYSE, NASDAQ, or AMEX exchanges) for twelve consecutive months during a given fiscal year to calculate this variable.

Depending on the analysis, I measured this variable over a two or three year span. For analyses investigating multiple years of performance (two or three years), I averaged TSR over the relevant number of years.

Accounting performance. I used return on assets (ROA) as my measure of accounting performance, which has been widely used in past research (e.g., Finkelstein & Boyd, 1998; Young, Smith, & Grimm, 1996). Annual ROA reflects net income (the variable “ib” in CCM) divided by year-end assets (“at” in CCM). As above, a full year’s worth of data for each firm-year was required to calculate this variable.

² CPI data are available at <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiait.txt>.

Similar to the TSR measure, this variable was also assessed over different lengths of time; specifically, two and three years. Again, this was calculated by averaging ROA over the period of time in question for each analysis.

2.2.3.1. Industry and Year Adjustments to the Dependent Variables

To avoid having to control for industry affiliation and year effects in my regression models (which would have used additional degrees of freedom and diminished statistical power), I adjusted the annual performance variables for each metric by the appropriate median values for each firm's industry during a given year. For example, annual TSR was equal to the focal firm's TSR minus the median TSR in the firm's industry for the year in question, with the same being the case for ROA. This effectively accounted for both industry and year effects, with the added advantage of controlling for both jointly.

I created an Execucomp performance referent sample to use as my data source for industry performance metrics. Because my primary sample of CEOs was drawn from Execucomp, I reasoned that the Execucomp universe of companies – which includes data on roughly the S&P 1500 population – was the appropriate reference population against which to compare my sample CEOs' performance records (compared to Compustat, for instance, which covers a much larger population of firms that are, on average, significantly smaller and less visible than those in the Execucomp universe). As above, I required that all companies in the Execucomp performance referent sample be incorporated and headquartered in the United States, publicly listed on CRSP for at least two full years prior to year t , and report a minimum of \$10 million in assets and sales during a given year.

For each year, I took the median performance metric (TSR or ROA) of a given industry as defined by 2-digit SIC code³, with the added stipulation of requiring a minimum of 5 firms per industry per year. This threshold did not substantially reduce the size of the referent sample, resulting in the loss of 1,042 observations of an initial 21,216 that remained after the screens mentioned above, or less than 5% of the sample. The final Execucomp performance referent sample comprised 20,174 firm-years spread among 40 industry groups for each year during the 1993 to 2008 period, with an average of 32 firms per industry per year (this distribution was positively skewed, with a median of 20 firms per industry per year). As one would expect, the adjusted performance variables (TSR and ROA) had median values of zero for each year, with distributions scattered roughly symmetrically around the zero midpoint.

2.2.4. Primary Independent Variable

CEO pay. My hypotheses involved predictions regarding the influence of pay levels on subsequent performance. To accurately measure the main independent variable, then, it was important to construct a measure that incorporated not only how much CEOs were paid, but how pay levels compared to what might be expected on the open market. In other words, it was necessary to measure whether a CEO was paid *above* or *below* what might be reasonably expected based on objective characteristics of the job. This use of an “over(under)payment” measure is consistent with past research investigating the influence of pay on performance (e.g., Fong et al., 2010). In this conceptualization, and following from efficiency wage theory logic, boards that pay their CEOs more than market norms warrant (i.e., those that “overpay”)

³ Throughout my analysis, I attempted to use the most fine-grained industry classifications possible, which ideally are 4-digit SIC codes. As Execucomp covers far fewer firms than Compustat, however, I was required to use more broad-based industry classifications (here, 2-digit SICs) in calculating adjusted performance metrics. Many 4-digit SIC codes are represented only once or twice in a given year in Execucomp, which renders any industry-year performance adjustments unfeasible.

presumably believe that the premium is justified by the executive's talent, while the converse is presumably true of boards that "underpay" their CEOs. Also, rather than measuring single-year snapshots, I measured this variable over the whole of a CEO's tenure through year t . This both reduces the noise inherent in any single-year pay values and reflects the idea that pay received more than one year prior still reflects an assessment of the CEO's talent by the board, while also providing motivation to the focal CEO (especially in the case of stock and option grants, which do not typically vest for several years).

To construct this cumulative over(under)payment measure, I used the same Execucomp performance referent sample I used above in calculating industry-adjusted performance measures. I began with the TDC1 variable in Execucomp, which reflects the total *ex ante* value of all salary, bonus, long-term incentive payouts, restricted stock grants, option grants (valued using Execucomp's Black-Scholes method), and other income paid to a CEO in a given year. Then, following prior research (e.g., Combs & Skill, 2003; Core, Guay, & Larcker, 2008; Ezzamel & Watson, 1998; Fong et al., 2010), I generated annual estimates of a CEO's expected pay based on market standards. I actually used two distinct models to generate predicted levels of CEO pay, which was log transformed to correct for skew. The first model predicted pay for first-year CEOs only, under the logic that incoming pay packages may be based on different criteria than subsequent pay. This model included data for 2,294 CEOs. In the second model, I pooled all other CEO-year observations not included in the first-year model ($n = 18,117$). For both models, I excluded the bottom first percentile of the dependent variable (e.g., CEOs making \$1 a year) to avoid outliers overly biasing regression estimates. Excluding the largest values was not necessary, as the log transformation performed on the total pay variable effectively "pulled in" these values to the point where their residuals were not problematic. Regression results

without this restriction were largely similar to those reported in Table 1, but I opted to exclude them from the pay estimation models in order to more accurately predict pay levels for the vast majority (99%) of the Execucomp CEO population fitting my selection criteria.⁴

My pay models, which were constructed using predictors consistent with the studies mentioned above, estimated the following OLS regression:

$$\begin{aligned} \ln(\text{Pay}_t) = & b_0 + b_1 (\ln \text{ sales}_{t-1}) + b_2 (\text{Total diversification}_t) + b_3 (\text{S\&P 500 dummy}_t) + \\ & b_4 (\text{Stock beta}_t) + b_5 (\text{TSR}_t) + b_6 (\text{TSR}_{t-1}) + b_7 (\text{ROA}_t) + b_8 (\text{ROA}_{t-1}) + b_9 (\text{Proportion} \\ & \text{of pay in equity}_t) + b_{10} (\text{Proportion of pay in equity squared}_t) + b_{11} (\text{CEO tenure}_t) + \\ & b_{12} (\text{Departure dummy}_t) + \text{Industry effects} + \text{Year effects} + e \end{aligned}$$

The dependent variable, as mentioned above, was total annual pay as reflected in the TDC1 measure in Execucomp, log transformed to correct for positive skew. As prior research has shown firm size to be an important determinant of pay (Tosi et al., 2000), I included *logged firm sales in t-1* in my model (this variable, like pay, was highly positively skewed before performing the log transform). Results using logged assets, another common proxy for firm size, were highly similar. I controlled for *total diversification* using the Jacquemin and Berry (1979) entropy measure, which is appropriate because a firm's level of diversification has been shown to affect performance (Palepu, 1985). For a firm operating in N industry segments where P_i represents the share of total firm sales in the i^{th} segment, the total diversification level (DT) was calculated as:

$$\text{DT} = \sum_{i=1}^N P_i \ln (1/P_i)$$

This yields a weighted average of the shares of all segments (as defined by 4-digit SIC codes), accounting for both the number of segments a firm operates within and the relative importance of

⁴ For instance, the R-squared for the first year pay model dropped from 0.72 to 0.66 when including the bottom first percentile (which consisted of only 36 observations).

each segment to the firm (Palepu, 1985). I also controlled for firm reputation by including an *S&P 500* dummy variable, under the logic that these represent the most prestigious, visible jobs that are likely associated with the highest levels of pay. *Firm risk* was also included, and was operationalized as the stock beta over the preceding 24 months. Stock betas were constructed using CRSP monthly data, and were calculated by regressing monthly stock returns on the value-weighted total market return (“vwretx” in CRSP) over the trailing 24 months. To control for the effects past performance, which has been shown to account for approximately 5% of the variance in annual CEO pay (Tosi et al, 2000), I included measures of TSR and ROA for years t and $t-1$, each calculated as described in the dependent variable description. *CEO tenure* (measured as time since taking office) and a dummy variable indicating whether a *departure* occurred that year were included as well. I also included controls for *industry* (2-digit SIC dummies) and *year* effects, both of which have been shown to have an effect on CEO pay levels.

In a refinement over prior studies, and as can be seen in the pay equation above, I included two variables that reflected each CEO’s annual pay structure: the *proportion of total annual pay consisting of stock and option awards*, and a *squared term of this variable* (there was a distinct upward-sweeping curvilinear relationship between the proportion of equity-based pay and total pay value). These variables accounted for the tendency for CEOs who are paid mainly in equity to receive compensation packages with higher total values, to offset the riskier nature of equity-based pay. The addition of these pay mix variables markedly increased the predictive power of the expected pay models. The cross-sectional variance explained by the annual models (for both first-year pay only and all other years) was in the vicinity of 0.70, representing a substantial increment over studies using the same methodology without controlling for pay mix

(for example, Core et al., 2008, reported an R-squared of approximately 0.43). Table 1 below displays the results of the two models used to predict expected pay for the Execucomp sample.

INSERT TABLE 1 HERE

The residuals from these regressions, which reflect differences between actual (logged) pay and predicted (logged) pay, were then used to construct the over(under)payment measure. As can be seen in Figure 2 below, which displays the residuals versus fitted values plot for the first year pay model, these residuals were approximately normally distributed and showed little evidence of heteroskedascity. For ease of presentation, I show the plot from the first year pay model (which contained fewer observations than the other model); the residuals plot from the larger pay model was highly similar to that shown here.

INSERT FIGURE 2 HERE

To construct my primary independent variable, which aimed to capture a multiyear snapshot of CEO pay, I calculated cumulative over(under)payment rather than the value for just the most recent year (which is the case in most prior research). This accounted for the fact that a given year's pay is only partially reflective of a board's assessment of a CEO's worth to the firm; but, over time, pay adjustments are made to more accurately reflect the CEO's ability (Fama, 1980; Murphy, 1986).

To begin, the coefficients from each of these annual regressions were used to predict the (natural log of) expected pay for each CEO in our sample. This logged value was then exponentiated to generate the dollar value of a CEO's expected pay in a given year. I then divided actual pay by expected pay for each year of tenure, and constructed a cumulative average

of all annual over(under)payment ratios through year t . To make this measure more consistent with theory, which suggests that more recent information carries is more informative and salient to both CEOs and boards (e.g., Fulmer, 2009), I applied a discounting formula to more heavily weight recent years in which each annual ratio for each year was multiplied by a factor equal to the tenure year in question divided by sum of tenure years as of year t . For example, for a CEO in her fifth year, over(under)payment in year 5 would be weighted at 0.33 (5 divided by 15), overpayment in year 4 would be weighted at 0.27 (4 divided by 15), year 3 at 0.20 (3 divided by 15), and so on. These scores were summed for each year to arrive at a weighted average of actual to expected pay, which was then log transformed to achieve an approximately normal distribution. This had the effect of centering the transformed distribution around zero (since the natural logarithm of 1.0 is zero). As such, positive values indicate gradations of overpayment, and negative values indicate degrees of underpayment.

2.2.4.1. Description of Sensitivity Analyses

For all analyses, I also ran models with an undiscounted version of this measure (e.g. the variable was measured as the unadjusted sum of total pay received through t divided by the sum of expected pay through t , log transformed to correct for skew). In another set of sensitivity tests, I split the cumulative over(under)payment measure into two spline functions, in which all positive values were classified as overpayment and all negative values were defined as underpayment, with the other half of each distribution receiving scores of zero for each measure. The underpayment measure was then multiplied by -1 for ease of interpretation (i.e., higher scores on the underpayment measure indicate more underpaid CEOs). Prior researchers have

employed this method to tease out asymmetric effects of over- and underpayment (Ezzamel & Watson, 1998; Wade, O'Reilly, & Pollock, 2006a).

Lastly, I ran models in which I created binary cumulative over- and underpayment measures that took values of “1” if the CEO was in the top or bottom quartile of the overall distribution, which is yet another operationalization of this variable that has been used in past research studying over- and underpayment (Fong et al., 2010). The logic behind this operationalization is that over- and underpayment only become salient to CEOs and boards beyond a certain point, as small overall deviations from expected pay are likely not noticeable and are simply attributable to model error. Although the individual regressions using these operationalizations are not reported in tables here, in the results section I discuss how the various alternative operationalizations influence the results reported.

2.2.4.2. Industry-Level Discretion Moderators

To calculate my industry-level discretion measures, I used the Compustat universe of firms over the time period 1989 to 2008 as my source of data. Due to the nature of the calculations required for several of my moderator variables (i.e., the various intensity measures, which all use sales or assets in the denominator), I only included firm-year observations that reported positive revenues and positive assets for a given year; this reduced the initial Compustat sample from 203,210 to 169,036 firm-year observations. My other requirement was that firms belong to industries (as defined by 4-digit SIC codes) that were represented across the entire 20-year period. This was necessary because I used trailing 5-year averages for my industry discretion moderator variables (hence the need to go back to 1989 in order to calculate 1993 values), and gaps in the time series data would preclude the calculation of certain variables (e.g.,

industry sales growth). I should note that this screen resulted in the loss of only 2,818 out of 169,036 firm-year observations, or less than 2% of the Compustat sample.

After these screens, the final Compustat sample comprised 166,218 firm-year observations from 401 industries.⁵ Across the 20-year time period, industry size averaged approximately 21 firms per industry per year (this distribution was positively skewed, though; the median number of companies per industry per year was approximately 10). The grand means for company sales and assets for the Compustat sample across the time period were \$1.6 billion and \$4.5 billion, respectively; these variables were also highly positively skewed (median values of \$100 million and \$165 million, respectively). Unless otherwise noted, the measures described below reflect trailing five-year industry averages (e.g., the average of the annual values from year $t-4$ through year t) for each variable in question.

Industry product differentiability. The degree of product differentiability was calculated in a manner consistent with prior managerial discretion research (e.g., Hambrick & Abrahamson, 1995), and was measured using two variables: research and development intensity (total industry R&D expense/total industry sales) and advertising intensity (total industry advertising expense/total industry sales). Industrial economists have traditionally regarded these scales as informative measures of differentiability (Hay & Morris, 1979; Scherer, 1980), as each reflects the extent to which managers are afforded a wide array of options regarding product features and positioning, respectively. In cases where the numerator variable (“xrd” or “xad” in Compustat) was missing, I assigned a value of zero for that particular firm-year observation (e.g., Bizjak, Brickley, & Coles, 1993).

⁵ As a reminder, this number is much larger than the number of industries represented in the Execucomp referent samples because the much larger number of firms in the Compustat database allowed for the use of 4-digit (rather than 2-digit) SIC codes. Results were similar when using 2-digit SICs here, but I opted for the more fine-grained industry measure whenever possible.

Industry market growth. Following Dess and Beard (1984), industry growth was measured by regressing total industry sales on the trailing five years, and then dividing the regression slope coefficient by the average value of the dependent variable (which adjusts for the absolute size of the industry). This measure was thus bounded at -1 and +1.

Industry dynamism. Although I did not develop a formal hypothesis regarding the potential moderating influence of industry dynamism, I nonetheless included the measure in my analysis to investigate what role it might play. Consistent with prior research (e.g., Dess & Beard, 1984; Keats & Hitt, 1988), I used the standard errors from the coefficients given by the industry growth regressions described above (the *industry market growth* variable) and divided each by the average value of the dependent variable over the trailing five years, which scaled the variable for total industry size.

Industry competitiveness. The degree of competition within each industry was assessed using a measure of industry concentration, a classic indicator of competitiveness (Bain, 1951; Porter, 1980). Consistent with prior research (e.g., Hay & Morris, 1979), I used the four-firm concentration ratio (CR4) to measure competitiveness within each industry. In a refinement over prior research investigating industry competitiveness (much of which has relied on Compustat data), I used the industry CR4 ratios published by the U.S. Census Bureau data (available from the 1997 and 2002 censuses), which contained data on all public *and* private firms within an industry (as defined by NAICS codes, which are similar to SIC codes). Compared to Compustat-based industry concentration ratios, which only include data on publicly traded firms, U.S. Census measures have been shown to more accurately reflect the true level of competitiveness within industries (Ali, Klasa, & Yeung, 2009). To construct this measure, I averaged the 1997 and 2002 CR4 values for each NAICS industry represented in the Compustat sample.

Industry regulation. I created a binary variable that took the value of “1” if the focal firm belonged to the 2-digit SIC code “49,” which consists of utility firms operating in the electric, gas, and sanitary services industry domains. Approximately 10% of the CEOs in my sample fell into this category during any given year. All other firms received a score of “0”.

2.2.4.3. Organization-Level Discretion Moderators

Inertial forces. To measure internal inertial forces, I collected the following firm-level data: firm size (measured as log-transformed net sales during year t); firm age (measured as time since inclusion in the CRSP database, which is roughly – in many cases exactly – equivalent to time since IPO); and firm capital intensity (measured as net property, plant, and equipment divided by total assets at the end of year t). All are discussed by Hambrick & Finkelstein (1987) as potential constraining influences on the discretion of a CEO; specifically, CEOs are theorized to have less latitude of action in firms that are large, old, and very capital intensive.

Resource availability. I operationalized resource availability as firm slack, or current assets divided by current liabilities. This is also known as the “current ratio,” and is a measure of short-term financial strength that reflects the company’s ability to meet its near-term debt obligations. A high current ratio (above 2.0 or so) indicates that a company has ample liquidity to quickly deploy capital if necessary, which by extension enhances the discretion of the CEO in terms of having the capacity to invest in R&D, finance acquisitions with cash, etc.

CEO influence. To measure CEO influence, I collected *CEO shareholdings* (given by Execucomp), measured as the percentage of stock owned by the CEO to total outstanding shares at year-end (this percentage was log transformed to correct for skew, adding a small constant to zero values). The logic here was that CEOs who own more stock have greater control over board

actions and strategic direction of the firm, which in turn affords them higher levels of discretion (Hambrick & Finkelstein, 1987). *CEO duality*, my other measure of CEO influence, was a binary variable coded as a “1” if the CEO was board chair during year t and “0” otherwise. Again, this measure reflects the extent to which a CEO has control over board activities, meeting agendas, and other activities associated with greater levels of managerial discretion (Boyd, 1995; Donaldson & Davis, 1991; Finkelstein & D'Aveni, 1994; Hambrick & Finkelstein, 1987).

2.2.4.4. Board Knowledge Moderators

As described in the theory discussion, these two variables reflect the extent to which the board has a day-to-day record of the CEO's activities within the company, or the amount of time that the board has had to directly observe the CEO in action. The idea here is that greater board familiarity with the CEO will lead to more positive relationships between pay and subsequent performance, in that a board that accurately assesses its CEO's ability level relative to peers will be more informed when deciding whether to pay its CEO more or less than the going market rate. To measure this, I used two variables: outsider status and CEO tenure.

Outsider status was a binary indicator, taking the value of “1” if the CEO joined the company less than three years before becoming CEO and “0” otherwise (e.g., Fulmer, 2009; Wade et al., 2006b). This accounted for the possibility that CEOs hired from outside of the firm may have served in a non-CEO capacity for a few years before taking the top job, rather than starting immediately as CEO on the date of hire.

CEO tenure was the time the CEO had served in office through year t . This was actually measured in days, in that I measured the time between the end of each fiscal year and the day the CEO took office.

2.2.5. Control Variables

The nature of my analysis was somewhat unique in that the many of the control variables researchers typically include when predicting firm performance (e.g., company, industry, and CEO characteristics) were themselves moderator variables, and thus already included in all models. I did, however, include two control variables that I believed were important in ruling out alternative explanations for subsequent firm performance. The first of these was *firm performance prior to CEO arrival*, which reflected the annual industry-adjusted TSR or ROA in the fiscal year prior to the arrival of the focal CEO (calculated in the same fashion as the dependent variables described earlier). This was important in that it accounted for the entry conditions faced by each CEO, which (especially for accounting performance) plays an important role in predicting future performance; for instance, annual adjusted ROA values were correlated with their lags at over 0.50. Thus, including performance prior to arrival ensured that my tests readily captured the focal CEO's effect on performance over and above any ingrained performance tendencies he or she inherited upon taking the CEO job.

The second control variable was the *proportion of pay in stock and options through t*, which accounted for historical pay structure by measuring the extent to which the focal CEO was paid in equity incentive vehicles (i.e., instruments that were tied to the future value of the firm's stock price). This was appropriate because of the abundant empirical evidence that pay structure influences executive behaviors (e.g., Carpenter & Sanders, 2004; Devers et al., 2008; Larcker, 1983; Rajgopal & Shevlin, 2002; Sanders & Hambrick, 2007). This was calculated by summing annual *ex ante* pay values of restricted stock and option grants (again valued using Execucomp's Black-Scholes formula) and dividing by the sum of total pay (TDC1) through year *t*.

As I adjusted for median industry performance annually (explained in my dependent variable explanations above), I did not include dummy variables for industry or year in any of my regression models. Nonetheless, results were similar when these were included.

2.2.6. Estimation Methods

I used a number of analytic techniques to perform the test of my hypotheses, some of which involved cross-sectional analysis and some of which involved repeated observations on the same set of subjects. For the analyses involving repeated measures, the use of ordinary least squares regression was not deemed feasible (e.g., Certo & Semadeni, 2006). My panel data analyses were thus performed using generalized estimating equations (GEEs), which can accommodate longitudinal data consisting of repeated observations on a set of subjects (Liang & Zeger, 1986). This analytic technique has been used in prior research investigating longitudinal outcomes (e.g., Henderson et al., 2006), and can effectively account for unobserved differences across CEOs as well as intertemporal correlations among outcome variables for individual CEOs. In constructing the models, I specified a first-order autoregressive correlation structure and Huber/White/sandwich semirobust variance estimates, which together provide conservative results (Henderson et al., 2006; Liang & Zeger, 1986). The autoregressive correlation structure necessitated at least two observations per CEO.⁶

In another section, I report on several cross-sectional OLS regression analyses that did not involve repeated observations per subject. Here, I used pay for the first year only to predict performance over the next three years of tenure. For each of these models, results of Breusch-Pagan/Cook-Weisberg tests indicated the presence of heteroskedasticity; I thus used robust

⁶ This is especially relevant when considering that my dependent variables in the panel analyses consisted of two years of data (years $t+1$ and $t+2$), necessitating a two-year interval between observations.

standard errors for OLS analyses. I also performed sensitivity analyses using robust regression and median regression models, with results qualitatively similar to those discussed below. All analyses were performed using Stata 11.1.

2.3. Results

2.3.1. Panel Model Results

Table 2 presents descriptive statistics and correlations for the panel data analyses. For ease of interpretation, means and standard deviations are reported as untransformed values. Correlations apply to transformed variables, however. The descriptive statistics and correlation matrix for the sample used in the first year only analysis was similar to the one presented below; thus, I only report the panel sample matrix.

INSERT TABLE 2 HERE

Tables 3 through 5 below report panel GEE model results predicting average industry-adjusted ROA in $t+1$ and $t+2$. As a reminder, the dependent variable here covers a span of two years, so the CEOs in this particular analysis are in the following years of tenure: 1, 3, 5, 7, 9, 11, and 13. Also, the autoregressive error structure required a minimum of two observations per firm, so this analysis includes only CEOs who served at least five years in office (e.g., the second observation was measured at year 3, with performance data for years 4 and 5). Incidentally, results were comparable when running the models without the AR(1) error structure, which relaxed the minimum two observations per subject requirement. The errors were correlated over time, however (especially in the case of ROA), so I focus on the results using the AR1 structure.

In later analyses, I report on a series of cross-sectional tests that examine only the early years of a CEO's tenure.

Hypothesis 1, which posited a positive direct association between CEO pay and subsequent performance, received no support in the models predicting industry-adjusted ROA in years t and $t+1$, as can be seen in the models below. Hypothesis 2a predicted a positive interaction between industry product differentiability and CEO pay; Table 3 results show that this was not the case. Hypothesis 2b, which predicted that industry market growth would moderate the link between pay and performance likewise received no support, as can be seen in Table 3. Next, the interaction between pay and industry competitiveness was significant, but opposite to the hypothesized direction, thus lending no support to Hypothesis 2c. In other words, this particular model suggests that pay has a more positive effect on performance as industry concentration increases (i.e., the industry becomes increasingly dominated by a smaller number of firms); however, this result did not hold across various alternate statistical tests (described later). Finally, Table 3 shows that there was no significant interaction between industry regulation and CEO pay, lending no support to Hypothesis 2d.

In terms of the tests of organization-level discretion as a moderating influence on the pay-future performance link (Hypothesis 2e), Table 4 shows several significant interactions, specifically those involving company age and CEO duality; however, these results were not robust to other model specifications (described in below and summarized in Table 15).

The board knowledge moderator hypotheses also received no support from the panel ROA models, as can be seen in Table 5. In other words, the relationship between pay and performance was not affected by whether the CEO was hired from outside the firm (as predicted in Hypothesis 3a), nor did it change over the course of a CEO's tenure (Hypothesis 3b).

INSERT TABLES 3-5 HERE

Tables 6 through 8 below reports results from a similar analysis using two-year forward industry-adjusted TSR as the dependent variable (rather than ROA, as above). The same conditions apply regarding the sample size, minimum tenure requirements, model correlation structures, and so on.

INSERT TABLES 6-8 HERE

As above, none of the hypotheses received any consistent support. Tables 6 through 8 show a similar pattern of non-significant findings reported in the analysis of ROA, and do not provide evidence of any meaningful association between CEO pay and subsequent performance.

For each of these analyses, I ran a number of models using the various operationalizations of over- and underpayment discussed above. Specifically, I ran models without any time-weighted discounting of over(under)payment, models with over(under)payment spline functions (whereby positive values represented overpayment and negative values represented underpayment), and models employing binary indicators of whether the focal CEO fell within the top and bottom quartiles of the over(under)payment distribution for a given tenure year. In each case, the results were qualitatively similar. Specifically, the results reported above did not substantially change when using a number of different operationalization of the primary independent variable, lending evidence to the collective findings of a weak link between CEO pay (relative to peers) and future performance.

2.3.2. Cross-Sectional Model Results

I also ran an alternative series of tests that focused only on over- and underpayment during the first year of tenure in predicting performance over the next three years (years 2, 3, and 4 of tenure). This is, in theory, the “cleanest” set of tests of my hypotheses in that it separates the incentive and reward components of pay; first year pay is really based on the performance *expected* of the CEO, rather than what he or she has already delivered.

Here, I measured the two primary dependent variables (ROA and TSR) over three years ($t+1$ through $t+3$); thus, this analysis includes only CEOs who served at least four years in office ($n = 933$). Results were similar when shortening this window to three years. All tests were performed using OLS regressions with robust standard errors clustered by CEO.

INSERT TABLES 9-11 HERE

Tables 9 through 11 above report results for the first year models predicting future ROA. As with the longitudinal analysis, I found no consistent support for my hypotheses. There was no consistently significant main effect for CEO over(under)payment on subsequent ROA, and the interactions were only sporadically significant. As before, the significant interactions were not stable across robustness checks using alternative variable operationalizations.

INSERT TABLES 12-14 HERE

Tables 12 through 14 above report results from a similar analysis predicting subsequent TSR. Most of the hypothesized interactions, as well as the hypothesized main effect, were not significant. And, as before, there was no consistent pattern of significance for any of the proposed moderating variables.

2.3.3. Summary of Findings across Various Tests

In Table 15 below, I present a summary table of the findings using a number of different analyses and over(under)payment variable operationalizations (in the table, “NS” stands for “not significant”). The overall lack of consistency is clear, as no main effect or interactions consistently achieved significance (in the same direction) across the various operationalizations of the primary independent variable. In sum, I found no evidence that overpaying boosts subsequent firm performance, nor did I find evidence that underpaying over the course of a CEO’s tenure harms performance. Lastly, I found no consistent evidence that contextual factors at the industry and organization levels alter this relationship.

INSERT TABLE 15 HERE

2.4. Summary

Considering my results in the aggregate, I find it reasonable to conclude that paying CEOs more than the going rate over an extended period of time does not lead to meaningful differences in performance over time compared to CEOs paid at or below going market rates. The efficiency wage argument that paying a CEO more than going rates provides future economic benefits did not receive support in my tests; further, my analyses indicated that paying CEOs less than going market rates does not appear to harm firms in any way over time. These results were “robust” to a wide array of variable operationalizations, analyses, and time period windows. In the following pages, I offer three alternative theoretical perspectives that may help to explain, at least in part, the lack of support I found for my hypotheses.

2.4.1. Romance of Leadership

The “romance of leadership” theoretical perspective (Chen & Meindl, 1991; Meindl, 1990; Meindl, 1995; Meindl, Ehrlich, & Dukerich, 1985) offers one compelling explanation for my observed (non)relationship between CEO over- and underpayment and subsequent company performance. According to one of the progenitors of the theory, James Meindl:

The romance of leadership notion (Meindl, Ehrlich, & Dukerich, 1985) refers to the prominence of leaders and leadership in the way organizational actors and observers address organizational issues and problems, revealing a potential ‘bias’ or ‘false assumption-making’ regarding the relative importance of leadership factors to the functioning of groups and organizations. (1995: 330)

This view conceptualizes leadership as a primarily social construction, in that leaders (in my case, CEOs) can at times take on “larger than life” personas in the minds of followers and, justified or not, be praised (or blamed) for performance outcomes by constituents when in reality the leader him- or herself had little to do with the shaping the outcome (e.g., Lieberson & O'Connor, 1972; Meindl, 1995; Meindl et al., 1985; Pfeffer & Salancik, 1978). This phenomenon is similar in nature to what scholars have termed the “fundamental attribution error,” referring to the general human tendency to overly attribute outcomes to dispositional characteristics of actors rather than situational influences (Jones, 1979; Nisbett & Ross, 1980; Ross, 1977; Ross & Nisbett, 1991).

In considering the thought processes of boards when they go about setting pay for their CEOs, it is certainly plausible that directors might be susceptible to overly attributing performance outcomes to their CEOs – which would in turn lead to inaccurate or misinformed assessments of the CEO’s worth (and, hence, pay relative to peers). Situations in which CEOs have limited discretion, but are viewed by their boards as highly influential in affecting firm performance, may set the stage for a weak or nonexistent relationship between pay and future

performance. Paying a CEO more or less than going market rates would matter little when performance is largely beyond the control of the CEO; but, if board members believe otherwise, the probability of a CEO being paid out of line with his or her talents rises markedly. To accurately value a CEO's worth to a firm, the board must have a clear conception of how integral the CEO's actions are in positively or negatively influencing firm performance. The romance of leadership notion suggests that social constructions of leadership can evolve in such a way that CEOs attain "larger than life" status in the eyes of board members and (wrongly) come to be viewed as the most influential driving force underlying firm performance.

It is important to distinguish this explanation from the managerial discretion arguments advanced earlier in this essay, however. Throughout my theorizing, I argued that higher levels of discretion would enhance the (hypothesized positive) relationship between pay and subsequent performance, in that CEO talent would be more directly manifested in performance when industry and organizational contexts afforded CEOs abundant latitude of action (Finkelstein & Boyd, 1998; Hambrick & Finkelstein, 1987; Rajagopalan & Finkelstein, 1992). The romance of leadership explanation, on the other hand, deals more with *external perceptions* of CEO discretion rather than *actual* levels of discretion. In other words, if a board truly believes that its CEO is largely responsible for performance, and in doing so underestimates the importance of contextual factors, then the board may erroneously conclude that paying top dollar to its CEO will increase the likelihood of superior performance (when, in fact, the CEO's ability may only play a small role in driving performance). If this is a common phenomenon among firms characterized by low levels of CEO discretion, then the findings of this study should not be at all surprising.

Scholars have also begun studying the antecedents and consequences of CEO “celebrity,” a phenomenon that can be linked to the ever-growing media attention heaped upon the top executives of our large corporations (Hayward, Rindova, & Pollock, 2004). The role of journalists and the media in creating and publicizing “superstar CEOs” has been the subject of some recent research (e.g., Malmendier & Tate, 2009; Wade et al., 2006b), and academics have also begun to examine the effects of press coverage itself on CEO pay (Core et al., 2008). Similar to romance of leadership theorists’ depiction of leadership as a largely social construction, this literature focuses on the role of arbiters (in particular, the press) in shaping perceptions of CEOs as powerful captains of industry, firmly in command of their companies’ fates. To the extent that boards make such attributions, it lends further support to the explanation that in many cases, CEOs are paid what they are out of a belief that more pay will lead to better performance – when, in fact, many CEOs themselves have only minimal effects on firm successes and failures.

2.4.2. Careless or Uninformed Boards

Another potential explanation for the lack of theoretical support for efficiency wage theory in my findings may lie in the fact that boards are often unable to predict *ex ante* the degree to which their CEOs are better or worse than a comparable replacement CEO. If boards cannot reliably make these calculations, it follows that paying CEOs above or below going market rates will have a weak correlation with the CEO’s true ability level – which, of course, is supposed to be reflected in pay and subsequent performance. On the other hand, it is much easier for boards to evaluate the past when rewarding their CEOs (Fama, 1980), which explains the consistently significant (albeit not overwhelmingly strong) positive relationship found

between prior performance and current CEO pay (Gomez-Mejia & Wiseman, 1997; Tosi et al., 2000).⁷ To the extent that past performance predicts future performance, this would be all for the good; but, research has shown that environmental change often outpaces a CEO's ability to adapt to – and prosper within – the changing competitive landscape. (See Hambrick & Fukutomi, 1991, for a discussion of the "seasons" of a CEO's tenure.)

For instance, Miller (1991) argued and found support for the idea that CEOs become “stale in the saddle” when they remain in office past the point where their repertoires match the skills called for by the firm's environment, and that this growing misalignment has negative consequences for performance. In a particularly eye-opening example, Henderson, Miller, and Hambrick (2006) found that CEOs in the highly dynamic computer industry experienced a steady performance decline starting *immediately* after taking office with their firms, while CEOs in the relatively stable branded foods industries grew steadily more effective during their first decade of tenure. Here, the computer industry CEOs' paradigms were already outdated the moment they became CEOs, and proved to be increasingly ill-suited to the industry environment as time wore on. Miller and Shamsie (2001), in a study of Hollywood studio heads, found support for the “seasons of a CEO's tenure” conceptual framework put forth by Hambrick and Fukotomi (1991) when they reported an inverse U-shaped relationship between top executive tenure and firm financial performance.

More generally, the study of alignment among executives, strategy, and firm characteristics has long been a focus of management scholars (e.g., Balkin & Gomez-Mejia, 1987; Finkelstein & Hambrick, 1996; Gomez-Mejia, 1992; Hoskisson, Hitt, & Hill, 1993; Lawrence & Lorsch, 1967; Shaw, Gupta, & Delery, 2002), and it is axiomatic to say that the

⁷ As an aside, the oft-criticized weak positive relationship between pay and prior performance, which accounts for around 5% of variance explained (Tosi et al., 2000), does not seem so inconsequential in light of my results.

degree to which the board has selected the right CEO for the job will have an important influence on future firm performance. It is difficult to argue with the logic of paying abundantly for a talented CEO – one who has the ideal skill set for a firm’s context – but paying abundantly for a CEO whose paradigm is not ideally suited (or was at one time, and has since become outdated) could significantly dampen the association between high pay and good firm performance. Similarly, the motivational properties of pay may hinge greatly upon the attributes of the individual to whom the pay is being given, such that certain CEOs may be more inclined to raise their level of performance in response to pay than others (Wowak & Hambrick, 2010).

In addition to the idea of (mis)fit between incumbent CEOs and organizational context, researchers have also argued that boards often employ less-than-rational methods when going about the CEO selection process, which can lead to mismatches between CEO and context. Khurana (2002) offered extensive evidence that boards are often excessively drawn to charismatic, larger-than-life CEOs who may not ideally match the firm’s environment; and, further complicating matters, boards tend to pay these individuals exceptionally high levels (Wade et al., 2006b). The process can become politicized, further enhancing the likelihood of choosing an ill-suited CEO for the job (Zald, 1965). Scholars have also demonstrated that boards often favor candidates with similar demographic profiles to themselves, which also may result in suboptimal CEO selection (Zajac & Westphal, 1996). Of course, choosing the right CEO is not an exact science, and boards should not be expected to make the perfect choice every time. But to the extent that such faulty selection is more widespread than random chance might predict, the lack of support found for my hypotheses may be understandable.

In sum, the degree of alignment between the CEO and his or her context clearly has important implications for the relationships examined in this essay. My hypotheses were

developed under the assumption that boards were, on average, reasonably thorough in their CEO selection process and that the individuals ultimately chosen to head their firms represented the “best available talent” commensurate with the pay being offered (as compared to labor market norms, that is). To the extent that such alignment is incomplete – or absent – the finding that pay level does not play an important factor in predicting future firm performance may be partially attributable to abundant mismatches of CEOs and firms within Corporate America.

This idea does lend itself to abundant opportunities for future research, however. Although *a priori* specification of the match between CEO and firm would carry obvious difficulties for researchers attempting to investigate the issue, studies in this vein could lead to important advancements in multiple fields of the literature on top executives, including the executive pay domain.

2.4.3. Intrinsic versus Extrinsic CEO Motivations

Perhaps the most tantalizing explanation for the lack of support found for my hypotheses pertains to the motivations of the CEOs themselves; namely, CEOs may vary substantially in the degree to which they value earning high pay levels, and some may be willing to work for less than going market rates despite having the talent or pedigree to make substantially more as a CEO of another firm willing to pay more. Scholars have long contended that executives vary substantially in their values systems (e.g., Boivie, Lange, McDonald, & Westphal, Forthcoming; England, 1967; Hambrick & Brandon, 1988; Hambrick & Mason, 1984; Simsek, Veiga, Lubatkin, & Dino, 2005), and the degree to which CEOs are motivated by either the obvious material purchasing power that comes with abundant compensation or the symbolic prominence

of being featured atop the annual rankings of CEO pay relative to peers may influence the matching process of the highest-ability CEOs to the highest-paying jobs.

Consider, for instance, the possibility that a high-ability CEO who desires to live in a certain area of the country, or close to his or her family, may willingly give a “hometown discount” to his or her firm, working for less than the going rate in return for the psychological rewards of living and working in an area he or she loves. Or, picture a CEO whose father, grandfather, or other family members all worked for the same firm and who, out of a sense of loyalty or gratitude to that firm, accepts lower pay than he or she might command on the open labor market. Along these lines, researchers have recently begun investigating how CEOs’ psychological connections to their firms might influence pay packages (e.g., Boivie et al., Forthcoming; Wasserman, 2006).

For these or any number of other reasons, some CEOs may feel a strong sense of identification with their organizations, which may lead to accepting lower pay than might be expected. To clarify, organizational identification is the degree to which one’s sense of self is intertwined with the organization (Dutton, Dukerich, & Harquail, 1994; Mael & Ashforth, 1992). A central finding in the large literature on organizational identification is that employees who strongly identify with their organizations are most willing to engage in an array of positive citizenship behaviors, particularly exerting extra effort for the organization and for fellow members (e.g., Dukerich, Golden, & Shortell, 2002; O’Reilly & Chatman, 1986b). A person with high organizational identification will act in ways that constructively serve the organization, as doing so enhances the individual’s own self-concept, even if it does not result in higher levels of income.

To the extent that saving the organization money by working for less enhances these feelings, these “steward CEOs” would fall outside the scope of my theorizing, and would dampen any observable relationship between pay level and subsequent performance. This “stewardship” view stands in direct contrast to efficiency wage theory assumptions of self-interested behavior on the part of CEOs (i.e., efficiency wage theory assumes that the promise of high pay will attract higher quality CEOs). Under the idea of stewardship theory, some highly skilled CEOs would be willing to work for less pay than they warrant or could otherwise receive. The existence of such CEOs runs counter to the assumptions of efficiency wage theory (as well as agency theory, the predominant lens used by executive pay researchers), and would attenuate the link between pay and subsequent performance. The idea of the steward CEO has only begun to receive empirical attention from scholars, and remains an intriguing topic for future research. More generally, variance in the motivational characteristics of CEOs may also partially explain the lack of support found for efficiency wage theory found in my tests of CEO pay and performance.

2.5. Limitations

This study, like all analyses in this theoretical realm, was subject to certain limitations. First and probably foremost, my primary independent variable of interest – CEO over(under)payment – was based on criteria that, although informed by past theory and research, may or may not correspond with what a particular board considers when setting compensation for its CEO. In other words, it is unlikely that my pay model (Table 1) exactly matches the calculus employed by compensation committees tasked with ensuring that their CEOs are paid according to what they are “worth” on the open CEO labor market. To the extent that there is

error in my measurement of CEO over(under)payment, it would render finding a statistical relationship between pay and subsequent performance more difficult. I should stress, however, that my results were “robust” to a number of different model specifications vis-à-vis calculating market pay rates.

Relatedly, the ability of directors to recognize and reward CEO talent is a key unmeasured construct that could strongly influence the link between pay and future performance. Although I did not include director characteristics in my theorizing, it may be that board member attributes influence the degree to which higher CEO pay leads to better performance. Some boards – say, those with directors having numerous ties to a candidate’s former bosses or colleagues – may be more accurate in predicting the likelihood of success for a particular CEO candidate. Or, boards whose directors possess more experience in the company’s industry may have a better understanding of what qualities are important in a CEO, therein tightening the association between CEO pay and future performance. Although the aggregate body of research on boards has produced disappointingly inconsistent results on whether such readily observable characteristics as board independence or director stock ownership really matter in influencing firm performance (see Dalton, Daily, Ellstrand, & Johnson, 1998 for a meta-analysis), it seems reasonable to argue that director *ability* will play a key factor in the identifying the right CEO candidates and accurately assessing their worth relative to peers. Thus, consideration of board attributes beyond the structural characteristics typically studied may result in improved predictions regarding the influence of CEO pay on subsequent performance.

It could also be fruitful to study pay levels of entire executive teams as they relate to subsequent performance, rather than focusing solely on the CEO. Firm performance is the result of many factors beyond merely the actions of the CEO, and one of the core tenets of upper

echelons theory is that characteristics of top management teams (TMTs) are more predictive of firm outcomes than attributes of the CEO alone (Hambrick, 2007; Hambrick & Mason, 1984). Thus, looking at over(under)payment across TMTs as a precursor to performance (e.g., Carpenter & Sanders, 2002), and especially how it interacts with the industry- and organization-level discretion variables I investigated in this paper, may provide more insight and result in different findings than those reported in this study.

Additionally, it may be that some CEO attributes that boards look for may be more meaningful than others in predicting future success (Harris & Helfat, 1997). For example, firms may pay premiums for CEOs with certain educational background characteristics (e.g., degrees held, prestige of institutions attended, etc.) and receive little marginal performance benefit; conversely, firms that pay handsomely for particular work experience backgrounds (e.g., past international assignments) may realize a marked boost in performance when the experience is highly symbiotic with contextual conditions (e.g., Carpenter et al., 2001). Thus, overpaying for *certain attributes* may be more beneficial for firms than simply overpaying in general, which is what I examined in this study.

2.6. Conclusion

Executive pay researchers have spent decades studying the association between CEO pay levels and organizational performance, but have typically viewed pay level as a reward for prior performance. This prevailing perspective largely ignores the idea that pay is also an instrument for attracting talented CEOs and motivating extraordinary effort, both of which presumably increase the likelihood of favorable company performance. In reversing the usual causal direction of this widely-studied relationship, I have shed light on an important question faced by

boards: Does higher CEO pay lead to better subsequent performance? My results, in sum, lent no support to this statement. In fact, it appears that firms neither benefit from overpaying CEOs nor suffer from underpaying CEOs.

Chapter 3

LEAVING MONEY ON THE TABLE: THE STRATEGIC CONSEQUENCES OF EMPLOYING PERSISTENTLY UNDERPAID CEOS

Although we mostly think of CEOs as a uniformly highly paid worker population, CEOs do vary widely in how well they are paid relative to their peers (after taking into account industry pay tendencies, company size, job complexity, etc.) (e.g., Agrawal & Walkling, 1994; Ezzamel & Watson, 1998; Fong et al., 2010; Wade et al., 2006a). The highest-paid CEOs – those who receive truly staggering sums of money – tend to receive the most attention (and often scorn), but far less is known about the public company CEOs who consistently earn less than their peers, even over periods of time spanning years, despite delivering comparable performance. How common are these CEOs? How do they differ from their better-compensated peers? And what are the implications for their organizations?

Management scholars have long theorized that compensation plays an important role in luring executives to accept positions within companies (Barnard, 1938). Starting with the assumption that CEOs and top executives play important roles in shaping organizational outcomes (Child, 1972; Hambrick & Finkelstein, 1987; Hambrick & Mason, 1984), and that executives at least partially base their job choices on pay characteristics, it follows that pay level will have important effects on firm strategies and performance. Most research at the executive level, however, assumes that pay levels are a proxy for ability (e.g., Carpenter & Sanders, 2004; Finkelstein & Boyd, 1998; Palia, 2000); because more pay is needed to attract the most talented executives, the labor market is assumed to efficiently sort these individuals into their appropriate positions (Fama, 1980). This idea stands at odds, however, with the abundant anecdotal

evidence of highly paid CEOs who deliver subpar performance – not to mention the “bargain CEOs” who are paid at a level well below that of their peers (net of industry pay norms, company size effects, etc.), even while turning in solid performance. If some CEOs are willing to forego additional income because of a desire to faithfully serve their firms, then the efficient matching of the best CEOs and the highest-paying positions will necessarily be precluded.

More interesting still, how do persistently low-paid CEOs differ from their better-paid counterparts in their behaviors once on the job? Since Larcker’s (1983) study linking long-term incentive plan adoption to increased investment outlays, many scholars have examined the effects of executive pay on organizational outcomes. Much of this research has focused on testing the general predictions of agency theory – namely, that increased use of incentive pay vehicles will align the interests of executives and shareholders and induce greater levels of strategic risk-taking (Holmstrom, 1979; Jensen & Meckling, 1976). Abundant evidence indicates that pay structure does influence executive behaviors (e.g., Balkin, Markman, & Gomez-Mejia, 2000; Devers et al., 2008; Sanders, 2001; Sanders & Hambrick, 2007), but this research has rarely strayed from a narrow focus on how pay mix (typically the proportion of stock or option incentives paid to the CEO) influences risk-taking behaviors. Far less attention has been paid to the effects of pay levels on executive behaviors, which is especially surprising given the widespread scholarly and general public interest in how much CEOs are paid and the immense variance observed in CEO pay levels.

Indeed, most studies of executive compensation are rooted in agency theory, which assumes that executives will act opportunistically and value personal gains over the welfare of the organization (Berle & Means, 1932; Fama & Jensen, 1983; Jensen & Meckling, 1976). Another common assumption among researchers is the existence of a reasonably efficient labor

market, whereby firms must pay CEOs at or above their market levels (e.g., the amount they could reasonably expect to receive from another employer) to attract and retain CEO talent (Fama, 1980). These two logics work in tandem to depict a business environment characterized by CEOs who are focused on extracting the maximum possible rents from their organizations, which in turn must employ a careful combination of monitoring and incentive contracts to police CEOs' self-interested behaviors (Eisenhardt, 1989). This decidedly economics-based view has been the predominant lens adopted by scholars, and in spite of the often mixed results of these studies (e.g., Devers et al., 2007; Gomez-Mejia & Wiseman, 1997) continues to be the theoretical foundation of choice in the executive pay research domain.

A different perspective, however, holds that some executives have intrinsic motivational needs that are rooted in a deep identification with their organizations; in these cases, extracting the maximum level of compensation is not as important to CEOs as the overall health and welfare of their organizations (Davis, Schoorman, & Donaldson, 1997; Donaldson & Davis, 1991; Hernandez, 2008; Lee & O'Neill, 2003; Wasserman, 2006). This "stewardship" view stands in contrast to agency theory assumptions of self-interested behavior on the part of CEOs. Under the idea of stewardship theory, some highly skilled CEOs would be willing to work for less pay than they would otherwise receive on the open market. The existence of such CEOs – who may remain in office for years despite consistently receiving below-market pay – runs counter to the assumptions of agency theory and, more generally, the concept of an efficient, fluid labor market (e.g., Fama, 1980). Yet, little is known about these CEOs and how they may differ from their better-compensated peers in terms of their actions in office.

This study examines how persistently underpaid CEOs differ from their peers in their behaviors on the job. I will elaborate on the concept of underpayment in greater detail below,

but in essence it is the degree to which the CEO has persistently received pay below what the executive labor market would suggest as warranted.⁸ Drawing on the idea that compensation exerts a “sorting” effect (Gerhart & Rynes, 2003), I will argue that CEOs who persistently leave money on the table have different motives than their CEO peers who earn market or above-market pay. Management researchers have long been interested in how individual differences affect people’s job choices and behaviors (e.g., Chatman, 1991; Schneider, 1987), and the relationship between pay characteristics and individual preferences has received empirical attention as well (e.g., Cable & Judge, 1994; Cadsby, Song, & Tapon, 2007). To date, however, little research has investigated such issues at the CEO level (for exceptions, see Boivie et al., Forthcoming; Wasserman, 2006).

In this paper, I propose that persistently underpaid CEOs differ from their higher-paid peers in terms of their underlying motives, and that such motives influence these “steward” CEOs’ willingness to remain in office even while receiving below-market pay. The idea that some executives are naturally inclined to pursue organizational interests, even when they conflict with the executives’ self-interests, is the central idea underlying stewardship theory (Davis et al., 1997; Donaldson & Davis, 1991; Hernandez, 2008; Wasserman, 2006). For steward CEOs, whose personal values are presumed to be tightly aligned with the values of their organizations, pro-organizational activities have a higher utility than individualistic, self-serving behaviors (Davis et al., 1997). Steward CEOs are motivated by the prospect of serving their firms to the best of their abilities, even without maximizing their financial incomes. Because of the nonfinancial payoffs they derive from faithfully doing their duties, they will remain content to stay in office at below-market rates.

⁸ In this conception, which is consistent with prior research (e.g., Agrawal & Walkling, 1994; Wade, O’Reilly, & Pollock, 2006), marketplace norms for CEO pay are based upon such factors as industry, company size, and performance.

In a series of empirical tests, I explore the organizational consequences of employing persistently underpaid CEOs. Several studies have investigated the effects of over- and underpayment (e.g., Agrawal & Walkling, 1994; Ezzamel & Watson, 1998; Fong et al., 2010; Wade et al., 2006a), but they are few in number and usually focus on one-year deviations from expected pay norms. In my essay, I investigate a sample of CEOs who have been cumulatively underpaid over the first three years of their tenures, and examine the strategic consequences that follow over their fourth and fifth years of tenure. By widening the observation window to include multiple years, I am attempting to screen out temporary deviations from market norms and more fully capture the subsets of CEOs who persistently accept below-market wages from their employers.

Before continuing, it is worth noting that my line of theorizing cuts against the most common theoretical base employed when investigating the effects of CEO pay deviations – specifically, equity theory (Adams, 1963, 1965; Greenberg, 1990). In several of the studies noted above (e.g., Fong, 2010; Wade et al., 2006a), scholars argued and found support for the general idea that over- and underpaid CEOs (relative to market peers) took actions to reduce any perceived inequity, which occurs when an individual believes he or she is not being paid in line with his or her worth relative to referent others. In the most basic terms, equity theorists argue that underpaid individuals can either reduce their efforts (i.e., shirk) in the face of underpayment or take actions to raise their pay to a level more commensurate with their referent peers. Overpaid individuals, on the other hand, can either adjust their perceived referent group to include more highly paid individuals or increase their efforts to the point where they feel they are honestly “earning their money.” Thus, my theorizing that underpaid CEOs will take pro-

organizational actions and act in ways that do not align with equity theory predictions (i.e., that underpaid CEOs will shirk and/or take actions to raise their pay) would seem counterintuitive.

The difference between my studies and these, however, is the time windows being examined. In investigating one-year deviations from market norms, it makes sense that CEOs (and/or their boards) would make efforts to correct imbalances *if* the CEO was presumed to be (1) aware of the imbalance in the employment relationship, and (2) self-interested in terms of a desire to maximize either his or her income or his or her sense of relative worth to the organization. The abundant noise contained in any single-year measures of pay or any firm outcome will inevitably lead to deviations from norms that are quickly noticed and corrected by the relevant parties, and equity theory is one particularly useful lens for examining such actions. If an individual remains underpaid (or overpaid) over an extended period of time, however, it is reasonable to make the case that he or she may not conform to equity theory expectations of a need to “fix” any imbalances in the employer-employee pay relationship. Thus, I believe that adopting a stewardship theory lens in examining the behaviors of CEOs paid below market norms over a number of years may shed new light on the CEO motivations and responses to pay.

In sum, despite the intense scrutiny of CEO pay levels from both academics and practitioners, the topic of CEO stewardship and long-running pay imbalances has received only scant attention from executive pay researchers. Yet, anecdotal evidence suggests that some CEOs persistently accept below-market compensation year after year while delivering financial performance similar to their more highly compensated peers.⁹ How do these underpaid CEOs differ from their peers in terms of the strategic decisions they make and the subsequent outcomes for their organizations? My study will address this issue.

⁹ Beyond anecdotal evidence, Essay 1 of my dissertation consistently highlighted this phenomenon in empirical examinations of large samples of public company CEOs.

3.1. Theory and Hypotheses

3.1.1. Drivers of CEO pay

Before delving into the concept of CEO stewardship (and my proxy for stewardship, cumulative underpayment), it is helpful to consider what constitutes “market pay” and why it is important in establishing whether a CEO is over- or underpaid. Scholars have long been interested in explaining the pay received by CEOs (summarized in Finkelstein et al., 2009), and have consistently found support for a number of important determinants of pay. On one hand, basic economic factors such as company size and complexity, executive discretion (i.e., the executive’s potential marginal product), industry pay norms, and prior performance have all been found to contribute to CEO pay levels (Hambrick & Finkelstein, 1995; Hubbard & Palia, 1995; Murphy, 1986a; Tosi et al., 2000). On the other hand, socio-political influences such as board composition, co-optation of executive compensation consulting firms, and CEO power have been shown to explain variance in CEO pay (Main et al., 1995; O’Reilly et al., 1988). Using an array of well-known predictors, then, it is feasible to approximate the market rate for a CEO of a given firm in a given industry.

Any such prediction is imprecise, of course, but this is not to say that pay prediction models are not useful. A growing number of researchers have used these models to assess the effects of pay deviations from market norms (e.g., Agrawal & Walkling, 1994; Fong et al., 2010; Wade et al., 2006a), although I am unaware of any studies that measure a period longer than one year in determining whether a CEO was over- or underpaid. As discussed in the introduction, most studies use an equity theory framework in predicting that CEOs will take actions to restore a sense of fairness regarding their pay (e.g., underpaid CEOs will find ways to increase their pay

while overpaid CEOs will find ways to justify their pay). In making such predictions, a universal motive is assumed: CEOs will maximize their rewards at all times, even at the expense of an organization's shareholders.

3.1.2. Executive Motives

Researchers have long theorized that individuals vary in the extent to which they are driven by financial motives (e.g., Deci & Ryan, 1985; Herzberg, 1966; Maslow, 1943). Yet, the literature on executive compensation has largely ignored the role of individual differences in examining both the causes and consequences of pay (Wowak & Hambrick, 2010). A wealth of research indicates that executives vary along dimensions that influence their behaviors; examples include personalities (Peterson, Smith, Martorana, & Owens, 2003), values (Agle, Mitchell, & Sonnenfeld, 1999), experiences (Bigley & Wiersema, 2002), and abilities (Carpenter et al., 2001). If executives vary in the degree to which they value money, then, it follows that they will differ in their behaviors vis-à-vis compensation – this could include the initial selection of a job (e.g., a CEO might choose a job that pays less than he or she could receive elsewhere, because of a personal sense of attachment to a company) and subsequent behaviors on the job (e.g., a CEO who is content with his or her pay level may forego empire-building activities that would be linked with increased compensation).

Indeed, a competing viewpoint in the management literature holds that some executives are more prone to subordinate their own goals to act in the best interests of their companies, even at the expense of their own self-interests, than other more self-focused executives. Formally known as stewardship theory (Davis et al., 1997; Donaldson & Davis, 1991; Lee & O'Neill, 2003; Wasserman, 2006), this theoretical perspective is described below (Davis et al., 1997):

In stewardship theory, the model of man is based on a steward whose behavior is ordered such that pro-organizational, collectivistic behaviors have higher utility than individualistic, self-serving behaviors. Given a choice between self-serving behavior and pro-organizational behavior, a steward's behavior will not depart from the interests of his or her organization (24).

Thus, individual attributes of an executive will influence the extent to which he or she identifies with the organization; because stewards derive greater utility from cooperative behavior, their behavior can be considered rational in the classic economic sense (Davis et al., 1997).

Agency theory, on the other hand, assumes that executives' interests inherently diverge with those of the corporation for whom they work (Fama & Jensen, 1983; Jensen & Meckling, 1976). This perspective can trace its origins to earlier work on managerial capitalism (e.g., Baumol, 1959; Marris, 1964), which argues that in the absence of strict monitoring, managers will pursue their own personal objectives (which can and often will conflict with owners' objectives). This economics-based logic – which underlies the vast majority of scholarly work on executive pay – stresses the importance of monitoring and pay structure in policing the behavior of executives. Under the logic of agency theory, executives are assumed to “take all they can get” by shirking and maximizing personal income, regardless of the organizational consequences. Equity theory (Adams, 1963, 1965), although hailing from a different scholarly tradition and developed in a realm far removed from top executives and boards, shares the assumption that individuals desire income either at or above that received from their peers, and that people who receive pay below their expected levels will take actions to restore some sense of fairness. Either framework stands in stark contrast to stewardship theory, which argues that some executives subordinate their own interests to best serve their organizations – perhaps by accepting below-market pay.

The question of whether stewards exist among public company CEOs forms the crux of this paper, which examines the consequences of persistent underpayment and whether it is a useful proxy for steward motives by CEOs. Specifically, the assumption I make is that persistently underpaid CEOs are more likely to have steward motivations than their higher-paid peers, as evidenced by their willingness to accept below-market wages over an extended period of time (in my case, the first three years of tenure). These steward traits will manifest in the organizational outcomes attributable to CEO actions, which I describe in detail in this paper. The theoretical model of the consequences of CEO stewardship (as proxied by persistent underpayment) is depicted below in Figure 3.

INSERT FIGURE 3 HERE

On a methodological note, it is worth clarifying that I will measure underpayment over the first three years of a CEO's tenure, rather than focusing on single-year snapshots. By setting the observation window to include the first three years of tenure, I will make the argument that CEOs who remain cumulatively underpaid over that period are not necessarily behaving in ways consistent with equity theory (and, incidentally, labor market theory), which would predict that any deviations from market pay would be quickly corrected once noticed. My hypotheses therefore involve persistent CEO underpayment, which is a proxy for the (unmeasurable) stewardship construct; the logic here is that steward CEOs are not bothered by the persistent underpayment. I define underpaid CEOs as those who have received less than market norms would have predicted over the first three years of their tenures, although I operationalize the measure in a variety of ways to check for robustness.

3.1.3. Consequences of CEO Stewardship

As mentioned earlier, much of the existing research on the consequences of executive pay has drawn on agency theory logic to examine how pay structure influences strategic risk taking. Researchers have begun to investigate the effects of over- and underpayment in recent years, however. In a study of U.K. executives, Ezzamel and Watson (1998) found that annual pay deviations from market norms were inversely related to future pay adjustments. Specifically, the authors argued that boards engaged in a social comparison process (Festinger, 1954) in which they took steps to correct any perceived imbalance or inequity regarding the pay of their CEOs relative to their labor market peers.

In a related vein, Agrawal and Walking (1994) found that “abnormally compensated” CEOs experienced significant pay cuts following takeover bids. The authors drew on Fama’s (1980) “settling up” logic in arguing that takeover bids provide salient information on subpar executive performance, and that labor markets use this information to discipline overpaid managers. Wade, O’Reilly, and Pollock (2006a) found CEO over- and underpayment cascaded down the organizational hierarchy, highlighting the importance of comparisons in setting executive pay. Together, these studies suggest that pay deviations (relative to labor market norms) have important implications vis-à-vis the future compensation of both executives and lower-level employees in organizations.

More recently, and closer to the domain of this essay, Fong, Misangyi, and Tosi (2010) investigated the effects of CEO pay deviations on organizational outcomes such as CEO withdrawal, company size, and performance. These authors used an equity theory framework to describe how CEOs respond to temporary deviations from labor market norms, and found that underpaid CEOs took actions to correct their perceived inequity, whereas overpaid CEOs

outperformed their peers in terms of ROA in future periods (i.e., they raised their level of performance in response to their above-normal pay). Their study focused on annual measures of CEO over- and underpayment; in my essay, I will be investigating a sample of CEOs who have been persistently underpaid over the first several years of their tenures. By widening the observation window to include multiple periods, I will screen out temporary deviations from market norms and more fully capture the subsets of CEOs who persistently accept below-market wages from their companies (and who thus do not act in the manner predicted by equity theory, which assumes similar financial motivations among organizational actors).

My arguments, then, do not necessarily contradict equity theory predictions; rather, they apply to the population of CEOs who do not conform to the assumptions associated with equity theory, at least as it concerns annual compensation. The general logic that will drive the hypotheses in this section is that steward CEOs have different motivations than their higher-paid peers, and that this will cause steward CEOs to behave differently.

Unrelated diversification. To begin, I examine the effects of CEO underpayment on unrelated diversification undertaken during a CEO's tenure. Agency theorists have long argued that managers will, left to their own devices, prefer to reduce their level of "employment risk" (i.e., the likelihood of being fired) by engaging in actions that reduce performance variability. In other words, managers are much less diversified than their firms' shareholders in terms of the sources of their wealth, and in turn have much more to lose when company performance declines precipitously. Big declines, of course, are more likely when performance varies widely from year to year. One way for managers to mitigate performance variability is to engage in unrelated diversification, as operating in multiple industry segments spreads out the risk of low returns in

any one given segment. (For more detail on corporate diversification and its effect on firm profitability, see Rumelt, 1974; 1982.)

The corollary to this argument is that such risk reduction is not beneficial to shareholders, who can readily adjust their own portfolios individually to achieve the ideal amount of risk (e.g., Amihud & Lev, 1981; Levy & Sarnat, 1970). Empirical studies have supported the premise that managers who are not closely monitored do indeed take steps to reduce their employment risk through unrelated diversification (Amihud & Lev, 1981; Amihud & Lev, 1999; Denis, Denis, & Sarin, 1997; Lloyd, Modani, & Hand, 1987), and that unrelated diversification is generally associated with reductions in firm value (Berger & Ofek, 1995; Morck, Shleifer, & Vishny, 1990). Although the generalizability of these conclusions has been questioned by some scholars in the management field (e.g., Boyd, Gove, & Hitt, 2005; Lane, Cannella, & Lubatkin, 1998), it is at least reasonable to argue that, everything else equal, unrelated diversification is driven (in part) by self-serving interests of executives.

Turning to the idea of CEO pay deviations and how they could influence diversification activities, equity theory might suggest that CEOs receiving less than market wages could address their perceived inequity by engaging in exactly this type of risk-reducing diversification. To offset his or her below-market pay, a self-interested, underpaid CEO may restore some sense of equity by attempting to limit performance variability through unrelated diversification, therein lowering the odds of his or her firing due to extreme performance declines. This is merely conjecture on my part, but would seem to fit with the underlying premise of equity theory – specifically, that self-interested CEOs will not long tolerate being paid less than market norms warrant, and that subsequent action will be taken to reduce the perceived imbalance. One way of

doing this is increasing firm size (e.g., Fong et al., 2010); another would be reducing employment risk by spreading the firm's operations across more industry segments.

On the other hand, if we assume that unrelated diversification destroys value for shareholders, stewardship theory would predict that underpaid steward CEOs would shun such actions. Rather, they will subvert any feelings of inequity (if they even have them) and instead will act in the best interests of the firm, regardless of the fact that they are being paid less than market norms warrant. Whether they perceive inequity or not, a steward CEO will refrain from taking strategic actions that benefit the CEO him- or herself at the expense of shareholders (and stakeholders at large).

Although far less research has used a stewardship theoretical perspective in examining strategic actions, emerging empirical evidence does lend support to this idea. In re-examining the conclusions of Amihud and Lev's seminal (1981) study, Lane, Cannella, and Lubatkin (1998) found no evidence supporting agency theory assumptions of value-destroying actions by unmonitored managers, and in their discussion invoked stewardship theory as a possible explanation for the observed (natural) alignment of interests between executives and shareholders. And a recent study by Boivie, Lange, McDonald, and Westphal (Forthcoming) showed that CEOs who strongly identify with their organizations are less likely to make unrelated acquisitions. These authors argued that because unrelated diversification is not in the best interests of the firm, CEOs with strong organizational identification will shun such actions. Similarly, they argued that unrelated diversification can have the effect of making the organizational identity less focused, which can weaken that which makes the firm distinctive to outside observers. Following this logic, I propose that persistently underpaid CEOs will be less likely to pursue unrelated diversification strategies than their higher-paid peers.

Hypothesis 1: Persistently underpaid CEOs will engage in less unrelated diversification than their higher-paid peers.

Stakeholder attention. Next, I consider the idea that steward CEOs differ from their higher-paid peers in terms of the degree to which they cater to non-shareholder stakeholders. Executives vary in how they interpret and act upon their environments (Hambrick & Mason, 1984; March & Simon, 1958; Starbuck & Milliken, 1988), and it is likely that overpaid and underpaid CEOs differ in the importance they place on financial versus nonfinancial metrics of performance. The assumption underpinning most executive pay research is that CEOs will behave in a manner consistent with the classic agency view of the firm: namely, that the job of a top manager is to maximize firm value for shareholders, who bear the risk of ownership and have a residual claim on the profits (Fama & Jensen, 1983; Jensen & Meckling, 1976). This, in turn, will maximize the value of the CEO's own shares and options (which comprise the majority of most CEO pay packages).

Steward CEOs, however, will arguably ascribe more to the stakeholder paradigm, which suggests that CEOs should balance the interests of all stakeholders (including those lacking formal contracts with the firm, such as local communities, the environment, etc.) in order to ensure the long-run existence and success of the firm. Indeed, according to Davis, Schoorman, and Donaldson (1997), "stewards in loosely coupled, heterogeneous organizations with competing stakeholders and competing shareholder objectives are motivated to make decisions that they perceive are in the best interests of the group." (25) These two views, while somewhat compatible (both include shareholders as stakeholders, of course), imply tradeoffs in many strategic decision contexts (e.g., takeover protections) (Kacperczyk, 2009).

Steward CEOs, driven by a desire to serve the long-term interests of the organization, will look beyond the creation of short-term shareholder wealth as the defining measure of

success, and will instead strive to best serve a broader set of firm interests – including those that are easily ignored by CEOs attempting solely to maximize shareholder return or accounting earnings. These tendencies may be manifested in the relative levels of attention paid by firms to stakeholders beyond shareholders, including issues related to the natural environment, employees, and local communities. CEOs willing to accept below-market wages for an extended period of time are presumably less driven by a desire to maximize personal income and may instead primarily focus on serving the needs of all corporate stakeholders out of a sense of duty or obligation (Davis et al., 1997). The CEOs depicted by agency theory, on the other hand, will have a clearer financial imperative in mind when making strategic decisions. Attention to outside stakeholders is often viewed as an impediment to maximizing shareholders returns (Kacperczyk, 2009); by focusing primarily on financial performance and directing firm resources overwhelming toward rent-generating activities, these CEOs stand to gain the most from their share and option holdings.

Similarly, the concept of stewardship itself calls to mind images of leaders acting in the name of the greater good of the firm and *all* of its stakeholders, and not simply in raising share prices by another ten percent in the next quarter (although the two may not be mutually exclusive, the former certainly invokes a broader view of a firm's responsibilities than the latter). Hernandez (2008) describes the steward's dilemma: "...organizational stewardship behaviors are an attempt to integrate an exclusive fiduciary relationship with stockholders with a non-fiduciary, but still moral relationship with other stakeholders." (122) The picture that emerges of the steward CEO is that of a socially responsible leader committed to balancing the needs of a wide base of organizational interests, including those that may or may not contribute to

maximizing shareholder wealth (such as a commitment to diversity, protecting the environment, playing an integral role in the community, and so on).

Another (admittedly unrelated) factor to consider is the degree to which CEOs feel pressure to perform in their jobs, which partially stems from the performance expectations that go along with high pay (Hambrick, Finkelstein, & Mooney, 2005). More will be expected of well-paid CEOs, who are presumably being compensated for their ability to deliver higher returns to shareholders than their lower-priced peers. CEOs who persistently accept pay packages that are at or above market norms warrant should be strongly motivated by the prospect of financial rewards (for instrumental and symbolic purposes). Also, the highest-paid CEOs typically receive a large proportion of their pay in stock and option incentives, which tie the CEO's income to firm performance (Bebchuk & Grinstein, 2005). As such, "to the extent that an executive is motivated by money (either for its purchasing power or scorecard symbolism), tying his or her pay to company performance will induce a performance orientation and heighten self-imposed executive job demands" (Hambrick et al., 2005: 478). Steward CEOs, on the other hand, will not feel increased pressure to justify a premium pay package, as these CEOs are actually bargains for their firms. They may experience pressure from other sources, of course, but living up to exorbitant pay will not be among them.

These heightened perceptions of job demands, coupled with a desire to maximize the realized values of share option and holdings, will cause most CEOs to narrowly focus on financial performance at the expense of attention to corporate stakeholders, whereas steward CEOs will embrace a broader definition of firm success. In sum, I expect persistently underpaid CEOs to show a greater amount of focus toward non-shareholder stakeholders than their peers.

Hypothesis 2: Persistently underpaid CEOs will show higher levels of corporate attention to non-shareholder stakeholders than their higher-paid peers.

Corporate misconduct. Lastly, to the extent that compensation arrangements exert pressure on CEOs to deliver high performance, the likelihood that a CEO will engage in unethical corporate behavior will partially hinge upon his or her individual motivations. Behavioral theorists have long argued that performance aspirations influence executive behaviors (Bromiley, 2005; Cyert & March, 1963; March & Simon, 1958), and CEO pay is bound to affect such aspirations (e.g., boards and shareholders will want and demand more for their money). Well-paid CEOs under significant pressure to succeed are faced with a choice among several courses of action to achieve their goals (Harris & Bromiley, 2007):

The manager might attempt to improve real financial performance, an approach consistent with the traditional, sanguine view, by legitimately working to increase real sales, decrease real costs, and increase real earnings, but the manager might also attempt to increase reported organizational performance via illicit means.
(352)

In this vein, several scholars have found evidence of a connection between executive compensation (especially in terms of stock option pay) and organizational misconduct such as financial misrepresentation (Burns & Kedia, 2006; Harris & Bromiley, 2007; Zhang et al., 2008), shareholder litigation (Peng & Roell, 2008), and stock option backdating (Heron & Lie, 2007). These studies suggest that many CEOs may be willing to act unethically in pursuit of monetary rewards (or perhaps to justify their above-market pay). Steward CEOs, on the other hand, should be less motivated by the prospect of outsized payoffs; these CEOs are more driven by the desire to faithfully serve their organizations. To the extent that steward CEOs are motivated by these pro-organizational tendencies, they will strive to maximize the long-term health and reputation of their firms by avoiding these potentially damaging situations rather than chasing short-term gains by acting unethically.

More generally, the collectivist, pro-organizational motives of the steward CEO will mitigate against courses of actions that may bring harm to the firm. To the extent that a CEO values the goals of the group over the goals of him- or herself (i.e., the degree to which he or she has a collectivist rather than an individualist orientation), the likelihood of corporate misconduct should diminish. Individuals with collectivist orientations perceive themselves as part of a larger group, and are thought to have more of a long-term view toward relationships and business dealings (e.g., Davis et al., 1997; Hofstede, 1980; Triandis, 1995). The overall welfare of organizational stakeholders will weigh heavier in the mind of a steward CEO than a more self-interested peer, and potentially firm-destroying actions (e.g., corporate misconduct) will not be considered viable courses of action for a steward CEO. Thus, the psychological orientation of the steward CEO is such that engaging in illegal or questionable business practices will not be considered, whereas a more self-interested CEO may focus more on the potential short-term benefits and worry less about the long-term health of the organization.

Hypothesis 3: Persistently underpaid CEOs will have a decreased likelihood of corporate misconduct compared to their higher-paid peers.

3.2. Research Methods

3.2.1. Sample Construction

To test my hypotheses regarding the effects of CEO underpayment on strategic outcomes, I constructed my sample from that used in Essay 1 of this dissertation. As a reminder to the reader, the CEOs in the Essay 1 sample consisted of those included in Execucomp from 1993 to 2008 for which I had cumulative tenure-length data (i.e., I had data from the first year onward of a given CEO's tenure). Also, the sample was constrained to include only non-financial services

companies incorporated and headquartered in the United States, those that were publicly traded for at least two years at the time of CEO appointment, and companies with annual sales and assets of at least \$10 million, a size threshold consistent with prior research (e.g., McGahan & Porter, 1997; McNamara et al., 2003).

The nature of my analyses here, however, required data for an extended period of time on each CEO – specifically, five years. To identify cumulatively underpaid CEOs with reasonable accuracy, a one-year window is insufficient; in my tests, I measured the independent variable over the first three years of each CEO’s tenure. My logic here is that this represents a sufficiently adequate length of time – or, at least, enough time for a board to have “corrected” any initial imbalances in the pay contract – to evaluate a CEO’s pay position vis-à-vis his or her peers but is not so long that pay has become largely a reflection of past performance, etc. In other words, I wanted to assess the level of cumulative underpayment early in a CEO’s tenure (but not too early) to predict actions in the subsequent two years. Thus, I chose to perform my tests on CEOs for whom I had at least five years of data; but, as the analysis was cross-sectional, I only incorporated data from the first five years of tenure. Lengthening this window did not substantially alter the results, but did progressively decrease the sample size.

Taking this into account, I had data for five years each on 725 CEOs, representing a total of 3,625 CEO-years. The limited availability of my dependent variables was such, however, that I could not include all 725 CEOs in each analysis.

3.2.2. Data Sources

As in my first essay, all data were collected from publicly available archival sources downloadable from internet websites. Stock price data came from the Center for Research in

Security Prices (CRSP), company financial information was obtained from the Compustat/CRSP merged database (CCM), and governance data were collected from company proxy statements and the RiskMetrics database. Diversification data was drawn from the Compustat business segment database, which reports data on individual business segments (rather than consolidated firm-level data) for a substantial portion of the universe of companies covered in CCM. I was able to collect segment-level diversification data for 698 of the CEOs in my sample.

To measure corporate attention to stakeholders, I used the Kinder, Lydenberg, Domini & Co. (KLD) data, which is commonly used by researchers studying this topic (e.g., Deckop, Merriman, & Gupta, 2006; Hillman & Keim, 2001; Kacperczyk, 2009). KLD is a social research advisory firm that uses independent rating experts to assess the extent to which firms are addressing the concerns of their various stakeholders. Examples of categories measured include how well firms cater to the interests of communities, minorities, the natural environment, employees, and customers. This data was available from 1991 through 2008. The number of companies included in the KLD database has changed drastically over time, though, going from around 650 in 1991, to 1,110 in 2001, and finally to nearly 3,000 by 2008. In total, I was able to obtain this data for 372 of the CEOs in my sample.

Corporate misconduct data was collected from the U.S. General Accounting Office (GAO) releases on accountings restatements (GAO, 2003, 2007). I obtained the restatement data from two Financial Statement Restatement Database reports issued by the U.S. GAO: the first (GAO-03-095R), released on January 17, 2003, contained data on 919 restatement announcements that occurred between January 1, 1997, and June 30, 2002; the second (GAO-06-1079SP), released on March 5, 2007, included data on 1,786 restatement events that occurred between July 1, 2002, and June 30, 2006. As other researchers who have used this database have

noted (e.g., Harris & Bromiley, 2007; Zhang et al., 2008), these reports only include earnings restatements that were deemed “irregular” by the GAO, and do not include restatements due to normal business events such as mergers or stock splits. After merging this database with my sample over the time period covered, I was able to perform an analysis on 613 CEOs (approximately 8% of whom experienced an earnings restatement event during the fourth or fifth year of tenure).

Following the technique used in Essay 1, all financial and pay variables throughout this analysis were inflation-adjusted to 2000 dollars using the U.S. Bureau of Labor Consumer Price Index. And, most continuous variables were winsorized at plus and minus four standard deviations (after appropriate transformations) to minimize the influence of outliers.

3.2.3. Dependent Variables

Unrelated diversification. As in my first essay, I measured diversification using the Jacquemin and Berry (1979) entropy measure. For a firm operating in N industry segments where P_i represents the share of total firm sales in the i^{th} segment, unrelated diversification level (DU) was calculated as:

$$DU = \sum_{i=1}^N P_i \ln (1/P_i)$$

Unlike the first essay, here I used sales in 2-digit SIC segments rather than in 4-digit SIC segments to calculate my proportional shares of total revenue. This is consistent with past research (e.g., Hoskisson, Hitt, Johnson, & Moesel, 1993) in differentiating unrelated and related diversification; a firm that operates in multiple 4-digit SIC codes that all fall into the same 2-digit category can be classified as having no unrelated diversification. Companies operating in

multiple 2-digit SIC industries, however, experience less commonalities among their lines of business and are considered to be engaged in unrelated diversification.

In my tests measuring a focal CEOs' emphasis on unrelated diversification, I took the average scores during years 4 and 5 of tenure and subtracted the score in the year prior to the CEO arriving. This resulted in a difference score representing the degree to which the CEO either increased or decreased the level of unrelated diversification relative to his or her predecessor. In robustness tests, I also measured this as an absolute level while controlling for the level of unrelated diversification inherited by the focal CEO upon arrival; these tests yielded similar results using Tobit regressions.

Stakeholder focus. To assess corporate attention to non-shareholder stakeholders, I used the KLD data described above to develop measures reflecting the extent to which companies catered to community, employees, environment, product, and diversity. Use of these five categories is consistent with prior research in this area (e.g., Hillman & Keim, 2001; Kacperczyk, 2009; Waddock & Graves, 1997), and the stakeholders represented in each of the five dimensions are thought to be important influences on firm strategy (Prahalad & Hamel, 1994) and survival (Clarkson, 1995). To construct my measures for each category (as well as an overall net KLD score), I subtracted the total weaknesses from the total strengths for each firm-year in the respective categories (e.g., Fong, 2010).

Corporate misconduct. Following prior studies investigating earnings restatements (e.g., Harris & Bromiley, 2007; Zhang et al., 2008), I measured corporate misconduct as binary indicator of whether the firm in question restated accounting earnings during a given year of the sample frame. The restatement data was drawn from the 2003, 2006, and 2007 U.S. General Accounting Office reports on finance restatements, which specifically identified "irregular"

restatement events (i.e., those not related to stock splits, mergers, and other routine corporate activities) for inclusion in its reports. Rather, the restatements identified in these reports represent instances of aggressive accounting policies, obfuscation of facts, and outright fraud (Zhang et al., 2008). The GAO reports included the date of the restatement, which allowed me to accurately match the event to the proper fiscal year of the company in question. Following Harris and Bromiley (2007), when firms issued multiple restatements during the sample frame, I only incorporated the first instance of restatement in my analysis. As they explained, “repeat offenders...face a different situation than a firm contemplating misrepresentation for (apparently) the first time.” (355)

As this variable was assessed for years 4 and 5 of CEO tenure, any restatement occurring in either year would result in a “1” score for the CEO in question as of the end of year 3. All remaining observations received a “0” score.

3.2.4. Independent Variables

In keeping with my first essay, I measured *cumulative underpayment* as the degree to which a CEO was paid less than market norms would warrant over the first three years of his or her tenure. Specifically, I summed each CEO’s actual pay over this period and divided by his or her total expected pay over the same span, which yielded a ratio of actual to expected pay. Taking the log of this ratio created a normally distributed variable centered around zero, such that negative values indicated underpayment while positive values indicated overpayment. As I was specifically interested in CEO underpayment, I operationalized this measure in two ways: first, I created a binary indicator measuring whether the CEO was in the bottom quartile of the distribution at the end of year three (e.g., Fong et al., 2010); second, I created a spline variable

that was equal to the focal CEO's underpayment score (multiplied by negative one) if negative (i.e., underpaid) and zero otherwise (e.g., Wade et al., 2006a).

For both operationalizations, the reference group is the set of CEOs who were either in the upper three-quarters of the distribution (for the binary underpayment indicator) or the upper half of the distribution (for the underpayment spline variable).

3.2.5. Control Variables

In an attempt to remain consistent with my first essay, I included highly similar control variables here as were used in my analyses investigating subsequent performance (with several modifications). First, I included *unrelated diversification prior to CEO arrival* in the tests predicting subsequent unrelated diversification and *stakeholder focus prior to CEO arrival* in the analyses predicting future corporate attention to stakeholders. I also controlled for *prior earnings restatement* in the analyses predicting corporate misconduct. In the first two cases, these were important in that they accounted for the entry conditions faced by each CEO; as before, they also helped ensure that my tests readily captured the focal CEO's effect on the given strategic action over and above any ingrained company strategic tendencies (in terms of diversification or commitment to outside stakeholders) he or she inherited upon taking the CEO job. The last control acknowledges that once a firm issues an earnings restatement, the decision to make subsequent restatements may be different than the initial disclosure (Harris & Bromiley, 2007).

At the industry level, I included the same variables used in the first essay. These were *industry product differentiability* (measured as R&D intensity and advertising intensity), *industry sales growth*, *industry demand instability*, and *industry concentration ratio*. I also included a

binary variable indicating whether the firm in question was in a highly *regulated* industry – in other words, this variable captured utility firms (SIC code “49”). The calculations of these variables were identical to the descriptions in Essay 1.

I incorporated several firm level controls in all models. As in my earlier analyses, I included *company size*, *company age*, *capital intensity*, and *firm slack*. I also included measures of financial performance, specifically *TSR* and *ROA* in *t*. Although my dependent variables were not direct measures of performance (as in Essay 1), including recent performance as a control makes logical sense in that it could influence the strategic actions studied in this essay.

At the CEO level, I included *CEO shareholdings*, *CEO duality*, and a binary indicator for *outsider* CEOs. Another control variable included in all analyses was the *proportion of pay in stock and options through t*, which (as in Essay 1) accounted for historical pay structure by measuring the extent to which the focal CEO was paid in equity incentive vehicles (i.e., instruments that were tied to the future value of the firm’s stock price). As a reminder, this measure was calculated by summing annual *ex ante* pay values of restricted stock and option grants (valued using Execucomp’s Black-Scholes formula) and dividing by the sum of total pay through year *t*.

Finally, I included year dummies in all models to control for period effects. In terms of industry controls, I adjusted each company’s KLD score by the industry average of the metric in question for the particular year. I did not include industry dummies in the tests of unrelated diversification, however, as the test itself involved predicting the extent to which a given firm operated in multiple industry segments. Nor did I include industry dummies in the tests of corporate misconduct, as the phenomenon was sufficiently rare that many industries experienced no announced earnings restatements during the sample frame.

3.2.6. Estimation Methods

Each analysis was structured in a way such that the independent variables were assessed over the first three years of each CEO's tenure and the dependent variable was measured during years 4 and 5 of tenure. As such, the analyses were cross-sectional, and I used OLS regressions for tests of my first two hypotheses. I used robust standard errors to mitigate any problems of heteroskedascity in my model residuals. In several robustness checks not reported here (specifically, the tests of unrelated diversification), I used Tobit regressions to accommodate the fact that the dependent variable was truncated at zero. These results were largely similar to the OLS models reported in my tables. To test the corporate misconduct hypothesis, which involved a binary independent variable, I used Logit regressions.

3.3. Results

3.3.1. Unrelated Diversification Results

Table 16 presents descriptive statistics and correlations for the variables used in the unrelated diversification analyses ($n = 698$). For ease of interpretation, means and standard deviations are reported as untransformed values. Correlations apply to transformed variables.

INSERT TABLE 16 HERE

Table 17 below reports OLS model results predicting change in unrelated diversification from the year before a focal CEO took office to years 4 and 5 of his or her tenure. As a reminder, the dependent variable here is the difference between the average unrelated diversification score in years 4 and 5 (calculated using the entropy measure) and the level of

unrelated diversification reported in the last fiscal year before the CEO took office. Thus, these tests measure the change in diversification relative to what a given CEO inherited.

Model 1 includes controls only, several of which were significant in predicting change in unrelated diversification. Most notably, the control for the level of unrelated diversification at entry was highly significant in the negative direction ($p < .01$), which makes sense in that firms that were already highly diversified across industries are less likely to continue spreading business risk across industries (they have already done as much). This also captures reversion to the mean, of course. Another interesting result worth noting is the significant negative coefficient for the cumulative proportion of pay in stock and options ($p < .05$), indicating that CEOs whose financial interests are more closely aligned with shareholder interests are less likely to undertake (potentially) value-destroying unrelated diversification. This is quite consistent with agency theory predictions.

Model 2 includes cumulative underpayment as a binary variable indicating whether the CEO was in the bottom quartile of the cumulative actual to expected pay distribution through the end of his or her third year of tenure. As such, the reference group in these models is the upper 75% of the distribution. Model 3 is identical to Model 2, with the exception that cumulative underpayment is operationalized as a spline variable that is set equal to the value of the (logged) ratio of actual to expected pay if the value is below zero (indicating underpayment), and multiplied by negative one for ease of interpretation. The remaining observations receive scores of zero. These binary and spline measures are highly correlated ($r = 0.84$), naturally.

Hypothesis 1, which posited a negative association between CEO underpayment and unrelated diversification, received no support in either model. In fact, the coefficient for the spline measure of CEO underpayment was positive and significant ($p < .05$) in Model 3,

indicating that underpaid CEOs tend to increase levels of unrelated diversification (relative to the reference group of market-paid CEOs) over the level of their predecessors. The coefficient for the binary CEO underpayment variable was not significant, but was also positive. A robustness check using a continuous variable (i.e. the full distribution of cumulative over(under)payment) produced similar results to those shown in Model 3; namely, cumulatively underpaid CEOs tend to increase unrelated diversification as compared to their higher-paid peers. Also, as mentioned in the description of the analytic techniques above, a series of Tobit regressions predicting levels of unrelated diversification (rather than changes) produced similar results.

The findings reported here are consistent with an equity theory explanation that CEOs who believe they are being unfairly compensated reduce their perceived inequity by decreasing their employment risk through unrelated diversification. One could also make the case that the increased information processing demands associated with managing a firm operating in more lines of business warrants higher pay (e.g., Henderson & Fredrickson, 1996), which would also remedy these CEOs' underpayment issues. In any case, Hypothesis 1 received no support.

INSERT TABLE 17 HERE

3.3.2. Stakeholder Focus Results

Table 18 presents descriptive statistics and correlations for the variables used in the stakeholder focus analyses ($n = 372$). For ease of interpretation, means and standard deviations are reported as untransformed values. Correlations apply to transformed variables, however.

INSERT TABLE 18 HERE

Table 19 below reports OLS model results predicting stakeholder focus during years 4 and 5 of CEO tenure, using a binary underpayment measure. Table 20 shows the same models using a spline underpayment measure. As a reminder, the dependent variable here is the industry-adjusted average score in years 4 and 5 on the overall KLD net score dimension (Models 1 and 2 in each table) and five specific dimensions commonly studied (community, employees, environment, product, and diversity, shown in Models 3 through 12 in each table).

Models 1, 3, 5, 7, 9, and 11 include control-only models predicting the relevant KLD score noted in the text above for each pair of models. The only control demonstrating any consistent significance in predicting KLD scores was the control for the entry conditions on that particular KLD dimension (all of which were highly significant at $p < .01$). This makes intuitive sense, of course, in that firms with a long-running organizational commitment to a particular group of stakeholders will receive persistently high annual scores. These highly significant results also point to the importance of including this control variable, as when they are removed the results reported below differ for my independent variables of interest.

For all pairs of models in Tables 19 and 20, the second models (2, 4, 6, 8, 10, and 12) include cumulative underpayment as either a binary or spline variable measuring whether and to what extent a CEO was paid below market norms over the first three years of tenure. As can be seen in all even numbered models, cumulative underpayment showed no significant associations with any of the KLD dimensions tested. Hypothesis 2 predicted that underpayment would be positively linked with corporate attention to stakeholders, but the evidence in Tables 19 and 20 clearly do not support such an association. Thus, Hypothesis 2 was not supported.

Interestingly, a recent study by Fong (2010) found that CEOs who were overpaid in t received higher net KLD scores in $t+1$ than their underpaid peers. He used equity theory logic to

predict that more overpaid CEOs would devote more time and resources to the types of initiatives included in KLD, as these would lead to public acknowledgement that the CEO was worth what he or she was being paid. Conversely, he argued that underpaid CEOs would devote resources to actions more likely to lead to increased pay in the following year. My study differs from his in that I examined the relationship over a much longer period of time, and controlled for the entry conditions faced by each CEO. Indeed, it is worth noting that when I remove the control for entry KLD scores, the coefficients on one of the binary underpayment indicators becomes negative and significant ($p < .05$), which would be consistent with his findings. I believe, however, that controlling for entry conditions is important in tests of this nature, as a CEO stepping into a position in a firm with a longstanding commitment to the various dimensions included in the KLD index would not be necessarily due to his or her actions, but rather to the organizational norms regarding commitment to stakeholders.

INSERT TABLES 19 AND 20 HERE

3.3.3. Corporate Misconduct Results

Table 21 presents descriptive statistics and correlations for the variables used in the corporate misconduct analyses ($n = 613$). For ease of interpretation, means and standard deviations are reported as untransformed values. Correlations apply to transformed variables.

INSERT TABLE 21 HERE

Table 22 below includes results for the Logit regressions predicting the likelihood of corporate misconduct. Model 1 includes controls only, none of which were significant in

predicting earnings restatement events during tenure years four and five. Model 2 includes cumulative underpayment as a binary variable indicating whether the CEO was in the bottom quartile of the cumulative actual to expected pay distribution through the end of his or her third year of tenure, and Model 3 is identical to Model 2 with the exception that cumulative underpayment is operationalized as the spline underpayment variable described earlier.

Hypothesis 3, which predicted a negative association between CEO underpayment and unrelated diversification, received no support in either model. In fact, no variables in any model were significant in predicting the likelihood of an accounting restatement occurring during years four and five of tenure, although the control for whether the firm was a prior restating firm approached significance.

A possible reason for the markedly weak predictive power in these models is the relatively rarity of the phenomenon (not to mention the difficulty in predicting these events). Approximately 8% of the CEOs in my sample experienced a restatement event during years four and five, meaning that over 90% did not experience such an event. Prior studies investigating such rare organizational phenomena, including earnings restatement events, have successfully employed matched pair sample designs in their analyses (e.g., Arthaud-Day, Certo, Dalton, & Dalton, 2006; Hambrick & D'Aveni, 1988; Harris & Bromiley, 2007). Thus, future analysis of my research question using such a design could yield more informative results.

INSERT TABLE 22 HERE

3.4. Summary

Similar to my first essay, the results of my analyses in this study yielded disappointing results in terms of supporting my hypotheses. Still, there are interesting implications to some of my findings regarding the consequences of underpayment, and many potentially fertile avenues of inquiry come to mind. Before delving into them, however, it is worth stressing the arguably most important reason for the lack of support for my stewardship theory-driven hypotheses: namely, that persistent underpayment is, in isolation, an insufficient proxy for steward motivations. In the final chapter of this dissertation, I will put forth a number of other proxies that could, in conjunction with an underpayment measure, perhaps more accurately capture steward CEOs and reduce the error that likely impeded many of my empirical tests. In the next section, though, I offer a number of explanations for my reported results.

3.4.1. The Power of Equity Theory in Explaining CEO Behaviors

I discussed this in my theory section, but it bears repeating that most researchers investigating issues related to pay deviations have adopted an equity theory lens in explaining behavioral responses to over- and underpayment. This is no coincidence, as studies have repeatedly shown that equity theory is a powerful predictor of individual behavior as it relates to how pay is perceived relative to one's peer group (e.g., Fong et al., 2010; Greenberg, 1989; Greenberg, 1990; Wade et al., 2006a). Although it has been studied less in the context of top managers than in the realm of lower-level employees (with the exceptions of the studies mentioned earlier), equity theory clearly has a lot of potential in explaining CEO responses to pay inequity and the various strategic and performance outcomes that follow.

In this study, I attempted to measure underpayment over an extended period of time, and in so doing screen out any temporary deviations from market norms. The studies mentioned above all used one-year deviations in predicting responses to inequity, and I surmised that a longer observation window would differentiate my study from previous ones by isolating the CEOs at the bottom of the pay distribution after a period of three years. As it turned out, this alone was insufficient in identifying steward CEOs; in fact, in the tests of unrelated diversification, the underpaid CEOs in my sample showed tendencies to behave in ways predicted by equity theory. Thus, simply altering the observation window length does not appear – at least within my sample – to diminish the power of equity theory in predicting behaviors.

There are, however, certain reasons that this may be the case. The methodology used here, and in prior studies of this ilk, all use close variations on the same types of wage models to predict “market” levels of pay. In other words, using company size, industry affiliation, recent performance, and so on, we all arrive at similar estimates of labor market norms, and the resulting residuals represent the over- and underpayment scores assigned to the CEOs. Use of these models, it seems, consistently result in estimates of over- and underpayment that are associated with behaviors (by boards or CEOs themselves) that are aimed at correcting these pay deviations. On a large scale, at the broadest level, this all makes sense when considering the widely available information on CEO pay – information that is well-known to boards and CEOs themselves, to whom it is probably quite salient.

For the purposes of testing my stewardship hypotheses, however, it may be that the usual wage model structure is inadequate at identifying the CEOs in the public company sphere with stewardship motives. Even if they (steward CEOs) exist, boards may recognize the value they bring to the firm and reward them with, at the very least, market-level pay contracts. Indeed, one

could make the argument that steward CEOs are “worth” more than their more money-minded peers, as steward CEOs make strategic decisions unfettered by the self-interested motives presumed by agency theorists and many in the corporate governance sphere. The incremental cost to a large multinational firm of paying a CEO a few extra million dollars hardly affects the firm’s bottom line, and boards with steward CEOs running their firms may recognize how lucky they are and reward these CEOs accordingly. Thus, although the steward CEOs’ motives may not be strictly self-interested in terms of maximizing income, boards may nonetheless reward them for the (sizeable) value they bring to their firms and stakeholders.

3.4.2. The Complicated Nature of CEO Stewardship

The stewardship construct itself remains relatively unexplored in the upper echelons domain, especially in terms of the psychological determinants of steward-type leadership behaviors (Hernandez, 2008). In this essay, I offered a number of hypotheses regarding how steward CEOs might differ from their higher-paid peers; to date, however, most of the research on stewardship theory at the executive levels has focused on structural governance characteristics (e.g., CEO duality) and whether they are designed to inhibit (monitor) or enhance the CEO’s ability to influence performance (e.g., Donaldson & Davis, 1991).

A few studies have begun to go beyond this focus on governance structure to shed light on the psychological antecedents of stewardship behavior by CEOs, as well as its consequences for organizations. The first that comes to mind is Wasserman’s (2006) study of founder CEOs, in which he argued and found evidence for the argument that founder CEOs (who have strong psychological and financial ties to their firms, making them prime candidates for stewardship-type behaviors) differ from their non-founder peers in terms of the compensation they receive.

Another recent study, mentioned several times already, is Boivie et al.'s (Forthcoming) study on CEO organizational identification and its influence on firm outcomes. This study is particularly interesting in that it incorporated direct report data from CEOs and their board members, finding that CEOs who identify with their firms are less likely to engage in unrelated diversification and personal use of the company jet.

These represent the tip of the iceberg in this particular domain, and more work is needed in developing methods to both identify steward CEOs (especially using secondary data, as primary data is often difficult to obtain for top executives) and to study how they differ from their peers in terms of their behaviors. Also, stewardship behaviors may have their biggest effects on outcomes unobservable from the outside; specifically, the stewardship model may have its greatest power when describing the interactions that occur between leaders and followers, and how steward CEOs build a culture of moral responsibility to the broad spectrum of organizational stakeholders (Davis et al., 1997; Hernandez, 2008). Nevertheless, I discuss a number of possibilities in the last chapter of this dissertation that could help researchers relying on archival data to more accurately identify stewards within the larger population of public company CEOs, while improving greatly upon the crude – and likely inadequate – proxy for stewardship used in this essay.

3.5. Limitations

The most significant limitation of this study was undoubtedly my proxy for stewardship. Using deviations from labor market norms may constitute one aspect of a “steward CEO” construct, but in isolation it probably falls far short of accurately separating steward CEOs from among the greater CEO population. Also, the pay model used to form my estimates is unlikely

to exactly form the basis of what CEOs and boards consider when deciding whether CEOs are over- or underpaid. Perhaps steward CEOs can be found at any part of the pay distribution curve, especially if boards decide that these individuals are especially worthy of abundant pay (which may be awarded to the CEO even though the CEO him- or herself is not doing it ‘for the money’). As such, the (non)findings reported here do not necessarily represent the final word in terms of the hypotheses proposed.

Additionally, each of the dependent variables investigated in this essay could easily warrant its own study. Focusing on, say, unrelated diversification only, it would be informative to capture more fine-grained data than the measure I used here and test more complex hypotheses than the basic main effects I focused on in this study. For instance, one could incorporate board member characteristics, TMT data, and institutional ownership data to develop more nuanced hypotheses regarding when and to what degree steward CEOs will have the ability to (or be inhibited from) taking the pro-organization strategic actions they desire.

And, as with any study focusing only on CEOs, consideration of entire executive teams may yield more insight into the relationships between executive motives and firm outcomes. The extent to which CEOs and their TMTs must work together to get things done (for a discussion of TMT "behavioral integration," see Hambrick, 1994) may play an important role in determining whether steward CEOs can both (1) instill their own sense of organization-centered motives in others, especially their fellow TMT members and (2) enact strategic initiatives that reflect such motives. Thus, the interactions among the CEO and TMT members may be a key mediating element between CEO stewardship motives and organizational outcomes.

3.6. Conclusion

The idea that CEOs' individual attributes – motives, personality, preferences – affect firm strategies and performance outcomes has long been a topic of interest for management scholars. In this study, I examined whether CEO underpayment over the first few years of tenure was viable as a proxy for “stewardship” motives, in that underpaid CEOs may share common attributes vis-à-vis placing the needs of their organizations above their own self-interests and subsequently make strategic decisions consistent with a more holistic view of corporate performance (beyond the traditional shareholder-focused model, that is). Finding no substantial support for my hypotheses, I have little choice but to conclude that pay level alone is probably not sufficient in and of itself to accurately identify steward CEOs in the broader population of large public company chief executives.

Similarly, the nature of CEO stewardship may be such that its effects are more readily discernable from within the organization (e.g., it will manifest in outcomes not typically examined by strategic management researchers such as supervisor-employee relationships, corporate culture, and the firm's reputation as a good place to work). These effects may themselves influence firm strategic actions and firm performance, such that they (the internal, unobservable mechanisms of pro-organizational behaviors) mediate the link between CEO stewardship and organizational outcomes. Future research can certainly shed light on this issue.

Chapter 4

DISCUSSION AND CONCLUSIONS

This dissertation contained two empirical studies, each of which explored a different aspect of the same overarching question: What are the consequences of CEO pay levels for organizations? In the first essay, I examined the extent to which higher CEO pay (after controlling for well-known predictors of pay level such as industry pay norms, company size, diversification, etc.) leads to better company performance, and hypothesized a number of moderating factors that serve to attenuate this relationship. This first paper focused on industry- and organization-level moderators of the pay-performance link; the second paper attempted to delve into the individual-level factors that preclude an efficient sorting of the most talented CEOs into the highest-paying jobs. Specifically, the second essay investigated how consistently underpaid CEOs differed from their higher-paid peers in their behaviors on the job. The findings across the two studies collectively lent little to no support for my hypotheses, but nevertheless have some implications for organizations.

4.1. Broad Overview of Findings

In the first essay, I found no evidence of any consistently positive relationship between CEO overpayment and subsequent performance. These findings were substantially unchanged across a number of specifications of the independent and dependent variables, time observation windows, and statistical techniques. To the extent that any relationship *does* exist that my tests simply failed to capture for reasons of measurement error, model misspecification, or something

else entirely, it would seem unlikely that pay accounts for any substantial amount of variance explained in subsequent performance.

Consider the well-studied relationship between past performance and current pay. The meta-analytic evidence that suggests past performance is responsible for around 5% of the variance in current pay (Tosi et al., 2000) is consistently found regardless of whether researchers use accounting performance (e.g., ROA), market performance (e.g., TSR), or a hybrid of the two (e.g., Tobin's Q); similarly, the significant positive relationship typically holds regardless of the of pay variable used (e.g., salary and bonus only, total compensation including stock and options, etc.). Although this relationship is often dismissed as inconsequential in practical terms, it appears to be much stronger than the relationship between pay and subsequent performance – which is supposedly one of the simplest, most basic functions of pay (e.g., to attract and motivate talented individuals who can maximize firm performance). The lack of evidence found in my tests is almost astounding in that regard, and cuts against the common-sense assumption that “you get what you pay for” in terms of executive talent.

I discussed a number of reasons that may help explain my null findings, including excessive romance of leadership, careless or uninformed boards, or the motivations of the CEOs themselves. Of the three explanations, I find the third the most compelling, and set out to explore it in more detail in my second essay. Here, I used a stewardship theory lens in predicting the behaviors of persistently underpaid CEOs, under the logic that these individuals were less motivated by the extrinsic rewards that come with high pay and instead represented “steward” CEOs whose interests are already inherently aligned with organizational stakeholders.

I conducted a number of tests in which I investigated how these CEOs differed from their higher-paid peers in terms of the strategic actions they took. Here, too, I found no evidence that

persistently underpaid CEOs acted more in accordance with stewardship theory predictions than their higher-paid peers. As I noted, however, these findings are hardly an indictment of stewardship theory. Rather, it seems that pay alone is an inadequate indicator of a given CEO's psychological attributes; better, more developed measures are undoubtedly needed to tap into this construct. Below, I discuss a number of avenues for future research on steward CEOs, and propose several ideas about how to identify these individuals using proxy data.

4.2. Some Potential Proxies for CEO Stewardship

Starting with the assumption that a steward CEO would have a high level of identification with his or her organization (Davis et al., 1997), it makes sense to consider ways in which researchers could (absent direct report data) use archival data as proxies for a CEO's organizational identification (Mael & Ashforth, 1992) or the amount of psychic income (Gimeno, Folta, Cooper, & Woo, 1997) a CEO derives from heading his or her organization.

Researchers could utilize organizational identification-type indicators such as CEO tenure in the firm and a CEO's geographic or family ties to the firm to proxy for the level of attachment a CEO feels toward his or her organization. Scholars have shown that individuals vary widely in the degree to which they identify with their organizations, and that this variance can give rise to differences in pro-organizational behaviors (Bartel, 2001; Dukerich et al., 2002). CEOs who strongly identify with their firms will thus be more apt to pursue actions that benefit their organizations, and may act in ways consistent with stewardship theory predictions.

It is also plausible that materialism-type indicators could provide insight into the extent to which a CEO is driven by money, and hence the degree to which a CEO is likely to engage in income-maximizing actions (actions that the steward CEO would avoid). CEOs with high

materialistic needs are probably more likely to be found in high-paying jobs (relative to their peers, that is) that can provide them with the money and material possessions they desire (cf. Richins & Dawson, 1992). Steward CEOs, on the other hand, are less likely to place personal materialistic needs above the needs of their organizations, and will instead derive utility from protecting the well-being of their firms. One could expect to find these CEOs in lower-paying positions, which is what I attempted to capture with my underpayment measure in Essay 2.

4.2.1. Organizational Identification Antecedents of CEO Stewardship

CEO tenure in the firm. One of the core tenets of stewardship theory is that some executives develop a deep sense of organizational commitment to their firms, whereby they derive greater pleasure from organizational well-being than from extrinsic (i.e., monetary) rewards (Davis et al., 1997). When a CEO closely identifies with his or her organization, he or she will be more likely to engage in cooperative, altruistic behaviors that aim to serve the firm rather than the CEO him- or herself (e.g., Mowday, Porter, & Steers, 1982; O'Reilly & Chatman, 1986a). In such cases, a CEO may be more willing to sacrifice financial income, both for the good of the firm and because he or she derives pleasure from acting as an organizational steward. CEOs without this close sense of identification, on the other hand, will have less incentive to act as a steward and will be more apt to engage in self-serving behaviors – including maximizing his or her income, regardless of cost to organizational shareholders.

Accordingly, one would expect that longer tenures within an organization inculcate a deeper sense of commitment to organizational well-being. A CEO who has spent many years working for an organization will have had more time to internalize the values and philosophy of his or her firm, and will likely derive more satisfaction from faithfully serving the organization

than a CEO who either comes from outside the organization or who has spent relatively little time with the firm. As such, the amount of time a CEO has spent with an organization may play a role in whether a given CEO has steward motivations.

“Hometown hero” status. Another means by which a CEO may develop a deep sense of identification with a firm is whether he or she has strong family ties to the company’s geographic locale. Although I am not aware of any research that has examined the effects of CEOs’ historical geographic ties to a firm, it stands to reason that a CEO who grew up in close proximity to a company would feel a greater sense of attachment to the firm and local area. As such, these “hometown heroes” may be more willing to accept below-market pay to serve the company they grew up idolizing; similarly, the sense of attachment towards the city/locale would diminish the desire to seek out more attractive employment elsewhere. In general, considering more fine-grained information about a CEO’s past may offer clues as to his or her level of identification with an organization – which, in turn, will influence steward behaviors.

4.2.2. Materialism Antecedents of CEO Stewardship

Educational background. The educational background of a CEO may also offer clues as to his or her motives (Hambrick & Mason, 1984). Strategic management researchers have repeatedly found that educational experiences influence strategic choices and behaviors (e.g., Bantel & Jackson, 1989; Hambrick et al., 1996; Hitt & Tyler, 1991). Some researchers (e.g., Bertrand & Schoar, 2003) have argued that CEOs with MBA degrees have a higher degree of financial sophistication as a result of their educations, which in turn could increase the likelihood that these CEOs end up as overpaid rather than underpaid. Many of the theories taught in MBA programs emphasize the general ideologies of the Chicago School and agency theory (Ghoshal,

2005; Khurana, 2007); namely, that managers cannot be trusted and that people will, left to their own devices, act opportunistically at the expense of shareholders. It thus seems logical that CEOs with MBA degrees may be more likely to assume that self-interest represents the default managerial mindset, which implies that managers should always strive to maximize personal gain (specifically in terms of seeking out the highest-paying positions).

Similarly, CEOs with MBAs are more likely to be members of elite social and business circles (Useem & Karabel, 1986). In such environments, pay may be viewed as a status symbol, and CEOs would strive to maximize his or her income at all times. For either of these reasons, a CEO's educational background may be useful in developing a construct measuring CEO stewardship.

CEO home value. One intriguing avenue for future research involves using publicly available information on CEO's home purchases as a rough indicator for materialistic values. Although this approach is obviously fraught with data collection difficulties, it may be fruitful to explore. Recent research from finance scholars suggests that some CEOs view their homes as signals of power and prestige (e.g., Liu & Yermack, 2007). This form of "conspicuous consumption" (Veblen, 1899) has even been linked to organizational performance, in that CEOs who purchase large, opulent mansions tend to deliver subpar performance in the following years (Liu & Yermack, 2007). It stands to reason that more materialistic CEOs (i.e., those who highly value money) will be more apt to acquire showy estates; steward CEOs, on the other hand, are not driven by the same financial imperative and will likely not experience the same desires to display their wealth. Accordingly, it is possible that a CEO's home value could provide a useful insight into a CEO's materialistic motives. These are just a few of the possible avenues for future research in measuring CEO stewardship.

4.3. Conclusion

The overarching goal of the two essays presented in this dissertation was to conduct a thorough examination of a straightforward – but still little-understood – question regarding CEO pay: How does paying above or below market wages for CEO talent affect organizational outcomes? The first essay took an efficiency wage theory approach in positing that highly paid CEOs would outperform their lower-paid peers because of the matching that would occur between the most talented individuals and the highest-paying jobs. I then delved deeper into this relationship, hypothesizing that conditions at the industry and organization levels would moderate this association, such that in certain instances overpaid CEOs would be more likely to deliver superior performance. Using a variety of variable operationalizations and statistical analyses, I found no consistent relationship between pay and subsequent performance (and no consistently significant interactions between pay and contextual conditions). To explain these non-findings, I discussed three potential alternative explanations: an excessive romance of leadership by boards; board carelessness in selecting and rewarding CEOs; and variance in CEO motives that would preclude an efficient sorting of talent and compensation level.

The second essay built on this last idea, and used stewardship theory logic to make predictions regarding the strategic actions likely to follow from employing persistently underpaid CEOs, who I argued would be driven more by a desire to dutifully serve their firms than to engage in behaviors aimed at maximizing short-term shareholder wealth. In examining how these CEOs differed from their peers in terms of the pursuit of unrelated diversification, degree of attention to non-shareholder stakeholders, and likelihood of misconduct, I found no evidence that persistently underpaid CEOs are prone to stewardship-type behaviors. Indeed, the only significant result linked persistent CEO underpayment to an increase in unrelated diversification.

Upon further reflection, I believe that underpayment alone is probably an inadequate proxy for CEO stewardship, and that measuring the construct is more complex than simply assessing whether a CEO accepts lower pay than his or her peers. I offered a number of areas for future research that could use various archival proxies to develop a more informative construct of CEO stewardship, and I intend to pursue these avenues of inquiry in the future.

In sum, the main conclusion I can offer from my investigations is that studying executive pay alone as a predictor of organizational outcomes is overly narrow in scope to uncover the complex interrelationships that likely exist among executive characteristics, compensation, context, and firm outcomes. Some well-established theoretical perspectives, such as equity theory and agency theory, do provide some insight in making general predictions across the broad CEO population; but, in order to uncover the more nuanced relationships – especially those concerning CEO motives and how they influence responses to pay – researchers may be best served by adopting multi-theoretic lenses and incorporating data from multiple levels (industry, firm, and individual) to really advance our understanding of the consequences of executive pay for organizations.

REFERENCES

- Abowd, J. M., & Bognanno, M. 1995. International differences in executive and managerial compensation. In R. Freeman, & L. Katz (Eds.), *Differences and changes in wage structures*: 67-103. Chicago, IL: The University of Chicago Press.
- Adams, J. S. 1963. Toward an understanding of inequity. *Journal of Abnormal and Social Psychology*, 67: 422-436.
- Adams, J. S. 1965. Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, Vol. 2: 267-299. New York: Academic Press.
- Agle, B. R., Mitchell, R. K., & Sonnenfeld, J. A. 1999. Who matters to CEOs? An investigation of stakeholder attributes and salience, corporate performance, and CEO values. *Academy of Management Journal*, 42(5): 507-525.
- Agrawal, A., & Walkling, R. A. 1994. Executive careers and compensation surrounding takeover bids. *Journal of Finance*, 49(3): 985-1014.
- Akerlof, G. A. 1982. Labor contracts as partial gift exchange. *Quarterly Journal of Economics*, 97: 543-569.
- Ali, A., Klasa, S., & Yeung, E. 2009. The limitations of industry concentration measures constructed with Compustat data: Implications for finance research. *Review of Financial Studies*, 22(10): 3839-3871.
- Amihud, Y., & Lev, B. 1981. Risk reduction as a motive for conglomerate mergers. *Bell Journal of Economics*, 12(2): 605-617.
- Amihud, Y., & Lev, B. 1999. Does corporate ownership structure affect its strategy towards diversification? *Strategic Management Journal*, 20(11): 1063-1069.
- Arthaud-Day, M. L., Certo, S. T., Dalton, C. M., & Dalton, D. R. 2006. A changing of the guard: Executive and director turnover following corporate financial restatements. *Academy of Management Journal*, 49(6): 1119-1136.
- Bain, J. 1951. Relation of profit rate to industry concentration: American manufacturing, 1936-1940. *The Quarterly Journal of Economics*, 65(3): 293-324.
- Balkin, D. B., & Gomez-Mejia, L. R. 1987. Toward a contingency theory of compensation strategy. *Strategic Management Journal*, 8(2): 169-182.
- Balkin, D. B., Markman, G. D., & Gomez-Mejia, L. R. 2000. Is CEO pay in high-technology firms related to innovation? *Academy of Management Journal*, 43(6): 1118-1129.

- Bantel, K. A., & Jackson, S. E. 1989. Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal*, 10: 107-124.
- Barber, A. E., & Bretz, R. D. 2000. Compensation, attraction, and retention. In S. L. Rynes, & B. Gerhart (Eds.), *Compensation in organizations*: 32-60. San Francisco: Jossey-Bass.
- Barnard, C. I. 1938. *The functions of the executive*. Cambridge, MA: Harvard University Press.
- Bartel, C. A. 2001. Social comparisons in boundary-spanning work: Effects of community outreach on members' organizational identity and identification. *Administrative Science Quarterly*, 46(379-413).
- Baumol, W. J. 1959. *Business behavior, value, and growth*. New York, NY: The Macmillan Company.
- Bebchuk, L. A., & Fried, J. M. 2004. *Pay without performance: The unfulfilled promise of executive compensation*. Cambridge, MA: Harvard University Press.
- Bebchuk, L. A., & Grinstein, Y. 2005. The growth of executive pay. *Oxford Review of Economic Policy*, 21(2): 283-303.
- Becker, G. 1964. *Human capital*. New York: Columbia University Press.
- Berger, P. G., & Ofek, E. 1995. Diversification's effect on firm value. *Journal of Financial Economics*, 37(1): 39-65.
- Berle, A. A., & Means, G. C. 1932. *The modern corporation and private property*. New York: Macmillan.
- Bertrand, M., & Schoar, A. 2003. Managing with style: The effect of managers on firm policies. *Quarterly Journal of Economics*, 118(4): 1169-1208.
- Bigley, G. A., & Wiersema, M. 2002. New CEOs and corporate strategic refocusing: How experience as heir apparent influences the use of power. *Administrative Science Quarterly*, 47(4): 707-727.
- Bizjak, J. M., Brickley, J. A., & Coles, J. L. 1993. Stock-based incentive compensation and investment behavior. *Journal of Accounting & Economics*, 16: 349-372.
- Bogle, J. C. 2008. Reflections on CEO compensation. *Academy of Management Perspectives*, 22(2): 21-25.
- Boivie, S., Lange, D. A., McDonald, M., & Westphal, J. D. Forthcoming. Me or we: The effects of CEO organizational identification on agency costs. *Academy of Management Journal*.

- Boyd, B. K. 1995. CEO duality and firm performance: A contingency model. *Strategic Management Journal*, 16(4): 301-312.
- Boyd, B. K., Gove, S., & Hitt, M. A. 2005. Consequences of measurement problems in strategic management research: The case of Amihud and Lev. *Strategic Management Journal*, 26(4): 367-375.
- Bromiley, P. 2005. *The behavioral foundations of strategic management*. Oxford, UK: Blackwell.
- Burns, N., & Kedia, S. 2006. The impact of performance-based compensation on misreporting. *Journal of Financial Economics*, 79: 35-67.
- Burt, R. S. 1988. The stability of American markets. *American Journal of Sociology*, 94(2): 356-395.
- Buss, D. 2007. Is CEO comp criticism valid?, *The Chief Executive*, October/November 2007 ed.
- Cable, D. M., & Judge, T. A. 1994. Pay preferences and job search decisions: A person-organization fit perspective. *Personnel Psychology*, 47(2): 317-348.
- Cadsby, C. B., Song, F., & Tapon, F. 2007. Sorting and incentive effects of pay for performance: An experimental investigation. *Academy of Management Journal*, 50(2): 387-405.
- Campbell, C. M. 1993. Do firms pay efficiency wages? Evidence with data at the firm level. *Journal of Labor Economics*, 11(3): 442-470.
- Carpenter, M. A. 2000. The price of change: The role of CEO compensation in strategic variation and deviation from industry strategy norms. *Journal of Management*, 26(6): 1179-1198.
- Carpenter, M. A., & Golden, B. R. 1997. Perceived managerial discretion: A study of cause and effect. *Strategic Management Journal*, 18(3): 187-206.
- Carpenter, M. A., & Sanders, W. G. 2002. Top management team compensation: The missing link between CEO pay and firm performance? *Strategic Management Journal*, 23(4): 367-375.
- Carpenter, M. A., & Sanders, W. G. 2004. The effects of top management team pay and firm internationalization on MNC performance. *Journal of Management*, 30(4): 509-528.
- Carpenter, M. A., Sanders, W. G., & Gregersen, H. B. 2001. Bundling human capital with organizational context: The impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal*, 44(3): 493-511.

- Certo, S. T., & Semadeni, M. 2006. Strategy research and panel data: Evidence and implications. *Journal of Management*, 3(3): 449-474.
- Chatman, J. A. 1991. Matching people and organizations: Selection and socialization in public accounting firms. *Administrative Science Quarterly*, 36(3): 459.
- Chen, C. C., & Meindl, J. R. 1991. The construction of leadership images in the popular press: The case of Donald Burr and People Express. *Administrative Science Quarterly*, 36(4): 521-551.
- Child, J. 1972. Organizational structure, environment and performance: The role of strategic choice. *Sociology*, 6(1): 1-22.
- Ciscel, D. H., & Carroll, T. M. 1980. The determinants of executive salaries: An econometric survey. *Review of Economics and Statistics*, 61: 7-13.
- Clarkson, M. E. 1995. A stakeholder framework for analyzing and evaluating corporate social performance. *Academy of Management Review*, 20(1): 92-117.
- Combs, J. G., & Skill, M. S. 2003. Managerialist and human capital explanations for key executive pay premiums: A contingency perspective. *Academy of Management Journal*, 46(1): 63-73.
- Conyon, M., & Murphy, K. J. 2000. The prince and the pauper? CEO pay in the United States and United Kingdom. *The Economic Journal*, 110: F640-F671.
- Core, J. E., Guay, W., & Larcker, D. F. 2008. The power of the pen and executive compensation. *Journal of Financial Economics*, 88(1): 1-25.
- Coughlan, A. T., & Schmidt, R. M. 1985. Executive compensation, management turnover, and firm performance: An empirical investigation. *Journal of Accounting & Economics*, 7: 43-66.
- Crossland, C., & Hambrick, D. C. 2007. How national systems differ in their constraints on corporate executives: A study of CEO effects in three countries. *Strategic Management Journal*, 28(8): 767-789.
- Cyert, R. M., & March, J. G. 1963. *A behavioral theory of the firm*. Cambridge, MA: Blackwell.
- Dalton, D. R., Daily, C. M., Ellstrand, A. E., & Johnson, J. L. 1998. Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal*, 19(3): 269-290.
- Davis, G. F. 2009. The rise and fall of finance and the end of the society of organizations. *Academy of Management Perspectives*, 23(3): 27-44.

- Davis, J. H., Schoorman, F. D., & Donaldson, L. 1997. Toward a stewardship theory of management. *Academy of Management Review*, 22(1): 20-47.
- Deci, E. L., & Ryan, R. M. 1985. *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum.
- Deckop, J. R., Merriman, K. K., & Gupta, S. 2006. The effects of CEO pay structure on corporate social performance. *Journal of Management*, 32(3): 329-342.
- Denis, D. J., Denis, D. K., & Sarin, A. 1997. Agency problems, equity ownership, and corporate diversification. *Journal of Finance*, 52(1): 135-160.
- Dess, G. G., & Beard, D. W. 1984. Dimensions of organizational task environments. *Administrative Science Quarterly*, 29(1): 52-73.
- Devers, C. E., Cannella, A. A., Reilly, G. P., & Yoder, M. E. 2007. Executive compensation: A multidisciplinary review of recent developments. *Journal of Management*, 33(6): 1016-1072.
- Devers, C. E., McNamara, G., Wiseman, R. M., & Arrfelt, M. 2008. Moving closer to the action: Examining compensation design effects on firm risk. *Organization Science*, 19(4): 548-566.
- Donaldson, L., & Davis, J. H. 1991. Stewardship theory or agency theory: CEO governance and shareholder returns. *Australian Journal of Management*, 16(1): 49-64.
- Dukerich, J. M., Golden, B. R., & Shortell, S. M. 2002. Beauty is in the eye of the beholder: The impact of organizational identification, identity, and image on the cooperative behaviors of physicians. *Administrative Science Quarterly*, 39(239-263).
- Dutton, J. E., Dukerich, J. M., & Harquail, C. V. 1994. Organizational images and member identification. *Administrative Science Quarterly*, 39(2): 239-263.
- Eisenhardt, K. M. 1989. Agency theory: An assessment and review. *Academy of Management Review*, 14(1): 57-74.
- Eisenhardt, K. M., & Schoonhoven, C. B. 1990. Organizational growth: Linking founding team, strategy, environment, and growth among U.S. semiconductor ventures, 1978-1988. *Administrative Science Quarterly*, 35(3): 504-529.
- England, G. W. 1967. Personal value systems of American managers. *Academy of Management Journal*, 10(1): 53-68.
- Ezzamel, M., & Watson, R. 1998. Market comparison earnings and the bidding-up of executive cash compensation: Evidence from the United Kingdom. *Academy of Management Journal*, 41(2): 221-231.

- Fama, E. F. 1980. Agency problems and the theory of the firm. *Journal of Political Economy*, 88(2): 288-307.
- Fama, E. F., & Jensen, M. C. 1983. Separation of ownership and control. *Journal of Law and Economics*, 26(2): 301-325.
- Feldman, D. C., & Arnold, H. J. 1978. Position choice: Comparing the importance of organizational and job factors. *Journal of Applied Psychology*, 63(706-710).
- Festinger, L. 1954. A theory of social comparison processes. *Human Relations*, 7: 117-140.
- Finkelstein, S., & Boyd, B. K. 1998. How much does the CEO matter? The role of managerial discretion in the setting of CEO compensation. *Academy of Management Journal*, 41(2): 179-199.
- Finkelstein, S., & D'Aveni, R. A. 1994. CEO duality as a double-edged sword: How boards of directors balance entrenchment avoidance and unity of command. *Academy of Management Journal*, 37(5): 1079-1108.
- Finkelstein, S., & Hambrick, D. C. 1988. Chief executive compensation: A synthesis and reconciliation. *Strategic Management Journal*, 9(6): 543-558.
- Finkelstein, S., & Hambrick, D. C. 1989. Chief executive compensation: A study of the intersection of markets and political processes. *Strategic Management Journal*, 10(2): 121-134.
- Finkelstein, S., & Hambrick, D. C. 1990. Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, 35(3): 484-503.
- Finkelstein, S., & Hambrick, D. C. 1996. *Strategic leadership: Top executives and their effects on organizations*. St. Paul: West.
- Finkelstein, S., Hambrick, D. C., & Cannella, A. A. 2009. *Strategic leadership: Theory and research on executives, top management teams, and boards*. New York, NY: Oxford University Press.
- Fong, E. A. 2010. CEO pay fairness as a predictor of stakeholder management. *Journal of Business Research*, 63: 404-410.
- Fong, E. A., Misangyi, V. F., & Tosi, H. L. 2010. The effect of CEO pay deviations on CEO withdrawal, firm size, and firm performance. *Strategic Management Journal*, 31(6): 629-651.
- Friedman, M. 1976. *Price theory* (2nd ed.). Chicago, IL: Aldine Publishing Company.

- Fulmer, I. S. 2009. The elephant in the room: Labor market influences on CEO compensation. *Personnel Psychology*, 62(4): 659-695.
- GAO. 2003. *Financial statement restatement database (GAO-03-395R)*. Washington, DC: U.S. General Accounting Office.
- GAO. 2007. *Financial statement restatement database (GAO-06-1079SP)*. Washington, DC: U.S. General Accounting Office.
- Gerhart, B., & Rynes, S. L. 2003. *Compensation: Theory, evidence, and strategic implications*. Thousand Oaks, CA: Sage.
- Ghoshal, S. 2005. Bad management theories are destroying good management practices. *Academy of Management Learning & Education*, 4(1): 75-91.
- Gibbons, R., & Murphy, K. J. 1990. Relative performance evaluation for chief executive officers. *Industrial and Labor Relations Review*, 43(3): 30-51.
- Gimeno, J., Folta, T. B., Cooper, A. C., & Woo, C. Y. 1997. Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. *Administrative Science Quarterly*, 42(4): 750-783.
- Gomez-Mejia, L. R. 1992. Structure and process of diversification, compensation strategy, and firm performance. *Strategic Management Journal*, 13(5): 381-397.
- Gomez-Mejia, L. R., Berrone, P., & Franco-Santos, M. 2010. *Compensation and organizational performance*. Armonk, NY: M.E. Sharpe.
- Gomez-Mejia, L. R., Tosi, H., & Hinkin, T. 1987. Managerial control, performance, and executive compensation. *Academy of Management Journal*, 30(1): 51-70.
- Gomez-Mejia, L. R., & Wiseman, R. M. 1997. Reframing executive compensation: An assessment and outlook. *Journal of Management*, 23(3): 291-374.
- Greenberg, J. 1989. Cognitive reevaluation of outcomes in response to underpayment inequity. *Academy of Management Journal*, 32(1): 174-184.
- Greenberg, J. 1990. Employee theft as a reaction to underpayment inequity: The hidden cost of pay cuts. *Journal of Applied Psychology*, 75(5): 561-568.
- Haleblian, J. J., & Finkelstein, S. 1993. Top management team size, CEO dominance, and firm performance: The moderating roles of environmental turbulence and discretion. *Academy of Management Journal*, 36: 844-863.
- Hall, B. J., & Liebman, J. B. 1998. Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics*, 113(3): 653-691.

- Hambrick, D. C. 1994. Top management groups: A conceptual integration and reconsideration of the "team" label, *Research in organizational behavior*, Vol. 16: 171-213. Greenwich, CT: JAI Press.
- Hambrick, D. C. 2007. Upper echelons theory: An update. *Academy of Management Review*, 32(2): 334-343.
- Hambrick, D. C., & Abrahamson, E. 1995. Assessing managerial discretion across industries: A multimethod approach. *Academy of Management Journal*, 38: 1427-1441.
- Hambrick, D. C., & Brandon, G. 1988. Executive values. In D. C. Hambrick (Ed.), *The executive effect: Concepts and methods for studying top managers*. Greenwich, CT: JAI Press.
- Hambrick, D. C., Cho, T. S., & Chen, M.-J. 1996. The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly*, 41(4): 659-684.
- Hambrick, D. C., & D'Aveni, R. A. 1988. Large corporate failures as downward spirals. *Administrative Science Quarterly*, 33(1): 1-23.
- Hambrick, D. C., & Finkelstein, S. 1987. Managerial discretion: A bridge between polar views on organizations. In L. L. Cummings, & B. M. Staw (Eds.), *Research in organizational behavior*, Vol. 9: 369-406. Greenwich, CT: JAI Press.
- Hambrick, D. C., & Finkelstein, S. 1995. The effects of ownership structure on conditions at the top: The case of CEO pay raises. *Strategic Management Journal*, 16(3): 175-193.
- Hambrick, D. C., Finkelstein, S., & Mooney, A. C. 2005. Executive job demands: New insights for explaining strategic decisions and leader behaviors. *Academy of Management Review*, 30(3): 472-491.
- Hambrick, D. C., & Fukutomi, G. D. S. 1991. The seasons of a CEO's tenure. *Academy of Management Review*, 16(4): 719-742.
- Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2): 193-206.
- Harris, D., & Helfat, C. 1997. Specificity of CEO human capital and compensation. *Strategic Management Journal*, 18(11): 895-920.
- Harris, J., & Bromiley, P. 2007. Incentives to cheat: The influence of executive compensation and firm performance on financial misrepresentation. *Organization Science*, 18(3): 350-367.

- Hay, D. A., & Morris, D. J. 1979. *Industrial economics: Theory and evidence*. Oxford, England: Oxford University Press.
- Hayes, R. M., & Schaefer, S. 2000. Implicit contracts and the explanatory power of top executive compensation for future performance. *Rand Journal of Economics*, 31(2): 273-293.
- Hayward, M. L. A., Rindova, V. P., & Pollock, T. G. 2004. Believing one's own press: The antecedents and consequences of CEO celebrity. *Strategic Management Journal*, 25(7): 637-653.
- Henderson, A. D., & Fredrickson, J. W. 1996. Information-processing demands as a determinant of CEO compensation. *Academy of Management Journal*, 39(3): 575-606.
- Henderson, A. D., Miller, D., & Hambrick, D. C. 2006. How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. *Strategic Management Journal*, 27(5): 447-460.
- Hernandez, M. 2008. Promoting stewardship behavior in organizations: A leadership model. *Journal of Business Ethics*, 80(1): 121-128.
- Heron, R. A., & Lie, E. 2007. Does backdating explain the stock price pattern around executive stock option grants? *Journal of Financial Economics*, 83(2): 271-295.
- Herzberg, F. 1966. *Work and the nature of man*. Cleveland, OH: World Publishing Company.
- Hill, C. W. L., & Phan, P. 1991. CEO tenure as a determinant of CEO pay. *Academy of Management Journal*, 34(3): 707-717.
- Hillman, A. J., & Keim, G. D. 2001. Shareholder value, stakeholder management, and social issues: What's the bottom line? *Strategic Management Journal*, 22(2): 125-139.
- Hitt, M. A., & Tyler, B. B. 1991. Strategic decision models: Integrating different perspectives. *Strategic Management Journal*, 12(5): 327-351.
- Hofstede, G. 1980. *Culture's consequences: International differences in work-related values*. Beverly Hills, CA: Sage.
- Holmstrom, B. 1979. Moral hazard and observability. *Bell Journal of Economics*, 10(1): 74-91.
- Hoskisson, R. E., Hitt, M. A., & Hill, C. W. L. 1993. Managerial incentives and investment in R&D in large multiproduct firms. *Organization Science*, 4(2): 325-341.
- Hoskisson, R. E., Hitt, M. A., Johnson, R. A., & Moesel, D. D. 1993. Construct validity of an objective (entropy) categorical measure of diversification strategy. *Strategic Management Journal*, 14(3): 215-235.

- Hubbard, R. G., & Palia, D. 1995. Executive pay and performance: Evidence from the U.S. banking industry. *Journal of Financial Economics*, 39(1): 105-130.
- Hunt, H. G. 1986. The separation of corporate ownership and control: Theory, evidence, and implications. *Journal of Accounting Literature*: 85-124.
- Jacquemin, A. P., & Berry, C. H. 1979. Entropy measure of diversification and corporate growth. *Journal of Industrial Economics*, 27(4): 359-369.
- Jensen, M. C., & Meckling, W. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4): 305-360.
- Jensen, M. C., & Murphy, K. J. 1990. Performance pay and top-management incentives. *Journal of Political Economy*, 98(2): 225-264.
- Jin, L. 2002. CEO compensation, diversification, and incentives. *Journal of Financial Economics*, 66: 29-63.
- Jones, E. E. 1979. The rocky road from acts to dispositions. *American Psychologist*, 34(2): 107-117.
- Joskow, P. L., Rose, N. L., & Wolfram, C. D. 1996. Political constraints on executive compensation: Evidence from the electric utility industry *Rand Journal of Economics*, 27(1): 165-182.
- Kacperczyk, A. 2009. With greater power comes greater responsibility? Takeover protection and corporate attention to stakeholders. *Strategic Management Journal*, 30(3): 261-285.
- Kaplan, S. N. 2008a. Are U.S. CEOs overpaid? *Academy of Management Perspectives*, 22(2): 5-20.
- Kaplan, S. N. 2008b. Are U.S. CEOs overpaid? A response to Bogle and Walsh. *Academy of Management Perspectives*, 22(3): 28-34.
- Keats, B. W., & Hitt, M. A. 1988. A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance. *Academy of Management Journal*, 31(3): 570-598.
- Kerr, J., & Bettis, R. A. 1987. Boards of directors, top management compensation, and shareholder returns. *Academy of Management Journal*, 30(4): 645-664.
- Khurana, R. 2002. *Searching for a corporate savior: The irrational quest for charismatic CEOs*. Princeton, NJ: Princeton University Press.
- Khurana, R. 2007. *From higher aims to hired hands*. Princeton, NJ: Princeton University Press.

- Krueger, A. B., & Summers, L. H. 1988. Efficiency wages and the inter-industry wage structure. *Econometrica*, 56(2): 259-293.
- Lane, P. J., Cannella, A. A., & Lubatkin, M. H. 1998. Agency problems as antecedents to unrelated mergers and diversification: Amihud and Lev reconsidered. *Strategic Management Journal*, 19: 555-578.
- Larcker, D. F. 1983. The association between performance plan adoption and corporate capital investment. *Journal of Accounting & Economics*, 5(1): 9-30.
- Lawrence, P. R., & Lorsch, J. W. 1967. Differentiation and integration in complex organizations. *Administrative Science Quarterly*, 12(1): 1-47.
- Lazear, E. P. 1979. Why is there mandatory retirement? *Journal of Political Economy*, 87: 1261-1264.
- Lee, P. M., & O'Neill, H. M. 2003. Ownership structures and R&D investments of US and Japanese firms: Agency and stewardship perspectives. *Academy of Management Journal*, 46(2): 212-225.
- Levine, D. I. 1993. What do wages buy? *Administrative Science Quarterly*, 38(3): 462-483.
- Levy, H., & Sarnat, M. 1970. Diversification, portfolio analysis, and the uneasy case for conglomerate mergers. *Journal of Finance*: 795-802.
- Lewellen, W. G., & Huntsman, B. 1970. Managerial pay and corporate performance. *American Economic Review*, 60(4): 710-720.
- Liang, K., & Zeger, S. L. 1986. Longitudinal data analysis using generalized linear models. *Biometrika*, 73(1): 13-22.
- Lieberson, S., & O'Connor, J. F. 1972. Leadership and organizational performance: A study of large corporations. *American Sociological Review*, 37(2): 117-130.
- Liu, C. H., & Yermack, D. 2007. Where are the shareholders' mansions? CEOs' home purchases, stock sales, and subsequent company performance. *Available at SSRN: <http://ssrn.com/abstract=970413>*.
- Lloyd, W. P., Modani, N. K., & Hand, J. H. 1987. The effect of the degree of ownership control on firm diversification, market value, and merger activity. *Journal of Business Research*, 15(4): 303-312.
- Lorsch, J. W., & MacIver, E. 1989. *Pawns or potentates: The reality of America's boards*. Boston, MA: Harvard Business School Press.

- Mael, F., & Ashforth, B. E. 1992. Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of Organizational Behavior*, 13: 103-123.
- Magnan, M. L., & St-Onge, S. 1997. Bank performance and executive compensation: A managerial discretion perspective. *Strategic Management Journal*, 18(7): 573-581.
- Main, B. G. M., O'Reilly, C. A., & Wade, J. 1995. The CEO, the board of directors and executive compensation: Economic and psychological perspectives. *Industrial and Corporate Change*, 4(2): 293-332.
- Malmendier, U., & Tate, G. 2009. Superstar CEOs. *Quarterly Journal of Economics*, 124(4): 1593-1638.
- March, J. G., & Simon, H. A. 1958. *Organizations*. New York: Wiley.
- Marris, R. 1964. *The Economic Theory of Managerial Capitalism*. Glencoe, IL: Free Press.
- Marshall, A. 1965. *Principles of economics* (8th ed.). London: Macmillan.
- Maslow, A. H. 1943. A theory of human motivation. *Psychological Review*, 50(370-396).
- McEachern, W. A. 1975. *Managerial control and performance*. Lexington, MA: Heath.
- McGahan, A. M., & Porter, M. E. 1997. How much does industry matter, really? *Strategic Management Journal*, 18(S1): 15-30.
- McGuire, J. W., Chiu, J. S. Y., & Elbing, A. O. 1962. Executive income, sales, and profits. *American Economic Review*, 52(4): 753-761.
- McNamara, G., Vaaler, P. M., & Devers, C. E. 2003. Same as it ever was: The search for evidence of increasing hypercompetition. *Strategic Management Journal*, 24(3): 261-278.
- Mehran, H. 1995. Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics*, 38(2): 163-184.
- Meindl, J. R. 1990. On leadership: An alternative to the conventional wisdom. In B. M. Staw, & L. L. Cummings (Eds.), *Research in organizational behavior*, Vol. 12: 159-203. Greenwich, CT: JAI Press.
- Meindl, J. R. 1995. The romance of leadership as a follower-centric theory: A social constructionist approach. *Leadership Quarterly*, 6(3): 329-341.
- Meindl, J. R., Ehrlich, S. B., & Dukerich, J. M. 1985. The romance of leadership. *Administrative Science Quarterly*, 30(1): 78-102.

- Milgrom, P. R., & Roberts, J. 1992. *Economics, organization, and management*. Englewood Cliffs, NJ: Prentice-Hall.
- Miller, D. 1991. Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science*, 37(1): 34-52.
- Miller, D., & Shamsie, J. 2001. Learning across the life cycle: Experimentation and performance among the Hollywood studio heads. *Strategic Management Journal*, 22(8): 725-745.
- Miller, D. J. 1995. CEO salary increases may be rational after all: Referents and contracts in CEO pay. *Academy of Management Journal*, 38(5): 1361-1385.
- Mincer, J. 1974. *Schooling, experience, and earnings*. New York: National Bureau of Economic Research.
- Mintzberg, H. 1973. *The nature of managerial work*. New York: Harper & Row.
- Morck, R., Shleifer, A., & Vishny, R. W. 1990. Do managerial objectives drive bad acquisitions. *Journal of Finance*, 45: 31-48.
- Mowday, R., Porter, L., & Steers, R. 1982. *Organizational linkages: The psychology of commitment, absenteeism, and turnover*. New York, NY: Academic Press.
- Murphy, K. J. 1985. Corporate performance and managerial remuneration. *Journal of Accounting and Economics*, 7: 11-42.
- Murphy, K. J. 1986a. Incentives, learning, and compensation: A theoretical and empirical investigation of managerial labor contracts. *Rand Journal of Economics*, 17(1): 59-76.
- Murphy, K. J. 1986b. Top executives are worth every nickel they get. *Harvard Business Review*, 64: 125-132.
- Murphy, K. J. 1995. Politics, economics, and executive compensation. *University of Cincinnati Law Review*, 63(2): 713-748.
- Murphy, K. J. 1997. Executive compensation and the modern industrial revolution. *International Journal of Industrial Organization*, 15(4): 417-426.
- Murphy, K. J. 1999. Executive compensation. In O. Ashenfelter, & D. E. Card (Eds.), *Handbook of labor economics*, Vol. 3: 2485-2563. Amsterdam: North-Holland.
- Nisbett, R. E., & Ross, L. 1980. *Human inference: Strategies and shortcomings of social judgment*. Englewood Cliffs, NJ: Prentice-Hall.

- O'Reilly, C. A., Main, B. G., & Crystal, G. S. 1988. CEO compensation as tournaments and social comparisons: A tale of two theories. *Administrative Science Quarterly*, 33(2): 257-274.
- O'Reilly, C. A., & Chatman, J. 1986a. Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology*, 71: 492-499.
- O'Reilly, C. A., & Chatman, J. 1986b. Organizational commitment and psychological attachment: The effects of compliance, identification, and internalization on prosocial behavior. *Journal of Applied Psychology*, 71(3): 492-499.
- Palepu, K. 1985. Diversification strategy, profit performance, and the entropy measure. *Strategic Management Journal*, 6(3): 239-255.
- Palia, D. 2000. The impact of regulation on CEO labor markets. *Rand Journal of Economics*, 31(1): 165-179.
- Peng, L., & Roell, A. 2008. Executive pay and shareholder litigation. *Review of Finance*, 12(1): 141-184.
- Peterson, R. S., Smith, D. B., Martorana, P. V., & Owens, P. D. 2003. The impact of chief executive officer personality on top management team dynamics: One mechanism by which leadership affects organizational performance. *Journal of Applied Psychology*, 88(5): 795-808.
- Pfeffer, J., & Salancik, G. R. 1978. *The external control of organizations*. New York: Harper & Row.
- Porter, M. E. 1980. *Competitive strategy: Techniques for analyzing industries and competitor analysis*. New York: The Free Press.
- Prahalad, C. K., & Hamel, G. 1994. Strategy as a field of study: Why search for a new paradigm? *Strategic Management Journal*, 15: 5-16.
- Rajagopalan, N. 1996. Strategic orientations, incentive plan adoptions, and firm performance: Evidence from electric utility firms. *Strategic Management Journal*, 18(10): 761-785.
- Rajagopalan, N., & Finkelstein, S. 1992. Effects of strategic orientation and environmental change on senior management reward systems. *Strategic Management Journal*, 13: 127-141.
- Rajgopal, S., & Shevlin, T. 2002. Empirical evidence on the relation between stock option compensation and risk taking. *Journal of Accounting & Economics*, 33(2): 145-171.

- Richins, M. L., & Dawson, S. 1992. Materialism as a consumer value: Measure development and validation. *Journal of Consumer Research*, 19(4): 303-316.
- Roberts, D. R. 1956. A general theory of executive compensation based on statistically tested propositions. *Quarterly Journal of Economics*, 70(2): 270-294.
- Roberts, D. R. 1959. A general theory of executive compensation based on statistically tested propositions. *Quarterly Journal of Economics*, 70: 270-294.
- Rose, N., & Shepard, A. 1997. Firm diversification and CEO compensation: Managerial ability or CEO entrenchment. *Rand Journal of Economics*, 28(3): 489-514.
- Rosen, S. 1982. Authority, control, and the distribution of earnings. *Bell Journal of Economics*, 13(2): 311-323.
- Ross, L. 1977. The intuitive psychologist and his shortcomings: Distortions in the attribution process. In L. Berkowitz (Ed.), *Advances in experimental social psychology*, Vol. 10: 174-221. New York: Academic Press.
- Ross, L., & Nisbett, R. E. 1991. *The person and the situation: Perspectives of social psychology*. New York: McGraw-Hill.
- Rottenberg, S. 1956. On choice in labor markets. *Industrial & Labor Relations Review*, 9: 183-199.
- Rumelt, R. P. 1974. *Strategy, structure, and economic performance*. Cambridge: Harvard University Press.
- Rumelt, R. P. 1982. Diversification strategy and profitability. *Strategic Management Journal*, 3(4): 359-369.
- Sanders, W. G. 2001. Behavioral responses of CEOs to stock ownership and stock option pay. *Academy of Management Journal*, 44(3): 477-492.
- Sanders, W. G., & Hambrick, D. C. 2007. Swinging for the fences: The effects of CEO stock options on company risk-taking. *Academy of Management Journal*, 50(5): 1055-1078.
- Scherer, F. M. 1980. *Industrial market structure and economic performance*. Chicago, IL: Rand McNally.
- Scherer, F. M., & Ross, D. 1990. *Industrial market structure and economic performance*.
- Schneider, B. 1987. The people make the place. *Personnel Psychology*, 40(3): 437-453.
- Shapiro, C., & Stiglitz, J. E. 1984. Equilibrium unemployment as a worker discipline device. *American Economic Review*, 74: 433-444.

- Shavell, S. 1979. Risk sharing and incentives in the principal and agent relationship. *Bell Journal of Economics*, 10: 55-73.
- Shaw, J. D., Gupta, N., & Delery, J. E. 2002. Pay dispersion and workforce performance: Moderating effects of incentives and interdependence. *Strategic Management Journal*, 23(6): 491-512.
- Siegel, P. A., & Hambrick, D. C. 2005. Pay disparities within top management groups: Evidence of harmful effects on performance of high-technology firms. *Organization Science*, 16(3): 259-274.
- Simsek, Z., Veiga, J. F., Lubatkin, M. H., & Dino, R. N. 2005. Modeling the multilevel determinants of top management team behavioral integration. *Academy of Management Journal*, 48(1): 69-84.
- Spence, M. 1973. Job market signaling. *Quarterly Journal of Economics*, 87(3): 355-374.
- Spender, J.-C. 1989. *Industry recipes*. Oxford: Basil Blackwell.
- Starbuck, W. H., & Milliken, F. J. 1988. Executives' perceptual filters: What they notice and how they make sense. In D. C. Hambrick (Ed.), *Concepts and methods for studying top managers*: 35-65. Greenwich, CT: JAI Press.
- Stiglitz, J. E. 1974. Alternative theories of wage determination and unemployment in LDC.'s: The labor turnover model. 88(2): 194-227.
- Tervio, M. 2008. The difference that CEOs make: An assignment model approach. *American Economic Review*, 98(3): 642-668.
- Thompson, J. D. 1967. *Organizations and action*. New York: McGraw-Hill.
- Tosi, H. L., Gomez-Mejia, L., Loughry, M. L., Werner, S., Banning, K., Katz, J., Harris, R., & Silva, P. 1999. Managerial discretion, compensation strategy, and firm performance: The case for the ownership structure. In G. Ferris (Ed.), *Research in personnel and human resources management*, Vol. 17: 163-208. Stamford, CT: JAI Press.
- Tosi, H. L., Werner, S., Katz, J. P., & Gomez-Mejia, L. R. 2000. How much does performance matter? A meta-analysis of CEO pay studies. *Journal of Management*, 26(2): 301-339.
- Triandis, H. C. 1995. *Individualism and collectivism*. Boulder, CO: Westview.
- Useem, M., & Karabel, J. 1986. Pathways to top corporate management. *American Sociological Review*, 51(2): 184-200.
- Vancil, R. 1987. *Passing the baton*. Boston, MA: Harvard Business School Press.

- Veblen, T. 1899. *The theory of the leisure class: An economic study of institutions*. London: Unwin Books.
- Waddock, S. A., & Graves, S. B. 1997. The corporate social performance-financial performance link. *Strategic Management Journal*, 18(4): 303-319.
- Wade, J. B., O'Reilly, C. A., & Pollock, T. G. 2006a. Overpaid CEOs and underpaid managers: Fairness and executive compensation. *Organization Science*, 17(5): 527-544.
- Wade, J. B., Porac, J. F., & Pollock, T. G. 1997. Worth, words, and the justification of executive pay. *Journal of Organizational Behavior*, 18: 641-664.
- Wade, J. B., Porac, J. F., Pollock, T. G., & Graffin, S. D. 2006b. The burden of celebrity: The impact of CEO certification contests on CEO pay and performance. *Academy of Management Journal*, 49(4): 643-660.
- Walsh, J. P. 2008. CEO compensation and the responsibilities of the business scholar to society. *Academy of Management Perspectives*, 22(2): 26-33.
- Walsh, J. P. 2009. Are U.S. CEOs overpaid? A partial response to Kaplan. *Academy of Management Perspectives*, 23(1): 73-75.
- Wasserman, N. 2006. Stewards, agents, and the founder discount: Executive compensation in new ventures. *Academy of Management Journal*, 49(5): 960-976.
- Weiss, A. 1980. Job queues and layoffs in labor markets with flexible wages. *Journal of Political Economy*, 88: 526-538.
- Williamson, O. E. 1963. Managerial discretion and business behavior. *American Economic Review*, 53(5): 1032-1057.
- Williamson, O. E. 1964. *The economics of discretionary behavior: Managerial objectives in a theory of the firm*. Englewood Cliffs, NJ: Prentice-Hall.
- Wowak, A. J., & Hambrick, D. C. 2010. A model of person-pay interaction: How executives vary in their responses to compensation arrangements. *Strategic Management Journal*, 31(8): 803-821.
- Wright, P., Kroll, M., Krug, J. A., & Pettus, M. 2007. Influences of top management team incentives on firm risk taking. *Strategic Management Journal*, 28: 81-89.
- Young, G., Smith, K. G., & Grimm, C. M. 1996. "Austrian" and industrial organization perspectives on firm-level competitive activity and performance. *Organization Science*, 7(3): 243-254.

- Zajac, E. J., & Westphal, J. D. 1994. The costs and benefits of managerial incentives and monitoring in large US corporations: When is more not better? *Strategic Management Journal*, 15: 121-142.
- Zajac, E. J., & Westphal, J. D. 1996. Who shall succeed? How CEO board preferences and power affect the choice of new CEOs. *Academy of Management Journal*, 39(1): 64-90.
- Zald, M. N. 1965. Who shall rule? A political analysis of succession in a large welfare organization. *The Pacific Sociological Review*, 8(1): 52-60.
- Zhang, X., Bartol, K. M., Smith, K. G., Pfarrer, M. D., & Khanin, D. M. 2008. CEOs on the edge: Earnings manipulation and stock-based incentive misalignment. *Academy of Management Journal*, 51(2): 241-258.
- Zhang, Y. 2008. Information asymmetry and the dismissal of newly appointed CEOs: An empirical investigation. *Strategic Management Journal*, 29(8): 859-872.

APPENDIX A: FIGURES

FIGURE 1
Industry- and Organization-Level Moderators of the CEO Pay-Subsequent Performance Link

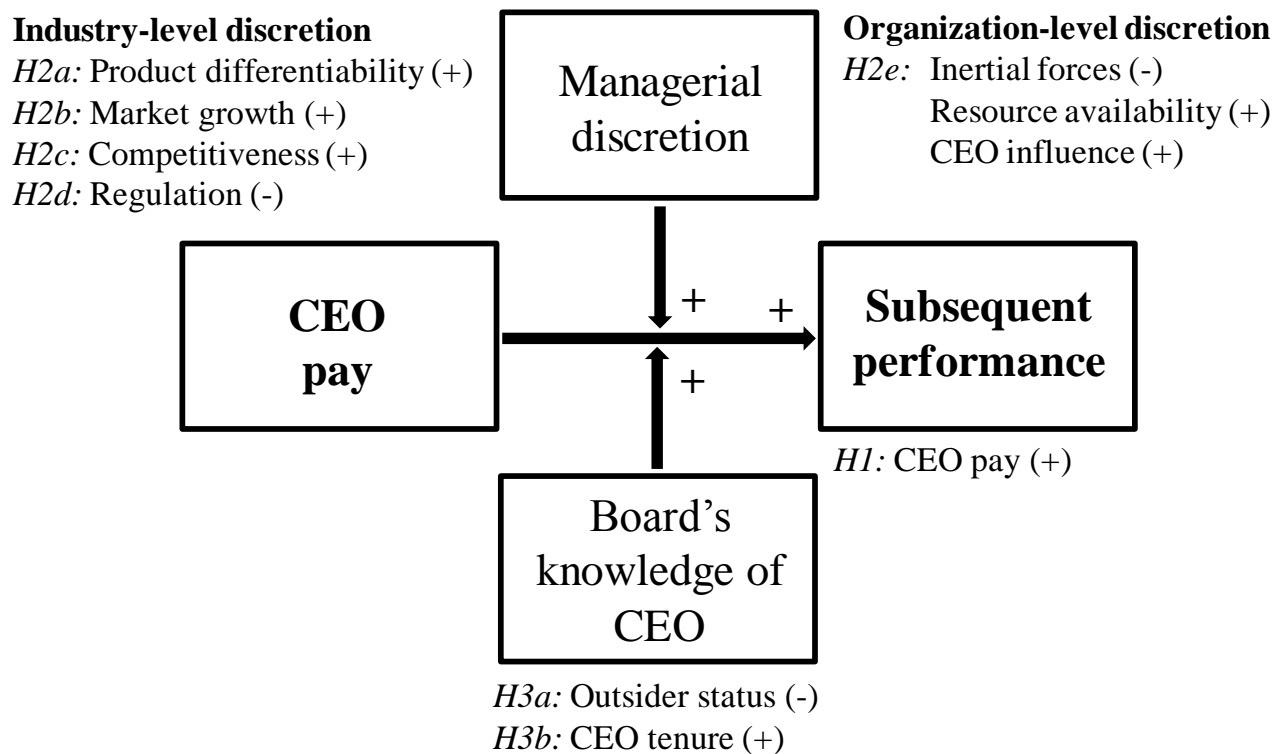


FIGURE 2
Residuals from First Year Pay Model

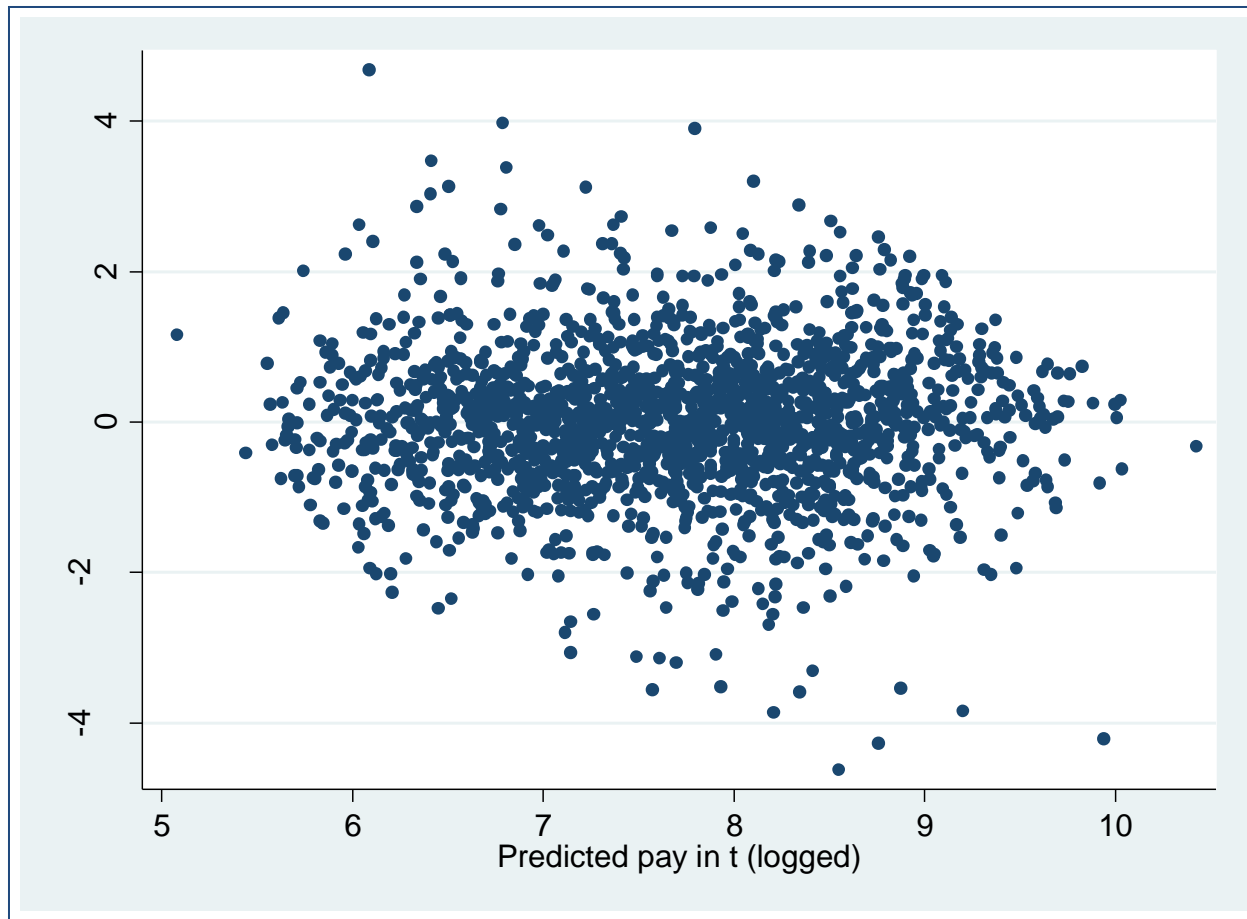
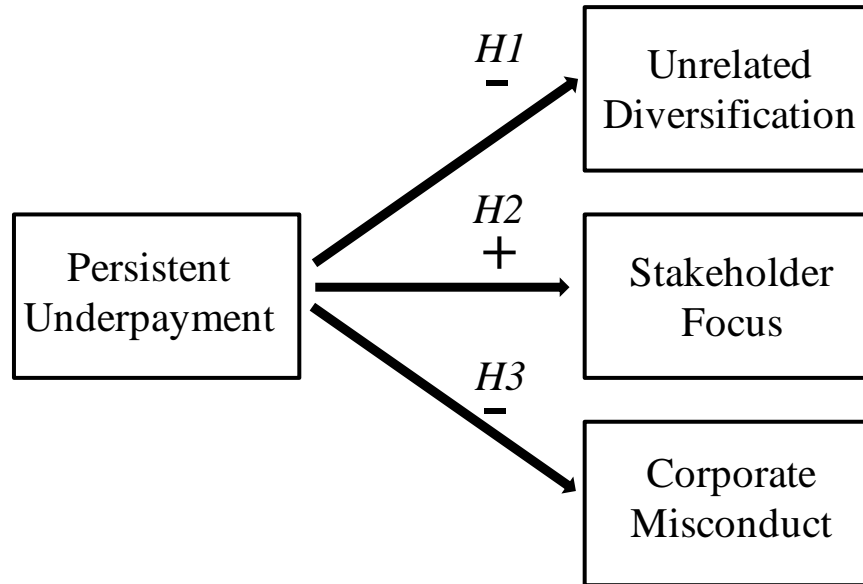


FIGURE 3
Hypothesized Consequences of Employing Persistently Underpaid CEOs



APPENDIX B: TABLES

TABLE 1
Pooled OLS Regressions Predicting Annual CEO Pay Levels

Independent Variables	First Year Pay (1)	Later Pay (2)
Logged sales	0.33** (0.01)	0.35** (0.00)
Total diversification	0.04 (0.03)	0.05** (0.01)
S&P 500 dummy	0.18** (0.04)	0.15** (0.01)
24-month stock beta	0.06** (0.01)	0.01* (0.01)
TSR in t	0.00** (0.00)	0.00** (0.00)
TSR in t-1	0.00** (0.00)	0.00** (0.00)
ROA in t	0.00* (0.00)	0.00** (0.00)
ROA in t-1	-0.00 (0.00)	-0.00** (0.00)
Equity pay proportion	0.33* (0.16)	0.86** (0.05)
Equity pay proportion squared	2.09** (0.16)	1.28** (0.06)
CEO tenure	0.56** (0.05)	0.00** (0.00)
Last year in office	-0.22** (0.07)	-0.06** (0.01)
Constant	1.40** (0.20)	1.96** (0.06)
Observations	2,294	18,117
R-squared	0.72	0.69
F-statistic	87.83**	617.8**

Note: Industry and year dummies included but not shown; + p<0.10, * p<0.05, ** p<0.01

TABLE 2
Descriptive Statistics and Bivariate Correlations – Performance (Panel)

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1 Average industry-adjusted ROA (%)	-0.01	6.31										
2 Average industry-adjusted TSR (%)	5.32	27.05	0.21									
3 Industry-adjusted entry ROA (%)	-0.42	8.22	0.29	-0.11								
4 Industry-adjusted entry TSR (%)	3.21	50.92	0.04	-0.05	0.25							
5 Proportion of pay in stock and options	0.52	0.25	-0.03	0.00	-0.03	0.06						
6 Industry R&D intensity	0.04	0.06	-0.09	0.03	-0.04	0.08	0.36					
7 Industry advertising intensity	0.01	0.02	0.11	0.01	0.02	0.01	0.06	-0.01				
8 Industry sales growth	0.05	0.13	0.02	0.02	0.01	0.03	0.05	0.07	-0.07			
9 Industry demand instability	0.04	0.04	-0.04	0.03	0.01	0.03	-0.04	-0.05	-0.12	0.07		
10 Industry 4-firm concentration ratio (%)	36.94	17.68	-0.06	0.01	-0.02	0.01	0.09	0.10	0.14	-0.04	0.01	
11 Regulated industry	0.11	0.31	0.00	-0.04	0.01	-0.05	-0.30	-0.22	-0.23	-0.01	-0.03	-0.21
12 Firm sales (millions) ^(a)	5,843	13,800	0.16	-0.10	0.13	-0.03	0.07	-0.17	0.01	0.00	-0.08	0.17
13 Firm age	31.42	21.15	0.08	-0.08	0.08	-0.03	-0.14	-0.18	-0.03	-0.05	0.01	0.06
14 Firm capital intensity	0.33	0.21	0.02	-0.02	-0.01	-0.07	-0.27	-0.41	-0.16	0.00	-0.04	-0.09
15 Firm slack	2.04	1.31	-0.09	-0.04	0.06	0.12	0.10	0.30	0.04	0.00	0.04	0.02
16 CEO shareholdings (%) ^(a)	0.94	4.31	0.00	0.02	0.03	0.06	-0.18	-0.19	0.04	-0.01	0.08	-0.04
17 CEO duality	0.53	0.50	0.00	-0.06	0.00	-0.06	-0.01	-0.04	-0.04	0.03	0.01	0.02
18 Outsider CEO	0.31	0.46	-0.12	0.05	-0.17	-0.22	0.24	0.15	-0.01	-0.04	0.01	-0.04
19 CEO tenure	3.13	2.45	0.00	-0.09	0.03	0.05	-0.06	-0.01	0.01	-0.05	-0.02	-0.01
20 Cumulative OP/UP ^(a)	0.03	0.46	0.00	-0.02	-0.03	-0.04	0.05	0.07	0.10	0.04	-0.01	-0.01

$n = 2,083$ CEO-years; Correlations above $|\cdot 05|$ are significant at $p < 0.05$ (two-tailed test)

(a) Natural log transformed

TABLE 2 (continued)
Descriptive Statistics and Bivariate Correlations – Performance (Panel)

Variable	Mean	S.D.	11	12	13	14	15	16	17	18	19
12 Firm sales (millions) ^(a)	5,843	13,800	0.06								
13 Firm age	31.42	21.15	0.22	0.52							
14 Firm capital intensity	0.33	0.21	0.54	0.20	0.20						
15 Firm slack	2.04	1.31	-0.29	-0.46	-0.28	-0.42					
16 CEO shareholdings (%) ^(a)	0.94	4.31	-0.15	-0.24	-0.13	-0.07	0.11				
17 CEO duality	0.53	0.50	0.09	0.24	0.29	0.09	-0.13	0.05			
18 Outsider CEO	0.31	0.46	-0.03	-0.20	-0.15	-0.13	0.10	-0.12	0.03		
19 CEO tenure	3.13	2.45	-0.01	0.10	0.09	-0.04	0.00	0.24	0.33	-0.07	
20 Cumulative OP/UP ^(a)	0.03	0.46	-0.02	0.04	0.03	-0.10	-0.01	0.00	0.12	0.18	0.04

n = 2,083 CEO-years; Correlations above |.05| are significant at *p*<0.05 (two-tailed test)

(a) Natural log transformed

TABLE 3
Panel GEE Models Regressing ROA on Cumulative Pay and Industry-Level Discretion

Independent Variables	DV is Industry-Adjusted ROA in t+1 and t+2							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry ROA	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)
Proportion of pay in stock/options	-0.47 (0.69)	-0.45 (0.70)	-0.38 (0.69)	-0.44 (0.70)	-0.47 (0.70)	-0.46 (0.70)	-0.46 (0.70)	-0.45 (0.70)
Industry R&D intensity	-2.61 (4.70)	-2.67 (4.71)	-1.61 (4.67)	-2.74 (4.72)	-2.63 (4.69)	-2.67 (4.72)	-2.91 (4.69)	-2.67 (4.71)
Industry advertising intensity	36.05** (9.76)	35.64** (9.86)	35.15** (9.84)	38.86** (11.72)	35.31** (9.84)	35.63** (9.86)	35.51** (9.72)	35.73** (9.87)
Industry sales growth	0.33 (1.02)	0.32 (1.02)	0.29 (1.02)	0.31 (1.03)	0.43 (1.00)	0.33 (1.04)	0.37 (1.02)	0.32 (1.03)
Industry demand instability	-4.03 (2.83)	-4.03 (2.84)	-4.13 (2.85)	-3.97 (2.85)	-3.53 (2.84)	-4.02 (2.83)	-3.91 (2.85)	-4.03 (2.84)
Industry 4-firm concentration ratio	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)
Regulated industry	-0.72 (0.46)	-0.72 (0.46)	-0.70 (0.45)	-0.70 (0.46)	-0.74 (0.45)	-0.73 (0.46)	-0.78+ (0.46)	-0.72 (0.46)
Firm sales	0.29+ (0.17)	0.29 (0.18)	0.29+ (0.17)	0.29+ (0.18)	0.29 (0.17)	0.29+ (0.17)	0.28 (0.17)	0.29 (0.18)
Firm age	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Firm capital intensity	-0.26 (1.02)	-0.22 (1.03)	-0.15 (1.02)	-0.22 (1.03)	-0.25 (1.03)	-0.22 (1.03)	-0.13 (1.03)	-0.23 (1.03)
Firm slack	-0.45* (0.19)	-0.45* (0.19)	-0.44* (0.19)	-0.44* (0.19)	-0.45* (0.19)	-0.45* (0.19)	-0.45* (0.19)	-0.45* (0.19)
CEO shareholdings	0.02 (0.09)	0.02 (0.09)	0.02 (0.09)	0.02 (0.09)	0.03 (0.09)	0.02 (0.09)	0.02 (0.09)	0.02 (0.09)
CEO duality	-0.18 (0.33)	-0.19 (0.33)	-0.20 (0.33)	-0.18 (0.33)	-0.19 (0.33)	-0.19 (0.33)	-0.17 (0.33)	-0.19 (0.33)
Outsider CEO	-0.70 (0.47)	-0.72 (0.48)	-0.73 (0.48)	-0.72 (0.48)	-0.73 (0.48)	-0.72 (0.48)	-0.74 (0.48)	-0.73 (0.48)
CEO tenure	-0.15* (0.06)	-0.14* (0.06)	-0.14* (0.06)	-0.15* (0.06)	-0.14* (0.06)	-0.14* (0.06)	-0.14* (0.06)	-0.14* (0.06)
Cumulative OP/UP		0.14 (0.40)	0.46 (0.37)	0.30 (0.48)	0.36 (0.41)	0.17 (0.47)	-1.59+ (0.85)	0.10 (0.44)
Cumulative OP/UP x industry R&D intensity			-7.28 (7.58)					
Cumulative OP/UP x industry ad. intensity				-14.07 (19.69)				
Cumulative OP/UP x industry sales growth					-3.31 (2.26)			
Cumulative OP/UP x industry demand instability						-0.76 (5.90)		
Cumulative OP/UP x industry CR4 ratio							0.05* (0.02)	
Cumulative OP/UP x industry regulation								0.34 (0.65)
Constant	-1.42 (2.66)	-1.36 (2.66)	-1.45 (2.63)	-1.42 (2.68)	-1.31 (2.66)	-1.37 (2.65)	-1.14 (2.63)	-1.36 (2.66)
Observations	2,083	2,083	2,083	2,083	2,083	2,083	2,083	2,083
Number of CEOs	696	696	696	696	696	696	696	696
Wald χ^2	75.39**	76.44**	78.44**	76.53**	82.20**	76.54**	83.88**	78.81**

Note: Semirobust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 4
Panel GEE Models Regressing ROA on Cumulative Pay and Firm-Level Discretion

Independent Variables	DV is Industry-Adjusted ROA in t+1 and t+2							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry ROA	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)
Proportion of pay in stock/options	-0.47 (0.69)	-0.45 (0.70)	-0.49 (0.70)	-0.34 (0.70)	-0.37 (0.69)	-0.39 (0.69)	-0.45 (0.70)	-0.34 (0.69)
Industry R&D intensity	-2.61 (4.70)	-2.67 (4.71)	-2.47 (4.72)	-2.36 (4.64)	-2.58 (4.64)	-2.25 (4.62)	-2.57 (4.71)	-2.80 (4.65)
Industry advertising intensity	36.05** (9.76)	35.64** (9.86)	35.29** (9.87)	35.31** (9.81)	35.92** (9.85)	36.27** (9.90)	35.77** (9.86)	34.50** (9.80)
Industry sales growth	0.33 (1.02)	0.32 (1.02)	0.32 (1.02)	0.24 (1.01)	0.38 (1.02)	0.27 (1.01)	0.30 (1.03)	0.24 (1.03)
Industry demand instability	-4.03 (2.83)	-4.03 (2.84)	-4.15 (2.84)	-4.13 (2.85)	-4.20 (2.86)	-4.06 (2.84)	-4.01 (2.84)	-4.14 (2.84)
Industry 4-firm concentration ratio	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)
Regulated industry	-0.72 (0.46)	-0.72 (0.46)	-0.72 (0.46)	-0.71 (0.45)	-0.71 (0.45)	-0.67 (0.45)	-0.72 (0.46)	-0.72 (0.45)
Firm sales	0.29+ (0.17)	0.29 (0.18)	0.30+ (0.18)	0.30+ (0.17)	0.28 (0.17)	0.30+ (0.17)	0.29+ (0.18)	0.29+ (0.17)
Firm age	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Firm capital intensity	-0.26 (1.02)	-0.22 (1.03)	-0.22 (1.03)	-0.10 (1.03)	-0.27 (1.03)	-0.04 (1.03)	-0.22 (1.03)	-0.21 (1.02)
Firm slack	-0.45* (0.19)	-0.45* (0.19)	-0.44* (0.19)	-0.43* (0.19)	-0.45* (0.19)	-0.37* (0.19)	-0.45* (0.19)	-0.45* (0.19)
CEO shareholdings	0.02 (0.09)	0.02 (0.09)	0.03 (0.09)	0.02 (0.09)	0.02 (0.09)	0.02 (0.09)	0.03 (0.09)	0.02 (0.09)
CEO duality	-0.18 (0.33)	-0.19 (0.33)	-0.18 (0.34)	-0.19 (0.33)	-0.20 (0.33)	-0.18 (0.33)	-0.20 (0.33)	-0.24 (0.33)
Outsider CEO	-0.70 (0.47)	-0.72 (0.48)	-0.73 (0.48)	-0.79 (0.48)	-0.74 (0.48)	-0.76 (0.48)	-0.72 (0.48)	-0.77 (0.48)
CEO tenure	-0.15* (0.06)	-0.14* (0.06)	-0.15* (0.06)	-0.14* (0.06)	-0.14* (0.06)	-0.15* (0.06)	-0.15* (0.06)	-0.14* (0.06)
Cumulative OP/UP		0.14 (0.40)	-3.65 (4.23)	-1.17 (0.78)	-0.77 (0.80)	1.52* (0.73)	0.24 (0.56)	-0.47 (0.55)
Cumulative OP/UP x firm size			0.26 (0.28)					
Cumulative OP/UP x firm age				0.04** (0.02)				
Cumulative OP/UP x firm capital intensity					2.98+ (1.66)			
Cumulative OP/UP x firm slack						-0.64+ (0.34)		
Cumulative OP/UP x CEO shareholdings							0.05 (0.14)	
Cumulative OP/UP x CEO duality								1.30* (0.65)
Constant	-1.42 (2.66)	-1.36 (2.66)	-1.44 (2.67)	-1.52 (2.64)	-1.25 (2.63)	-1.80 (2.62)	-1.40 (2.66)	-1.42 (2.65)
Observations	2,083	2,083	2,083	2,083	2,083	2,083	2,083	2,083
Number of CEOs	696	696	696	696	696	696	696	696
Wald χ^2	75.39**	76.44**	85.20**	91.02**	80.85**	81.65**	76.47**	78.41**

Note: Semirobust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 5
Panel GEE Models Regressing ROA on Cumulative Pay and Board Knowledge of CEO

Independent Variables	DV is Industry-Adjusted ROA in t+1 and t+2			
	(1)	(2)	(3)	(4)
Industry-adjusted entry ROA	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)	0.21** (0.04)
Proportion of pay in stock/options	-0.47 (0.69)	-0.45 (0.70)	-0.46 (0.70)	-0.45 (0.70)
Industry R&D intensity	-2.61 (4.70)	-2.67 (4.71)	-2.45 (4.75)	-2.66 (4.72)
Industry advertising intensity	36.05** (9.76)	35.64** (9.86)	35.74** (9.80)	35.64** (9.86)
Industry sales growth	0.33 (1.02)	0.32 (1.02)	0.32 (1.02)	0.32 (1.02)
Industry demand instability	-4.03 (2.83)	-4.03 (2.84)	-4.00 (2.85)	-4.03 (2.83)
Industry 4-firm concentration ratio	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)	-0.03** (0.01)
Regulated industry	-0.72 (0.46)	-0.72 (0.46)	-0.68 (0.46)	-0.72 (0.46)
Firm sales	0.29+ (0.17)	0.29 (0.18)	0.30+ (0.18)	0.29 (0.18)
Firm age	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Firm capital intensity	-0.26 (1.02)	-0.22 (1.03)	-0.25 (1.02)	-0.22 (1.03)
Firm slack	-0.45* (0.19)	-0.45* (0.19)	-0.45* (0.19)	-0.45* (0.19)
CEO shareholdings	0.02 (0.09)	0.02 (0.09)	0.03 (0.09)	0.02 (0.09)
CEO duality	-0.18 (0.33)	-0.19 (0.33)	-0.20 (0.33)	-0.19 (0.33)
Outsider CEO	-0.70 (0.47)	-0.72 (0.48)	-0.64 (0.49)	-0.72 (0.48)
CEO tenure	-0.15* (0.06)	-0.14* (0.06)	-0.15* (0.06)	-0.14* (0.06)
Cumulative OP/UP		0.14 (0.40)	0.45 (0.48)	0.14 (0.53)
Cumulative OP/UP x Outsider CEO			-0.85 (0.83)	
Cumulative OP/UP x CEO tenure				-0.00 (0.12)
Constant	-1.42 (2.66)	-1.36 (2.66)	-1.48 (2.68)	-1.36 (2.66)
Observations	2,083	2,083	2,083	2,083
Number of CEOs	696	696	696	696
Wald χ^2	75.39**	76.44**	79.20**	76.51**

Note: Semirobust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 6
Panel GEE Models Regressing TSR on Cumulative Pay and Industry-Level Discretion

Independent Variables	DV is Industry-Adjusted TSR in t+1 and t+2							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry TSR	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)
Proportion of pay in stock/options	-1.65 (2.81)	-1.72 (2.79)	-1.65 (2.81)	-1.72 (2.79)	-1.89 (2.78)	-2.06 (2.80)	-1.68 (2.79)	-1.77 (2.80)
Industry R&D intensity	16.42 (12.44)	17.11 (12.38)	18.45 (13.25)	17.24 (12.41)	17.51 (12.36)	16.64 (12.42)	16.66 (12.37)	17.14 (12.37)
Industry advertising intensity	0.90 (29.00)	5.70 (29.16)	4.99 (29.23)	1.63 (35.06)	4.34 (29.23)	5.15 (29.17)	5.13 (29.06)	6.72 (29.16)
Industry sales growth	4.74 (4.82)	5.06 (4.82)	5.02 (4.82)	5.07 (4.82)	5.41 (4.88)	5.86 (4.92)	5.12 (4.82)	5.14 (4.82)
Industry demand instability	10.07 (13.47)	10.17 (13.43)	9.95 (13.44)	10.04 (13.39)	12.18 (13.83)	10.91 (13.60)	10.10 (13.45)	9.96 (13.52)
Industry 4-firm concentration ratio	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)
Regulated industry	-4.02* (2.00)	-3.91* (1.99)	-3.88+ (2.00)	-3.94* (2.00)	-3.97* (1.98)	-3.97* (1.98)	-3.99* (2.01)	-3.89+ (1.99)
Firm sales	-1.96** (0.59)	-1.92** (0.59)	-1.92** (0.59)	-1.92** (0.59)	-1.92** (0.58)	-1.89** (0.58)	-1.94** (0.59)	-1.92** (0.59)
Firm age	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
Firm capital intensity	-1.04 (3.42)	-1.46 (3.41)	-1.37 (3.41)	-1.46 (3.42)	-1.52 (3.42)	-1.47 (3.42)	-1.31 (3.42)	-1.59 (3.38)
Firm slack	-2.54** (0.61)	-2.56** (0.62)	-2.55** (0.62)	-2.57** (0.62)	-2.57** (0.61)	-2.56** (0.61)	-2.56** (0.61)	-2.56** (0.62)
CEO shareholdings	0.35 (0.38)	0.36 (0.38)	0.36 (0.38)	0.37 (0.38)	0.37 (0.38)	0.34 (0.38)	0.36 (0.38)	0.33 (0.38)
CEO duality	-1.00 (1.20)	-0.84 (1.21)	-0.85 (1.21)	-0.86 (1.22)	-0.83 (1.21)	-0.88 (1.21)	-0.81 (1.21)	-0.83 (1.21)
Outsider CEO	1.65 (1.44)	1.95 (1.44)	1.93 (1.45)	1.95 (1.44)	1.96 (1.44)	2.02 (1.44)	1.91 (1.44)	1.85 (1.43)
CEO tenure	-0.81** (0.23)	-0.81** (0.23)	-0.81** (0.24)	-0.81** (0.23)	-0.81** (0.23)	-0.83** (0.24)	-0.81** (0.23)	-0.81** (0.24)
Cumulative OP/UP		-1.64 (1.43)	-1.24 (1.65)	-1.86 (1.65)	-0.89 (1.48)	-0.20 (1.85)	-4.72 (3.39)	-2.05 (1.49)
Cumulative OP/UP x industry R&D intensity			-8.73 (24.35)					
Cumulative OP/UP x industry ad. intensity				18.13 (80.95)				
Cumulative OP/UP x industry sales growth					-12.13 (9.69)			
Cumulative OP/UP x industry dem. instability						-37.60 (31.88)		
Cumulative OP/UP x industry CR4 ratio							0.09 (0.08)	
Cumulative OP/UP x industry regulation								4.30 (4.41)
Constant	42.42** (8.48)	41.90** (8.43)	41.82** (8.45)	41.99** (8.47)	41.95** (8.41)	41.55** (8.37)	42.30** (8.46)	42.02** (8.45)
Observations	2,083	2,083	2,083	2,083	2,083	2,083	2,083	2,083
Number of CEOs	696	696	696	696	696	696	696	696
Wald χ^2	60.63**	61.11**	61.77**	61.32**	62.39**	61.55**	61.31**	62.19**

Note: Semirobust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 7
Panel GEE Models Regressing TSR on Cumulative Pay and Firm-Level Discretion

Independent Variables	DV is Industry-Adjusted TSR in t+1 and t+2							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry TSR	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)
Proportion of pay in stock/options	-1.65 (2.81)	-1.72 (2.79)	-1.80 (2.76)	-1.56 (2.81)	-1.68 (2.79)	-1.86 (2.77)	-1.85 (2.79)	-1.84 (2.81)
Industry R&D intensity	16.42 (12.44)	17.11 (12.38)	17.91 (12.32)	17.87 (12.26)	17.21 (12.40)	16.02 (12.43)	14.98 (12.67)	17.26 (12.44)
Industry advertising intensity	0.90 (29.00)	5.70 (29.16)	4.67 (29.41)	4.93 (29.26)	5.78 (29.13)	4.91 (28.93)	1.69 (29.52)	6.79 (29.19)
Industry sales growth	4.74 (4.82)	5.06 (4.82)	5.08 (4.81)	4.91 (4.81)	5.10 (4.82)	5.16 (4.81)	5.41 (4.82)	5.13 (4.83)
Industry demand instability	10.07 (13.47)	10.17 (13.43)	9.43 (13.46)	9.73 (13.45)	10.02 (13.43)	10.64 (13.45)	8.78 (13.57)	10.01 (13.46)
Industry 4-firm concentration ratio	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)
Regulated industry	-4.02* (2.00)	-3.91* (1.99)	-3.85+ (1.99)	-3.89+ (1.99)	-3.91* (1.98)	-3.97* (2.00)	-4.04* (2.02)	-3.90* (1.99)
Firm sales	-1.96** (0.59)	-1.92** (0.59)	-1.88** (0.57)	-1.90** (0.58)	-1.93** (0.59)	-1.93** (0.58)	-2.01** (0.59)	-1.92** (0.58)
Firm age	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.04 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
Firm capital intensity	-1.04 (3.42)	-1.46 (3.41)	-1.53 (3.40)	-1.28 (3.41)	-1.49 (3.42)	-1.84 (3.41)	-1.33 (3.43)	-1.47 (3.41)
Firm slack	-2.54** (0.61)	-2.56** (0.62)	-2.53** (0.61)	-2.53** (0.61)	-2.56** (0.61)	-2.68** (0.63)	-2.58** (0.62)	-2.55** (0.61)
CEO shareholdings	0.35 (0.38)	0.36 (0.38)	0.38 (0.38)	0.35 (0.38)	0.35 (0.38)	0.37 (0.38)	0.29 (0.38)	0.37 (0.38)
CEO duality	-1.00 (1.20)	-0.84 (1.21)	-0.81 (1.21)	-0.82 (1.21)	-0.84 (1.21)	-0.91 (1.20)	-0.74 (1.22)	-0.81 (1.22)
Outsider CEO	1.65 (1.44)	1.95 (1.44)	1.92 (1.44)	1.80 (1.44)	1.93 (1.45)	2.03 (1.45)	1.96 (1.44)	2.00 (1.46)
CEO tenure	-0.81** (0.23)	-0.81** (0.23)	-0.82** (0.24)	-0.81** (0.23)	-0.81** (0.24)	-0.80** (0.23)	-0.79** (0.23)	-0.81** (0.24)
Cumulative OP/UP		-1.64 (1.43)	-13.49 (16.02)	-3.99 (2.86)	-2.20 (2.54)	-4.27+ (2.57)	-3.48+ (1.99)	-1.09 (1.97)
Cumulative OP/UP x firm size			0.82 (1.06)					
Cumulative OP/UP x firm age				0.08 (0.07)				
Cumulative OP/UP x firm capital intensity					1.84 (7.52)			
Cumulative OP/UP x firm slack						1.22 (0.90)		
Cumulative OP/UP x CEO shareholdings							-1.04 (0.69)	
Cumulative OP/UP x CEO duality								-1.14 (2.84)
Constant	42.42** (8.48)	41.90** (8.43)	41.53** (8.28)	41.69** (8.37)	42.03** (8.45)	42.50** (8.43)	43.14** (8.53)	41.90** (8.41)
Observations	2,083	2,083	2,083	2,083	2,083	2,083	2,083	2,083
Number of CEOs	696	696	696	696	696	696	696	696
Wald χ^2	60.63**	61.11**	61.92**	62.06**	63.12**	61.48**	62.77**	62.96**

Note: Semirobust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 8
Panel GEE Models Regressing TSR on Cumulative Pay and Board Knowledge of CEO

Independent Variables	DV is Industry-Adjusted TSR in t+1 and t+2			
	(1)	(2)	(3)	(4)
Industry-adjusted entry TSR	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)	-0.02 (0.01)
Proportion of pay in stock/options	-1.65 (2.81)	-1.72 (2.79)	-1.72 (2.81)	-1.73 (2.78)
Industry R&D intensity	16.42 (12.44)	17.11 (12.38)	16.32 (12.27)	17.02 (12.35)
Industry advertising intensity	0.90 (29.00)	5.70 (29.16)	4.68 (29.70)	6.39 (29.35)
Industry sales growth	4.74 (4.82)	5.06 (4.82)	4.97 (4.83)	5.00 (4.83)
Industry demand instability	10.07 (13.47)	10.17 (13.43)	10.13 (13.45)	10.66 (13.62)
Industry 4-firm concentration ratio	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)	0.03 (0.03)
Regulated industry	-4.02* (2.00)	-3.91* (1.99)	-4.11* (1.96)	-3.91* (1.98)
Firm sales	-1.96** (0.59)	-1.92** (0.59)	-1.96** (0.59)	-1.91** (0.58)
Firm age	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)	-0.03 (0.03)
Firm capital intensity	-1.04 (3.42)	-1.46 (3.41)	-1.36 (3.41)	-1.45 (3.41)
Firm slack	-2.54** (0.61)	-2.56** (0.62)	-2.57** (0.62)	-2.54** (0.61)
CEO shareholdings	0.35 (0.38)	0.36 (0.38)	0.32 (0.38)	0.36 (0.38)
CEO duality	-1.00 (1.20)	-0.84 (1.21)	-0.84 (1.22)	-0.81 (1.21)
Outsider CEO	1.65 (1.44)	1.95 (1.44)	1.65 (1.52)	1.92 (1.44)
CEO tenure	-0.81** (0.23)	-0.81** (0.23)	-0.80** (0.24)	-0.83** (0.24)
Cumulative OP/UP		-1.64 (1.43)	-2.71+ (1.49)	-2.37 (2.44)
Cumulative OP/UP x Outsider CEO			3.15 (3.27)	
Cumulative OP/UP x CEO tenure				0.26 (0.52)
Constant	42.42** (8.48)	41.90** (8.43)	42.45** (8.51)	41.80** (8.40)
Observations	2,083	2,083	2,083	2,083
Number of CEOs	696	696	696	696
Wald χ^2	60.63**	61.11**	63.85**	61.14**

Note: Semirobust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 9
OLS Models Regressing ROA on First Year Pay and Industry-Level Discretion

Independent Variables	DV is Industry-Adjusted ROA in t+1 through t+3							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry ROA	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)
Proportion of pay in stock/options	0.38 (0.84)	0.35 (0.85)	0.41 (0.85)	0.36 (0.85)	0.38 (0.84)	0.34 (0.86)	0.41 (0.84)	0.35 (0.85)
Industry R&D intensity	-8.91 (6.14)	-8.74 (6.13)	-5.93 (5.81)	-8.70 (6.13)	-8.56 (6.15)	-8.76 (6.14)	-8.90 (6.12)	-8.73 (6.13)
Industry advertising intensity	21.68* (10.75)	22.49* (10.91)	21.44* (10.92)	20.21+ (11.88)	22.03* (10.78)	22.44* (10.91)	21.74* (10.82)	22.57* (10.93)
Industry sales growth	-0.24 (1.80)	-0.21 (1.80)	-0.16 (1.78)	-0.19 (1.80)	-0.03 (1.80)	-0.18 (1.82)	-0.25 (1.80)	-0.21 (1.80)
Industry demand instability	-2.23 (5.05)	-2.18 (5.07)	-2.75 (5.07)	-2.23 (5.07)	-1.64 (5.09)	-2.11 (5.15)	-2.20 (5.05)	-2.17 (5.07)
Industry 4-firm concentration ratio	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)
Regulated industry	-0.26 (0.49)	-0.24 (0.49)	-0.19 (0.49)	-0.27 (0.49)	-0.25 (0.49)	-0.25 (0.50)	-0.31 (0.50)	-0.24 (0.49)
Firm sales	0.15 (0.20)	0.16 (0.20)	0.19 (0.20)	0.16 (0.20)	0.15 (0.20)	0.16 (0.20)	0.16 (0.20)	0.16 (0.20)
Firm age	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Firm capital intensity	-1.36 (1.12)	-1.43 (1.13)	-1.18 (1.11)	-1.42 (1.13)	-1.41 (1.13)	-1.42 (1.13)	-1.30 (1.16)	-1.44 (1.13)
Firm slack	-0.32 (0.25)	-0.32 (0.25)	-0.28 (0.24)	-0.32 (0.25)	-0.33 (0.25)	-0.32 (0.25)	-0.31 (0.25)	-0.32 (0.25)
CEO shareholdings	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)
CEO duality	-0.10 (0.41)	-0.06 (0.43)	-0.07 (0.43)	-0.07 (0.43)	-0.02 (0.43)	-0.06 (0.43)	-0.03 (0.43)	-0.06 (0.43)
Outsider CEO	-1.06* (0.50)	-1.01* (0.51)	-0.96+ (0.51)	-1.01* (0.51)	-1.03* (0.51)	-1.01* (0.51)	-1.05* (0.52)	-1.01* (0.51)
CEO tenure	0.78 (0.78)	0.73 (0.78)	0.72 (0.77)	0.74 (0.78)	0.72 (0.78)	0.73 (0.78)	0.76 (0.78)	0.74 (0.78)
Cumulative OP/UP		-0.26 (0.44)	0.48 (0.44)	-0.38 (0.52)	0.01 (0.45)	-0.19 (0.51)	-1.26 (0.96)	-0.29 (0.47)
Cumulative OP/UP x industry R&D intensity			-17.51* (8.49)					
Cumulative OP/UP x industry ad. intensity				8.30 (17.31)				
Cumulative OP/UP x industry sales growth					-3.71 (3.25)			
Cumulative OP/UP x industry dem. instability						-1.71 (8.06)		
Cumulative OP/UP x industry CR4 ratio							0.03 (0.02)	
Cumulative OP/UP x industry regulation								0.36 (0.56)
Constant	-1.01 (3.15)	-1.09 (3.13)	-1.66 (3.05)	-1.06 (3.13)	-0.95 (3.12)	-1.11 (3.12)	-1.04 (3.12)	-1.08 (3.13)
Number of CEOs	933	933	933	933	933	933	933	933
R-squared	0.16	0.16	0.17	0.16	0.16	0.16	0.16	0.16
F-statistic	4.41**	4.19**	4.20**	3.93**	3.97**	3.94**	3.98**	4.00**

Note: Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 10
OLS Models Regressing ROA on First Year Pay and Firm-Level Discretion

Independent Variables	DV is Industry-Adjusted ROA in t+1 through t+3							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry ROA	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)	0.24** (0.04)
Proportion of pay in stock/options	0.38 (0.84)	0.35 (0.85)	0.32 (0.84)	0.53 (0.85)	0.38 (0.84)	0.41 (0.85)	0.36 (0.85)	0.46 (0.83)
Industry R&D intensity	-8.91 (6.14)	-8.74 (6.13)	-8.00 (6.06)	-8.00 (6.07)	-8.70 (6.08)	-7.89 (6.00)	-8.50 (6.14)	-9.01 (6.00)
Industry advertising intensity	21.68* (10.75)	22.49* (10.91)	21.01+ (11.10)	21.88* (11.01)	22.78* (10.90)	22.49* (10.97)	22.80* (10.96)	20.22+ (11.20)
Industry sales growth	-0.24 (1.80)	-0.21 (1.80)	-0.10 (1.77)	-0.30 (1.77)	-0.19 (1.78)	-0.36 (1.77)	-0.25 (1.80)	-0.58 (1.78)
Industry demand instability	-2.23 (5.05)	-2.18 (5.07)	-3.11 (5.06)	-2.14 (5.07)	-2.78 (5.09)	-2.51 (5.09)	-2.08 (5.07)	-2.89 (5.04)
Industry 4-firm concentration ratio	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)	-0.02 (0.01)
Regulated industry	-0.26 (0.49)	-0.24 (0.49)	-0.29 (0.49)	-0.18 (0.49)	-0.22 (0.49)	-0.17 (0.48)	-0.23 (0.49)	-0.24 (0.49)
Firm sales	0.15 (0.20)	0.16 (0.20)	0.16 (0.20)	0.18 (0.20)	0.17 (0.20)	0.19 (0.20)	0.17 (0.20)	0.16 (0.20)
Firm age	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Firm capital intensity	-1.36 (1.12)	-1.43 (1.13)	-1.26 (1.13)	-1.20 (1.13)	-1.50 (1.14)	-1.26 (1.12)	-1.45 (1.13)	-1.44 (1.13)
Firm slack	-0.32 (0.25)	-0.32 (0.25)	-0.31 (0.25)	-0.31 (0.24)	-0.31 (0.25)	-0.24 (0.24)	-0.32 (0.25)	-0.32 (0.24)
CEO shareholdings	-0.07 (0.12)	-0.07 (0.12)	-0.05 (0.12)	-0.07 (0.12)	-0.07 (0.12)	-0.06 (0.12)	-0.06 (0.12)	-0.06 (0.12)
CEO duality	-0.10 (0.41)	-0.06 (0.43)	-0.11 (0.43)	-0.13 (0.43)	-0.09 (0.43)	-0.07 (0.43)	-0.05 (0.43)	-0.32 (0.44)
Outsider CEO	-1.06* (0.50)	-1.01* (0.51)	-1.04* (0.51)	-1.06* (0.51)	-0.98+ (0.51)	-1.03* (0.51)	-0.99+ (0.52)	-1.03* (0.51)
CEO tenure	0.78 (0.78)	0.73 (0.78)	0.76 (0.78)	0.80 (0.78)	0.77 (0.78)	0.74 (0.78)	0.72 (0.78)	0.59 (0.77)
Cumulative OP/UP		-0.26 (0.44)	-9.00* (4.24)	-1.61* (0.74)	-1.20 (0.87)	1.04 (0.84)	-0.01 (0.62)	-1.09* (0.54)
Cumulative OP/UP x firm size			0.61* (0.28)					
Cumulative OP/UP x firm age				0.05** (0.02)				
Cumulative OP/UP x firm capital intensity					3.08+ (1.80)			
Cumulative OP/UP x firm slack						-0.60 (0.37)		
Cumulative OP/UP x CEO shareholdings							0.12 (0.17)	
Cumulative OP/UP x CEO duality								2.55** (0.82)
Constant	-1.01 (3.15)	-1.09 (3.13)	-1.05 (3.12)	-1.47 (3.09)	-1.22 (3.11)	-1.70 (3.07)	-1.25 (3.13)	-0.98 (3.12)
Number of CEOs	933	933	933	933	933	933	933	933
R-squared	0.16	0.16	0.17	0.17	0.16	0.16	0.16	0.17
F-statistic	4.41**	4.19**	4.03**	4.36**	4.03**	4.02**	3.95**	4.23**

Note: Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 11
OLS Models Regressing ROA on First Year Pay and Board Knowledge of CEO

Independent Variables	DV is Industry-Adjusted ROA in t+1 through t+3		
	(1)	(2)	(3)
Industry-adjusted entry ROA	0.25** (0.04)	0.25** (0.04)	0.25** (0.04)
Proportion of pay in stock/options	0.38 (0.84)	0.35 (0.85)	0.36 (0.85)
Industry R&D intensity	-8.91 (6.14)	-8.74 (6.13)	-8.63 (6.19)
Industry advertising intensity	21.68* (10.75)	22.49* (10.91)	22.36* (10.93)
Industry sales growth	-0.24 (1.80)	-0.21 (1.80)	-0.20 (1.79)
Industry demand instability	-2.23 (5.05)	-2.18 (5.07)	-2.22 (5.07)
Industry 4-firm concentration ratio	-0.02+ (0.01)	-0.02+ (0.01)	-0.02+ (0.01)
Regulated industry	-0.26 (0.49)	-0.24 (0.49)	-0.23 (0.49)
Firm sales	0.15 (0.20)	0.16 (0.20)	0.16 (0.21)
Firm age	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)
Firm capital intensity	-1.36 (1.12)	-1.43 (1.13)	-1.44 (1.13)
Firm slack	-0.32 (0.25)	-0.32 (0.25)	-0.32 (0.25)
CEO shareholdings	-0.07 (0.12)	-0.07 (0.12)	-0.07 (0.12)
CEO duality	-0.10 (0.41)	-0.06 (0.43)	-0.06 (0.43)
Outsider CEO	-1.06* (0.50)	-1.01* (0.51)	-0.98+ (0.52)
CEO tenure	0.78 (0.78)	0.73 (0.78)	0.77 (0.78)
Cumulative OP/UP		-0.26 (0.44)	-0.13 (0.56)
Cumulative OP/UP x Outsider CEO			-0.33 (0.88)
Constant	-1.01 (3.15)	-1.09 (3.13)	-1.19 (3.19)
Number of CEOs	933	933	933
R-squared	0.16	0.16	0.16
F-statistic	4.41**	4.19**	3.94**

Note: Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 12
OLS Models Regressing TSR on First Year Pay and Industry-Level Discretion

Independent Variables	DV is Industry-Adjusted TSR in t+1 through t+3							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry TSR	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Proportion of pay in stock/options	1.18	0.95	0.98	0.95	0.99	0.57	0.95	0.91
	(3.31)	(3.29)	(3.30)	(3.29)	(3.28)	(3.29)	(3.29)	(3.30)
Industry R&D intensity	26.64	28.38	30.32	28.50	28.71	27.97	28.38	28.51
	(22.14)	(22.13)	(23.00)	(22.14)	(22.20)	(22.16)	(22.14)	(22.14)
Industry advertising intensity	-30.65	-22.12	-22.83	-28.03	-23.00	-23.21	-22.12	-21.19
	(39.12)	(40.05)	(40.07)	(45.07)	(39.78)	(39.93)	(39.88)	(40.15)
Industry sales growth	1.56	1.90	1.94	1.94	2.22	2.60	1.90	1.88
	(6.99)	(6.96)	(6.97)	(6.95)	(7.09)	(6.90)	(6.96)	(6.96)
Industry demand instability	39.57	40.17+	39.72+	40.03+	41.16+	41.70+	40.17+	40.21+
	(24.06)	(23.86)	(24.08)	(23.85)	(23.78)	(24.12)	(23.88)	(23.97)
Industry 4-firm concentration ratio	0.08+	0.08+	0.08+	0.08+	0.08+	0.08+	0.08+	0.08+
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
Regulated industry	-0.59	-0.37	-0.33	-0.43	-0.38	-0.59	-0.37	-0.33
	(2.65)	(2.64)	(2.64)	(2.63)	(2.64)	(2.56)	(2.68)	(2.63)
Firm sales	-3.19**	-3.09**	-3.07**	-3.10**	-3.12**	-3.05**	-3.09**	-3.10**
	(0.78)	(0.77)	(0.77)	(0.77)	(0.77)	(0.77)	(0.77)	(0.77)
Firm age	-0.04	-0.04	-0.05	-0.04	-0.04	-0.05	-0.04	-0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Firm capital intensity	-8.90+	-9.68*	-9.50*	-9.65*	-9.65*	-9.36*	-9.68*	-9.76*
	(4.77)	(4.74)	(4.74)	(4.74)	(4.75)	(4.72)	(4.82)	(4.74)
Firm slack	-3.41**	-3.40**	-3.38**	-3.41**	-3.43**	-3.39**	-3.40**	-3.41**
	(0.75)	(0.75)	(0.76)	(0.75)	(0.76)	(0.75)	(0.75)	(0.75)
CEO shareholdings	0.21	0.25	0.25	0.25	0.25	0.23	0.25	0.24
	(0.47)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)	(0.48)
CEO duality	-0.25	0.22	0.20	0.19	0.28	0.26	0.22	0.17
	(1.70)	(1.74)	(1.74)	(1.75)	(1.74)	(1.73)	(1.75)	(1.74)
Outsider CEO	-0.53	-0.11	-0.06	-0.09	-0.12	-0.06	-0.11	-0.11
	(2.02)	(2.04)	(2.02)	(2.03)	(2.04)	(2.04)	(2.02)	(2.04)
CEO tenure	0.41	-0.07	-0.08	-0.06	-0.08	-0.09	-0.07	0.01
	(3.35)	(3.40)	(3.41)	(3.40)	(3.40)	(3.39)	(3.40)	(3.40)
Cumulative OP/UP		-2.78	-2.26	-3.07	-2.26	-1.14	-2.79	-3.09
		(1.83)	(2.11)	(1.91)	(1.91)	(2.36)	(4.20)	(1.91)
Cumulative OP/UP x industry R&D intensity			-12.34					
			(33.58)					
Cumulative OP/UP x industry ad. intensity				21.57				
				(66.12)				
Cumulative OP/UP x industry sales growth					-7.04			
					(10.78)			
Cumulative OP/UP x industry dem. instability						-39.46		
						(36.66)		
Cumulative OP/UP x industry CR4 ratio							0.00	
							(0.10)	
Cumulative OP/UP x industry regulation								3.88
								(5.08)
Constant	57.85**	56.97**	56.57**	57.05**	57.27**	56.39**	56.97**	57.04**
	(11.89)	(11.75)	(11.78)	(11.76)	(11.75)	(11.75)	(11.75)	(11.77)
Number of CEOs	933	933	933	933	933	933	933	933
R-squared	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
F-statistic	3.27**	3.17**	3.01**	2.99**	3.00**	3.03**	2.99**	3.02**

Note: Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 13
OLS Models Regressing TSR on First Year Pay and Firm-Level Discretion

Independent Variables	DV is Industry-Adjusted TSR in t+1 through t+3							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry-adjusted entry TSR	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*	-0.05*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Proportion of pay in stock/options	1.18	0.95	0.90	1.21	0.88	0.70	0.93	0.93
	(3.31)	(3.29)	(3.29)	(3.32)	(3.27)	(3.25)	(3.29)	(3.28)
Industry R&D intensity	26.64	28.38	29.43	29.43	28.26	24.65	27.37	28.41
	(22.14)	(22.13)	(22.11)	(22.12)	(22.17)	(22.40)	(22.27)	(22.16)
Industry advertising intensity	-30.65	-22.12	-24.25	-22.97	-22.82	-22.19	-23.35	-21.81
	(39.12)	(40.05)	(40.67)	(40.36)	(39.88)	(39.61)	(40.03)	(40.50)
Industry sales growth	1.56	1.90	2.06	1.75	1.85	2.58	2.08	1.95
	(6.99)	(6.96)	(6.94)	(6.98)	(6.98)	(6.92)	(6.99)	(6.99)
Industry demand instability	39.57	40.17+	38.81	40.28+	41.63+	41.64+	39.73+	40.26+
	(24.06)	(23.86)	(24.02)	(23.99)	(23.85)	(23.62)	(23.95)	(23.78)
Industry 4-firm concentration ratio	0.08+	0.08+	0.08+	0.08+	0.08+	0.09*	0.08+	0.08+
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Regulated industry	-0.59	-0.37	-0.44	-0.28	-0.44	-0.71	-0.45	-0.37
	(2.65)	(2.64)	(2.66)	(2.65)	(2.66)	(2.64)	(2.66)	(2.64)
Firm sales	-3.19**	-3.09**	-3.09**	-3.06**	-3.11**	-3.22**	-3.14**	-3.09**
	(0.78)	(0.77)	(0.76)	(0.77)	(0.77)	(0.77)	(0.78)	(0.77)
Firm age	-0.04	-0.04	-0.05	-0.05	-0.05	-0.04	-0.04	-0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Firm capital intensity	-8.90+	-9.68*	-9.41*	-9.36*	-9.50*	-10.44*	-9.59*	-9.68*
	(4.77)	(4.74)	(4.74)	(4.75)	(4.79)	(4.70)	(4.76)	(4.75)
Firm slack	-3.41**	-3.40**	-3.38**	-3.38**	-3.42**	-3.76**	-3.40**	-3.40**
	(0.75)	(0.75)	(0.75)	(0.75)	(0.75)	(0.76)	(0.75)	(0.75)
CEO shareholdings	0.21	0.25	0.28	0.25	0.26	0.22	0.23	0.25
	(0.47)	(0.48)	(0.48)	(0.48)	(0.48)	(0.47)	(0.47)	(0.48)
CEO duality	-0.25	0.22	0.15	0.12	0.29	0.28	0.20	0.25
	(1.70)	(1.74)	(1.72)	(1.73)	(1.74)	(1.72)	(1.73)	(1.85)
Outsider CEO	-0.53	-0.11	-0.19	-0.21	-0.17	-0.01	-0.16	-0.10
	(2.02)	(2.04)	(2.05)	(2.04)	(2.03)	(2.03)	(2.03)	(2.04)
CEO tenure	0.41	-0.07	-0.04	0.01	-0.18	-0.13	-0.02	-0.06
	(3.35)	(3.40)	(3.40)	(3.40)	(3.40)	(3.38)	(3.39)	(3.38)
Cumulative OP/UP		-2.78	-15.80	-4.69	-0.52	-8.56**	-3.83	-2.67
		(1.83)	(16.96)	(3.12)	(3.15)	(3.07)	(2.95)	(2.12)
Cumulative OP/UP x firm size			0.91					
			(1.13)					
Cumulative OP/UP x firm age				0.07				
				(0.07)				
Cumulative OP/UP x firm capital intensity					-7.46			
					(8.75)			
Cumulative OP/UP x firm slack						2.66*		
						(1.04)		
Cumulative OP/UP x CEO shareholdings							-0.47	
							(0.90)	
Cumulative OP/UP x CEO duality								-0.34
								(3.79)
Constant	57.85**	56.97**	56.92**	56.37**	57.27**	59.74**	57.63**	56.95**
	(11.89)	(11.75)	(11.66)	(11.67)	(11.75)	(11.77)	(11.93)	(11.72)
Number of CEOs	933	933	933	933	933	933	933	933
R-squared	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.08
F-statistic	3.27**	3.17**	3.07**	3.01**	3.03**	3.38**	3.00**	2.99**

Note: Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 14
OLS Models Regressing TSR on First Year Pay and Board Knowledge of CEO

Independent Variables	DV is Industry-Adjusted TSR in t+1 through t+3		
	(1)	(2)	(3)
Industry-adjusted entry TSR	-0.05* (0.02)	-0.05* (0.02)	-0.05* (0.02)
Proportion of pay in stock/options	1.18 (3.31)	0.95 (3.29)	0.88 (3.28)
Industry R&D intensity	26.64 (22.14)	28.38 (22.13)	27.01 (22.02)
Industry advertising intensity	-30.65 (39.12)	-22.12 (40.05)	-20.64 (40.09)
Industry sales growth	1.56 (6.99)	1.90 (6.96)	1.84 (6.95)
Industry demand instability	39.57 (24.06)	40.17+ (23.86)	40.56+ (23.76)
Industry 4-firm concentration ratio	0.08+ (0.04)	0.08+ (0.04)	0.08+ (0.04)
Regulated industry	-0.59 (2.65)	-0.37 (2.64)	-0.51 (2.63)
Firm sales	-3.19** (0.78)	-3.09** (0.77)	-3.16** (0.78)
Firm age	-0.04 (0.04)	-0.04 (0.04)	-0.04 (0.04)
Firm capital intensity	-8.90+ (4.77)	-9.68* (4.74)	-9.57* (4.75)
Firm slack	-3.41** (0.75)	-3.40** (0.75)	-3.41** (0.75)
CEO shareholdings	0.21 (0.47)	0.25 (0.48)	0.24 (0.48)
CEO duality	-0.25 (1.70)	0.22 (1.74)	0.29 (1.74)
Outsider CEO	-0.53 (2.02)	-0.11 (2.04)	-0.41 (2.11)
CEO tenure	0.41 (3.35)	-0.07 (3.40)	-0.46 (3.39)
Cumulative OP/UP		-2.78 (1.83)	-4.33* (2.00)
Cumulative OP/UP x Outsider CEO			3.75 (3.68)
Constant	57.85** (11.89)	56.97** (11.75)	58.15** (11.88)
Number of CEOs	933	933	933
R-squared	0.07	0.08	0.08
F-statistic	3.27**	3.17**	3.10**

Note: Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 15
Summary of Findings across Various Operationalizations of Over(under)payment

Independent Variables	H #	Continuous OP/UP				Spline OP/UP				Binary OP/UP			
		Panel		Year 1		Panel		Year 1		Panel		Year 1	
		ROA	TSR	ROA	TSR	ROA	TSR	ROA	TSR	ROA	TSR	ROA	TSR
Main effects													
Over(under)payment	H1 (+/-)	NS	NS	NS	NS	NS	NS / + *	NS	NS	NS	NS / + **	NS	NS
Industry-level discretion													
OP/UP x R&D intensity	H2a (+/-)	NS	NS	- * / + *	NS	NS	NS	NS / + *	NS	NS	NS	NS	NS
OP/UP x advertising intensity	H2a (+/-)	NS	NS	NS	NS	NS	NS	NS	NS	NS / + +	- + / NS	NS	NS
OP/UP x market growth	H2b (+/-)	NS	NS	NS	NS	NS	NS	NS / + +	NS	NS	NS	NS	NS
OP/UP x CR4 ratio	H2d (-/+)	+ * / - *	NS	NS	NS	NS	NS	NS	NS	+ + / NS	NS	NS	NS
OP/UP x regulation	H2c (-/+)	NS	NS	NS	NS	NS	+ * / NS	NS	+ ** / NS	NS	+ * / NS	NS	NS
Firm-level discretion													
OP/UP x firm size	H2e (-/+)	NS	NS	+ * / - *	NS	NS	NS	NS	NS	NS	NS	NS	NS
OP/UP x firm age	H2e (-/+)	+ ** / - **	NS	+ ** / - **	NS	+ + / NS	NS	NS / - *	NS	NS	NS	NS	NS
OP/UP x firm capital intensity	H2e (-/+)	+ + / - +	NS	+ + / - +	NS	NS / - +	+ + / NS	NS / - +	NS	NS	NS	NS	NS
OP/UP x firm slack	H2e (+/-)	- + / + +	NS	NS	+ * / - *	NS / + **	NS / - **	NS	NS / - *	NS / + **	NS / - *	NS	NS
OP/UP x CEO shareholdings	H2e (+/-)	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
OP/UP x CEO duality	H2e (+/-)	+ * / - *	NS	+ ** / - **	NS	NS	NS / + +	NS / - +	NS	NS	NS	+ * / NS	NS
Board's knowledge of CEO													
OP/UP x Outsider status	H3a (-/+)	NS	NS	NS	NS	NS	NS	NS	NS	NS / + *	NS	NS	NS
OP/UP x CEO tenure	H3b (+/-)	NS	NS			+ * / + *	NS			+ * / + **	NS		

TABLE 16
Descriptive Statistics and Bivariate Correlations – Diversification

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1 Change in unrelated diversification	0.01	0.25										
2 Entry unrelated diversification	0.23	0.35	-0.40									
3 Industry R&D intensity	0.04	0.06	-0.03	-0.14								
4 Industry advertising intensity	0.01	0.02	-0.07	-0.08	-0.01							
5 Industry sales growth	0.05	0.12	0.00	-0.02	0.04	-0.09						
6 Industry demand instability	0.04	0.05	0.05	0.10	-0.05	-0.11	0.14					
7 Industry 4-firm concentration ratio (%)	37.20	17.94	-0.09	0.04	0.10	0.15	-0.05	0.04				
8 Regulated industry	0.11	0.32	0.09	-0.01	-0.23	-0.23	-0.02	-0.07	-0.22			
9 Firm sales (millions) ^(a)	5,471	10,900	0.02	0.19	-0.21	0.04	0.00	-0.05	0.19	0.05		
10 Firm age	31.18	21.36	-0.05	0.32	-0.19	-0.01	-0.03	0.01	0.10	0.22	0.53	
11 Firm capital intensity	0.33	0.21	0.00	0.02	-0.40	-0.15	0.01	-0.07	-0.09	0.55	0.20	0.22
12 Firm slack	2.04	1.33	-0.04	-0.13	0.34	0.03	-0.03	0.02	0.03	-0.30	-0.49	-0.31
13 TSR	17.43	44.11	0.05	-0.06	0.01	0.03	0.03	-0.07	0.01	-0.01	-0.02	-0.04
14 ROA	5.13	7.88	0.02	-0.01	-0.18	0.18	0.10	-0.05	-0.04	-0.10	0.16	0.04
15 CEO shareholdings (%) ^(a)	0.73	3.27	0.01	0.01	-0.16	0.01	0.01	0.04	-0.06	-0.12	-0.25	-0.14
16 CEO duality	0.56	0.50	0.04	0.13	-0.04	-0.05	0.05	0.04	0.06	0.08	0.30	0.31
17 Outsider CEO	0.33	0.47	0.06	-0.06	0.15	-0.02	-0.09	0.02	-0.03	-0.04	-0.19	-0.13
18 Proportion of pay in stock/options	0.51	0.23	-0.07	-0.06	0.38	0.09	0.02	-0.03	0.11	-0.33	0.09	-0.14
19 Cumulatively underpaid (binary)	0.25	0.43	0.05	-0.01	-0.06	-0.10	-0.04	-0.01	-0.05	0.01	0.00	0.04
20 Cumulatively underpaid (spline)	0.17	0.24	0.08	-0.06	-0.05	-0.07	-0.04	-0.03	-0.03	-0.01	0.01	0.00

$n = 698$; Correlations above $|\text{.08}|$ are significant at $p < 0.05$ (two-tailed test)

(a) Natural log transformed

TABLE 16 (continued)
Descriptive Statistics and Bivariate Correlations – Diversification

Variable	Mean	S.D.	11	12	13	14	15	16	17	18	19
12 Firm slack	2.04	1.33	-0.43								
13 TSR	17.43	44.11	-0.04	0.04							
14 ROA	5.13	7.88	-0.03	0.00	0.21						
15 CEO shareholdings (%) ^(a)	0.73	3.27	-0.07	0.10	0.01	0.03					
16 CEO duality	0.56	0.50	0.10	-0.15	0.02	0.02	-0.06				
17 Outsider CEO	0.33	0.47	-0.13	0.15	0.00	-0.09	-0.06	0.05			
18 Proportion of pay in stock/options	0.51	0.23	-0.28	0.14	-0.01	-0.05	-0.15	0.05	0.23		
19 Cumulatively underpaid (binary)	0.25	0.43	0.10	-0.02	0.00	-0.09	0.00	-0.05	-0.16	-0.08	
20 Cumulatively underpaid (spline)	0.17	0.24	0.09	0.00	-0.02	-0.08	0.04	-0.11	-0.16	-0.05	0.84

n = 698; Correlations above |.08| are significant at *p*<0.05 (two-tailed test)

(a) Natural log transformed

TABLE 17
OLS Models Regressing Unrelated Diversification on Cumulative Underpayment

Independent Variables	DV is Unrelated Diversification in Year 4 and 5		
	(1)	(2)	(3)
Entry unrelated diversification	-0.33** (0.03)	-0.32** (0.03)	-0.32** (0.03)
Industry R&D intensity	-0.12 (0.15)	-0.12 (0.15)	-0.11 (0.15)
Industry advertising intensity	-1.32** (0.51)	-1.26* (0.51)	-1.23* (0.51)
Industry sales growth	-0.09 (0.08)	-0.09 (0.08)	-0.09 (0.08)
Industry demand instability	0.51* (0.25)	0.51* (0.25)	0.52* (0.25)
Industry 4-firm concentration ratio	-0.00* (0.00)	-0.00+ (0.00)	-0.00+ (0.00)
Regulated industry	0.06 (0.04)	0.06 (0.04)	0.06 (0.04)
Firm sales	0.02** (0.01)	0.03** (0.01)	0.02** (0.01)
Firm age	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Firm capital intensity	-0.14** (0.05)	-0.15** (0.06)	-0.15** (0.05)
Firm slack	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
TSR	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
ROA	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO shareholdings	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
CEO duality	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)
Outsider CEO	0.04* (0.02)	0.04* (0.02)	0.05* (0.02)
Proportion of pay in stock/options	-0.11* (0.05)	-0.11* (0.05)	-0.11* (0.05)
Cumulatively underpaid (binary)		0.03 (0.02)	
Cumulatively underpaid (spline)			0.08* (0.03)
Constant	-0.10 (0.12)	-0.11 (0.12)	-0.11 (0.12)
Number of CEOs	698	698	698
R-squared	0.24	0.24	0.25
F-statistic	5.10**	4.94**	4.99**

Note: Year dummies included but not shown; Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 18
Descriptive Statistics and Bivariate Correlations – Stakeholder Focus

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1 Average net KLD total score	0.52	2.73												
2 Average net KLD community score	0.08	0.74	0.56											
3 Average net KLD employee score	0.10	1.06	0.55	0.08										
4 Average net KLD environment score	-0.03	0.99	0.56	0.22	0.08									
5 Average net KLD product score	-0.17	0.87	0.30	0.00	0.06	0.18								
6 Average net KLD diversity score	0.53	1.44	0.64	0.33	0.17	0.08	-0.21							
7 Entry net KLD total score	0.04	2.49	0.67	0.38	0.33	0.43	0.27	0.38						
8 Entry net KLD community score	0.02	0.72	0.42	0.64	0.08	0.18	0.01	0.29	0.55					
9 Entry net KLD employee score	0.03	0.98	0.34	0.05	0.48	0.16	0.10	0.08	0.62	0.13				
10 Entry net KLD environment score	-0.03	0.96	0.31	0.13	-0.01	0.60	0.23	-0.02	0.51	0.11	0.17			
11 Entry net KLD product score	-0.03	0.77	0.21	0.00	0.10	0.13	0.60	-0.13	0.43	0.04	0.18	0.19		
12 Entry net KLD diversity score	0.06	1.16	0.50	0.27	0.20	0.09	-0.10	0.66	0.57	0.34	0.15	-0.07	-0.07	
13 Firm sales (millions) ^(a)	8,929	13,700	0.07	0.15	-0.03	-0.20	-0.36	0.44	-0.02	0.11	-0.09	-0.24	-0.26	0.33
14 Firm age	38.84	21.24	-0.09	-0.02	-0.03	-0.15	-0.25	0.11	-0.10	0.02	-0.12	-0.19	-0.16	0.14
15 Firm capital intensity	0.35	0.21	-0.10	-0.16	0.01	-0.08	0.05	-0.08	-0.02	-0.13	0.03	-0.03	0.06	0.01
16 Firm slack	1.74	1.03	0.03	0.02	0.12	0.07	0.11	-0.16	0.04	-0.02	0.06	0.11	0.15	-0.14
17 TSR	17.69	33.88	0.06	0.03	0.06	0.11	0.09	-0.07	0.02	0.06	0.04	0.05	-0.01	-0.06
18 ROA	6.14	5.96	0.14	0.12	0.09	0.11	0.01	0.05	0.13	0.08	0.06	0.10	0.02	0.08
19 CEO shareholdings (%) ^(a)	0.72	3.36	-0.07	-0.04	-0.07	0.14	0.10	-0.22	0.00	-0.02	0.01	0.16	0.10	-0.20
20 CEO duality	0.37	1.22	-0.05	0.03	-0.08	-0.15	-0.19	0.16	-0.06	0.06	-0.11	-0.16	-0.16	0.17
21 Outsider CEO	0.26	0.44	-0.05	-0.04	-0.05	0.02	-0.04	-0.03	-0.03	-0.11	0.01	0.01	0.00	-0.02
22 Proportion of pay in stock/options	0.53	0.21	0.12	0.11	0.07	0.00	-0.18	0.23	0.03	0.02	-0.01	-0.03	-0.07	0.14
23 Cumulatively underpaid (binary)	0.25	0.43	-0.07	-0.03	0.03	-0.09	0.06	-0.11	-0.03	0.02	0.05	-0.05	0.06	-0.10
24 Cumulatively underpaid (spline)	0.17	0.26	-0.04	-0.02	0.02	-0.08	0.03	-0.04	-0.02	0.02	0.04	-0.06	0.03	-0.06

n = 372; Correlations above |.11| are significant at *p*<0.05 (two-tailed test)

(a) Natural log transformed

TABLE 18 (continued)
Descriptive Statistics and Bivariate Correlations – Stakeholder Focus

Variable	Mean	S.D.	12	13	14	15	16	17	18	19	20	21	22	23
13 Firm sales (millions) ^(a)	8,929	13,700	0.33											
14 Firm age	38.84	21.24	0.14	0.47										
15 Firm capital intensity	0.35	0.21	0.01	0.15	0.14									
16 Firm slack	1.74	1.03	-0.14	-0.42	-0.28	-0.39								
17 TSR	17.69	33.88	-0.06	-0.04	-0.08	-0.03	0.06							
18 ROA	6.14	5.96	0.08	0.06	-0.02	-0.17	0.10	0.12						
19 CEO shareholdings (%) ^(a)	0.72	3.36	-0.20	-0.37	-0.16	-0.07	0.15	-0.06	-0.01					
20 CEO duality	0.37	1.22	0.17	0.34	0.35	0.16	-0.27	-0.07	-0.06	-0.08				
21 Outsider CEO	0.26	0.44	-0.02	-0.16	-0.06	-0.12	0.10	0.02	-0.08	-0.02	-0.01			
22 Proportion of pay in stock/options	0.53	0.21	0.14	0.14	-0.06	-0.21	0.09	0.07	0.00	-0.14	0.00	0.19		
23 Cumulatively underpaid (binary)	0.25	0.43	-0.10	0.02	0.02	0.16	-0.05	0.00	-0.13	-0.03	-0.07	-0.20	-0.09	
24 Cumulatively underpaid (spline)	0.17	0.26	-0.06	0.07	-0.03	0.12	-0.03	-0.03	-0.11	0.07	-0.13	-0.22	-0.08	0.83

$n = 372$; Correlations above $|.11|$ are significant at $p < 0.05$ (two-tailed test)

(a) Natural log transformed

TABLE 19
OLS Models Regressing Stakeholder Focus on Cumulative Underpayment (Binary)

Independent Variables	Total		Community		Employees		Environment		Product		Diversity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
KLD dimension at entry	0.71** (0.05)	0.71** (0.05)	0.63** (0.06)	0.63** (0.06)	0.50** (0.05)	0.50** (0.05)	0.59** (0.05)	0.59** (0.05)	0.60** (0.06)	0.60** (0.06)	0.69** (0.06)	0.68** (0.06)
Firm sales	0.22+ (0.12)	0.23+ (0.12)	0.08* (0.03)	0.08* (0.03)	-0.00 (0.05)	-0.00 (0.05)	-0.05 (0.04)	-0.05 (0.04)	-0.15** (0.04)	-0.15** (0.04)	0.32** (0.07)	0.32** (0.07)
Firm age	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.01* (0.00)	-0.01* (0.00)
Firm capital intensity	-1.01+ (0.58)	-0.92 (0.60)	-0.23 (0.15)	-0.22 (0.16)	0.31 (0.25)	0.31 (0.25)	-0.37 (0.23)	-0.35 (0.23)	0.04 (0.18)	0.04 (0.18)	-0.66* (0.27)	-0.62* (0.27)
Firm slack	-0.03 (0.11)	-0.03 (0.11)	0.01 (0.03)	0.01 (0.03)	0.14** (0.05)	0.14** (0.05)	-0.09** (0.03)	-0.08** (0.03)	-0.07+ (0.04)	-0.07+ (0.04)	-0.03 (0.06)	-0.03 (0.06)
TSR	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00+ (0.00)	0.00+ (0.00)	-0.00 (0.00)	-0.00 (0.00)
ROA	0.02 (0.02)	0.01 (0.02)	0.01+ (0.00)	0.01+ (0.00)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
CEO shareholdings	-0.08 (0.08)	-0.08 (0.08)	0.00 (0.02)	0.00 (0.02)	-0.05 (0.03)	-0.05 (0.03)	0.02 (0.03)	0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.04)	-0.02 (0.04)
CEO duality	0.04 (0.22)	0.01 (0.22)	0.01 (0.06)	0.01 (0.06)	-0.05 (0.11)	-0.05 (0.11)	-0.08 (0.08)	-0.09 (0.08)	-0.04 (0.07)	-0.03 (0.07)	0.15 (0.12)	0.13 (0.12)
Outsider CEO	-0.27 (0.23)	-0.33 (0.23)	0.04 (0.07)	0.03 (0.07)	-0.15 (0.11)	-0.15 (0.10)	-0.00 (0.10)	-0.02 (0.10)	-0.12 (0.08)	-0.12 (0.08)	-0.05 (0.12)	-0.07 (0.12)
Proportion of pay in stock/options	0.59 (0.60)	0.58 (0.61)	0.17 (0.14)	0.16 (0.14)	0.28 (0.24)	0.28 (0.24)	0.15 (0.19)	0.14 (0.19)	-0.34* (0.17)	-0.34* (0.17)	0.32 (0.33)	0.32 (0.34)
Cumulatively underpaid (binary)		-0.30 (0.26)		-0.03 (0.07)		-0.01 (0.12)		-0.10 (0.10)		0.01 (0.08)		-0.15 (0.13)
Constant	-3.11+ (1.78)	-3.06+ (1.79)	-1.02* (0.50)	-1.01* (0.50)	-0.67 (0.75)	-0.67 (0.75)	1.23* (0.60)	1.25* (0.60)	2.11** (0.50)	2.11** (0.51)	-4.32** (0.99)	-4.31** (0.99)
Number of CEOs	372	372	372	372	372	372	372	372	372	372	372	372
R-squared	0.50	0.50	0.46	0.46	0.28	0.28	0.40	0.40	0.45	0.45	0.57	0.57
F-statistic	16.99**	16.30**	8.70**	8.31**	6.09**	5.81**	8.10**	7.83**	10.63**	10.19**	23.08**	22.30**

Note: Year dummies included but not shown; Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 20
OLS Models Regressing Stakeholder Focus on Cumulative Underpayment (Spline)

Independent Variables	Total		Community		Employees		Environment		Product		Diversity	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
KLD dimension at entry	0.71** (0.05)	0.71** (0.05)	0.63** (0.06)	0.63** (0.06)	0.50** (0.05)	0.50** (0.05)	0.59** (0.05)	0.59** (0.05)	0.60** (0.06)	0.60** (0.06)	0.69** (0.06)	0.69** (0.06)
Firm sales	0.22+ (0.12)	0.23+ (0.12)	0.08* (0.03)	0.08* (0.03)	-0.00 (0.05)	-0.00 (0.05)	-0.05 (0.04)	-0.05 (0.04)	-0.15** (0.04)	-0.15** (0.04)	0.32** (0.07)	0.32** (0.07)
Firm age	-0.01 (0.01)	-0.01 (0.01)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	-0.01* (0.00)	-0.01* (0.00)
Firm capital intensity	-1.01+ (0.58)	-0.97 (0.59)	-0.23 (0.15)	-0.22 (0.16)	0.31 (0.25)	0.31 (0.25)	-0.37 (0.23)	-0.36 (0.24)	0.04 (0.18)	0.04 (0.18)	-0.66* (0.27)	-0.65* (0.27)
Firm slack	-0.03 (0.11)	-0.03 (0.11)	0.01 (0.03)	0.01 (0.03)	0.14** (0.05)	0.14** (0.05)	-0.09** (0.03)	-0.08** (0.03)	-0.07+ (0.04)	-0.07+ (0.04)	-0.03 (0.06)	-0.03 (0.06)
TSR	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00+ (0.00)	0.00+ (0.00)	-0.00 (0.00)	-0.00 (0.00)
ROA	0.02 (0.02)	0.02 (0.02)	0.01+ (0.00)	0.01+ (0.00)	0.01 (0.01)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)	-0.00 (0.01)
CEO shareholdings	-0.08 (0.08)	-0.07 (0.08)	0.00 (0.02)	0.00 (0.02)	-0.05 (0.03)	-0.05 (0.03)	0.02 (0.03)	0.02 (0.03)	-0.02 (0.03)	-0.02 (0.03)	-0.02 (0.04)	-0.02 (0.04)
CEO duality	0.04 (0.22)	0.02 (0.23)	0.01 (0.06)	0.01 (0.06)	-0.05 (0.11)	-0.05 (0.11)	-0.08 (0.08)	-0.09 (0.08)	-0.04 (0.07)	-0.04 (0.07)	0.15 (0.12)	0.14 (0.12)
Outsider CEO	-0.27 (0.23)	-0.30 (0.23)	0.04 (0.07)	0.03 (0.07)	-0.15 (0.11)	-0.15 (0.10)	-0.00 (0.10)	-0.01 (0.10)	-0.12 (0.08)	-0.12 (0.08)	-0.05 (0.12)	-0.05 (0.12)
Proportion of pay in stock/options	0.59 (0.60)	0.59 (0.61)	0.17 (0.14)	0.16 (0.14)	0.28 (0.24)	0.28 (0.24)	0.15 (0.19)	0.14 (0.19)	-0.34* (0.17)	-0.34* (0.17)	0.32 (0.33)	0.32 (0.33)
Cumulatively underpaid (spline)		-0.23 (0.53)		-0.05 (0.12)		-0.01 (0.23)		-0.11 (0.17)		-0.01 (0.13)		-0.05 (0.28)
Constant	-3.11+ (1.78)	-3.17+ (1.79)	-1.02* (0.50)	-1.03* (0.51)	-0.67 (0.75)	-0.67 (0.75)	1.23* (0.60)	1.21* (0.60)	2.11** (0.50)	2.10** (0.51)	-4.32** (0.99)	-4.33** (0.98)
Number of CEOs	372	372	372	372	372	372	372	372	372	372	372	372
R-squared	0.50	0.50	0.46	0.46	0.28	0.28	0.40	0.40	0.45	0.45	0.57	0.57
F-statistic	16.99**	16.28**	8.70**	8.30**	6.09**	5.81**	8.10**	7.73**	10.63**	10.41**	23.08**	22.40**

Note: Year dummies included but not shown; Robust standard errors in parentheses; + p<0.10, * p<0.05, ** p<0.01

TABLE 21
Descriptive Statistics and Bivariate Correlations – Corporate Misconduct

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Earnings restatement	0.08	0.27													
2 Prior earnings restatement	0.10	0.30	0.12												
3 Firm sales (millions) ^(a)	5,200	9,841	0.03	0.07											
4 Firm age	30.52	21.36	0.07	0.09	0.55										
5 Firm capital intensity	0.33	0.21	-0.03	-0.04	0.16	0.17									
6 Firm slack	2.04	1.32	-0.06	-0.02	-0.47	-0.30	-0.44								
7 TSR	17.97	48.52	-0.06	0.00	-0.06	-0.05	-0.01	0.03							
8 ROA	4.95	8.33	-0.08	-0.02	0.15	0.03	0.00	-0.01	0.24						
9 CEO shareholdings (%) ^(a)	0.77	3.46	-0.03	-0.07	-0.21	-0.12	-0.02	0.06	0.03	0.03					
10 CEO duality	0.56	0.50	0.04	-0.01	0.29	0.31	0.09	-0.16	0.02	0.01	-0.04				
11 Outsider CEO	0.34	0.47	-0.01	0.05	-0.22	-0.14	-0.11	0.16	0.02	-0.07	-0.03	0.06			
12 Proportion of pay in stock/options	0.53	0.22	0.03	0.09	0.08	-0.14	-0.24	0.14	-0.01	-0.07	-0.15	0.07	0.21		
13 Cumulatively underpaid (binary)	0.26	0.44	0.02	-0.03	-0.01	0.03	0.05	0.02	-0.01	-0.06	0.02	-0.05	-0.16	-0.08	
14 Cumulatively underpaid (spline)	0.17	0.25	0.01	-0.05	0.00	0.00	0.05	0.03	-0.03	-0.06	0.08	-0.11	-0.17	-0.05	0.84

n = 613; Correlations above |.08| are significant at *p*<0.05 (two-tailed test)

(a) Natural log transformed

TABLE 22
Logit Models Regressing Corporate Misconduct on Cumulative Underpayment

Independent Variables	DV is Earnings Restatement		
	(1)	(2)	(3)
Prior restatement	0.60 (0.41)	0.59 (0.41)	0.60 (0.41)
Firm sales	-0.14 (0.14)	-0.13 (0.14)	-0.14 (0.14)
Firm age	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
Firm capital intensity	-0.74 (0.81)	-0.75 (0.81)	-0.76 (0.82)
Firm slack	-0.25 (0.17)	-0.25 (0.17)	-0.25 (0.17)
TSR	-0.01 (0.00)	-0.01 (0.00)	-0.01 (0.00)
ROA	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
CEO shareholdings	-0.05 (0.09)	-0.05 (0.09)	-0.06 (0.09)
CEO duality	0.34 (0.35)	0.34 (0.35)	0.35 (0.35)
Outsider CEO	-0.20 (0.35)	-0.18 (0.35)	-0.18 (0.35)
Proportion of pay in stock/options	-0.10 (0.82)	-0.08 (0.83)	-0.09 (0.82)
Cumulatively underpaid (binary)		0.10 (0.36)	
Cumulatively underpaid (spline)			0.18 (0.65)
Constant	0.02 (2.02)	-0.03 (2.02)	-0.01 (2.02)
Number of CEOs	613	613	613
LR χ^2	34.42**	34.50**	34.49**
Log likelihood	-156.0	-156.0	-156.0

Note: Year dummies included but not shown; + p<0.10, * p<0.05, ** p<0.01

VITA
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Born and raised in the Lehigh Valley region of Pennsylvania, Adam received his Ph.D. in business administration from the Smeal College of Business at the Pennsylvania State University in 2011. He received a B.S. in finance, also from Penn State, in 2000. In between degrees, Adam spent several years working in the investment banking industry before realizing that he was far more interested in studying business problems than in causing them. Upon completion of his doctoral program, Adam will become an assistant professor in the Management Department of the Mendoza College of Business at the University of Notre Dame.

Adam's research interests are focused within the field of strategic management, particularly on issues concerning top managers and their influences on organizational outcomes. Thus far, he has concentrated on matters related to executive compensation, including both its causes and consequences. Adam's research has been published, or is forthcoming, in *Academy of Management Journal*, *Strategic Management Journal*, and the *Advances in Strategic Management* series of edited volumes. He has presented papers at several Academy of Management annual conferences, and has twice received "Outstanding Reviewer" awards from the Academy's BPS division. In addition to his research-oriented activities, Adam has taught undergraduate courses in strategic management and international management at Penn State.