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One Dollar CEOs

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One Dollar CEOs

Abstract

We study the impact of $1 CEO salaries on firm performance and CEO total compensation. We find that, on average, $1 CEO firms earn higher total compensation and lower stock market returns relative to their peers after the adoption of $1 salaries. The effect on total compensation is mitigated if the $1 CEO firm is undergoing restructuring or the CEO is entrenched and aggravated if the CEO is overconfident. The stock market underperformance especially affects firms not under a restructuring process and firms with entrenched or overconfident CEOs.

Keywords: CEO compensation, CEO characteristics, firm performance, restructuring, entrenched CEOs

One Dollar CEOs

1. Introduction

Though scholars debate whether U.S. CEOs are drawing excessive compensation (Aguinis, Martin, Gomez-Mejia, O'Boyle Jr, & Joo, 2018; Sauerwald, Lin, & Peng, 2016; Frydman & Jenter, 2010; Wade, O'Reilly, & Pollock, 2006), some CEOs have settled for an annual salary of only $1. During the last financial crisis (2007–2009), the CEOs of all three major U.S. automakers pledged to work for an annual salary of only $1. This presumably sacrificial step is not unique to economic crises. Scores of CEOs—including those with thriving firms such as Apple—have also adopted this compensation arrangement since the early 1990s. Many of these firms are household names from a very wide variety of industries[1]. Although the $1 CEO salary is not a common arrangement, or perhaps because of that, announcements of $1 CEO salaries receive great public attention.[2]

Besides all the publicity surrounding the adoption of such compensation schemes, little is known about their impact on corporate outcomes. Researchers have always considered the fixed salary as a main pillar of a CEO compensation package (Murphy, 1999) and one of the major components of reservation utility in compensation contract models (see, for example, Garen, 1994; Dittmann & Maug, 2007). However, to the best of our knowledge, no study in the managerial compensation literature directly examines how salary cuts would affect total compensation design (including equity pay) and firm performance.

In our study, we attempt to fill this research gap by analyzing extreme cases when salary—the major component of a managerial compensation package—is virtually eliminated. Specifically, we analyze the consequences of adopting the $1 CEO salary on two important outcomes: CEO total compensation and firm performance.

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[1] See Online Appendix, in supplementary files.

[2] For example, Chris Gaither wrote in *The Economist* (2006) that, "In corporate America, few status symbols rival the one-figure salary." The interview of John Mackey, CEO of Whole Foods, with Steven Gray (2006) from the *Wall Street Journal* suggests that cutting the salary to $1 benefits the public image of CEOs.

There is extensive literature, with varied results, on how executive compensation policies affect these corporate outcomes. Some studies find mixed evidence on whether CEO pay affects subsequent firm performance. For instance, Carpenter and Sanders (2002) report that CEO long-term pay is positively related to subsequent firm performance, whereas Carpenter and Sanders (2004) do not find any significant effects for either CEO pay level or CEO pay structure on the subsequent performance of multinational companies. Nyberg, Fulmer, Gerhart, and Carpenter (2010) analyze total firm-specific CEO wealth and report a strong impact of alignment between CEO and shareholder returns on subsequent firm performance. Sanders and Hambrick (2007) report a positive effect of CEO stock option pay on the extremeness of subsequent firm performance, with stock options leading to large gains and large losses.

Our study contributes to the literature by examining the consequences for total CEO pay and long-run stock return performance of a radical change in the CEO compensation scheme implied by the adoption of a $1 CEO salary. Instead of directly examining pay-performance sensitivity, we contribute to the pay-for-performance literature by providing a novel way of understanding how different forms of compensation can influence firm performance in different contexts. Owing to the heterogeneity of the phenomenon, we explore its complexity by analyzing different firm and CEO characteristics that may affect the impact of adopting the $1 CEO salary on corporate outcomes. We design our empirical approach to offer a comprehensive view of the consequences of adopting the $1 CEO salary. That is, based on firm or CEO characteristics, we identify several groups—namely, (i) restructuring firms, (ii) entrenched CEOs, and (iii) overconfident CEOs—which represent different empirical contexts that, according to the literature, may amplify or dampen the impact on total pay and firm performance.

In brief, we show that $1 CEOs from restructuring firms do, indeed, receive lower total pay; their firms perform relatively better than their non-restructuring counterparts. This suggests that the $1 CEO salary might not be optimal outside the restructuring period. We also find that entrenched CEOs, who typically face higher risk of public outrage, tend to use the $1 CEO arrangement to serve their own purposes other than enhancing firm value: their total pay decreases after adoption, but their firms underperform their peers.

Finally, we document underperformance of overconfident $1 CEO firms and show that overconfident $1 CEOs receive higher average total compensation after the adoption, mainly due to an increase in stock grants as an exchange for fixed salary. This evidence is also consistent with CEO hubris theory—that overconfident CEOs prefer more equity-based compensation; by overstating their ability to enhance future returns, they might also end up with value-destroying strategies.

This study offers another important contribution by exploring the relationship between $1 CEO salary and CEO total compensation. Particularly, we show how an uncommon, but highly publicized, phenomenon affecting familiar firms adds to our understanding of the role of executive compensation.

Studies of executive compensation routinely assume a more conventional compensation format in which salary is one of the main components, along with other pay components such as target bonuses, options grants, defined pension benefits, and even several arrangements typically expressed as a percentage or a multiple of base salary (Murphy, 1999).

In contrast, our study illustrates the consequences of a case wherein the typical format is modified. There are serious consequences in assuming that the traditional compensation format applies to all firms. In particular, recent studies do reveal the shortcomings of ignoring $1 CEO salaries in studies on CEO compensation. For example, Guthrie, Sokolowsky, and Wan (2010) show that the findings of Chhaochharia and Grinstein (2009) are upturned when just two

"outliers"—both cases of $1 CEO salaries in our sample—Steve Jobs of Apple and Kosta Kartosis of Fossil are removed from the analysis.

In addition, this study also adds to work that focuses on special subsets of CEOs. Most executive compensation literature has ignored CEO heterogeneity; thus, we know little about its potential implications for the efficacy of compensation designs (Hambrick, 2007; Hou, Priem, & Goranova, 2014). Recent works have begun cautioning against "one-size-fits-all" approaches for executive compensation, notifying that differences among executives moderate the impact of compensation policies on executive pay (Carpenter, Geletkanycz, & Sanders, 2004; Devers, Cannella, Reilly, & Yoder, 2007; Wowak & Hambrick, 2010). Our paper follows a similar approach to that of Malmendier and Tate (2009), who consider the heterogeneity of characteristics among CEOs by using unique CEO subsamples. This approach helps us better understand the behavior of firms and contributes to a growing literature that links heterogeneity of CEO characteristics with the organizational activities and performance (Rajagopalan & Datta, 1996; Barker III & Mueller, 2002; Bertrand & Schoar, 2003; Nadkarni & Herrmann, 2010; Manner, 2010; Cronqvist, Makhija, & Yonker, 2012; Helfat & Martin, 2015; Tang, Qian, Chen, & Shen, 2015; Burke, Millan, Roman, & Stel, 2018).

The remainder of the paper is organized as follows. In section 2, we present the theoretical background that frames our study and, thus, derive the testable hypotheses. In section 3, we describe our sample, define the variables, and explain the methodology. In section 4, we present our empirical results. In section 5, we conclude and discuss the implications of our study.

2. Theories and Hypotheses

In this section, we first present the theories and review the main empirical findings on the relationship between executive compensation and firm performance. Then, we develop four hypotheses based on the literature.

2.1 *Executive compensation and performance*

The literature based on an agency framework argues that contract designing helps align the interests between managers and shareholders (Jensen & Meckling, 1976; Fama & Jensen, 1983). Moreover, when CEOs are powerful, compensation can be set to maximize the CEO's own wealth rather than shareholder value and, thus, hurt long-term firm performance (Sauerwald et al., 2016; Morse, Nanda, & Seru, 2011; Wade et al., 2006; Bebchuk, Fried, & Walker, 2002; Chatterjee & Hambrick, 2007). Prior empirical research has generally focused on pay-performance sensitivity under the assumption that an optimal CEO contract should closely link pay-to-performance because CEO behavior is largely unobservable (Lippert & Porter, 1997). However, researchers using different data sets, measurements, and statistical techniques have often found weak or even statistically insignificant relationships between pay and performance (Jensen & Murphy, 1990; Barkema & Gomez-Mejia, 1998; Carpenter & Sanders, 2004). In the particular case of executive stock options, Sanders and Hambrick (2007) show that CEOs may earn considerable gains or losses when firm performance reaches extreme values.

More recently, the literature on pay and performance tries to establish the causal link between the two. Despite decades of research in executive compensation, very few papers have been able to empirically identify the causal effects of CEO compensation on firm performance.[3] Nyberg et al. (2010) measure incentive alignment as the relationship between CEO and shareholder returns and conclude that greater alignment improves subsequent firm performance. Flammer and Bansal (2017) exploit exogenous changes in long-term executive compensation and implement a regression discontinuity design to show that long-term executive

[3] Frydman and Jenter (2010, p. 94) note in their survey that "compensation arrangements are the endogenous outcome of a complex process […] this makes it extremely difficult to interpret any observed correlation between executive pay and firm outcomes as evidence of a causal relationship."

compensation has a positive causal effect on firm performance and increases firms' long-term investments.

In the managerial compensation literature, total compensation usually consists of at least three components: (i) salary, (ii) bonus and (iii) equity-based compensation that is composed of stock options, restricted stocks, and performance shares. Though several studies focus on total compensation, the recent literature places more attention on equity incentive compensation, as researchers argue that what matters is not just *how much* CEOs are paid but *how* they are paid (Jensen & Murphy, 1990). However, the direct effect of salary on firm performance and total compensation is not documented in the literature. In a discussion of restricting different components of executive compensation, Dittmann, Maug, and Zhang (2011) show, in their model and calibration, that when salary is restricted, the optimal contracting is still possible by granting more stocks and less options. To some extent, the $1 CEO salary is an extreme case of restricting CEO salary. Depending on whether it is optimal or not, the expected impact on firm performance and the expected changes in the compensation package and total pay after the salary cut will be different. Besides, salary is traditionally considered a main pillar of CEO compensation (Murphy, 1999); it is one of the major components of reservation utility in compensation contract models (see, for example, Garen (1994) and Dittmann & Maug (2007)). This paper contributes to the literature by looking at the extreme cases when this major component is virtually eliminated.

2.2 Hypotheses development: the consequences of adopting a $1 CEO salary

Several theoretical and empirical studies document the effects of replacing part of the fixed salary by incentive components on total pay. Such changes in compensation schemes increase individuals' risk-bearing (Gibbons, 1998). Because compensation-related risks are more difficult to diversify, individuals tend to accept a reduction in fixed pay in exchange for incentives, if their total compensation increases (Cable & Judge, 1994). Dittmann et al. (2011)

provide a theoretical framework to understand firms' responses to an increase in fixed salary taxes. Their model suggests that shifting compensation away from fixed pay, in response to a tax increase on fixed salary, may lead to higher CEO total pay. Empirically, Perry and Zenner (2001) show that, on average, total CEO compensation increased by 28% in firms that reduced fixed pay, as a response to the 1993 U.S. federal tax policy change of taxing more heavily non-performance-based executive compensation. Adopting the $1 CEO salary is an extreme compensation policy that increases risk-bearing by exposing CEOs essentially to contingent pay. Increasing the total CEO pay can be a consequence of $1 CEO salaries as a reward for the higher exposure.

As for the impact of reducing CEO fixed pay on firm performance, the literature offers some theoretical insights. Dittmann et al. (2011) find efficiency costs associated with restrictions on fixed salary, although they also argue that the cost is rather small to have a significant impact on firm value. Under a model setting wherein a fixed pay above $500,000 threshold is taxed, the predicted total compensation is about $5,000 higher for the average CEO and, therefore, less efficient from the shareholders' point of view.

To the best of our knowledge, no empirical studies analyze how CEO salary cut would affect firm performance. Because salary usually accounts for only 10–20% of total CEO pay in the U.S., a salary cut, *per se*, is not expected to have a significant impact on firm value. However, an extreme cut in fixed pay, such as the $1 CEO salary, may increase risk-taking incentives to a point where CEOs may be willing to undertake risky projects with negative consequences for firm performance (see, for example, Sanders & Hambrick, 2007; Dittmann et al., 2011).

Based on the above literature, we derive our *baseline hypothesis* to test the main effect of cutting CEO salaries to $1. Thus, we postulate that, *post-adoption of the $1 CEO salary, the*

average total CEO pay increases and, thus, firms tend to perform worse compared with their peers.

Given the heterogeneity of the $1-CEO phenomenon, we formulate the main research questions of this study around the potential firm and CEO characteristics that may moderate the impact of such compensation policy on corporate outcomes. We identify different empirical contexts based on firm and CEO characteristics and derive from the literature the hypotheses of potential consequences of cutting CEO salary on total pay and firm performance. We identify the following categories of firms and CEOs that are expected to moderate the impact of $1-CEO salary on total compensation and firm performance: (i) restructuring/non-restructuring firms, (ii) entrenched/non-entrenched CEOs, and (iii) overconfident/non-overconfident CEOs. Below, we review the literature and develop the hypotheses for each category.

2.2.1 Restructuring versus non-restructuring firms

Restructuring may require, for example, downsizing, cost-cutting, and market refocusing (Pearce & Robbins, 1993, 1994; Robbins & Pearce, 1992). Such activities represent a considerable effort for firms and require top-management commitment. Gilson and Vetsuypens (1993) show that firms going through a restructuring process use CEO compensation polices as part of their turnaround strategies by reducing salary and bonus, but increasing equity. Similarly, Dechow, Huson, and Sloan (1994) find that CEO cash compensation is reduced by restructuring charges. This applies not only to incumbent CEOs, but also to newly appointed CEOs, who receive relatively lower fixed pay than their predecessors when hired by restructuring firms (Chen 2015). Even other forms of corporate restructuring (e.g., leveraged buyouts or management buyouts) exhibit identical patterns in exchanging fixed pay for equity (Kaplan, 1989, 1991), with positive effects on firm performance (Murphy, 1999). Because the adoption of the $1 CEO salary is a more extreme form of cutting fixed compensation, and automatically shifting the entire CEO compensation package to performance-based pay, it is

expected to have a moderating impact on total CEO pay and firm performance. The symbolic $1 CEO salary reinforces the CEO commitment into the financial recovery and shows his or her share of sacrifice in the restructuring process. However, this signal will only be considered reliable if indeed the CEO total pay decreases after the adoption of the $1 salary. Therefore, we expect a negative moderating effect of restructuring on CEO total pay after the $1 CEO salary adoptions. As the adoption of the $1 CEO salary will be a complementary policy of the turnaround strategy, it is expected to have a positive moderating impact on firm performance.

If the adoption of this extreme and symbolic salary may be aligned with value-enhancing strategies for restructuring firms, it is less clear what the consequences would be for non-restructuring firms. On the one hand, for some of the non-restructuring firms, adopting the $1 CEO salary can be part of a strategy to develop better CEO compensation policy and, thus, help improve firm performance. On the other hand, it can also be an opportunistic maneuver of the CEO in search for personal non-pecuniary benefits, such as good reputation and publicity. The total CEO pay may even increase, as the salary cut is likely to be replaced by other less-visible forms of compensation (Abernethy, Kuang, & Qin, 2014; Bebchuk et al., 2002). Therefore, we do not expect non-restructuring firms to outperform, on average, their peers. Building upon the literature, we formulate the following hypothesis:

Hypothesis 1a: The baseline effect of the $1 CEO salary on total compensation is mitigated in restructuring firms.

Hypothesis 1b: The baseline effect of the $1 CEO salary on firm performance is mitigated in restructuring firms.

2.2.2 Entrenched versus non-entrenched CEOs

The corporate governance literature emphasizes conflicts of interest between management and shareholders, proposing both the internal control of management and outside directors as remedies (Walsh & Seward, 1990). When the internal and external governance control

mechanisms are weak, CEO entrenchment may occur where "managers gain so much power that they are able to use the firm to further their own interests rather than the interests of shareholders" (Weisbach, 1988: 435). The managerial entrenchment argument has received empirical support in CEO compensation (Westphal & Zajac, 1994), CEO succession (Boeker & Goodstein, 1993; Cannella & Shen, 2001), CEO-chair duality (Finkelstein & D'aveni, 1994), and capital structure decisions (Berger, Ofek, & Yermack, 1997).

Our baseline hypothesis predicts an increase in average total CEO pay after adopting the $1 CEO salary, according to the theoretical (Dittmann, et al., 2011) and empirical (Cable & Judge, 1994; Perry & Zenner, 2001) evidence. An alternative argument, from the perspective of the CEO entrenchment literature, would also support the prediction because we expect entrenched CEOs to demand a higher total pay to compensate for the extreme salary cut. For instance, Westphal and Zajac (1994) argue that entrenched CEOs weaken board effectiveness in designing compensation packages and influence the introduction of pay mechanisms that contribute to their personal wealth maximization. Core, Holthausen, and Larcker (1999) show that firms with entrenched CEOs (CEOs who are also the board chair) receive higher total compensation.

Regarding the moderating effect of entrenched CEOs on the relationship between $1 CEO salary and total compensation, there are two alternative stories that both point in the same direction. First, the total compensation of entrenched CEOs is already quite high (Westphal & Zajac, 1994; Core, et al., 1999) before adopting $1 CEO salaries. Thus, the increased amount in total pay after adopting $1 CEO salaries may not be as large as that of non-entrenched CEOs, as it would be difficult to justify an even higher excessive pay. In other words, we expect the total compensation to increase for entrenched CEOs, but the additional increase to be smaller compared with that of non-entrenched CEOs, resulting in a negative moderating effect.

Second, because the $1 CEO salary attracts considerable publicity, it is plausible that entrenched CEOs ask for the $1 CEO salary to enjoy personal benefits (e.g., reputation gains from good publicity in the media), or to avoid reputation damages by diverting attention from high CEO pay and reduce the risk of public outrage. They may even be willing to accept a cut in their total pay in exchange for other non-pecuniary benefits that can be generally positioned as a favorable public image. In this case, the level of total compensation may or may not increase, but the change in total compensation is expected to display a negative moderating effect of entrenched CEOs on the relationship between $1 CEO salary and total compensation.

If the adoption of the $1 CEO salary serves the personal interests of entrenched CEOs in obtaining good publicity, and it is not accompanied by an increase in incentive pay, then it is expected to aggravate firm post-performance. In contrast, for non-entrenched CEOs, the $1 salary arrangement may improve performance pay sensitivity and align the incentives of managers and investors, thereby mitigating agency problem and enhancing firm value. Thus, we expect that firms with entrenched $1 CEOs have a negative impact on the average performance after adoption of $1 CEO salaries compared with their peers. Based on these ideas, we formulate our second hypothesis:

Hypothesis 2a: The baseline effect of the $1 CEO salary on total compensation is mitigated in firms with entrenched CEOs.

Hypothesis 2b: The baseline effect of the $1 CEO salary on firm performance is aggravated in firms with entrenched CEOs.

2.2.3 Overconfident versus non-overconfident CEOs

CEO hubris or overconfidence—generally defined as exaggerated self-confidence (Hayward & Hambrick, 1997; Heaton, 2002, Hiller & Hambrick, 2005; Malmendier & Tate, 2005)—is shown to affect firm strategies, outcomes, as well as executive compensation. CEO

overconfidence may, therefore, moderate the average impact of adopting the $1 CEO salary on firm performance and CEO total pay.

Several factors contribute to boost CEO's confidence: past corporate performance, personal traits (e.g., self-importance), favorable media coverage (Hayward & Hambrick, 1997; Malmendier & Tate, 2005, 2008), successful stock price reactions to prior acquisitions (Kumar, Dixit, & Francis, 2015), winning awards, getting public attention, and becoming celebrities (Malmendier & Tate, 2009; Cho, Arthurs, Townsend, Miller, & Barden, 2016). All these aspects build an overconfident CEO personality that leads them to undertake excessive risks (Gervais, Heaton, & Odean, 2011), resist learning from past errors and persist in the same mistakes (Chen, Crossland, & Luo, 2015), and deteriorate their relationship with other stakeholders (Tang et al., 2015; Tang, Mack, & Chen, 2018).

As overconfident CEOs tend to underestimate future risk and overestimate future performance, they might engage in value-destroying projects (Malmendier & Tate, 2005, 2008) and problematic firm decisions (Hayward, Rindova, & Pollock, 2004). For example, Malmendier and Tate (2005) show evidence of investment distortions in firms managed by overconfident CEOs; Hayward and Hambrick (1997) document that CEOs with excessive self-confidence engage in hubristic acquisitions by overpaying for targets and destroying firm value. From these examples, one might expect that the consequences of adoption the $1 CEO salary on firm performance should be aggravated when the CEO is overconfident.

CEO overconfidence is also expected to shape the CEO's compensation packages and, therefore, have a moderating impact on CEO total pay after the adoption of the $1 CEO salary. Due to their willingness to undertake higher risks, overconfident CEOs tend to accept highly convex compensation contracts (Gervais et al., 2011) and exchange fixed pay for more equity-based components (Pandher & Currie, 2013). The adoption of the $1 CEO salary, accompanied by an increase in incentive pay, is a way to achieve higher convexity and serve the interests of

overconfident CEOs who believe in a higher future pay and have enough leverage to convince the board of their vision. Therefore, we argue that the impact of the adoption of the $1 CEO salary on total pay should be greater for overconfident CEOs. Based on these ideas, we formulate our last hypothesis:

Hypothesis 3a: The baseline effect of the $1 CEO salary on total compensation is aggravated in firms with overconfident CEOs.

Hypothesis 3b: The baseline effect of the $1 CEO salary on firm performance is aggravated in firms with overconfident CEOs.

3. Sample and Methods

3.1 Sample

We test our hypotheses using a sample of U.S. public firms that adopted $1 CEO salaries between 1992 and 2013. To minimize the possibility that our results are driven by differences among firms that are unrelated to our hypotheses, we construct a matched sample of control firms using propensity score matching (PSM), as described below.

3.1.1 The $1 CEO firms

We start with 137 CEOs (1,257 firm-year observations) whose annual salaries are reported to be $10 or less in the ExecuComp database during the period of 1992–2013.[4] We started in 1992 because the ExecuComp compensation data begin from this year. We stopped in 2013 to examine the post-adoption strategies and performance in the following years. We dropped 15 cases of interim CEOs who served less than a year and were paid by other forms of compensation. We further cleaned the sample using other information in the proxy statements as well as Factiva and Lexis-Nexis. We eliminated 33 CEOs who received a $0 salary because they were either prepaid in the previous year or indirectly compensated by other enterprises

4 Most of the CEOs who earn a salary less than $10,000 receive a nominal salary of either $0 or $1 except for one CEO who received $10 a year.

under some special agreements. We dropped another eight CEOs who were paid consulting fees in lieu of salaries. Finally, we excluded one case where the former CEO, who had already resigned, was still labeled by ExecuComp as the actual CEO because the position was still vacant. Our final sample consists of 80 cases[5] that we list in the Online Appendix (in supplementary files)[6] along with excerpts from proxy statements.

[Insert Figure 1 about here]

Figure 1 summarizes the distribution of $1 CEO firms over the years, across industries, and across states. The upper left plot shows the incidence of $1 CEO salaries in a given year. On average, there are less than four new cases (and ten cases in total if we count new plus continuing cases) per year. Given the thousands of listed firms, the phenomenon of the $1 CEO salary is rare. The upper right plot describes the number of consecutive years in which the CEOs in our sample took the $1 salary. In 75% (60 out of 80 cases) of our sample, the CEO receives the $1 salary for 3 years or less. The median $1 CEO works for the $1 salary for two consecutive years, which is only about 25% of the tenure of the typical ExecuComp CEO (Luo, Kanuri, & Andrews, 2014). Though these figures suggest that $1 CEO salaries are a temporary phenomenon for the average firm, for some, it appears to be more permanent, going up to more than 10 years in three cases. From the lower left plot, we observe that these firms are drawn from a wide range of four-digit Standard Industry Classification (SIC) industries. Some 60% (48 out of 80 cases) of the sample firms are solitary representatives of their industry. Only one industry (Prepackaged software) has anything resembling a cluster. However, this industry covers a large number of firms (more than 100 of the S&P 1500 firms). Finally, the lower right

[5] Another study on $1 CEOs by Hamm, Jung, and Wang (2015) uses a larger sample because the authors' identification of $1 CEOs does not exclude cases of "apparent $1 CEOs." There are many examples where ExecuComp reports no salary, such as in the Annual Compensation table from proxy statements. However, a closer reading of the footnotes reveals that the CEO is well compensated through an affiliated enterprise, was prepaid in the previous year, or was paid "consulting" fees, for example. The inclusion of non-$1 CEOs can have a material effect in this type of studies, as we are dealing with rather small subsamples of firms.

[6] To augment our sample size and yet retain the impact for the cover value of a $1 or $0 salary, we searched for cases of salary under $10,000. We find no additional cases to add to our sample, which underscores the purported symbolic value of only a $1 or $0 salary.

plot also shows that there is no geographical clustering among states. Although California and Texas have more than ten $1 CEO firms, these two are also among the most popular states where the corporate headquarters are located.

In addition, we read the proxy statements of the $1 CEO firms and collected extracts (Online Appendix, Table A1) with the reason for adopting this compensation policy. We identified 47 firms that provide reasons for adopting this salary arrangement (some firms state more than one reason). About 41% of the firms give no reason for the $1 CEO salary. The remaining firms (including overlaps) state "interest alignment between CEO and shareholders" (33%), "reducing cost/aiding recovery" (24%), "conveying CEO's confidence in the future" (8%), "funding CEO's preferred charities" (3%), and "attracting superior executive (i.e., the CEO)" (1%).

3.1.2 The matched sample by PSM

In the ideal empirical experiment, we would compare the performance and CEO compensation of the $1 CEO firm to the same firm's performance and CEO compensation had the firm not adopted the $1 CEO salary. However, because the counterfactual is not observed, we must find an empirical proxy for the hypothetical performance and CEO compensation. A natural starting point is to compare the average *ex-post* firm performance and CEO compensation of $1 CEO firms to the average of all non-$1 CEO firms. This approach would provide a valid estimate of the treatment effect if assignment to the treatment group were random. However, this assumption does not hold in our data, because the adoption of the $1 CEO salary is likely to be endogenous. Given that only a small fraction of firms in the population actually adopted $1 CEO salaries, using a matched-pairs sample can produce more efficient parameter estimates than using the full sample (Manski & Lerman, 1977).

To mitigate the endogeneity of the CEO's decision on taking the $1 salary, we employ PSM approach suggested by Rosenbaum and Rubin (1983)[7]. We follow the standard procedure by constructing the matched sample in two steps. First, we run a Logit regression to predict the $1 CEO salary. To identify variables that can affect the likelihood of adopting the $1 CEO salary, we test differences in firm and CEO characteristics as well as in corporate governance across the treatment group ($1 CEO firms) and all non-$1 CEO. In non-tabulated results, we find statistically significant differences in means and medians between the groups of $1 CEO and non-$1 CEO firms for the following variables: earnings, Tobin's Q, CEO age, CEO wealth, and institutional ownership (all the variables are defined in the next subsection)[8]. We set the binary dependent variable to 1 if the firm granted the $1 salary to the CEO in that year, and regress the $1 CEO salary indicator on the set of variables mentioned above. All the regressors are measured with a one-year lag because we want to match the firm and CEO characteristics prior to the adoption of the $1 CEO salary. In addition, we include industry (whether the firm operates in a four-digit SIC that has $1 CEO firms), state (whether the firm locates in a state that has $1 CEO firms), and year in the Logit regression to predict the likelihood of adopting the $1 CEO salary.

In the second step, we use the predicted values from the Logit regression (propensity scores) and apply the 10 nearest neighbor without replacement to construct a matched sample

[7] Iacus, King, and Porro (2012) cast doubts on PSM and propose the coarsened exact matching (CEM) technique to improve causal inferences by reducing imbalance in the covariates between treated and control groups (Blackwell et al., 2009; Iacus, King, and Porro, 2012). We followed Blackwell et al. (2009) by first sorting all the observations into strata to determine matches and later running subsequent analyses using uncoarsened data of both the treated and the matched firms and the weights returned from CEM algorithm. We find similar results on total compensation and stock performance.

[8] Additionally, we also tested other variables (not included in Table 1) but found no statistically significant differences in means and medians of $1 CEO and non-$1 CEO. These variables were CEO gender, board size, the presence of a blockholder on compensation committee, the percentage of independent board members, and entrenchment index defined by Bebchuk, Cohen, and Ferrell (2008). We do not include these variables for further analyses owing to the limited data coverage and their significance in the above tests.

for the $1 CEO firms.[9] Two $1 CEO firms that do not have propensity scores due to the missing data are dropped out.

We start with a pool of 38,069 potential matches. After implementing PSM, we match 78 of 80 $1 CEO (treated) firms with 695 control firms. We refer to this control sample as "predicted $1 CEO firms" or "matched firms."

3.1.3 *Moderating factors*

We identify different categories of firms/CEOs to test our hypotheses—that the impact of adopting the $1 CEO salary is moderated by corporate restructuring, entrenched, and overconfident CEOs.

First, we follow Altman (2013) and use the Z-score as a proxy for the firms going through financial restructuring. Smaller Z-scores indicate more financial problems and higher likelihood of engaging in a restructuring process.[10] Altman's Z-score is calculated as follows: $Z = 0.012X_1 + 0.014\ X_2 + 0.033\ X_3 + 0.006\ X_4 + 0.999\ X_5$, where X_1 = working capital/total assets, X_2 = retained earnings/total assets, X_3 = earnings before interest and taxes/total assets, X_4 = market value of equity/book value of total liabilities, X_5 = sales/total assets, and Z = overall index.

We follow the recent literature (van Essen, Otten & Carberry, 2015; Shin, 2016) and measure CEO entrenchment by CEO-chair duality, CEO tenure, CEO ownership, and board independence, using data from Institutional Shareholder Services (formerly RiskMetrics). Specifically, we follow van Essen et al. (2015) and define CEO-chair duality as a dummy variable that equals 1 if the CEO has the roles of both CEO and chair of the board of directors.

[9] We apply multiple matches instead of a single match for each treatment firm for two reasons. First, adopting the $1 CEO salary is a rare event. The proportion of multiple matches for one treatment firm better represents the rareness of the $1 CEO salary. Second, according to Bryson, Dorsett, and Purdon (2002), using a single match disregards potentially useful information by not considering any matches of slightly poorer quality; over-reliance on a reduced number of observations can result in program effects with larger standard errors than is strictly necessary. In addition to the 10 nearest neighbor method, we also replicate all the analysis using the five nearest neighbor method. All the results still hold.

[10] In our portfolio approach to study the impact of $1 CEO salaries on firm performance, we split firms into two categories using the proposed 2.675 cutoff point of Altman's Z-score to classify firms as "restructuring firms."

CEO tenure is the number of years the executive has been CEO. As in Morck, Shleifer, and Vishny (1988), we include a measure based on CEO ownership and classify entrenched CEOs as those whose stockholdings are more than 5% of the firm's equity and who are not founders[11]. We measure board independence as the ratio of outside board members to the total number of board members. Though the first three variables (CEO-chair duality, CEO tenure, and CEO ownership) measure CEO entrenchment, the last one (board independence) measures board power against CEO entrenchment. Thus, for the analyses on entrenchment, we expect board independence to exhibit the opposite sign as the other three measures of CEO entrenchment. Finally, we define overconfident CEO as those who postpone the exercise of vested options that are at least 67% in the money, as in Malmendier and Tate (2005) and Hirshleifer, Low, and Teoh (2012).

3.2 Methods and variables

3.2.1 Estimating the effects of the $1 CEO salary on CEO compensation

In the first stage of PSM, we predict the likelihood of the $1 CEO salary by using the following Logit model: \$1 CEO = $\beta_0 + \beta_1 X + \varepsilon$, where X a set of predicting variables including earnings, Tobin's Q, CEO age, CEO wealth, institutional ownership, industry (whether the firm operates in a four-digit SIC that has $1 CEO firms), state (whether the firm locates in a state that has $1 CEO firms), and year.

To investigate the relationship between the adoption of the $1 CEO salary and changes in CEO compensation, we start with the cross-sectional models:

$$CEOPay_i = \beta_0 + \beta_1 \$1CEO_i + \beta_2 X_i + \beta_3 Industry_k + \varepsilon_i \quad (1)$$

[11] Morck, Shleifer, and Vishny (1988) show that, on average, more ownership allows deeper entrenchment because the higher the CEO stock ownership and the lower the probability of CEO replacement, the easier to receive entrenched and enjoy private benefits of control. Meanwhile, stock ownership also helps align the incentives. Morck, Shleifer, and Vishny (1988) have compared both effects and found that, when managerial ownership is below 5%, the alignment effect dominates; however, when ownership increases beyond 5%, the entrenchment effect dominants. Therefore, we use 5% as the cutoff point and do not consider managers as entrenched when ownership is below 5%. The authors also argue that leadership by the firm's founders, or by their descendants, might have different effects on performance than leadership by officers who are not related to the founders. Therefore, we do not consider founders as entrenched CEOs.

$$CEOPay_i = \beta_0 + \beta_1\ \$1CEO_i + \beta_2\ Z_i + \beta_3\ Z_i \times \$1CEO_i + \beta_4\ X_i + \beta_5\ Industry_k + \varepsilon \quad (2)$$

where i and k denote firm i and industry k. $CEOPay_i$ is the three-year (from year T+1 to T+3) average of CEO total compensation where year T is the first year of the $1 CEO salary for $1 CEO firms and the first matched year for the predicted $1 CEO firms. Z is the set of moderating factors: restructuring firms, entrenched CEOs (measured by CEO-chair duality, CEO tenure, CEO ownership, and board independence), and overconfident CEOs, as defined in section 3.1.3. X vector represents a set of controls expected to influence CEO compensation, including $ln(Total\ sales)$, $Leverage$, $Earnings$, $Tobin's\ Q$, $CEO\ ownership$, $CEO\ tenure$, $CEO\ age$, and $Institutional\ ownership$. $Industry$ is a set of dummy variables that captures the industry fixed effects. All the control variables are taken at the first year of adoption (year T) to mitigate the endogeneity concern.

Moreover, we conduct panel data regressions to capture the dynamic changes in the $1 CEO salary and the changes in total compensation. Unlike cross-sectional models that focus on the effect of the first year of adopting the $1 CEO salary irrespective of how long the $1 CEO salary was in place, the panel data regressions look at variations in compensation over time. In other words, one observation represents one firm in cross-sectional setting and 1CEO$ equals 1 if the firm had the $1 CEO salary for at least one year; in panel data setting, one observation represents one firm-year and 1CEO$ equals 1 only when the firm had the $1 CEO salary for that particular year. Specifically, we run the following regressions:

$$CEOPay_{i,t+1} = \beta_0 + \beta_1\ \$1CEO_{i,t} + \beta_2\ X_{i,t} + \beta_3\ Industry_k + \varepsilon_{i,t} \quad (3)$$

$$CEOPay_{i,t+1} = \beta_0 + \beta_1\ \$1CEO_{i,t} + \beta_2\ Z_{i,t} + \beta_3\ Z_{i,t} \times \$1CEO_{i,t} + \beta_4\ X_{i,t} + \beta_5\ Industry_k + \beta_6\ Year_t + \varepsilon_{i,t} \quad (4)$$

where i, t, k denote firm i, year t and industry k. $CEOPay_{i,t+1}$ is the CEO total compensation next year. In other words, all the control variables are lagged by one year. Vectors Z and X are

the same as in equations (1) and (2). We include industry and year dummies to capture the industry and year fixed effects.

We obtain executive compensation data from Compustat ExecuComp, accounting data from Compustat, stock market data from the Center for Research in Security Prices (CRSP), and institutional ownership data from Thomson Reuters Institutional Managers (13f) Holdings. Total compensation is the sum of salary, bonus, other annual compensation, value of restricted stock granted, Black–Scholes value of options granted, long-term incentive payouts, and all other total compensation (which includes perquisites and other personal benefits, termination or change-in-control payments, contributions to defined contribution plans, life insurance premiums, gross-ups and other tax reimbursements, and discounted share purchases). $\$1CEO$ is a dummy variable that equals 1 if the CEO earns an annual salary of a dollar (or no more than $10), and 0 otherwise. $ln(Total\ Sales)$ is the natural logarithm of gross sales. $Leverage$ is the ratio of total liabilities to total assets. $Earnings$ is defined as earnings before interest and taxes divided by total assets. $Tobin's\ Q$ is calculated as (total assets – total equity + market value of equity) / total assets as of the fiscal-year end. $CEO\ ownership$ is the number of shares held by the CEO divided by the total shares outstanding. $CEO\ tenure$ is the number of years served as a chief executive officer. $CEO\ age$ is the age of the CEO measured in years. Data on $CEO\ wealth$ are from Dittmann and Maug (2007), where the authors estimate CEO's non-firm wealth from the past income.[12] $Institutional\ ownership$ is the percentage of stock held by institutions as of the fiscal-year end (constructed from Thomson Reuters Institutional Managers (13f) Holdings). $\$1CEO\ industry$ is a dummy variable that equals 1 if the firm operates in a four-digit SIC industry code that has $1 CEO firms and zero otherwise. $\$1CEO\ region$ is a dummy variable which equals 1 if the firm locates in a state that has $1 CEO firms and zero otherwise.

[12] These data are available online: https://sites.google.com/site/dittmanningolf/home/data

3.2.2 Estimating the effects of the $1 CEO salary on firm performance using stock market data

To capture the risk-adjusted post-event performance, we use the method of calendar-time portfolios (also known as the Jensen's alpha). Since Jaffe (1974), this method has been widely used in business research (see, for example, Fama, 1998; Mitchell & Stafford, 2000; Moorman, Wies, Mizik, & Spencer, 2012). We favor this approach for two reasons: First, compared with ordinary least squares (OLS) regressions using performance measures such as return on assets (ROA) as a dependent variable, the calendar-time portfolio approach circumvents endogeneity issues that plague the OLS regressions of ROA.

Second, there is considerable debate in the literature about the correct methods and benchmarks for examining long-term returns (e.g., Barber & Lyons, 1997; Fama, 1998). The calendar-time portfolio approach is robust to the most serious statistical problems (Mitchell & Stafford, 2000) and is considered the most appropriate to measure long-term performance of publicly traded companies (Fama, 1998; Mitchell & Stafford, 2000).

The basic idea of the approach is to compare the average performance of $1 CEO firms and the matched firms, controlling for known pattern in return. In the first step, we compute monthly returns of two portfolios ($1 CEO firms and the matched firms from the PSM procedure) every month, ranging from the first month after the adoption of the $1 CEO salary to two or three years later. In the second step, we regress the value-weighted average monthly portfolio returns on capital assets pricing models:

$$R_{p,t} - R_{rf,t} = \alpha + \beta\,(R_{m,t} - R_{rf,t}) + \varepsilon \qquad \text{(Single-factor model)} \quad (3)$$

$$R_{p,t} - R_{rf,t} = \alpha + \beta(R_{m,t} - R_{rf,t}) + sSMB_t + hHML_t + mUMD_t + \varepsilon \qquad \text{(Fama–French four-factor model)} \quad (4)$$

where $R_{p,t}$ is the value-weighted monthly return to the portfolio that is long in $1 CEO firms and short in predicted $1 CEO firms at month t. $R_{rd,t}$ is the risk-free rate obtained from CRSP. $R_{m,t}$ is the return on CRSP value-weighted market portfolio. SMB_t and HML_t are the Fama and

French (1993) size ("small minus big") and book-to-market ("high minus low") factors, and UMD_t is the Carhart (1997) momentum factor. All factors are obtained from CRSP database.

To deal with time overlapping portfolio returns, we use Newey–West standard errors. Because the portfolio takes a long position in $1 CEO firms and a short position in predicted $1 CEO firms, the difference in average risk-adjusted performance in these two groups is then captured in the intercept term, α. In other words, a positive (negative) alpha indicates an over-(under-) performance of $1 CEO firms relative to the matched firms.

4. Results

Table 1 shows the correlation matrix and variables' descriptive statistics for the treated firm and matched firms together. After PSM matching, $1 CEO salary is positively correlated with Tobin's Q, CEO ownership, CEO age.

[Insert Table 1 about here]

To understand the impact of adopting the $1 CEO salary on firm performance and CEO compensation, we examine both operating performance and CEO compensation using regression analysis, and the post-adoption stock returns using portfolio approach. For both approaches, we start with the full sample to analyze whether there is any general pattern, and then focus on moderating factors to test our hypotheses.

4.1 Regression analysis of CEO total compensation

As described in section 3.1.2, we run PSM in the first stage to mitigate endogeneity issues by regressing $1 CEO salary on the lagged earnings, Tobin's Q, CEO age, CEO wealth, institutional ownership, as well as industry, state, and year indicators. In Table 2, we show the results from the second stage using the treatment group ($1 CEO firms) and the matched sample constructed based on propensity scores. Specifically, we run cross-sectional regressions of post-three-year average total CEO compensation following the adoption of the $1 CEO salary. In model (1), we estimate the base model described in equation (1). In line with our baseline

hypothesis, the results show a positive and statistically significant coefficient on the $1 CEO dummy, indicating that $1 CEOs earn higher average total compensation three years after the adoption compared with their peers, who receive regular salaries. The economic magnitude of the impact is also relevant—the post-three-year average total pay of $1 CEOs is higher by about 31% of a standard deviation of the total CEO pay for the entire sample[13]. This result suggests that the adoption of the $1 CEO salary is a short-term strategy, and/or the salary cut is compensated through other forms of CEO pay.

4.1.1. Restructuring versus non-restructuring

As per Hypothesis 1a, the increase in total compensation of the $1 CEO salary is expected to weaken in firms undergoing restructuring. In model (2), we include the variable "restructuring" (i.e., the Altman's Z-score) and the interaction with $1 CEO to test the moderating effect of restructuring on the impact of the $1 CEO salary on post-total pay. The positive and significant coefficient on $1 CEO indicates that $1 CEOs receive, on average, higher total compensation after adoption of the $1 salary. However, the interaction term $1 $CEO \times Restructuring$, albeit negative, is not statistically significant, and, thus, the result does not support Hypothesis 1a.

4.1.2. Entrenched versus non-entrenched CEOs

In Table 2, models (3) to (6), we test the moderating effect of entrenched CEOs on total pay after the adoption of the $1 CEO salary. Overall, our results suggest that (1) $1 CEOs receive higher total compensation than non-$1 CEOs (three out of four coefficients on 1CEO$ are positive and statistically significant); (2) the increase in total compensation for entrenched $1 CEOs is smaller than that of non-entrenched $1 CEOs (negative and significant coefficients on $1 $CEO \times Entrenchment$ for the first two measures of entrenchment and positive and significant for the board independence measure, according to our prediction). This result is

[13] The coefficient on "$1 CEO" dummy is 3.07 in the cross-sectional analysis (Table 2) and the standard deviation of post-CEO total compensation is 9.82 (31%=3.07/9.82).

consistent with Hypothesis 2a. However, our finding does not mean that entrenched $1 CEOs receive a lower total pay after adopting the $1 CEO salary. In fact, they may still receive higher total pay (see, for example, in Table 2, models (3–6), the sum of coefficients of \$1 CEO and \$1 $CEO \times Entrenchment$ are positive). The negative moderating effect simply means that the increase in total compensation for entrenched $1 CEOs is smaller than that of non-entrenched $1 CEOs.

4.1.3 Overconfident versus non-overconfident CEOs

In model (7), we test the moderating effect of overconfident CEOs on total pay after the adoption of the $1 CEO salary. The positive coefficient on the interaction term (coeff. = 10.60, p<.01) shows that overconfident $1 CEOs earn higher average total compensation over the three-year period after the adoption of the $1 CEO salary compared with their peers. We also perform additional analysis using the three-year average of stock and option grants after adopting $1 CEO salary as the dependent variable in equations (1) and (2), finding a positive coefficient on the interaction term (coeff.=10.01, p<.01). Thus, overconfident $1 CEOs receive more equity-based grants relative to other CEOs.[14] This result is consistent with Hypothesis 3a and suggests that overconfident $1 CEOs replace their fixed salary with additional equity grants, reflecting their optimism in the firms' future prospects.

4.1.4 Panel data regressions

In Table 3, we use panel data regressions to capture the dynamic changes in $1 CEO salary and the changes in total compensation. Though cross-sectional models focus on the effect of the first year of adopting the $1 CEO salary on the post-three-year averages, panel data regressions compare the annual changes in total compensation in treated firms with the changes in matched

[14] For the sake of space, we do not report the table of additional analysis here. The results are summarized in Table A2 in an Online Appendix. Stock and option grants are defined as the value of restricted stock granted during the year (determined as of the date of the grant) plus the value of option-related awards (e.g. options, stock appreciation rights, and other instruments with option-like features). All other variables are the same as in Table 2.

firms. We find similar results as when using cross-sectional regressions, but stronger, particularly for the case of restructuring firms.

Similar to the cross-sectional regression analysis, we find positive coefficients for $\$1CEO$, suggesting that, on average, \$1 CEOs received higher total compensation in the three-year period following the adoption of the \$1 CEO salary. In particular, Table 3, model (2), shows that, consistent with Hypothesis 1a, the coefficient on the interaction term is negative and statistically significant (coeff. = -0.13, $p<.05$). Thus, \$1 CEOs from restructuring firms share the sacrifice with the firm and earn lower relative total pay than the average treated firm. Regarding the moderating effects on CEO entrenchment, three out of the four proxies used for entrenched CEOs show negative and statistically significant coefficients at significance levels of 1% and 5% (the only exception is "board independence"). In addition, we show a positive and significant coefficient on $\$1CEO \times Overconfidence$, indicating that, when the \$1 CEO is overconfident, the effect on total compensation is amplified.

In sum, we find negative and significant coefficients on the interaction terms $\$1CEO \times Restructuring$ and $\$1CEO \times Entrenched$ and a positive and significant coefficient on $\$1CEO \times Overconfident$, supporting Hypotheses 1a, 2a, and 3a. The results suggest that being a restructuring firm and having an entrenched CEO weakens the effect of \$1 CEO salary on total compensation, whereas overconfident \$1 CEOs aggravate this effect.

4.2 Long-term stock return performance after the $1 CEO salary

To study the impact of \$1 CEO salaries on stock return performance, we use the calendar-time portfolio approach, also known as Jensen's alpha approach, by constructing the portfolio that takes a long position in \$1 CEO firms and a short position in matched \$1 CEO firms. As explained in section 3.3.2, a positive (negative) Jensen's alpha indicates an over-(under-) performance of \$1 CEO firms relative to the matched firms.

Table 4 shows the estimated alphas. The results are identical using the single-factor or the Fama–French four-factor models. Taking the whole sample of $1 CEOs and their matches ("All CEOs"), the two- and three-year ahead alphas are negative and statistically significant. This result indicates that sample firms underperform, on average, in comparison to their peers in the two- and three-year periods following the adoption of the $1 salary.[15] Moreover, the underperformance is economically substantial—to the tune of about 1% per month.

[Insert Table 3 about here]

This result applies to the average sample firm without considering the heterogeneity of firms and CEOs that comprise the treated sample. In the next subsections, we refine the analysis to test whether the subsamples, representing our moderating factors, amplify or dampen the average effect.

4.2.1 Restructuring versus non-restructuring firms

To test Hypothesis 1b, we repeat the portfolio analysis for restructuring and non-restructuring firms[16]. Similarly, we hold long our sample firms and short the matched firms and exit investment strategies after two or three years. When constructing the portfolio of the restructuring group, we only include restructuring firms and their matched peers. The same procedure applies to the non-restructuring group. Compared with the full sample ("All CEOs"), we now have far fewer firms in the monthly portfolios.

[15] There is a concern that our analysis may suffer from survivorship bias because firms must last three years for the returns shown in the three-year window. We check the number of delisting and merger cases in both the sample and matched firms using the delisting information from CRSP and do not find any significant difference. Thus, the survivorship bias is unlikely to affect our portfolio approach.

[16] We follow Altman (2013) and use a Z-score of 2.675 as the cutoff to sort firms into the restructuring group. The results are identical if we use two alternative identifications of restructuring: 1) if proxy statements stated that the adoption of $1 CEO salaries was associated with the poor past performance or the restructuring plan of the company, and 2) if the number of employees drops for more than 10%. Non-restructuring firms exhibit a negative alpha of around 80 (for alternative definition 1) and 120 (for alternative definition 2) basis points per month over the three-year period following the adoption of the $1 CEO salary. This translates into an average underperformance of about 10% (for definition 1) and 14% (for definition 2) for non-restructuring $1 CEO firms relative to their peers three years following the adoption of the $1 CEO salary. We also use this alternative definition for the analysis of total CEO compensation. We find similar results as shown in Table 3: negative coefficient for the interaction term $1 $CEO * Restructuring$ (significant at 10% and 5% for cross-sectional and panel data regressions, respectively) and insignificant coefficient for $Restructuring$.

Table 4 shows that, for the restructuring group, none of the alphas from either the single-factor model, or the four-factor model, is statistically significant. This suggests that the underperformance of the average $1 CEO firms does not apply to the restructuring firms. That is, for this group, the adoption of the $1 CEO salary is not inconsistent with the firm's turnaround strategy.

As for the non-restructuring group, the portfolio has a negative alpha of around 110 (100) basis points per month over the two-year (three-year) period following the adoption of the $1 CEO salary. Economically, this translates into an average underperformance of about 26% (36%) for non-restructuring $1 CEO firms relative to their peers two (three) years following the adoption of the $1 CEO salary. In these firms, clearly, the adoption of the $1 salary was not a value-enhancing strategy. By comparing the magnitude and statistical significance of the alphas of "overall," "restructuring," and "non-restructuring" groups, we conclude that the restructuring $1 CEO firms mitigate the negative impact on firm performance following the adoption of the $1 CEO salary.

4.2.2 Entrenched versus non-entrenched CEOs

To test Hypothesis 2b, we repeat our portfolio approach by holding long the $1 CEO firms in our subsamples of non-entrenched and entrenched CEOs and short their corresponding matched firms. We use the CEO-chairman duality to sort CEOs into the entrenched and non-entrenched groups[17]. As shown in Table 4, none of the alphas is statistically significant for the group of non-entrenched CEOs. However, the group of entrenched CEOs exhibits negative and statistically significant alphas, ranging from 26% to 11% one and three years after the adoption of the $1 CEO salary, respectively. These results are both statistically and economically

[17] We use the CEO-chairman duality because this is a dummy variable, allowing us to easily sort our sample into entrenched and non-entrenched groups. Between the other three entrenchment measures, both CEO tenure and board independence need an artificial threshold, whereas CEO ownership is already constructed as a dummy variable. Therefore, we replicate the portfolio approach using CEO ownership measure. In untabulated results, we find very similar results: all the alphas in the entrenched group are negative and statistically significant, whereas no alphas are statistically significant for the group of non-entrenched CEOs.

significant. Thus, in the aftermath of the $1 CEO salary adoption, firms with more entrenched CEOs underperformed their peers, supporting Hypothesis 2b. Within one-year after adoption, the alphas of the entrenched group are lower (i.e., more negative) than those of the entire sample. That is, entrenched CEOs amplify the negative impact of $1 CEO salaries on firm performance.

4.2.3 Overconfident CEOs

Under Hypothesis 3b, the adoption of the $1 CEO salary by overconfident CEOs is seen as a signal of their willingness to undertake greater risks, which becomes excessive and harms long-term performance. Indeed, we observe, in Table 4, that the group of overconfident $1 CEO firms underperforms compared with their peers up to two and three years after the adoption of the $1 CEO salary. The alphas for the group of overconfident CEOs are negative and statistically significant, showing an underperformance of about 47% (40%) over the two-year (three-year) period after adoption. The magnitude of the negative alphas is larger than that of the overall sample, indicating that overconfident $1 CEOs aggravate the average adverse impact of $1 CEO salaries on firm performance.

To summarize, we find some evidence consistent with Hypothesis 1, as our panel data regression results suggest that $1 CEO firms going through a restructuring process do indeed keep their total CEO compensation lower and exhibit better stock return performance than the average treated firm. In contrast, the $1 CEO firms in the non-restructuring group underperform relative to their peers in the stock market and, yet, on average, their CEOs do not suffer a cut in their total compensation. We also find evidence supporting Hypothesis 2—that entrenched $1 CEOs have a negative moderating effect on total pay and their firms underperform in the years after the adoption of the $1 salary. This result is consistent with the view that the adoption of the $1 CEO salary by wealthy and powerful CEOs may have little to do with incentives alignment. Rather than engaging the CEO in value-enhancing activities, accepting the $1 CEO

salary may be an opportunistic maneuver to achieve personal goals[18]. Finally, we do find evidence consistent with Hypothesis 3—that overconfident CEOs may undertake $1 salaries to signal confidence in the future but fail to deliver superior performance. Moreover, their total pay increases, suggesting that fixed salary is replaced by additional equity grants.

4.3 Additional analyses

4.3.1 Event-study

Another way to assess the impact of $1 CEO salaries on the value of the firms is to study the stock market reaction to the announcement of $1 CEO salaries. We estimate the cumulative abnormal returns around the announcement by using the standard event-study procedure (Fama, Fisher, Jensen, & Roll, 1969, 1969). From *Factiva* and *Lexis-Nexis*, we were able to find only 14 events where the CEO (or the company) announced the adoption of the $1 CEO salary. More so, these 14 events are not "clean," as companies simultaneously announced their engagement in a restructuring process. Thus, our events are all from the restructuring group. We use an estimation window of (-250, -21) days prior to the event and the market model to predict normal returns. The model:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad t = -250, \ldots, -21 \qquad (5)$$

where $R_{i,t}$ is the daily stock return of firm i at time t; $R_{m,t}$ is the CRSP value-weighted market return at time t; and $\varepsilon_{i,t}$ is the excess return. We estimate the stock price reaction over a three-day event window [-1, +1] for which we computed the cumulative abnormal returns.[19] The results indicate that the average abnormal returns, albeit positive on average, are not statistically different from zero. The very small number of observations prevents us from drawing statistical inferences to support our first hypothesis.

[18] We explore this view in the additional analysis about public outrage.

[19] Using alternative event windows yields similar results. The cumulative abnormal returns for a two-day window [-1, 0], [0, +1] and a five-day window [-2, +2] are also not significantly different from zero.

As an attempt to increase the number of observations and include $1 CEO firms from other groups, we run the event-study around the proxy statements' filing dates for the first year of $1 CEO salaries. A limitation of this approach is that, in several cases, by the time the proxy statements are filed, the adoption of the $1 CEO salary may already be known. This may bias our analysis toward finding negligible short-term stock price reactions. Indeed, we find no statistically significant cumulative abnormal returns over the three-day window around the proxy statements filing dates. An alternative interpretation for this result (in part supported by our finding of an average stock return underperformance of $1 CEO firms in the long run) is that the potential negative effects of adopting $1 CEO salaries may not be fully incorporated into stock prices in the short-run.

4.3.2 The potential for public outrage

We have documented evidence of underperformance for the average $1 CEO firm, and especially so for the group of non-restructuring firms and firms with entrenched and overconfident CEOs. Obviously, there is some overlap among these groups, but the cases of non-restructuring firms and entrenched CEOs are of particular interest to discuss how the potential for public outrage might influence the adoption of $1 CEO salaries. First, contrary to their peers, non-restructuring firms are not engaged in a major turnaround strategy where $1 CEOs emerge as a strong symbol of commitment starting from the top.

Second, entrenched CEOs are amongst the richest and powerful, face greater potential for public outrage, and extract greater benefits from actions that enhance their reputation and social recognition. This suggests that CEO compensation can also be used to achieve goals other than maximizing shareholder value, which may explain why firms adopt the $1 CEO salary even if it has a negative impact on firm performance. One plausible explanation is predicted by the "skimming" approach of CEO compensation (Bebchuk et al., 2002), where CEO compensation is a camouflage to avoid outrage. There are serious social and professional costs

to board members and CEOs who are highlighted by the media for excessive pay. Negative publicity can damage a firm's reputation, which is a signal of its product quality and affects its financial performance (Milgrom & Roberts, 1982; Michalisin, Kline, & Smith, 2000; Roberts & Dowling, 2002; Brenner & Wernicke, 2017). To soften this "outrage constraint," and facilitate rent extraction, the CEO may seek to camouflage excessive compensation. It is the risk of media coverage and public outrage over the benefits they draw from their firms that leads them to adopt ruses like the $1 salary.

We use proxy statements and search *Factiva* and *Lexis-Nexis* to document whether CEOs of $1 salaries have a demonstrable risk of public outrage. We read stories about the CEO that make him or her vulnerable to public outrage, including reports that cover the following: prior media interest in his compensation and other benefits (e.g., use of company airplane); shareholder resolutions; pending government inquiries about the firm or executives; underperformance or slowdown at the firm; recent interest in his pay; cost-cutting, pay cuts or layoffs at his or her firm; personal matters such as a divorce proceeding that may expose his or her wealth; chairperson took the $1 salary; and, about his or her significant holdings and voting power, for example.

Among our sample of $1 CEOs, we were able to identify 23 cases (all belonging to the non-restructuring group, six of which overlap with the entrenched CEO group) of explicit stories providing a basis for potential public outrage.[20] Arguably, whenever a CEO holds a significant fraction of the stock of a firm, there may be a presumption of power and a suspicion of the drawing of undeserved benefits. If we use 5% holdings of the stock, there are 38 such

[20] These cases are listed in Table A3 of Online Appendix. Presumably, not all firms are equally sensitive to societal pressures and those that are may be particularly likely to reduce CEO pay in response. We identify the following five most frequently sued industries as Wang, Winton, and Yu (2010): computer software, business service, electronic equipment, pharmaceutical, and communication. About 30% (22 of 80) of $1 CEOs who are exposed to potential public outrage work in less legitimate industries.

cases among our $1 CEOs. Not double counting the 15 cases overlapping, we have a total of 46 CEOs or 58% of our sample at risk of public outrage.

Possibly, the risk of public outrage is high for all CEOs, not just CEOs who adopt $1 salaries. This is not the case based on the subsequent change in potential for public outrage among $1 CEOs. We also look ahead and search for the potential causes for outrage in the year following the last year of the $1 CEO salary. In particular, we check if the potential for outrage, which is documented from the time of adoption, is continuing, or has subsided. In addition, we search for new factors that might make a case for retaining the $1 salary arrangements. Apart from a *very few cases* (we fail to find evidence in just 4 out of 23 cases), there is clear evidence that the potential for outrage is lower, consistent with dropping the $1 CEO salary. In some cases, the firm performance is better. In others, reorganizations, like mergers or completion of restructuring, have occurred. In yet others, personal situations have changed.[21]

The evidence presented in this section allow us to better understand the effects of adopting $1 CEO salaries by exploring a non-stated reason that may explain this salary arrangement in some groups of firms. This analysis suggests that, in some cases, the adoption of the $1 CEO salary may just be a diverting maneuver of opportunistic CEOs who want to deviate the public eye from their most visible personal income, while gaining good publicity in the media. This is more likely to happen when there is no economic rationale (i.e., cutting costs or incentive alignment) for $1 CEO arrangements (e.g., the non-restructuring group) or in firms with wealthy and powerful CEOs (e.g., the entrenched group). Thus, we can better understand the consequences on total CEO pay and firm performance that we documented throughout the paper once we explore non-stated reasons for adopting such a symbolic and extreme compensation arrangement.

21 This also offers a viable explanation for why $1 CEO salaries are temporary.

5. Discussion and Conclusions

This study examines the consequences of adopting the $1 CEO salary on CEO total pay and firm performance. We identify a number of firm and CEO characteristics (namely, restructuring firms, entrenched, and overconfident CEOs) that moderate the consequences of adopting $1 CEO salaries on CEO total pay and firm performance. Our findings suggest that, on average, $1 CEO firms earn higher total compensation and lower stock market returns relative to their peers after the adoption of $1 salaries. The effect on total compensation is mitigated by restructuring and CEO entrenchment and aggravated by CEO overconfidence. The stock market underperformance especially affects firms that are not under a restructuring process and firms with entrenched or overconfident CEOs.

5.1. Theoretical and practical implications

The executive compensation contract typically consists of fixed (salary and bonus) and variable (incentive-based) components (Finkelstein & Hambrick, 1988). The incentive-based component of compensation has received considerable attention in the literature, in large part, due to its interest alignment properties (Devers et al., 2007). In contrast, research has been relatively silent about the fixed component, such as CEO salary. This study offers an in-depth analysis of $1 CEOs—a phenomenon frequently overseen by researchers, but highly publicized in the media that gives considerable visibility to the CEOs and their firms (e.g., the article in the Economist by Gaither (2006), or in the Marketplace by Yankowski (2006)). Though many studies discuss CEOs excessive pay and deservedness (Aguinis et al. (2018) provide a detailed discussion on these issues), we focus on this apparently contrarian behavior of settling for a symbolic $1 salary, which, albeit uncommon, has been adopted by firms that appear to be quite ordinary in many ways. We provide evidence that cutting the salary (in the extreme case to $1) may have some consequence on total CEO pay and firm performance. We also contribute to the corporate governance literature by showing how CEO entrenchment (the balance between

managerial and board power) would moderate the effect of $1 CEO salary on total compensation and firm performance.

In addition, our study highlights the importance of considering the heterogeneity of firms and CEOs when analyzing the impact of compensation policies. Identifying and understanding how different factors moderate the impact of compensation policies is essential to better predict the consequences for companies and their stakeholders. This type of in-depth analysis may help clarify some mixed results found in several empirical studies. For example, some studies on the effect of incentive pay policies on firm performance lead to different conclusions—a positive (e.g. Carpenter & Sanders, 2002; Nyberg, Fulmer, Gerhart & Carpenter, 2007), a non-significant (Carpenter & Sanders, 2004), or a non-linear (Sanders & Hambrick, 2007) relationship. These results become more meaningful once we exploit the variety of firm and CEO characteristics that represent different empirical contexts. Our empirical experiment is an example of how different subsamples based on firm and CEO characteristics can be used as moderating factors to uncover the effect of a particular compensation policy on CEO pay and firm performance. Analyzing how specific subsets of firms respond to the adoption of $1 CEO salaries provides us a deeper understanding of the contexts surrounding this uncommon compensation policy and its impact on corporate outcomes, without compromising the complexity of the phenomenon. Moreover, our approach implicitly suggests that such moderating factors can derive from three major sources: the financial and operating situation of the firm (e.g., restructuring firms), agency (e.g., entrenched CEOs), or behavioral issues (e.g., CEO overconfidence and fear of public outrage).

Another important implication of this study is that it shows the great potential of detailed studies focused on subsets of CEOs for the empirical literature on CEO compensation. Our empirical approach echoes the concerns of recent studies that question one-size-fits-all approaches when it comes to understanding the effects of executive compensation policies. One

can find such concerns in Carpenter, Gletkanycz, and Sanders (2004); Devers, Cannella, Reilly, and Yoder (2007); or Wowak and Hambrick (2010). By considering the heterogeneity of firms and CEOs, we add to the growing literature that uses CEO characteristics as moderating, or distinguishing, factors when examining the consequences of different corporate policies on firm outcomes (Rajagopalan & Datta, 1996; Barker III & Mueller, 2002; Bertrand & Schoar, 2003; Nadkarni & Herrmann, 2010; Manner, 2010; Cronqvist et al., 2012; Helfat & Martin, 2015; Tang et al., 2015).

This study has at least three practical implications. First, investors who care about long-term stock returns should be more aware of the possible consequences of the $1 CEO salary for different situations, such as restructuring firms, entrenched CEOs, and overconfident CEOs. Our study sheds some light on how firms' pre-financial conditions may impact the outcomes of compensation policies. Boards of directors and compensation committees should consider the situation of the firm and the CEO characteristics when designing a CEO pay package. The $1 CEO salary can help align managers' incentives with shareholder interests in a restructuring process, but it can also hurt long-term performance in other situations.

Second, our study supports the view that agency problems negatively moderate the impact of compensation policies on firm performance. The same policy adopted by two firms with different corporate governance standards will have different impacts of post-performance. In our analysis, we focus on the presence of entrenched CEOs and document underperformance in the aftermath of adoption the $1 CEO salary. Thus, our evidence is favorable to policies that improve the quality of firms' corporate governance.

Finally, our study claims for more transparency surrounding the adoption of $1 CEO salaries. Such a highly publicized event can overshadow other untold benefits that CEOs may receive, such as other less-visible forms of compensation to cover up the salary loss. Moreover,

$1 CEOs may receive non-monetary benefits, including avoidance of public outrage, which is particularly relevant for wealthier and more entrenched CEOs with high pay.

5.2. Limitations and future research

The most salient limitation of this study derives from the complexity of the phenomenon of $1 CEOs. The reasons why some CEOs adopt the $1 salary are not observable and can vary substantially to the extent that some can be aligned with value-enhancing strategies, whereas others may just be opportunistic. Moreover, the most common stated reason given by CEOs to justify the adoption of the $1 salary—that is, the alignment of CEO–shareholders' interests—may be a way of masking other plausible reasons such as avoiding public outrage for excessive pay or receiving favorable media coverage and public recognition, for example. Because the motives to adopt the $1 CEO salary are unobservable, we focus on the consequences of this compensation arrangement. However, motives and consequences are not completely independent. In our study, we address this issue by analyzing the consequences of $1 CEO salaries in subsamples of firms that represent different contexts for the adoption of $1 CEO salaries.

This paper motivates future research on the determinants of $1 CEO salary arrangements. By providing anecdotal evidence on the potential for public outrage, with particular incidence in firms with wealthy and powerful CEOs (entrenched group) and in firms with no economic rationale for the adoption of $1 CEO salaries (non-restructuring group), our study also motivates future research on other CEO strategies to extract non-pecuniary benefits—for example, favorable publicity, self-promotion, outrage avoidance, social reputation, and community approval.

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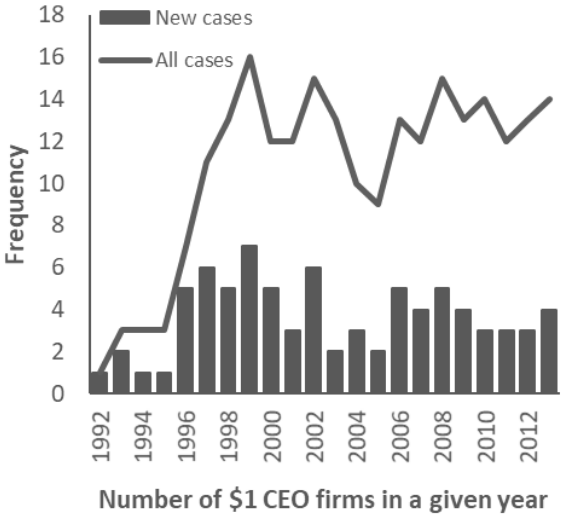
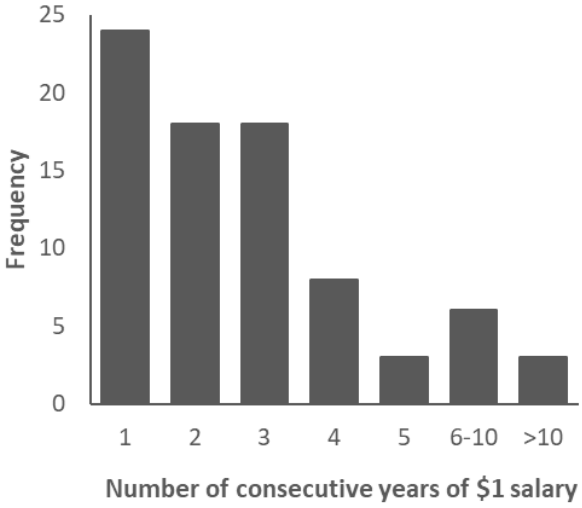
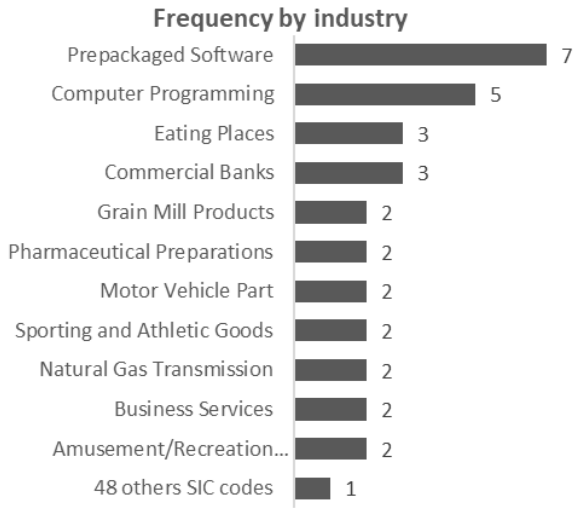
Figure 1: Distribution of $1 CEO firms







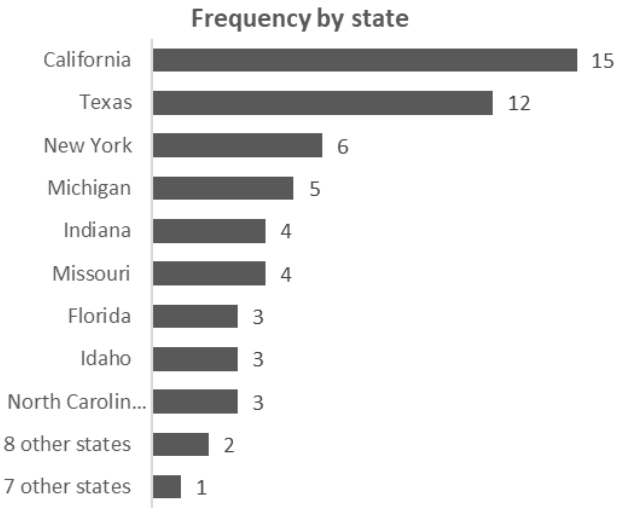


Table 1: Summary statistics and correlations

		Mean	Median	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	$1 CEO	0.10	0.00	0.30	1.00														
2	Restructuring	5.40	3.57	12.9	0.10	1.00													
3	CEO-chair duality	0.55	1.00	0.50	0.07	0.00	1.00												
4	Board size	9.50	9.00	2.99	-0.08	-0.22	0.12	1.00											
5	CEO tenure	7.44	5.00	7.04	0.01	0.07	0.27	-0.09	1.00										
6	Board independence	0.67	0.70	0.18	-0.02	-0.16	0.10	0.14	-0.10	1.00									
7	Overconfident	0.42	0.00	0.49	0.17	-0.02	-0.01	-0.04	0.07	-0.05	0.211.00								
8	CEO compensation	4.48	2.19	9.82	0.13	0.00	0.01	0.08	-0.08	0.11	-0.03	0.051.00							
9	Log sales	5.02	6.61	6.10	0.01	-0.32	0.15	0.55	-0.05	0.20	0.04	-0.08	0.311.00						
10	Leverage	0.55	0.55	0.28	-0.07	-0.49	0.13	0.37	-0.12	0.20	0.01	-0.03	0.10	0.491.00					
11	Earnings	0.06	0.07	0.14	-0.11	0.09	-0.05	0.09	0.04	-0.07	0.07	-0.14	0.05	0.25	0.031.00				
12	Tobin's Q	2.16	1.51	2.10	0.08	0.66	0.04	-0.17	0.00	-0.08	0.01	-0.02	0.08	-0.08	-0.28	0.261.00			
13	CEO ownership	0.11	0.00	0.28	0.31	0.06	0.19	-0.22	0.35	-0.18	0.24	0.01	-0.11	-0.10	-0.09	-0.03	0.091.00		
14	CEO age	54.8	55.0	7.99	-0.08	-0.14	0.24	0.13	0.48	-0.04	0.07	-0.02	-0.07	0.10	0.11	0.02	-0.23	0.141.00	
15	Institutional ownership	0.61	0.65	0.25	-0.04	-0.11	-0.05	-0.01	-0.05	0.19	-0.04	-0.02	0.02	0.19	0.05	0.25	-0.06	-0.21	-0.01

Table 2: CEO compensation after adopting the $1 CEO salary (Cross-sectional regressions)

	Baseline	Restructuring	CEO Entrenchment				Overconfidence
			CEO-Chair	*CEO Tenure*	*Ownership*	*Independence*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1 CEO	4.66***	6.11***	13.61***	8.18***	7.41**	-9.77	-0.65
	(3.39)	(2.90)	(5.83)	(4.59)	(4.36)	(-1.22)	(-0.65)
Restructuring		0.02					
		(0.36)					
$1 CEO×Restructuring		-0.14					
		(-1.33)					
Entrenchment			0.76	0.08	0.09	2.25	
			(0.85)	(1.18)	(0.09)	(0.58)	
$1 CEO×Entrenchment			-13.30***	-0.47***	-0.24	24.87**	
			(-4.69)	(-3.10)	(-0.11)	(2.13)	
Overconfident							-0.47
							(-0.26)
$1 CEO×Overconfidence							10.60***
							(5.40)
ln(Total Sales)	1.73***	1.85***	1.68***	1.73***	1.71***	2.45***	1.77***
	(6.78)	(5.59)	(6.55)	(6.81)	(6.71)	(5.73)	(7.00)
Leverage	-1.25	-1.18	-0.49	-1.36	-1.12	-2.91	-1.21
	(-0.65)	(-0.43)	(-0.26)	(-0.71)	(-0.58)	(-0.92)	(-0.64)
Earnings	-2.47	-4.19	-2.16	-2.23	-1.91	-4.15	-2.68
	(-0.79)	(-1.02)	(-0.70)	(-0.72)	(-0.61)	(-0.73)	(-0.87)
Tobin's Q	0.57**	0.55*	0.66***	0.60***	0.59**	0.96**	0.51**
	(2.43)	(1.64)	(2.84)	(2.57)	(2.49)	(2.39)	(2.16)
CEO ownership	-11.06*	-16.80**	-9.19	-11.44*	-4.50	-18.34*	-8.14
	(-1.84)	(-2.14)	(-1.52)	(-1.83)	(-0.70)	(-1.90)	(-1.37)
CEO age	-0.10*	-0.11	-0.11**	-0.11*	-0.10*	-0.09	-0.09*
	(-1.85)	(-1.62)	(-1.99)	(-1.93)	(-1.91)	(-1.16)	(-1.78)
Institutional ownership	1.45	1.39	1.38	1.55	1.41	-0.70	0.74
	(0.74)	(0.55)	(0.72)	(0.80)	(0.73)	(-0.21)	(0.38)
Constant	-4.81	5.00	-4.60	-4.56	-5.97	-3.38	-4.77
	(-0.54)	(0.50)	(-0.52)	(-0.50)	(-0.67)	(-0.31)	(-0.54)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	641	641	641	641	641	432	641
R-squared	0.107	0.081	0.136	0.118	0.115	0.130	0.132

t-Statistics are reported in parentheses. *, **, and *** stand for statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 3: CEO compensation after adopting the $1 CEO salary (Panel data regressions)

	Baseline	Restructuring	CEO Entrenchment				Overconfidence
			CEO-Chair	*CEO Tenure*	*Ownership*	*Independence*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
$1 CEO	1.84***	1.21	4.87***	4.76***	1.75**	4.89***	-2.40***
	(2.89)	(1.45)	(6.20)	(6.01)	(2.05)	(3.03)	(-2.63)
Restructuring		-0.05***					
		(-4.14)					
$1 CEO× Restructuring		-0.13**					
		(-2.38)					
Entrenchment			0.66***	0.02	0.95*	1.74*	
			(2.84)	(0.95)	(1.89)	(1.94)	
$1 CEO× Entrenchment			-1.48**	-0.09**	-5.34***	-1.74	
			(-2.36)	(-1.98)	(-5.19)	(-0.80)	
Overconfident							0.01
							(0.01)
$1 CEO× Overconfident							1.19**
							(2.40)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8867	8867	8867	8867	8867	5279	8867
R-squared	0.189	0.195	0.201	0.195	0.164	0.401	0.203

The regressions include the same control variables as in Table 2. *t*-Statistics are reported in parentheses. *, **, and *** stand for statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4: Long-term stock return performance (Jensen's alphas)

	Portfolio Size		Single-Factor Model		Fama–French Four-Factor Model	
	Sample	*Match*	*2 years*	*3 years*	*2 years*	*3 years*
All CEOs	73	444	-0.009 **	-0.010***	-0.009 **	-0.010***
			(-2.02)	(-2.63)	(-2.02)	(-2.58)
Restructuring	13	46	0.010	-0.003	-0.010	-0.015
			(0.42)	(-0.25)	(-0.53)	(-1.28)
Non-restructuring	60	398	-0.011**	-0.010**	-0.010**	-0.010**
			(-2.35)	(-2.47)	(-2.28)	(-2.39)
Entrenched (CEO-chair)	55	338	-0.012**	-0.011**	-0.011**	-0.011**
			(-2.23)	(-2.46)	(-2.06)	(-2.36)
Non-entrenched (CEO-chair)	18	106	0.012	-0.002	0.011	-0.002
			(1.39)	(-0.29)	(1.15)	(-0.44)
Overconfident	32	94	-0.020**	-0.011**	-0.019***	-0.013**
			(-2.49)	(-1.98)	(-2.64)	(-2.31)
Non-overconfident	41	350	-0.004	-0.008	-0.003	-0.008
			(-0.60)	(-1.53)	(-0.60)	(-1.53)

t-Statistics using Newey–West standard errors are reported in parentheses. *, **, and *** stand for statistical significance at the 10%, 5%, and 1% levels, respectively.