

# Is M&A Self-Dealing in the Context of Peer Benchmarking of CEO Pay?

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*We define two effects: (a) percentage difference between median CEO pay of compensation peers and their counterfactual peers (Peer pay effect, PPE), and (b) percentage difference between focal firm CEO pay and the median CEO pay of their compensation peers (CEO pay effect, CPE). We find a negative relation between M&A announcement period abnormal returns and pre-announcement PPE. The PPE (CPE) is lower (higher) in acquiring years relative to non-acquiring years. We show that the lower PPE is consistent with better governance and higher CPE is due to benchmarking against peers with higher median CEO pay and for completing acquisitions.*

*Keywords: M&A, peer-benchmarking, CEO compensation*

## INTRODUCTION

Mergers and acquisitions (M&A) represent significant corporate investments that increase company size and possibly change the acquirer's scope of operations. The increased size and complexity of the integrated firm provide a natural opportunity for an acquiring firm's CEO and board to restructure CEO compensation (Harford and Li, 2007).<sup>1</sup> Prior research indicates that acquiring CEOs, with power, extract rents in the form of large bonuses, options, and equity grants for completing acquisition deals (Datta, Iskandar-Datta, and Raman, 2001; Bliss and Rosen, 2001; Grinstein and Hribar, 2004; Harford and Li, 2007). With the incentive of M&A-related compensation packages, self-serving CEOs will not necessarily choose value-maximizing deals for shareholders. Grinstein and Hribar (2004) find a negative relation between the market reaction around the announcement of the deal and the amount of acquisition-related bonuses paid to acquiring CEOs. In the presence of equity-based incentives, Harford and Li (2007) find that the negative impact on CEOs' existing portfolios of equity-based compensation due to poor acquisition performance is entirely compensated by the flow of new equity and option grants acquiring CEOs receive upon completing an acquisition.

We examine acquisition-related CEO compensation effects when acquiring firms benchmark their CEOs' pay against a self-selected set of peer firms. Our research is motivated by the findings in the peer-benchmarking literature. To retain and attract talented CEOs, companies may identify a set of peer firms

similar to the focal firm in terms of size, industry, and other characteristics when constructing a CEO compensation package. The median CEO compensation of the selected peer firms (hereafter, Actual Peers) serves as a benchmark to set focal firms' CEO pay. The literature follows the propensity-score matching procedure to construct a counterfactual peer-group similar in industry affiliation, firm size, and performance of the Actual Peers chosen by the focal firm (hereafter, PSM Peers) (Faulkender and Yang, 2010, 2013, Albuquerque, De Franco, and Verdi, 2013). Following Albuquerque, De Franco, and Verdi (2013), we define the *Peer pay effect* (hereafter, *PPE*) as the percentage difference between the median CEO compensation of Actual Peers and the PSM Peers. The literature is divided on the interpretation of *PPE*. While Albuquerque, De Franco, and Verdi (2013) attribute a higher *PPE* as a reward to retain talented CEOs, Faulkender and Yang (2013) show that *PPE* reflects CEOs' strategic choice of Actual Peers with highly paid CEOs when they could have chosen an appropriate peer group with lower-paid CEOs. If *PPE* indicates CEOs' talent, then *PPE* should have a positive impact on the acquisition performance during announcement period. In contrast, if *PPE* does not reflect the talent and the announcement period reaction is either insignificant or negative, the *PPE* may be lower for such CEOs in acquiring years. We examine the above empirical question in this research.

We focus on acquiring years with a total acquisition transaction value greater than \$100 million to capture the effect of the acquisition on CEO compensation. To ensure that our tests capture CEOs' incentive to obtain a pay raise through acquisition, we require CEOs to be present prior to an acquisition's announcement until the year after the acquisition is completed. Our overall sample from 2008 to 2018 consists of 7,878 firm-year observations, of which 14.9% or 1,174 observations are in acquiring years with a total acquisition transaction value greater than \$100 million. Our acquisition sample includes 1,105 completed acquisitions during the same period.<sup>2</sup>

Following the propensity-score matching procedure in Faulkender and Yang (2013), for every firm-year observation in our sample, we construct a set of PSM Peers similar in industry affiliation, size, and performance to the corresponding set of Actual Peers. We then compute the *PPE* as the percentage difference between the median CEO compensation of the Actual and the set of PSM Peers. After controlling for known acquisition-related factors that affect the announcement period's abnormal returns, we find that abnormal returns in the announcement period are significantly negatively related to pre-announcement *PPE*. Our results do not support the interpretation that higher values of *PPE* are attributable to talented CEOs.

Harford and Li (2007) conjecture that acquisitions provide a natural opportunity for an acquiring firm's CEO and its board to restructure CEO compensation. Since significant events such as an M&A increases the size of the firm and possibly the industry affiliation, acquiring firms are likely to change the composition of Actual Peers, resulting in a more appropriate benchmark pay for the CEOs of the combined entity. Because such events also allow a wider choice of peer firms for focal firms to choose from, they provide an opportunity for less than talented CEOs to (unjustly) select peers with higher CEO compensation. Such an unjust choice of Actual Peers should result in a higher *PPE* in acquisition years.

After controlling for lagged firm characteristics, performance, and governance, we find that the logarithm of the median CEO compensation of Actual Peers is 2.7% higher in acquiring years than in non-acquiring years, with a statistical significance at the 5% level. The higher median CEO compensation of Actual Peers is in the form of higher median stock compensation (at the 10% level), salary (at the 5% level), and other compensation (at the 1% level). For the Actual Peers, we do not observe a significant difference in the median option or bonus compensation between acquiring and non-acquiring years. The results indicate that CEOs of a combined entity manage a larger firm, possibly with more complex operations, and deserve compensation benchmarked against a set of Actual Peers with a higher median CEO compensation.

To ascertain whether the higher median CEO compensation of Actual Peers in acquiring years is justified, we compare it with the median CEO compensation of a counterfactual set of peers similar to the revised set of Actual Peers, i.e., a revised set of PSM Peers. We find that the median CEO compensation of the revised group of PSM Peers is also significantly higher in acquiring years. In the acquiring years, a higher *PPE* indicates that a focal firm revised its compensation peers to include firms with higher-paid CEOs when peer firms with lower-paid CEOs were available but not chosen. Such a choice may indicate a

self-serving behavior. However, our results indicate otherwise. The *PPE* is significantly lower in acquiring years (between 5% and 1% levels) after controlling for CEO talent, CEO power, and governance. Our results indicate the acquiring CEOs' inability to inflate their benchmark pay by strategically revising the Actual Peers following an M&A event.

Our final tests examine the impact of acquisitions on acquiring firms' CEO compensation through peer benchmarking. Prior research shows that acquiring CEOs receive bonuses, options, and equity grants for completing acquisition deals (Datta, Iskandar-Datta, and Raman, 2001; Bliss and Rosen, 2001; Grinstein and Hribar, 2004; Harford and Li, 2007). Aside from such direct acquisition-related compensation, CEOs may also receive higher compensation in the acquiring years due to being benchmarked with a set of Actual Peers having a higher median CEO compensation. Our results indicate that CEOs receive significant additional compensation in the acquiring years after controlling for peer benchmarking and other known firm and governance factors that affect CEO compensation. Interestingly, we observe a substitution effect in the acquiring years where CEO compensation is higher, but the impact of peer benchmarking on CEO compensation is lower. We find the substitution effect to be concentrated in total CEO pay's stock and option components but not evident in bonus and salary components. Our finding that acquiring CEOs are compensated with incentive compensation (i.e., stocks and options) is consistent with Harford and Li (2007) and Choi, Genc, and Ju (2018). However, our observation that CEOs do not receive additional bonus for completing acquisitions is inconsistent with the findings in Grinstein and Hribar (2004).

Since both acquiring firms' CEO compensation and the median CEO compensation of Actual Peers are higher in acquiring years, we examine whether the difference between the two, i.e., *CEO pay effect* (hereafter, *CPE*), is also higher in the acquiring years. This question relates to the issue of ratcheting up CEO pay by using a set of Actual Peers with a higher median CEO compensation. One reason for this conjecture may be that when every company tries to maintain or exceed the median pay of its peers, CEO pay spirals upward, leading to a "Lake Wobegon effect".<sup>3</sup> Our results indicate that the *CPE* is significantly higher (at the 1% level) in the acquisition years, after controlling for similar factors employed in *PPE* analysis, i.e., CEO talent, power, and governance. This result confirms the finding of Harford and Li (2007) that CEOs are given additional stock and option-based compensation in acquiring years, even though the return reaction to announcements of acquisitions is negatively related to higher *PPE*.

We contribute to two strands of literature. The literature that examines the impact of acquisitions on CEO compensation indicates that, prior to an acquisition decision, CEOs with little equity-based compensation do not exhibit incentives to make value-enhancing acquisitions (Lewellen, Lorderer, and Rosenfeld, 1985; Datta et al., 2001). Harford and Li (2007) find that the negative impact on CEOs' existing portfolios of equity-based compensation due to poor acquisition performance is entirely mitigated by the additional equity and option grants acquiring CEOs receive upon completing an acquisition. Grinstein and Hribar (2004) find that CEOs receive bonuses for completing acquisitions. We extend this literature by examining the impact of acquisitions on CEO compensation when firms benchmark their CEO compensation to a set of self-selected peer firms. We find that median CEO compensation of peer firms is positively related to acquiring CEOs' compensation and that acquiring CEOs receive stock and options-based compensation for completing acquisition deals. However, we find a substitution effect that results in lower sensitivity to the median CEO compensation of peer firms and the additional stock and options-based compensation received for completing acquisition deals. We do not find any significant bonus compensation paid to CEOs for completing acquisition deals. In addition, we find that the percentage difference between CEO total pay and the median CEO compensation of peer firms widens in the acquiring years.

We add to the literature in peer benchmarking. Prior studies in this area of research indicate the presence of both talent-based motives in peer selection (Bizjak et al., 2008; Albuquerque, De Franco, and Verdi, 2013) as well as opportunistic behavior on the part of CEOs (Bizjak et al., 2011; Faulkender and Yang, 2010, 2013). The peer-benchmarking literature employs the percentage difference between the median CEO compensation of the self-selected peers relative to a counterfactual set of peers (i.e., *Peer pay effect* or *PPE*) as a proxy for the effects of talent or self-serving behavior in choosing the peer firms. We find that higher pre-acquisition *PPE* results in a relatively poor acquisition announcement period reaction, supporting the

self-serving hypothesis. However, we find that acquiring CEOs are unable to revise their peers strategically, as reflected in a lower *PPE* after deal completion. While CEOs receive additional compensation for completing acquisitions, the benchmarking process curbs the self-serving tendency to unjustly choose the set of peer firms in the event of acquisitions.

The rest of the paper is presented as follows. Section 2 contains the relevant literature and the hypotheses that form the basis for our tests. Section 3 presents the sample selection procedure, variable definitions, and descriptive statistics. Sections 4 and 5 provide the impact of acquisitions on median peer pay and CEO pay. Section 7 contains our concluding remarks.

## RELATED LITERATURE AND HYPOTHESIS DEVELOPMENT

The CEO compensation contract is determined at the beginning of a fiscal year, and the actual compensation received by a CEO is reported in the proxy statement at the end of the fiscal year. It is common practice for firms to construct a competitive CEO pay package by ascertaining the median CEO compensation of a set of peer firms of similar size, industry affiliation, and other characteristics as the focal firm. Hence, focal firms' CEOs, board of directors, and compensation consultants determine the focal firms' peer group at the beginning of a fiscal year when the CEO compensation contract is determined. If a focal firm completes an M&A deal during the year, changes may occur to the composition of peer firms during the fiscal year, and a revised peer group will need to be filed in the proxy statement pertaining to that fiscal year.

Prior studies that examine the impact of acquisitions on CEO compensation have not considered the implications of acquisition-related changes to the membership of the compensation peer group. Such changes are likely to result in a revision to the benchmark pay, i.e., median CEO compensation of peer firms that affects the acquiring firms' CEO compensation. We develop our hypotheses related to the impact of acquisitions on CEO compensation in the context where CEO compensation is benchmarked with a set of peer firms.

### Peer Pay Effect and Acquisition Announcements

*Peer Pay Effect* (i.e., *PPE*) is defined as the percentage difference between the median CEO compensation of the Actual Peers and the median CEO compensation of a counterfactual set of peer firms. The counterfactual set of peer firms consists of firms similar in industry affiliation, firm size, and stock and accounting performance to the firms in the Actual Peer group, but the counterfactual set of peer firms was not selected as Actual Peers. Because focal firms have the discretion to choose the firms that belong to the set of Actual Peers, they may strategically benchmark their CEOs' compensation with an unjustly chosen peer group that has a higher median CEO compensation (Bizjak, Lemmon, and Nguyen, 2011; Faulkender and Yang, 2010, 2013). This would imply that a higher *PPE* is indicative of self-serving behavior. In contrast, focal firms' boards may deliberately choose Actual Peers with a higher median CEO compensation, i.e., a higher benchmark pay, to reward and retain talented CEOs. In this instance, a higher *PPE* indicates CEO talent (Bizjak, Lemmon, and Naveen, 2008; Albuquerque, De Franco, and Verdi, 2013; Schneider, 2021).

M&A transactions are among the most significant investments that firms undertake that potentially increase firm size, affect its core business line, and increase the complexity of operations. Since we focus on the compensation effects of M&A in the context of peer-benchmarking of CEO compensation, an M&A setting offers us an opportunity to examine the market reaction to announcements of M&A deals in relation to acquirer CEOs' *PPE*. From a talent perspective, Schneider (2021) finds that small firms benchmark their CEO pay against an aspirational peer group with higher median CEO pay to retain managerial talent. Albuquerque, De Franco, and Verdi (2013) decompose *PPE* into talent and self-serving components and find that future firm performance is related more to the talent component than the self-serving component. CEOs with experience in the target industry generate abnormal announcement returns of one to two percentage points higher than CEOs without such experience (Custodio and Metzger, 2013). In such an instance, a higher *PPE* may indicate an incentive offered by the boards to retain CEOs with valuable

acquisition experience. Since the pre-acquisition-announcement *PPE* reflects a culmination of rewards received by CEOs for enhancing shareholders' wealth in various ways, we consider CEO talent in an aggregate sense. We posit that the acquisition announcements made by CEOs with higher pre-announcement *PPE* are met with a more favorable market reaction in terms of announcement period abnormal returns. We state the first part of Hypothesis 1 below:

***H1a:*** *Ceteris Paribus, the abnormal returns around the announcement of acquisition deals are positively related to the pre-announcement Peer pay effect (PPE).*

Evidence from several studies suggests that *PPE* is a result of strategically choosing Actual Peers with high paid CEOs to inflate CEO compensation in a self-serving manner. Such CEOs are unlikely to make decisions in the best interest of their shareholders. Faulkender and Yang (2010) find that the *PPE* in firms with weak governance (or greater CEO power) is significantly greater than the *PPE* in firms with stronger governance. These authors characterize weak governance as firms having CEOs who also serve as chairperson of the board and with a tenure of over 5.5 years with the firm or having board members serving on boards of other firms (i.e., busy boards). A similar finding is documented in Faulkender and Yang (2013) with data period after the 2006 Securities Exchange Commission mandate requiring firms to list their compensation peers in proxy statements. In contrast, results in Bizjak, Lemmon, and Nguyen (2011, Table 7, Page 550) indicate that *PPE* is not determined by differences in governance measured in terms of CEO tenure, fraction of board hired after CEO, or the Gompers, Ishii, and Metrick (2003) measure of the strength of shareholder rights.

Evidence from prior studies points to acquisitions made in a self-serving manner. Grinstein and Hribar (2004) find a negative relation between the market reaction around the announcement of the deal and the amount of acquisition-related bonuses paid to acquiring CEOs. In the presence of equity-based incentives, Harford and Li (2007) find that the negative impact on CEOs' existing portfolios of equity-based compensation due to poor acquisition performance is entirely compensated by the flow of new equity and option grants they receive upon completing an acquisition. If *PPE* is a result of choosing Actual Peers in a self-serving manner, we conjecture that CEOs with higher *PPE* may undertake acquisition deals to further increase *PPE* that may not increase their shareholders' wealth. We state the second part of Hypothesis 1 below:

***H1b:*** *Ceteris Paribus, the abnormal returns around the announcement of acquisition deals are negatively related to the pre-announcement Peer pay effect (PPE).*

### **Peer and CEO Compensation: Acquiring Versus Non-Acquiring Years**

M&A events can cause a change to the composition of the Actual Peers. On one hand, horizontal and vertical mergers occur between two firms in the same product market space to either create a new larger organization with higher market share or improve efficiency. On the other hand, cross-sector M&As expand opportunities and increase market share across different industries. Since compensation peer firms are determined based on the size and industry affiliation of a focal firm, M&A events can trigger changes to the set of Actual Peers to include peer firms that are more representative of the size and industry affiliation of the combined firm. There is extensive evidence indicating that CEOs of larger firms receive greater compensation.<sup>4</sup> Since the combined firm is larger in size and may have more complex operations, we expect the revision to the set of Actual Peers to result in a higher median CEO compensation once an acquisition is completed.

Aside from the possibility of a larger (combined) entity to be benchmarked with a peer group containing larger size firms, the magnitude of *PPE* prior to the completion of acquisition deals may also have an impact on the median CEO compensation of Actual Peers in the acquiring years. As discussed earlier, the magnitude of *PPE* contain influences of CEO talent and CEOs' ability to extract excessive rents in the presence of poor governance. In the event of an acquisition, if the magnitude of the pre-acquisition *PPE* is largely indicative of CEO talent, then we expect corporate boards to choose Actual Peers with a higher

median CEO pay to not only represent a larger (combined) entity but also to reward CEO talent. In contrast, if the magnitude of pre-acquisition *PPE* is largely indicative of self-serving behavior, we expect corporate boards to exercise good governance and revise the members in the Actual Peer group in order to lower the benchmark median CEO compensation. We state the first part of Hypothesis 2 below:

**H2a:** *Ceteris Paribus, the median CEO compensation of the Actual Peers is higher in acquiring years to represent a larger (combined) entity. The median CEO compensation of the Actual Peers in acquiring years is positively (negatively) related to pre-acquisition PPE, if the pre-acquisition PPE is largely indicative of CEO talent (self-serving behavior).*

It is well recognized that the process from the initiation of acquisition until completion takes much effort from CEOs and executives who are part of the C-suite. Acquiring CEOs are compensated with a bonus (Grinstein and Hribar, 2004) or with stocks and stock options (Harford and Li, 2007) in the year of acquisition completion. In addition, Actual Peers selected by a focal firm are likely to contain larger firms to better represent the size of the combined entity. Benchmarking with a higher-paid peer group may be justified because CEOs have to manage a larger firm after acquisition. The peer-benchmarking literature shows that CEO compensation is positively related to the median compensation of their peer group (e.g., Bizjak, Lemmon, and Nguyen, 2011; Faulkender and Yang, 2010, 2013). Because the CEOs are paid additional compensation due to acquisition completion, the board of directors may reduce the sensitivity of CEO compensation to the higher benchmark pay in the acquiring years. This may cause a substitution effect between the additional pay and sensitivity to benchmarking in acquiring years. We state the second part of Hypothesis 2 below:

**H2b:** *Ceteris Paribus, the additional pay that CEOs receive in acquiring years is associated with reduced sensitivity to peer-benchmarking.*

### **Peer Pay Effect (PPE) and CEO Pay Effect (CPE): Acquiring Versus Non-Acquiring Years**

Recall that *PPE* denotes the percentage difference between the median CEO compensation of the Actual Peers and the median CEO compensation of a counterfactual set of peer firms. In acquiring years, the values of *PPE* will contain the influence of acquisitions on the median CEO compensation of Actual Peers and the median CEO compensation of the set of counterfactual peers. After acquisition consummation, it is reasonable that the acquiring CEOs' compensation is benchmarked with a set of Actual Peers that contain larger firms. The set of counterfactual peers will also need revision to include firms that represent the size and industry affiliation of the combined entity. In the event of an acquisition, both the median CEO compensation of the Actual Peers and the median CEO compensation of a counterfactual set of peer firms could potentially increase, begging the question of whether the difference between the two values (i.e., *PPE*) increases.

In general, *PPE* contains compensation for CEO talent and a rent-extraction component due to a combination of poor governance and CEO power (Albuquerque, De Franco, and Verdi (2013)). We control for talent and the rent-extraction (i.e., self-serving) components when assessing the *PPE* in the acquiring years. If talented CEOs consummate the acquisitions, we conjecture that their board of directors would revise the set of Actual Peers to reflect a higher post-acquisition *PPE* in the acquiring years to reward and retain such talented CEOs. In contrast, self-serving CEOs are more likely to consummate acquisitions that impair shareholders' value. Their board of directors would likely revise the set of Actual Peers to reflect a lower post-acquisition *PPE* in the acquiring years. We state the first part of Hypothesis 3 below:

**H3a:** *Ceteris Paribus, relative to non-acquiring years, the post-acquisition PPE is higher (lower) in the acquiring years if talented (self-serving) CEOs consummate acquisitions.*

We define *CEO Pay Effect* (i.e., *CPE*) as the percentage difference between the focal firm's CEO compensation and the median CEO compensation of the focal firms' Actual Peers. In acquiring years, the

post-acquisition *CPE* will contain the influence of acquisitions on the median CEO compensation of Actual Peers and the focal firms' CEO compensation. As discussed earlier, acquiring CEOs receive additional compensation due to acquisition completion and are benchmarked with a set of Actual Peers containing larger firms in acquiring years. However, based on the arguments leading up to hypothesis 2a, the median CEO compensation of Actual Peers may be enhanced or mitigated. Furthermore, hypothesis 2b may result in relatively lower CEO pay in acquiring years due to reduced sensitivity to being benchmarked with a higher median peer pay. Thus, it is not clear whether the net effect increases or decreases *CPE*. We state the second part of Hypothesis 3 below:

**H3b:** *Ceteris Paribus*, the post-acquisition *CPE* in acquiring years is not significantly different than the *CPE* in non-acquiring years.

## SAMPLE, VARIABLE DEFINITION, AND DESCRIPTIVE STATISTICS

### Sample Construction

We use peer group data for fiscal years 2008-2018 provided by Institutional Shareholder Services (ISS). We require that focal firms have accounting information from Compustat and stock price information from the Center for Research in Security Prices (CRSP). We also require both focal firms and their peer firms to have executive compensation data available from ExecuComp database. We define a year as an acquiring year for a company if the total acquisition transaction value is greater than \$100 million in that year. The sample of acquisitions comes from Eikon from Thomson Reuters. We select domestic mergers and acquisitions with effective dates from 2008 to 2018. We require: 1) the acquirers are publicly traded U.S. companies on the AMEX, Nasdaq, or NYSE and are covered by CRSP and Compustat during the event window, 2) the acquisitions must not be spinoffs, recapitalizations, self-tenders, exchange offers, repurchases, minority stake purchases, acquisitions of remaining interest, or privatizations, 3) the transaction is completed, 4) the acquirers owned 100% of the shares of the target after deal completion, 5) the target or acquirer must not be an American depository receipt (ADR), Real Estate Investment Trust (REIT), or closed-end fund, 6) the deal has the transaction value reported, and 7) the number of days between the announcement and the completion dates is greater than or equal to zero. To ensure that our tests capture the CEOs' incentives to obtain a pay raise through acquisition, we require CEOs to be present prior to the acquisition's announcement until the year after the acquisition is completed. Our overall sample from 2008 to 2018 consists of 7,878 firm-year observations, of which 14.9% or 1,174 observations are in acquiring years. Our acquisition sample includes 1,105 completed acquisitions during the same period. In the 1,174 acquiring years, there were 1,387 acquisitions completed between 2008 and 2018, and only 1,105 acquisitions have enough information to examine acquisition performance.

### Variable Definitions

#### *Variables of Interest*

**Compensation Variables.** Our research focuses on the effect of acquisitions on median CEO compensation of peer firms and the corresponding focal firms' CEO compensation. Changes to peer firms and focal firms' CEO compensation take effect only after an M&A deal is completed. Hence, we define an indicator variable *Acq* as equal to one if the total consummated acquisition transaction value is greater than \$100 million in fiscal year *t* and zero otherwise. We define *CEO total pay* as the logarithm of CEO total compensation, including salary, bonus, non-equity incentive plan compensation, the fair value of stock awarded under plan-based awards, the fair value of options granted, all other compensation, and the total portion of deferred earnings reported as compensation. The *Median peer total pay* is the logarithm of the median CEO total compensation of Actual Peers. To isolate the effect of acquisitions on firm characteristics, following Faulkender and Yang (2013), we use a propensity-score method to construct a set of counterfactual peer firms for each firm year that could have been chosen by focal firms but were not selected. We denote the median CEO compensation of the counterfactual peer group as *Median PSM total pay*. The percentage difference between the *Median peer total pay* and *Median PSM total pay* is defined as

the *Peer Pay Effect (PPE)*, and the percentage difference between the *CEO total pay* and the *Median peer total pay* is defined as the *CEO pay effect (CPE)*. The compensation variables are measured as of 2020 dollars.

**Acquisition Performance Variables.** Following Oler (2008) and Savor and Lu (2009), we use buy and hold returns and matching firms to examine acquirers' stock performance during the announcement period. We construct the industry, size, and book-to-market portfolios to measure a benchmark return. We first group firms that had no acquisitions in the prior three years in the same industry into five size portfolios. We then select the best matches on book-to-market from the same size quintile as the acquirer's matching firms. We select up to 24 firms for each acquirer and select the top four firms as a matching portfolio. Instead of holding a matching portfolio unaltered throughout the examination period, we update each acquirer's matching portfolio every year at the beginning of July. Abnormal buy-and-hold returns are computed by subtracting the average buy-and-hold returns of the acquirer's top four matching firms from the acquirer's buy-and-hold returns over the same holding period. Let  $\overline{R}_{i,t}$  denote the mean return of the acquirer  $i$ 's matching portfolio at time  $t$  and  $R_{i,t}$  denotes the raw returns of the acquiring firm  $i$  at time  $t$ . The abnormal buy-and-hold returns are computed for a holding period  $t_1$  to  $t_2$ , as follows:

$$Anndt\ BHAR\ port\ Adj_{t_1,t_2}^i = \prod_{t=t_1}^{t_2} (1 + R_{i,t}) - \prod_{t=t_1}^{t_2} (1 + \overline{R}_{i,t}) \quad (1)$$

To compute announcement period abnormal buy-and-hold returns, we assume a 5-day announcement period window surrounding the event date, i.e.,  $t_2 - t_1 = 5$  days. We also use the CRSP value-weighted portfolio as a benchmark and equation (1) to estimate *Anndt BHAR vw Adj*.

#### *Control Variables*

We include several variables to control the acquiring firm and deal characteristics that are standard in the literature (Fuller, Netter, and Stegemoller, 2002; Moeller, Schlingemann, and Stulz, 2005). Specifically, we include one-year lagged values of *Acquirer NOA* <sub>$t-1$</sub> , *Acquirer accruals* <sub>$t-1$</sub> , *Acquirer sales growth* <sub>$t-1$</sub> , and prior 12-month price run-up (*Acquirer momentum* <sub>$t-1$</sub> ). In addition, we control for deal characteristics, including the relative size of the target (*relsize*), stock acquisition (*stockoffer*), if the target is a private company (*privtg*), a subsidiary (*subtg*), whether the acquirer and target are from different industries (*difind*), and international acquisitions (*intldiv*). The construction of these variables is defined in the appendix. All regressions control for year and industry fixed effects with robust standard errors clustered at the firm level. Except for the indicator variables, all dependent and control variables are winsorized at the 1<sup>st</sup> and 99<sup>th</sup> percentiles.

We follow Core, Holthausen, and Larcker (1999) and control for firm characteristics and CEO and board characteristics in our regression analyses. Since CEO compensation contracts and the corresponding set of peer firms are identified at the beginning of a fiscal year  $t$ , focal firms only have information for the fiscal year  $t-1$ . Hence, we use one-year lagged values of the control variables when the dependent variable is *Median peer total pay*. We control for firm characteristics by log sales (*Logsales* <sub>$t-1$</sub> ), leverage (*Leverage* <sub>$t-1$</sub> ), and market-to-book (*MKBK* <sub>$t-1$</sub> ).<sup>5</sup> To capture the impact of performance, we include stock returns (*Stockret* <sub>$t-1$</sub> ) and return on assets (*ROA* <sub>$t-1$</sub> ). CEO power and the quality of governance are shown to influence the *Median peer total pay* and *CEO total pay*. We control for CEO power based on whether the CEO is also the chair of the board (*CEO Chairman*) and the years since the current CEO took office (*CEO tenure (log)*). The governance variables include the number of board members (*Board size* <sub>$t-1$</sub> ) and the institutional ownership concentration measured using the Herfindahl Index of holdings among institutional shareholders (*Institutional ownership concentration HHI* <sub>$t-1$</sub> ).<sup>6</sup> When the dependent variable is *CEO total pay*, we augment the above control variables to include stock return volatility measured over the previous five years (*Std Stockret* <sub>$t-1$</sub> ), as well as current year performance measured by stock returns (*Stockret* <sub>$t$</sub> ) and return on assets (*ROA* <sub>$t$</sub> ).



## Descriptive Statistics

**TABLE 1**  
**DESCRIPTIVE STATISTICS**

<b>Panel A. Descriptive statistics of Acquisition Sample</b>						
<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>90th Pctl</b>	<b>10th Pctl</b>	<b>Std Dev</b>
<b>Acquisition performance and Other Deal Characteristics</b>						
<i>Anndt BHAR Port.Adj.</i>	1,105	1.03%	0.68%	8.85%	-5.95%	6.74%
<i>Anndt BHAR Vwret Adj.</i>	1,105	1.20%	0.73%	8.63%	-5.40%	6.42%
<i>Peer pay effect (PPE)<sub>t-1</sub></i>	1,105	18.36%	16.92%	68.93%	-30.08%	41.09%
<i>Pos. PPE Dummy<sub>t-1</sub></i>	1,105	0.695	1.000	1.000	0.000	0.461
<i>relsize</i>	1,105	0.169	0.082	0.410	0.018	0.228
<i>stockoffer</i>	1,105	0.024	0.000	0.000	0.000	0.154
<i>privtg</i>	1,105	0.341	0.000	1.000	0.000	0.474
<i>subtg</i>	1,105	0.419	0.000	1.000	0.000	0.494
<i>difind</i>	1,105	0.394	0.000	1.000	0.000	0.489
<i>intldiv</i>	1,105	0.228	0.000	1.000	0.000	0.420
<b>Acquirer Characteristics</b>						
<i>Acquirer NOA<sub>t-1</sub></i>	1,105	0.617	0.619	0.890	0.297	0.267
<i>Acquirer accruals<sub>t-1</sub></i>	1,105	0.043	0.026	0.145	-0.059	0.126
<i>Acquirer sales growth<sub>t-1</sub></i>	1,105	0.096	0.070	0.309	-0.099	0.223
<i>Acquirer momentum<sub>t-1</sub></i>	1,105	0.068	0.048	0.398	-0.264	0.281
<b>Panel B. presents the summary statistics of our overall sample of 7,878 firm-year observations</b>						
<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>Median</b>	<b>90th Pctl</b>	<b>10th Pctl</b>	<b>Std Dev</b>
<b>Acquisition Activity</b>						
<i>Acq</i>	7,878	0.149	0.000	1.000	0.000	0.356
<b>Compensation</b>						
<i>Median peer total pay<sub>t</sub> (log)</i>	7,878	8.506	8.543	9.305	7.684	0.615
<i>Median peer stock<sub>t</sub> (log)</i>	7,878	7.159	7.518	8.525	5.904	1.724
<i>Median peer option<sub>t</sub> (log)</i>	7,878	3.283	0.000	7.397	0.000	3.360
<i>Median peer bonus<sub>t</sub> (log)</i>	7,878	0.087	0.000	0.000	0.000	0.619
<i>Median peer salary<sub>t</sub> (log)</i>	7,878	6.662	6.690	7.043	6.249	0.299
<i>Median peer other<sub>t</sub> (log)</i>	7,878	6.915	7.039	7.831	5.906	0.821
<i>CEO total pay<sub>t</sub> (log)</i>	7,878	8.352	8.415	9.434	7.197	0.862
<i>CEO stock<sub>t</sub> (log)</i>	7,878	6.117	7.376	8.799	0.000	3.185
<i>CEO option<sub>t</sub> (log)</i>	7,878	3.163	0.000	7.893	0.000	3.602
<i>CEO bonus<sub>t</sub> (log)</i>	7,878	0.719	0.000	4.652	0.000	1.963
<i>CEO salary<sub>t</sub> (log)</i>	7,878	6.539	6.650	7.100	6.080	0.804
<i>CEO other<sub>t</sub> (log)</i>	7,878	6.507	6.884	8.122	4.053	1.654
<i>Peer pay effect (PPE)<sub>t</sub></i>	7,878	16.6%	0.159	0.703	-0.356	0.439
<i>Pos. PPE dummy<sub>t</sub></i>	7,878	0.668	1.000	1.000	0.000	0.471
<i>CEO pay effect (CPE)<sub>t</sub></i>	7,878	-14.93%	-7.28%	50.01%	-90.37%	60.51%
<i>Pos. CPE dummy<sub>t</sub></i>	7,878	0.429	0.000	1.000	0.000	0.495

<b>Firm Characteristics</b>						
<i>Stockret<sub>t</sub></i>	7,878	0.162	0.129	0.612	-0.270	0.380
<i>ROA<sub>t</sub></i>	7,878	0.046	0.051	0.131	-0.022	0.094
<i>STD Stockret<sub>t-1</sub></i>	7,878	0.097	0.086	0.162	0.046	0.051
<i>Logsales<sub>t-1</sub></i>	7,878	7.683	7.633	9.704	5.746	1.547
<i>Stockret<sub>t-1</sub></i>	7,878	0.188	0.145	0.669	-0.288	0.433
<i>ROA<sub>t-1</sub></i>	7,878	4.61%	5.14%	13.03%	-2.65%	8.25%
<i>MKBK<sub>t-1</sub></i>	7,878	3.567	2.436	6.699	1.106	3.849
<i>Leverage<sub>t-1</sub></i>	7,878	0.198	0.192	0.407	0.000	0.157
<b>CEO Characteristics and Corporate Governance</b>						
<i>CEO abn ret<sub>(t-3,t-1)</sub></i>	7,878	0.405	0.068	0.379	-0.148	0.242
<i>CEO abn ROA<sub>(t-3,t-1)</sub></i>	7,878	9.88%	8.13%	22.88%	-0.74%	11.13%
<i>CEO log market cap<sub>(t-3,t-1)</sub></i>	7,878	7.942	7.783	10.055	6.093	1.536
<i>Managerial ability score<sub>t-1</sub></i>	7,327	0.016	-0.027	0.237	-0.127	0.154
<i>CEO payslice<sub>t-1</sub></i>	7,878	0.405	0.406	0.533	0.271	0.115
<i>CEO chairman<sub>t-1</sub></i>	7,878	0.485	0.000	1.000	0.000	0.500
<i>CEO tenure (log)<sub>t-1</sub></i>	7,878	1.736	1.792	2.773	0.693	0.859
<i>Board size<sub>t-1</sub></i>	7,878	13.190	10.000	26.000	7.000	7.707
<i>Institutional ownership concentration HHI<sub>t-1</sub></i>	7,878	0.051	0.040	0.073	0.000	0.078
<i>Busy board<sub>t-1</sub></i>	7,878	0.427	0.429	0.667	0.167	0.188
<b>Panel C. Descriptive statistics of acquisition performance for positive PPE and Negative PPE</b>						
Variable	<i>PPE<sub>t-1</sub>&lt;0</i>		<i>PPE<sub>t-1</sub>&gt;=0</i>		Diff (1)-(2)	
	N	Mean (1)	N	Mean (2)		
<i>Anndt BHAR port.Adj.</i>	337	1.75%	768	0.72%	1.03%*	
<i>Anndt BHAR vwret Adj.</i>	337	1.82%	768	0.92%	8.95%*	
<b>Panel D. Descriptive statistics of selected variables for non-acquiring and acquiring years</b>						
Variable	<i>Acq=0</i>		<i>Acq=1</i>		Diff (1)-(2)	
	N	Mean (1)	N	Mean (2)		
<i>CEO total pay<sub>t</sub> (log)</i>	6,704	8.284	1,174	8.745	-0.461***	
<i>Median peer total pay<sub>t</sub> (log)</i>	6,704	8.460	1,174	8.770	-0.310***	
<i>Peer pay effect (PPE)<sub>t</sub></i>	6,704	16.7%	1,174	16.4%	0.27%	
<i>CEO pay effect (CPE)<sub>t</sub></i>	6,704	-17.2%	1,174	-1.98%	-15.20%***	

All continuous variables are winsorized at the top and bottom 1%.

Table 1 presents descriptive statistics for our samples. Panel A and Panel B present the descriptive statistics of a total of 1,105 acquisitions and our overall sample of 7,878 firm-year observations, respectively. Panel C shows descriptive statistics of acquisition performance for positive *PPE* and Negative *PPE* prior to the acquisition announcement. Panel D presents descriptive statistics of selected variables for non-acquiring and acquiring years for the overall sample. For our acquisition sample, Panel A shows that the mean announcement period abnormal returns are positive (1.03% for *Anndt BHAR Port.Adj.*, and 1.20% for *Anndt BHAR Vwret Adj.*), suggesting an acquirer outperforms in the announcement period; Panel C shows that both announcement period abnormal returns in our sample are significantly higher (p-value <0.10) for negative *PPE* acquirers (mean = 1.75% for *Anndt BHAR Port.Adj.*, mean=1.82% for *Anndt BHAR Vwret Adj.*) compared to positive *PPE* acquirers (mean = 0.72% for *Anndt BHAR Port.Adj.*, mean=0.92% for *Anndt BHAR Vwret Adj.*).

For the overall sample, Table 1, Panel B shows that the average *Median peer total pay* is \$4.94 million (i.e.,  $e^{8.506}$ ), and the average *CEO total pay* is \$4.24 (i.e.,  $e^{8.352}$ ) million. Not surprisingly, the average *CEO pay effect (CPE)* is -14.9%. A higher *Median peer total pay* relative to *CEO total pay* indicates that, on average, focal firms tend to benchmark their CEO pay with peers with higher CEO pay. The mean *Peer*

*pay effect (PPE)* is 16.6%, indicating that focal firms select peers with CEO pay approximately 16.6% higher than the CEO pay at PSM matched peers. The firm characteristics of the overall sample indicate a mean sale of \$2.17 billion, a market-to-book ratio of 3.56, an ROA of 4.61%, stock returns of 1.88% with Volatility of 9.7%, and a leverage of 0.198. Our overall sample firm characteristics are similar to the sample in Faulkender and Yang (2010) and Wang et al. (2020). For CEO characteristics, the average size of firms the CEO has managed in the past is \$2,812.98 million, with the mean abnormal stock returns of 9.91% and the mean abnormal ROA of 9.88%. The average CEO's share of the total compensation paid to the top-five executive officers of the company is 40.5%. The average years since the current CEO took office is six years, and, on average, 48.5% of CEOs also serve as chairman of the board. The average board size is thirteen members, and, on average, 42.7% of board members also serve on three or more other boards.

Table 1, Panel D presents descriptive statistics of selected variables for non-acquiring and acquiring years for the overall sample. The average logarithm *Median peer total pay* in non-acquiring years is 8.460 and is significantly lower (at the 1% level) than 8.770 in the acquiring years. There is no significant difference between *Peer Pay Effect (PPE)* in the acquiring years vs. the non-acquiring year. Consistent with prior research, the CEO received higher pay in the acquiring year vs. non-acquiring year (8.284 vs. 8.745 in terms of the logarithm of *CEO total pay*). The average *CEO pay effect (CPE)* in acquiring year is -1.98% and is significantly higher (at the 1% level) than -17.2% in the non-acquiring years.

## REGRESSION ANALYSIS AND RESULTS

Since the *Peer Pay Effect (PPE)* is a variable of interest in our analysis, we start our analysis by estimating the value of *PPE*. We follow the Faulkender and Yang (2013) methodology and employ the propensity score approach to find the counterfactual set of peers. Specifically, we estimate the following discrete choice model:

$$\begin{aligned}
 \text{Chosen as peer}_{ij} = & \Phi[a + \beta_1 \text{Match}(\text{two-digit industry}_{ij}) + \beta_2 \text{Match}(\text{three-digit industry}_{ij}) + \beta_3 \text{Dummy}(\text{Sales within } 50 - 200\%_{ij}) + \beta_4 \text{Dummy}(\text{Assets within } 50 - 200\%_{ij}) + \beta_5 \text{Dummy}(\text{Market Cap within } 50 - 200\%_{ij}) + \\
 & \beta_6 \text{Abs}(\text{Sales Difference}_{ij}) + \beta_7 \text{Abs}(\text{Assets Difference}_{ij}) + \beta_8 \text{Abs}(\text{Market cap Difference}_{ij}) + \beta_9 \text{Dummy}(\text{ROA Higher, within in one SD}_{ij}) + \beta_{10} \text{Dummy}(\text{ROA Lower, within in one SD}_{ij}) + \\
 & \beta_{11} \text{Dummy}(\text{Equity return Higher, within in one SD}_{ij}) + \beta_{12} \text{Dummy}(\text{Equity return lower, within in one SD}_{ij}) + \\
 & \beta_{13} \text{Dummy}(\text{Volatility within in one SD}_{ij}) + \beta_{14} \text{Match}(\text{Single business segments}_{ij}) + \beta_{15} \text{Match}(\text{Multi business segments}_{ij}) + \beta_{16} \text{Match}(\text{Multi geo-segments}_{ij}) + \\
 & \beta_{17} \text{Match}(\text{Single geo-segments}_{ij}) + \beta_{18} \text{Match}(\text{CEO as Chair}_{ij}) + \beta_{19} \text{Match}(\text{CEO as Chair}_{ij}) + \beta_{20} \text{Match}(\text{Match S\&P 400}_{ij}) + \beta_{22} \text{Match}(\text{Match S\&P 500}_{ij}) + \\
 & \beta_{22} \text{Match}(\text{Match S\&P 900}_{ij}) + \beta_{23}(\text{Number of Peers}) + \epsilon_{ij}
 \end{aligned} \tag{2}$$

where the dependent variable takes a value of one if the potential peer  $j$  is chosen to be a member of the Actual Peer group for firm  $i$  and zero otherwise. Independent variables include industry match based on whether the potential peer has the same two- and three-digit SIC code as the focal firm. *Match (Two-digit industry)* and *Match (Three-digit industry)* are one if a potential peer is in the firm's two-digit and three-digit industry, respectively, and zero otherwise. *Absolute sales, assets, and market differences* are the absolute values of the differences in the natural logs of sales, assets, and market cap for the firm and its peer, respectively. *Dummy (Size within 50–200%)* is one if the sizes (*Sales, Assets, and Market Cap*) of the firm and the potential peer are within 50–200% of each other and zero otherwise. *Dummy (ROA within one SD & negative)* is one if the return on assets (*ROA*) of the firm in the previous year was lower than that of the potential peer, but the difference is within one standard deviation of the sample firms, and zero

otherwise. *Dummy (ROA within one SD & positive)* is one if the return on assets (ROA) of the firm in the previous year was higher than that of the potential peer, but the difference is within one standard deviation of the sample firms, and zero. *Dummy (Stockret within one SD & negative)* is one if the stock return (*Stockret*) of the firm in the previous year was lower than that of the potential peer, but the difference is within one standard deviation of the sample firms, and zero otherwise. *Dummy (Stockret within one SD & positive)* is one if return on stock return (*Stockret*) of the firm in the previous year was higher than that of the potential peer, but the difference is within one standard deviation of the sample firms, and zero otherwise. *Dummy (Volatility within one SD)* is one if the realized equity volatility of the potential peer over the previous fiscal year was within one standard deviation (SD) of the firm, and zero otherwise. *Match (Single geo-segments)*, *Match (Multit geo-segments)*, *Match (Single business segments)*, and *Match (Multit business segments)* are one if both the firm and the potential peer have multiple geographic segments, a single geographic segment, multiple business segments, and a single business segment, respectively, and zero otherwise. *Match (S&P 400 membership)*, *Match (S&P 500 membership)*, and *Match (S&P 900 membership)* are one when both the firm and its potential peer are S&P 400 index components, S&P 500 index components, and S&P 900 index components, respectively, and zero otherwise. *Number of peers* is the number of compensation peers chosen by the firm. We present the results in Table 2.

**TABLE 2**  
**PEER SELECTION BIAS**

VARIABLES	Chosen
<i>Match (two-digit industry)</i>	2.707*** (0.007)
<i>Match (three-digit industry)</i>	0.942*** (0.008)
<i>Absolute sales difference</i>	-0.823*** (0.007)
<i>Absolute assets difference</i>	-0.512*** (0.006)
<i>Absolute market cap difference</i>	-0.114*** (0.005)
<i>Dummy (Sales within 50–200%)</i>	0.135*** (0.008)
<i>Dummy (Assets within 50–200%)</i>	-0.011 (0.008)
<i>Dummy (Market cap within 50–200%)</i>	0.0235*** (0.008)
<i>Dummy (ROA within one SD &amp; negative)</i>	0.290*** (0.008)
<i>Dummy (ROA within one SD &amp; positive)</i>	0.157*** (0.008)
<i>Dummy (Stockret within one SD &amp; negative)</i>	0.144*** (0.006)
<i>Dummy (Stockret within one SD &amp; positive)</i>	0.119*** (0.009)
<i>Dummy (Volatility within one SD)</i>	0.363*** (0.006)
<i>Match (Single geo-segments)</i>	-0.125*** (0.014)
<i>Match (Multit geo-segments)</i>	0.255***

	(0.005)
<i>Match (Single business segments)</i>	0.167***
	(0.013)
<i>Match (Multit business segments)</i>	0.033***
	(0.006)
<i>Match (S&amp;P 400 membership)</i>	0.165***
	(0.011)
<i>Match (S&amp;P 500 membership)</i>	1.243***
	(0.006)
<i>Match (S&amp;P 900 membership)</i>	0.0131
	(0.010)
<i>Number of peers</i>	0.041***
	(0.000)
<i>Year Fixed Effect</i>	Yes
Constant	6.223**
	(2.609)
Observations	29,138,008
Pseudo R-squared	0.327
Area Under ROC	0.927

We include year-fixed effects and cluster standard errors at the firm level. The t-statistics are provided in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively.

Table 2 presents the results of the probit regressions based on Equation (1). As documented in Faulkender and Yang (2013), industry overlap, and size similarities were important determinants of peer membership. The likelihood of being selected as a peer increased as the size similarity increased. We also find that a focal firm's performance is a significant determinant of peer selection. Interestingly, we note that if the focal firm and a potential peer are matched based on a single geographical segment, the likelihood of choosing such a potential peer is significantly lower. Overall, our results are similar to the findings in Faulkender and Yang (2013). We use the median CEO compensation of the counterfactual set of peer firms based on the propensity-score matching method to estimate *PPE* for each firm-year observation.

### Peer Pay Effect and Abnormal Returns Around Acquisition Announcement

We use the following model specification to examine the relationship between the abnormal returns around the announcement of acquisition deals and the pre-announcement *PPE* (Hypothesis 1):

$$Anndt BHAR_j = \alpha_1 + \alpha_2 PPE_{j,t-1} + X_j' Controls + Ind FE + Year FE + \varepsilon_j \quad (3)$$

We use two measures of announcement date buy-and-hold-abnormal returns (*Anndt BHAR*). We denote *Anndt BHAR port Adj* as the acquirers' acquisition announcement BHARs (5 days, portfolio adjusted) and *Anndt BHAR vw Adj* to denote acquirers' announcement BHARs (5 days, value-weighted stock returns adjusted). Hypothesis 1a predicts that  $\alpha_2 > 0$ , and Hypothesis 1b predicts that  $\alpha_2 < 0$ . The results for the regression in equation (3) are presented in Table 3.

In Table 3, columns (1) and (3), we use an indicator variable for *PPE* that equals one if *PPE* is positive and zero otherwise, and columns (2) and (4) contain the actual value of *PPE*. The results indicate that the announcement period buy-and-hold-returns is significantly negatively related to *PPE* at the 5% level in three out of four regressions and at the 10% level in one of the regressions. The market reacts negatively to acquisition announcements made by CEOs with higher values of pre-announcement *PPE*. If *PPE* is predominantly a measure of CEO talent, CEOs would expect to undertake value-enhancing acquisitions. Our results reject hypothesis 1a in favor of hypothesis 1b, indicating that pre-announcement *PPE* is more likely a result of rent-extraction on the part of CEOs.

**TABLE 3**  
**ACQUISITION PERFORMANCE**

VARIABLES	(1) <i>Anndt BHAR</i> <i>port.Adj.</i>	(2) <i>Anndt BHAR</i> <i>port.Adj.</i>	(3) <i>Anndt BHAR vwret</i> <i>Adj.</i>	(4) <i>Anndt BHAR vwret</i> <i>Adj.</i>
<i>Pos. PPE</i>				
<i>dummy<sub>t-1</sub></i>	-0.011** (-2.088)		-0.009* (-1.781)	
<i>Peer pay effect<sub>t-1</sub></i>		-0.015** (-2.380)		-0.013** (-2.065)
<i>Relsize</i>	0.003 (0.202)	0.003 (0.253)	0.004 (0.348)	0.005 (0.398)
<i>Stockoffer</i>	-0.023 (-1.103)	-0.022 (-1.032)	-0.027 (-1.411)	-0.026 (-1.349)
<i>Privtg</i>	0.012* (1.955)	0.013** (2.140)	0.010* (1.897)	0.011** (2.058)
<i>subtg</i>	0.019*** (3.348)	0.020*** (3.541)	0.018*** (3.411)	0.019*** (3.583)
<i>difind</i>	-0.009** (-2.058)	-0.009** (-2.102)	-0.007* (-1.763)	-0.007* (-1.806)
<i>intldiv</i>	-0.009* (-1.942)	-0.009** (-1.965)	-0.009** (-2.139)	-0.010** (-2.154)
<i>Acquirer NOA<sub>t-1</sub></i>	0.011 (1.062)	0.010 (0.975)	0.014 (1.365)	0.013 (1.287)
<i>Acquirer</i> <i>accruals<sub>t-1</sub></i>	0.013 (0.544)	0.016 (0.631)	0.006 (0.260)	0.008 (0.350)
<i>Acquirer sales</i> <i>growth<sub>t-1</sub></i>	0.004 (0.276)	0.003 (0.223)	0.004 (0.276)	0.003 (0.225)
<i>Acquirer</i> <i>momentum<sub>t-1</sub></i>	0.010 (1.085)	0.009 (1.048)	0.011 (1.262)	0.011 (1.231)
<i>Year fixed effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Industry fixed</i> <i>effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Constant	0.012 (0.718)	0.008 (0.491)	0.009 (0.547)	0.005 (0.354)
Observations	1,105	1,105	1,105	1,105
R-squared	0.069	0.072	0.071	0.074
Adj	0.043	0.046	0.045	0.048

All continuous variables are winsorized at the top and bottom 1%. Firm-clustered standard errors are employed. The t-statistics are provided in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively. Variables are defined in the appendix.

Among the control variables, we find that the market reacts negatively to acquisitions across different industries and geographical borders and positively to private and subsidiary targets. Unlike private or subsidiary targets, acquisitions across industries and geographical borders are likely to provide more flexibility for CEOs to choose peer firms. Our results in the context of acquisition announcements are in

line with Faulkender and Yang (2010 and 2013), who find that higher values of *PPE* indicate a self-serving behavior on the part of CEOs.

### Median Peer Pay: Acquiring versus Non-Acquiring Years

We use the following panel regression specification to examine the relation between *Median Peer Pay* in the acquisition years versus non-acquisition years (Hypothesis 2):

$$\text{Median peer total pay}_{i,t} = \beta_1 \text{Acq}_{i,t} + \beta_2 \text{PPE}_{i,t-1} + \beta_3 \text{Acq}_{i,t} * \text{PPE}_{i,t-1} + Y'_{i,t-1} B + \text{Ind FE} + \text{Year FE} + \varepsilon_{i,t} \quad (4)$$

where  $Y'_{i,t-1}$  is the vector of the control variables described in Section 3.2.2.

**TABLE 4**  
**IMPACT OF ACQUISITION ON MEDIAN PEER TOTAL PAY AND ITS COMPONENTS**

VARIABLES	(1) <i>Median peer total pay<sub>t</sub></i>	(2) <i>Median peer stock<sub>t</sub></i>	(3) <i>Median peer option<sub>t</sub></i>	(4) <i>Median peer bonus<sub>t</sub></i>	(5) <i>Median peer salary<sub>t</sub></i>	(6) <i>Median peer other<sub>t</sub></i>
<i>Acq</i>	0.035*** (2.969)	0.121*** (2.713)	0.051 (0.476)	0.002 (0.074)	0.010** (1.968)	0.067*** (4.162)
<i>Peer pay effect<sub>t-1</sub></i>	0.292*** (20.929)	0.526*** (9.647)	0.405*** (4.724)	-0.002 (-0.073)	0.074*** (11.758)	0.224*** (11.191)
<i>Acq*Peer pay effect<sub>t-1</sub></i>	-0.045 (-1.456)	-0.272** (-2.162)	-0.183 (-0.801)	-0.017 (-0.297)	0.008 (0.591)	-0.091** (-2.148)
<i>Logsales<sub>t-1</sub></i>	0.291*** (49.343)	0.508*** (23.765)	0.467*** (8.509)	-0.050*** (-4.266)	0.144*** (49.397)	0.366*** (39.972)
<i>Stockret<sub>t-1</sub></i>	0.036*** (3.500)	0.080 (1.603)	0.033 (0.414)	0.021 (0.887)	0.009** (2.182)	0.103*** (5.980)
<i>ROA<sub>t-1</sub></i>	-0.051 (-0.724)	0.338 (0.991)	-1.070** (-2.077)	-0.178 (-0.997)	0.025 (0.767)	0.222* (1.765)
<i>MKBK<sub>t-1</sub></i>	0.010*** (6.474)	0.001 (0.130)	0.028** (2.132)	0.001 (0.567)	-0.001 (-0.889)	0.001 (0.331)
<i>Leverage<sub>t-1</sub></i>	0.164*** (3.800)	0.389** (2.315)	0.479 (1.277)	-0.169** (-2.089)	0.127*** (6.144)	0.533*** (8.768)
<i>CEO chairman<sub>t-1</sub></i>	0.008 (0.609)	-0.044 (-0.957)	0.135 (1.301)	0.032 (1.496)	0.014** (2.310)	0.003 (0.157)
<i>CEO tenure (log)<sub>t-1</sub></i>	0.008*** (7.996)	0.006* (1.909)	0.009 (0.974)	0.002 (1.426)	0.002*** (3.699)	0.004*** (3.170)
<i>Board size<sub>t-1</sub></i>	0.002 (0.222)	0.028 (1.035)	-0.037 (-0.654)	0.007 (0.531)	-0.007** (-2.006)	-0.001 (-0.049)
<i>Institutional ownership concentration HHI<sub>t-1</sub></i>	-0.145** (-1.972)	-0.328 (-1.002)	-0.045 (-0.075)	0.079 (0.562)	-0.050 (-1.581)	-0.180 (-1.412)
<i>Year fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Industry fixed effects</i>	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.721*** (136.346)	1.915*** (10.582)	1.112*** (2.963)	0.544*** (5.960)	5.363*** (260.276)	3.495*** (48.459)

Observations	7,878	7,878	7,878	7,878	7,878	7,878
R-squared	0.741	0.344	0.360	0.066	0.815	0.631
Adj. R-squared	0.740	0.338	0.354	0.058	0.813	0.628

All continuous variables are winsorized at the top and bottom 1%. Firm-clustered standard errors are employed. The t-statistics are provided in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively. Variables are defined in the appendix.

Acquiring CEOs with a higher pre-acquisition *PPE* ( $PPE_{t-1}$ ) will likely be benchmarked with a set of Actual Peers with median compensation that reflects size. Since compensation peers are determined based on size, among other firm characteristics, hypothesis 2a predicts that the *Median peer total pay* will be higher in the acquiring years to match the larger size of a combined entity, i.e.,  $\beta_1 > 0$ . Based on the findings in peer-benchmarking literature, the magnitude of *PPE* may indicate either a reward for talented CEOs (Albuquerque, De Franco, and Verdi, 2013, Schneider, 2021, Custodio and Metzger, 2013), or reflects the strategic choice of Actual Peers to enhance CEO pay in firms with poor governance (Faulkender and Yang, 2010, 2013). Hence, we include the effect of  $PPE_{t-1}$  on the median CEO compensation of Actual Peers and expect  $\beta_2 > 0$ . Hypothesis 2a states that the sign of  $\beta_3$  depends on whether  $PPE_{t-1}$  is indicative of talent or not. Specifically, if  $PPE_{t-1}$  is indicative of talent (self-serving), hypothesis 2a predicts  $\beta_3 > 0$  ( $\beta_3 < 0$ ). We present the results for equation (4) in Table 4.

Table 4 provides the regression results examining the impact of acquisitions on *Median peer total pay* and its components: *stock*, *option*, *salary*, *bonus*, and *other* compensations. Column (1) presents results when the dependent variable is *Median peer total pay*. Columns (2) to (6) contain dependent variables that are the components of *Median peer total pay*. The coefficient on *Acq* (i.e.,  $\beta_1$ ) is positive and significantly greater than zero at the 1% and 5% levels in four of the six regressions. The *Median peer total pay* is higher in acquisition years. The results indicate that acquiring CEOs are benchmarked against a set of Actual Peers with higher stock compensation, salary, and other compensation components. There is no significant difference in *Median peer bonus pay* and *Median peer option pay* between acquiring and non-acquiring years. A higher benchmark salary is consistent with CEOs receiving a higher salary for managing a larger combined entity.

Related to the impact of *PPE* on *Median peer total pay* and its components, except for column (4), where the dependent variable is *Median peer bonus pay*, the coefficient on *Peer pay effect* is positive and significant at the 1% level in all the regressions. This result holds regardless of whether *PPE* is indicative of talent or self-serving. The coefficient on the interaction term is negative and significant at the 5% level when the dependent variable is stock compensation and other compensation. Although acquiring CEOs are benchmarked with an Actual Peer group with a higher salary component, CEOs with a higher *PPE* prior to deal completion are benchmarked with a set of Actual Peers that contain a lower performance-sensitive component (i.e., stock compensation) in the acquiring years relative to non-acquiring years. The results in Table 4 suggest that the impact of *PPE* on median CEO compensation is mitigated in acquiring years which is not consistent with the talent explanation for the *PPE*. The signs on the coefficients of control variables are as expected: *Median peer pay* is positively related to focal firm size (*Logsales*), performance (*Stockret* and *MKBK*), CEO chairman, and CEO tenure.

### CEO Pay: Acquiring Versus Non-Acquiring Years

CEOs may receive a one-time compensation in acquiring years for completing an acquisition deal. In addition, according to the results in Table 4, acquiring CEOs' compensation is to be benchmarked with a set of Actual Peers that is revised to reflect a higher *Median peer pay* in the acquisition years. Hypothesis 2b predicts the additional compensation is associated with reduced sensitivity to peer-benchmarking, i.e., a substitution effect in the acquiring years. We use the following panel regression specification to test Hypothesis 2b:



$$CEO\ total\ pay_{i,t} = \gamma_1 + \gamma_2 Acq_{i,t} + \gamma_3 Median\ total\ peer\ pay_{i,t} + \gamma_4 Acq_{it} * Median\ total\ peer\ pay_{i,t} + Z'_{i,t-1}C + Ind\ FE + Year\ FE + \varepsilon_{i,t} \quad (5)$$

where  $Z'_{i,t-1}$  is vector of the control variables described in Section 3.2.2. Based on prior studies on impact of acquisitions on CEO compensation, we predict  $\gamma_2 > 0$ . The coefficient on the variable *Median total peer pay*,  $\gamma_3$ , captures the effect of the peer benchmarking process on *CEO total pay*. Hypothesis H2b predicts that  $\gamma_4 < 0$ . The results for equation (5) are presented in Table 5.

**TABLE 5**  
**IMPACT OF ACQUISITION ON CEO TOTAL PAY AND ITS COMPONENTS CONTROLLING FOR MEDIAN PEER TOTAL PAY**

**Panel A. Impact of Median peer total pay and acquisitions on CEO total pay.**

VARIABLES	(1) <i>CEO total pay<sub>t</sub></i>	(2) <i>CEO total pay<sub>t</sub></i>	(3) <i>CEO total pay<sub>t</sub></i>
<i>Acq</i>	0.126*** (5.640)	0.112*** (5.278)	1.033*** (2.981)
<i>Median peer total pay<sub>t</sub></i>	-	0.475*** (13.141)	0.482*** (13.304)
<i>Acq *Median peer total pay<sub>t</sub></i>	-	-	-0.105*** (-2.613)
<i>Stockret<sub>t</sub></i>	0.167*** (7.368)	0.163*** (7.420)	0.163*** (7.406)
<i>ROA<sub>t</sub></i>	0.242** (2.336)	0.206** (2.027)	0.212** (2.087)
<i>STD Stockret<sub>t-1</sub></i>	-0.842*** (-3.395)	-0.784*** (-3.270)	-0.774*** (-3.233)
<i>Logsales<sub>t-1</sub></i>	0.330*** (22.865)	0.188*** (10.661)	0.190*** (10.738)
<i>Stockret<sub>t-1</sub></i>	0.155*** (7.946)	0.143*** (7.383)	0.143*** (7.363)
<i>ROA<sub>t-1</sub></i>	-0.200 (-1.513)	-0.121 (-0.940)	-0.134 (-1.041)
<i>MKBK<sub>t-1</sub></i>	0.009** (2.364)	0.005 (1.473)	0.005 (1.502)
<i>Leverage<sub>t-1</sub></i>	0.366*** (3.866)	0.275*** (3.156)	0.264*** (3.029)
<i>CEO chairman<sub>t-1</sub></i>	0.044 (1.492)	0.041 (1.484)	0.042 (1.536)
<i>CEO tenure (log)<sub>t-1</sub></i>	0.018 (1.130)	0.015 (0.991)	0.016 (1.023)
<i>Board size<sub>t-1</sub></i>	0.010*** (4.820)	0.006*** (3.321)	0.006*** (3.388)
<i>Institutional ownership concentration HHI<sub>t-1</sub></i>	-0.421*** (-3.065)	-0.320** (-2.434)	-0.312** (-2.362)
<i>Year fixed effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Industry fixed effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Constant	5.293*** (45.718)	2.573*** (11.279)	2.491*** (10.786)

Observations	7,878	7,878	7,878
R-squared	0.527	0.559	0.560
Adj. R-squared	0.523	0.556	0.556

**Panel B. Impact of Median peer total pay and acquisitions on CEO total pay components: stock, option, salary, bonus, and other compensations.**

VARIABLES	(1)	(2)	(3)	(4)	(5)
	<i>CEO stock<sub>t</sub></i>	<i>CEO option<sub>t</sub></i>	<i>CEO bonus<sub>t</sub></i>	<i>CEO salary<sub>t</sub></i>	<i>CEO other<sub>t</sub></i>
<i>Acq</i>	3.511** (2.108)	5.935*** (2.883)	0.816 (0.680)	0.228 (0.415)	1.043 (1.424)
<i>Median Peer Pay<sub>t</sub></i>	0.687*** (4.064)	0.488*** (2.790)	0.184 (1.549)	0.104** (1.963)	0.349*** (4.401)
<i>Acq*Median Peer Pay<sub>t</sub></i>	-0.365* (-1.903)	-0.642*** (-2.706)	-0.084 (-0.611)	-0.026 (-0.398)	-0.099 (-1.178)
<i>Other Controls</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Year fixed effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Industry fixed effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Constant	-1.817 (-1.628)	-1.242 (-1.107)	-0.265 (-0.351)	4.720*** (13.832)	0.815 (1.501)
Observations	7,878	7,878	7,878	7,878	7,878
R-squared	0.134	0.142	0.059	0.178	0.308
Adj. R-squared	0.127	0.135	0.051	0.171	0.302

All continuous variables are winsorized at the top and bottom 1%. Firm-clustered standard errors are employed. The t-statistics are provided in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively. Variables are defined in the appendix.

Table 5, Panel A, contains results where the dependent variable is *CEO total pay*, and Table 5, Panel B presents results where the dependent variables are components of *CEO total pay*: *Stock*, *Option*, *Bonus*, *Salary*, and *other* compensation. Table 5, Panel A, column (1) indicates that, after controlling for known determinants of CEO compensation, CEOs receive significantly higher compensation in the acquiring years relative to non-acquiring years. This result is consistent with the findings in earlier studies on the impact of acquisitions on CEO compensation (Datta, Iskandar-Datta, and Raman, 2001; Bliss and Rosen, 2001; Grinstein and Hribar, 2004; Harford and Li, 2007). In column (2), we add the contemporaneous value of *Median total peer pay* to control the effect of peer-benchmarking of CEO compensation. The coefficient on *Acq* retains the magnitude and significance at the 1% level. Column (3) contains the results that examine the trade-off between the additional compensation and benchmarking against a higher *Median total peer pay* in the acquiring years. As conjectured in Hypothesis 2b, we observe a substitution effect where the sensitivity of CEO compensation to peer-benchmarking is lower relative to non-acquiring years, and the magnitude of the additional compensation due to acquisition completion is higher than in columns (1) and (2).

Table 5, Panel B, provides additional evidence on the components of CEO compensation that are affected by the substitution effect. We find that CEOs receive higher performance-related compensation in the form of stock and options in the acquiring years. However, this is partially offset by lower sensitivity to peer-benchmarking against a higher-paid peer group in acquiring years. CEOs are not found to receive higher pay in terms of the other components in the acquiring years, relative to non-acquiring years.

To summarize Table 4 and Table 5, our results indicate that the *Median total peer pay* is higher in the acquiring years. *Median total peer pay* level is lower if the acquiring CEOs have a higher pre-acquisition completion *Peer pay effect*, indicating a lower benchmark, reflecting a discount in peer pay for self-serving behavior. After controlling for the effects of peer-benchmarking, CEOs are shown to receive additional

(stock and option) compensation in the acquiring years. However, the additional compensation comes at the cost of reduced sensitivity to a higher benchmark pay in the acquiring years.

### Peer Pay Effect and CEO Pay Effect: Acquiring Versus Non-Acquiring Years

The results in Table 4 indicate that the *Median total peer pay* is higher in acquiring years. In an unreported regression, we find that the *Median total PSM pay* is higher in acquiring years. Since *PPE* is the percentage difference between the *Median total peer pay* and the *Median total PSM pay*, it is an empirical question whether *PPE* is higher in acquiring years. Hypothesis 3a posits that relative to non-acquiring years, the *PPE* is higher (lower) in the acquiring years if talented (self-serving) CEOs consummate acquisitions. We test hypothesis 3a using the following specification:

$$\text{Peer pay effect}_{i,t} = a + b\text{Acq}_{i,t} + T'_{i,t-1}\beta + PG'_{i,t-1}\delta + \text{Ind FE} + \text{Year FE} + \epsilon_{i,t} \quad (6)$$

According to hypothesis 3a, if acquisitions are consummated by talented (self-serving) CEOs, we expect  $b > 0$  ( $b < 0$ ). Based on the decomposition method in Albuquerque, De Franco, and Verdi (2013), we define two sets of control variables that affect the extent of *PPE*. The vector  $T'$  contains proxies for CEO talent that is likely to influence *PPE*, and the vector  $PPPP'$  contains proxies for poor governance that may facilitate a higher *PPE*. The talent variables we include are the average of stock return measured relative to the S&P 500 index of the firms the CEO has managed over the years  $t-3$  to  $t-1$  (*CEO abn ret*<sub>( $t-3,t-1$ )), the average of return on assets (ROA) measured relative to Fama-French 48 industry adjusted ROA of the firms the CEO has managed over the years  $t-3$  to  $t-2$  (*CEO abn ROA*<sub>( $t-3,t-1$ )), the logarithm of the average market cap the firms the CEO has managed over the years  $t-3$  to  $t-3$  (*CEO log market cap*<sub>( $t-3,t-1$ )), and management ability score measure from Demerjian et al. (2012) (*Managerial ability score*). We expect *PPE* to be positively related to each proxy for CEO talent. The governance variables we include are the CEO's share of the total compensation paid to the top-five executive officers of the company (*CEO payslice*), *CEO chairman*, *CEO tenure (log)*, *Boardsize*, *Institutional ownership concentration HHI*, and a proxy for *Busy board* (see Appendix A for variable definition). The results are presented in Table 6.</sub></sub></sub>

**TABLE 6**  
**IMPACT OF ACQUISITION ON PEER PAY EFFECT (PPE)**

VARIABLES	(1)	(2)	(3)	(4)
	<i>Peer pay effect<sub>t</sub></i>	<i>Peer pay effect<sub>t</sub></i>	<i>Peer pay effect<sub>t</sub></i>	<i>Peer pay effect<sub>t</sub></i>
<i>Acq</i>	-0.028** (-2.140)	-0.032** (-2.350)	-0.037*** (-2.944)	-0.037*** (-2.887)
<i>CEO abn ret</i> <sub>(<math>t-3,t-1</math>)</sub>	-0.016 (-0.586)	-0.032 (-1.170)	-0.029 (-1.109)	-0.040 (-1.535)
<i>CEO abn ROA</i> <sub>(<math>t-3,t-1</math>)</sub>	0.310*** (4.629)	0.262*** (3.837)	-0.315*** (-3.854)	-0.325*** (-3.846)
<i>CEO log market cap</i> <sub>(<math>t-3,t-1</math>)</sub>	0.019*** (2.955)	0.018** (2.494)	0.032*** (4.970)	0.029*** (4.151)
<i>Managerial Ability Score</i> <sub><math>t-1</math></sub>	-	0.106** (2.123)	-	0.096** (2.001)
<i>CEO Payslice</i> <sub><math>t-1</math></sub>	0.127** (2.185)	0.165*** (2.776)	0.128** (2.359)	0.157*** (2.831)
<i>CEO Chairman</i> <sub><math>t-1</math></sub>	-0.005 (-0.300)	-0.003 (-0.172)	0.009 (0.613)	0.007 (0.465)
<i>CEO Tenure (log)</i> <sub><math>t-1</math></sub>	0.012 (1.436)	0.012 (1.389)	0.008 (1.047)	0.010 (1.207)
<i>Board Size</i> <sub><math>t-1</math></sub>	-0.000	-0.000	-0.000	-0.001

	(-0.079)	(-0.131)	(-0.375)	(-0.615)
<i>Institutional ownership</i>				
<i>Concentration HHI<sub>t-1</sub></i>	-0.019	-0.048	-0.121	-0.160
	(-0.203)	(-0.488)	(-1.317)	(-1.641)
<i>Busy Board<sub>t-1</sub></i>	0.088**	0.110***	0.047	0.051
	(2.160)	(2.588)	(1.224)	(1.289)
<i>Year Fixed Effects</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
<i>Industry Fixed Effects</i>	<i>No</i>	<i>No</i>	<i>Yes</i>	<i>Yes</i>
Constant	-0.073	-0.059	-0.060	-0.030
	(-1.364)	(-1.047)	(-0.362)	(-0.182)
Observations	7,878	7,327	7,878	7,327
R-squared	0.021	0.024	0.084	0.084
Adj. R-squared	0.018	0.021	0.077	0.076

All continuous variables are winsorized at the top and bottom 1%. Firm-clustered standard errors are employed. The t-statistics are provided in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively. Variables are defined in the appendix.

Table 6 provides the regression results examining the impact of acquisitions on *Peer pay effect (PPE)*. Columns (1) and (2) control only for year-fixed effects. Even though the dependent variable is a percentage difference, time-invariant heterogeneity in the availability of matching peers may influence *PPE*. Hence, we include industry-fixed effects also in columns (3) and (4). Since we do not have the media coverage variable used in Albuquerque, De Franco, and Verdi (2013), we use the *Managerial ability score* and report the regressions separately due to the reduced number of observations. The coefficient on *Acq* is negative and significant at the 1% and 5% levels across all four columns. Among the talent variables, we find *CEO abn ret*, *CEO log market cap*, and *Managerial ability score* positively impact *PPE*. Poor governance in terms of more CEO power (*CEO payslice*), and poor monitoring due to *Busy board* contribute to a larger *PPE*.

Recall that the results in Table 3 indicate that the abnormal buy-and-hold returns during five days surrounding an acquisition announcement are negatively related to pre-acquisition *PPE*. Since *PPE* is the percentage difference between the *Median total peer pay* of the Actual Peers and that of the PSM Peers, the negative relation with announcement period abnormal returns suggests that the market interprets relatively higher median pay of the Actual Peers is due to a self-serving strategic choice of peer firms to benchmark CEO pay with a higher median peer pay. Since *PPE* is lower in acquiring years than non-acquiring years, our results reject the talent-based conjecture of hypothesis 3a.

Our final test examines the percentage difference between *CEO total pay* and the *Median total peer pay* of Actual Peers, i.e., *CEO pay effect* or *CPE*) in acquiring years relative to non-acquiring years. Our results in Table 4 indicate that *Median total peer pay* is higher in acquiring years, and the results in Table 5 Panel A show that *CEO total pay* is higher in acquiring years. We investigate the net effect of the two by examining *CPE*. We use the same set of control variables as in equation (4) and present the results in Table 7.

**TABLE 7**  
**IMPACT OF ACQUISITION ON CEO PAY EFFECT (CPE)**

VARIABLES	(1)	(2)	(3)	(4)
	<i>CEO pay effect<sub>t</sub></i>	<i>CEO pay effect<sub>t</sub></i>	<i>CEO pay effect<sub>t</sub></i>	<i>CEO pay effect<sub>t</sub></i>
<i>Acq</i>	0.077***	0.083***	0.074***	0.082***
	(3.904)	(4.078)	(3.669)	(3.905)
<i>CEO abn ret<sub>(t-3,t-1)</sub></i>	0.137***	0.128***	0.140***	0.132***
	(3.580)	(3.272)	(3.645)	(3.337)

<i>CEO abn ROA</i> <sub>(t-3,t-1)</sub>	0.037 (0.430)	-0.005 (-0.055)	-0.010 (-0.078)	-0.012 (-0.088)
<i>CEO log market cap</i> <sub>(t-3,t-1)</sub>	0.050*** (4.473)	0.041*** (3.497)	0.049*** (4.309)	0.040*** (3.258)
<i>Managerial ability score</i> <sub>t-1</sub>	-	0.190*** (2.803)	-	0.199*** (2.705)
<i>CEO payslice</i> <sub>t-1</sub>	1.352*** (9.385)	1.375*** (9.123)	1.351*** (9.602)	1.363*** (9.260)
<i>CEO chairman</i> <sub>t-1</sub>	0.011 (0.479)	0.016 (0.651)	0.013 (0.558)	0.014 (0.562)
<i>CEO tenure (log)</i> <sub>t-1</sub>	0.012 (0.890)	0.009 (0.671)	0.012 (0.879)	0.010 (0.742)
<i>Board size</i> <sub>t-1</sub>	0.001 (0.764)	0.001 (0.719)	0.001 (0.936)	0.001 (0.794)
<i>Institutional ownership concentration HHI</i> <sub>t-1</sub>	-0.059 (-0.490)	-0.071 (-0.548)	-0.066 (-0.526)	-0.077 (-0.572)
<i>Busy board</i> <sub>t-1</sub>	0.176*** (3.151)	0.184*** (3.114)	0.183*** (3.177)	0.188*** (3.091)
<i>Year fixed effects</i>	Yes	Yes	Yes	Yes
<i>Industry fixed effects</i>	No	No	Yes	Yes
Constant	-1.205*** (-13.757)	-1.138*** (-12.350)	-1.253*** (-9.728)	-1.159*** (-8.678)
Observations	7,878	7,327	7,878	7,327
R-squared	0.108	0.107	0.117	0.115
Adj. R-squared	0.106	0.105	0.110	0.108

All continuous variables are winsorized at the top and bottom 1%. Firm-clustered standard errors are employed. The t-statistics are provided in parentheses. \*\*\*, \*\*, and \* denote significance at the 1%, 5%, and 10% levels, respectively. Variables are defined in the appendix.

Table 7 provides the regression results examining the impact of acquisitions on *CEO pay effect (CPE)*. Our results indicate that *CPE* is significantly higher (at the 1% level) in acquiring years in all four columns. We obtain this result after controlling for the effects of CEO talent and governance. Thus, even though a lower *PPE* in the acquiring years is an indication of corporate boards curbing the extent of strategically choosing peer firms in a self-interested manner, a combination of additional pay for completing acquisitions and a higher benchmark pay in acquiring years, *albeit* a substitution effect, results in relatively higher *CEO total pay* relative to their *Median total peer pay* of Actual Peers (consistent with Harford and Li, 2007).

## CONCLUSION

Several studies examine the influence of M&A on CEO compensation (Harford and Li, 2007, Choi, Genc, and Ju, 2018, Grinstein and Hribar, 2004). The overall findings indicate that CEOs receive either bonus or stock-based compensation for completing acquisition deals. Furthermore, such compensation mitigates any adverse effects that poor acquisitions have on CEOs existing stock holding in their firm.

When CEO compensation is benchmarked with a (self-selected) set of peer firms, important events such as M&A induce peer group changes and influence CEO compensation. We define two compensation-related effects: (a) the percentage difference between the focal firm CEO compensation and the median

CEO compensation of their compensation peers (*CEO pay effect*, or *CPE*), and (b) the percentage difference between the median CEO compensation of compensation peers and the median CEO compensation of a counterfactual set of peers (*Peer pay effect* or *PPE*). Because CEOs and their corporate boards choose compensation peers, the peer-benchmarking literature is divided on whether higher *PPE* represents CEO talent or is a result of a self-serving behavior on the part of CEOs (Bizjak, Lemmon, and Naveen, 2008; Bizjak, Lemmon, and Nguyen, 2011; Albuquerque, De Franco, and Verdi, 2013; Faulkender and Yang, 2020, 2013). We find a negative relation between M&A announcement period abnormal returns and pre-announcement *PPE*, suggesting that higher *PPE* may result from a strategically chosen set of compensation peers, e.g., a self-serving behavior on the part of CEOs.

M&A events allow CEOs to revise their peer group to represent the combined entity's size, industry, and complexity after the acquisition is consummated. Although acquisition-related changes to peer firms result in a higher median peer pay in acquiring years, a lower *PPE* in the acquiring years indicates strong governance. That is, relative to non-acquiring years, CEOs are unable to choose peer firms with high-paid CEOs when other eligible firms with lower-paid CEOs are available. Consistent with findings reported in earlier studies, we find that CEO compensation is compensated with stock and options for completing acquisition deals. However, because CEO compensation is benchmarked with a post-acquisition peer group that has a higher median CEO compensation in the acquiring years, we document a trade-off between the additional pay CEOs receive for completing acquisition deals and the benchmarking sensitivity to the median of the Actual Peers, resulting in a higher *CPE*.

## ENDNOTES

1. According to Equilar, “companies often approach peer group selection based on criteria from a prior year. However, many quickly discover that several factors, such as mergers and acquisitions, changes in business strategy, and significant changes in revenue can significantly alter the composition of a company’s peer group.” See <https://www.equilar.com/resource/3-importance-of-adapting-to-peer-group-changes.html>.
2. In the 1,174 acquiring years, there were 1,387 acquisitions completed between 2008 and 2018, and only 1,105 acquisitions have enough information to examine acquisition performance.
3. See <https://www.corpgov.net/2011/10/pay-ratios-and-ratcheting/> for the view by critics, and Hayes and Schaefer (2009) for a theoretical treatment of the ‘Lake Wobegon Effect.’
4. Examples of a few studies include Cole and Mehran (2016), Frydman and Saks (2010), Gabaix and Landier (2008), Hubbard and Palia (1995), and Jensen and Murphy (1990).
5. See Smith and Watts (1992) or Lewellen, Loderer, and Martin (1987) for a discussion of the relationship between these variables and executive compensation.
6. Shleifer and Vishny (1986) argue that institutional shareholders have incentives to monitor corporate decision-making by their large stock holding. Consistent with this hypothesis, a few studies document institutional investors’ votings against harmful amendments (Jarrell and Poulsen (1988), Brickly, Lease, and Smith (1988)). Other papers show that institutional investors enhance firm value as measured by Tobin’s Q (McConnell and Servaes (1990, 1995)), increase pay for performance for executives (Hartzell and Starks (2003)) and reduce agency costs between shareholders and bondholders (Bhojraj and Sengupta (2003)).

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## APPENDIX

Variable	Definition	Source
<i>Anndt BHAR port.Adj.</i>	Acquirers' Announcement -acquisition BHARs (5 days, portfolio adjusted.).	CRSP
<i>Anndt BHAR vwret Adj.</i>	Acquirers' Announcement -acquisition BHARs (5 days, value weighted stock returns adjusted.).	CRSP
<i>relsize</i>	Deal value reported by SDC divided by the acquirer's market cap.	Eikon from Thomson Reuters
<i>stockoffer</i>	Indicator variable that equals one if the acquirer offers only its own voting stock as consideration for the acquisition.	Eikon from Thomson Reuters
<i>privtg</i>	Indicator variable that equals one if the target firm is a private company and zero otherwise.	Eikon from Thomson Reuters
<i>subtg</i>	Indicator variable that equals one if the target firm is a subsidiary and zero otherwise.	Eikon from Thomson Reuters
<i>difind</i>	Indicator variable that equals one if the acquirer and the target are from different industries and zero otherwise.	Eikon from Thomson Reuters
<i>intldiv</i>	Indicator variable that equals one if the acquirer and the target are from different countries and zero otherwise.	Eikon from Thomson Reuters



<b>Acquirer characteristics</b>		
<i>Acquirer noa</i>	Acquirer net operating assets [(AT-CHE-IVAO) - (AT - DLC - DLTT - MIB - PSTK - CEQ)] / Lag AT	Compustat
<i>Acquirer accruals</i>	Total Accruals are defined following Richardson, Sloan, Soliman, and Tuna (2005), as: TACC = $\Delta WC + \Delta NCO + \Delta FIN$ , where: $\Delta$ = change from prior year to current year, WC = working capital = current operating assets (COA) less current operating liabilities (COL), COA = current assets (ACT) – cash and short-term investments (CHE), COL = current liabilities (LCT) – debt in current liabilities (DLC), NCO = non-current operating assets (NCOA) – non-current operating liabilities (NCOL), NCOA = total assets (AT) – current assets (ACT) – other investments and advances (IVAO), NCOL = total liabilities (LT) – current liabilities (ACT) – long-term debt (DLTT), FIN = financial assets (FA) – financial liabilities (FL), FA = short-term investments (IVST) + other investments and advances (IVAO), and FL = long-term debt (DLTT) + debt in current liabilities (DLC) + preferred stock (PSTK). Simplifying, accruals are calculated as: $\Delta AT - \Delta CHE - \Delta LT + \Delta IVST - \Delta PSTK$ , scaled by lagged total assets (AT). We replace missing values for PSTK, LT, and RECTA with zeros to avoid losing data.	Compustat
<i>Acquirer sales growth</i>	Current year sales (SALE) less prior year sales divided by prior year sales.	Compustat
<i>Acquirer momentum</i>	Buy-and-hold acquirer returns, accumulated from month -12 to the closest month-end at least 30 days before the announcement of the acquisition.	Compustat
<b>Acquisition activity</b>		
<i>Acq</i>	Indicator variable that equals one if there is an acquisition completed during the fiscal year and zero otherwise.	Eikon from Thomson Reuters
<b>Compensation</b>		
<i>Median peer total pay (log)</i>	The natural logarithm of the median peer firm CEO total compensations, including salary, bonus, option awards, stock awards, non-equity incentive plan compensation, change in pension value, non-qualified deferred compensation earnings and all other compensation.	ExecuComp
<i>Median peer stock (log)</i>	The natural logarithm of the median peer firm CEO stock compensation	ExecuComp
<i>Median peer option (log)</i>	The natural logarithm of the median peer firm CEO option compensation	ExecuComp
<i>Median peer bonus (log)</i>	The natural logarithm of the median peer firm CEO bonus compensation	ExecuComp

<i>Median peer salary (log)</i>	The natural logarithm of the median peer firm CEO salary compensation	ExecuComp
<i>Median peer other (log)</i>	The natural logarithm of the median peer firm CEO non-equity incentive plan compensation, change in pension value, non-qualified deferred compensation earnings and all other compensation	ExecuComp
<i>CEO total pay (log)</i>	The natural logarithm of the CEO total compensations, including salary, bonus, option awards, stock awards, non-equity incentive plan compensation, change in pension value, non-qualified deferred compensation earnings and all other compensation.	ExecuComp
<i>CEO stock (log)</i>	The natural logarithm of the CEO stock compensation	ExecuComp
<i>CEO option (log)</i>	The natural logarithm of the CEO option compensation	ExecuComp
<i>CEO bonus (log)</i>	The natural logarithm of the CEO bonus compensation	ExecuComp
<i>CEO salary (log)</i>	The natural logarithm of the CEO salary compensation	ExecuComp
<i>CEO other (log)</i>	The natural logarithm of the CEO non-equity incentive plan compensation, change in pension value, non-qualified deferred compensation earnings and all other compensation	ExecuComp
<i>Peer pay effect (PPE)</i>	The percentage difference between the Median peer total pay and the Median PMS-matched peer total pay	ExecuComp, Compustat, CRSP
<i>Pos. PPE Dummy</i>	Indicator variable that equals one if PPE is positive and zero otherwise.	ExecuComp, Compustat, CRSP
<i>CEO pay effect (CPE)</i>	The percentage difference between <i>CEO total pay</i> and <i>Median peer total pay</i>	ExecuComp, Compustat, CRSP
<i>Pos. CPE Dummy</i>	Indicator variable that equals one if CPE is positive and zero otherwise.	ExecuComp, Compustat, CRSP
<b><i>Firm Characteristics</i></b>		
<i>Stockret</i>	Annual stock return in year <i>t</i> .	CRSP
<i>ROA</i>	Return on assets calculated as the ratio of income before extraordinary items (IB) to total assets (AT).	Compustat
<i>STD Stockret</i>	Standard Deviation of monthly stock return,	CRSP
<i>Logsales</i>	The natural logarithm of a firm's sales revenue in millions of dollars (SALE).	Compustat
<i>Stockret</i>	Annual stock return.	CRSP
<i>ROA</i>	Return on assets calculated as the ratio of income before extraordinary items (IB) to total assets (AT).	Compustat
<i>MKBK</i>	The ratio of the market value of equity (CSHO*PRCC) to the book value of equity CEQ)	Compustat
<i>Leverage</i>	Leverage is calculated as the ratio of total long-term debt (DLTT+DD1) to total assets (AT)	Compustat

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***CEO Characteristics and Corporate Governance***

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<i>CEO abn ret</i> <sub>(t-3,t-1)</sub>	The average of stock return measured relative to the S&P 500 index of the firms the CEO has managed over years t-3 to t-1	ExecuComp, Compustat, CRSP
<i>CEO abn ROA</i> <sub>(t-3,t-1)</sub>	The average of return on assets (ROA) measured relative to Fama-French 48 industry adjusted ROA of the firms the CEO has managed over years t-3 to t-2	ExecuComp, CRSP
<i>CEO log market cap</i> <sub>(t-3,t-1)</sub>	The logarithm of the average market cap the firms the CEO has managed over years t-3 to t-3	ExecuComp, Compustat
<i>Managerial ability score</i>	Management ability score measure from Demerjian et al. (2012)	Prof. Demerjian's personal website
<i>CEO payslice</i>	The CEO's share of the total compensation paid to the top-five executive officers of the company	ExecuComp
<i>CEO chairman</i>	Indicator variable that equals one if a firm's CEO also serve as the chairman of the board and zero otherwise.	ExecuComp
<i>CEO tenure (log)</i>	The logarithm of the years since the current CEO took office.	ExecuComp
<i>Board size</i>	The number of board members on the board.	DirectEdgar
<i>Institutional ownership concentration HHI</i>	Herfindahl Index of holdings among institutional shareholders.	Eikon from Thomson Reuters
<i>Busy board</i>	The percentage of directors serve on three or more other boards.	DirectEdgar

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