Do Envious CEOs in Merger Waves Get Fired?

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Abstract

There is new evidence regarding the influence of envy of chief executive officers’ (CEOs) on corporate mergers and acquisitions (M&A) decisions during merger waves. This study investigates whether forced CEO turnovers are related to envy motivated acquisitions especially during the late stages of merger waves when envy turns out to be more pronounced. Using logistic regressions, our evidence shows that late acquirers, who are motivated by envy, perform worse than early acquirers. Additionally, we document that the likelihood of a forced CEO turnover is significantly more pronounced for late acquirers during merger waves.

Keywords: CEO envy, mergers and acquisitions, merger waves, late acquirers, and forced turnover

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1. Introduction

The topic of M&A has attracted the attention of the finance literature throughout the years. Furthermore, a stylized fact regarding mergers is that they often occur in waves (Weston et al. 1990; Gaughan 2010). The academic literature has provided different theories on merger waves. Gort (1969) suggest that economic disturbances alter valuations dramatically which results in firms engaging in mergers. Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) suggest that acquisitions are driven by mispricing in the marketplace implying that equity mispricing is the source of merger waves. Lambrecht (2004) argues that the economies of scale are linked to merger waves, especially during expansions. While these scholars have provided many theories that aim to explain merger waves throughout the years, a recent stream of the finance literature addresses the behavioral aspect behind mergers waves and imply that envy motivated CEOs tend to create merger waves (Goel & Thakor 2005, 2010; Doukas & Zhang 2014). Goel & Thakor (2005, 2010) emphasize that an individual, specifically CEOs, would compare his consumption with the consumption of a reference group, particularly, an individual “gains utility when his consumption falls below the reference group” (Goel & Thakor 2005: p.2256). This eventually leads CEOs to look upon their reference group and engage in M&A because of such behavior and as a result, envy among CEOs can trigger merger waves. Moreover, Goel and Thakor (2010) find that envy motivated acquisitions, especially during the late stages of the merger wave, experience negative returns. It is salient to point out that the company’s M&A decision is critical to its success and performance in the long run which in return reflects the importance of such decisions to shareholders. In that context, poor M&A decisions have been singled out as one of the key drivers behind CEO turnover. Lehn and Zhao (2006) document that investment performance is a key factor for the board of directors to determine the success or failure of CEOs
and as a result, firms fire managers who conduct bad investment decisions. Specifically, they find a negative relation between M&A performance and the propensity of forced CEO turnover. Although Lehn & Zhao (2006) show that CEOs who engage in value destroying acquisitions tend to get fired, the question of whether CEOs firings are likely to be associated with envy related acquisitions during the late stages of merger waves when CEO envy is more pronounced remains unanswered. Considering the fact that the number of M&A occurring in merger waves is enormous, it is of paramount importance to investigate the fate of CEOs who engage in M&As during waves. We address this issue by investigating the M&A activity conducted by envious CEOs during merger waves. Focusing on merger waves offers us an ideal setting to allow us to understand the fate of CEOs who are driven by envy and jump in the merger wave bandwagon. Consequently, this study builds on the envy literature and the forced turnover literature by examining whether envy motivated M&A, especially during the late stages of merger waves, lead to forced CEO turnover. Intuitively, this study is motivated by the question: “Are envious CEOs who engage in merger waves fired?”

The decision to oust a CEO is considered one of the most important corporate decisions made in the lifetime of corporations. CEOs are vital to the success of their companies since their decisions, specifically investment decisions in the form of M&A, have a strong impact on shareholder or firm value. Although the board of directors are required to approve an M&A decision, it is the CEO’s task to initiate such investment and to administer the acquisition progress (Lehn & Zhao, 2006). Consequently, CEOs are held responsible for the success or failure of a consummated acquisition. Kaplan and Minton (2012) find that the cases of forced CEOs turnover in relation to negative performance have increased dramatically in recent years. Prior evidence has shown that if CEOs perform poorly, they are faced with the consequence of a disciplinary turnover.
Specifically, these studies find a negative relation between firm performance and the probability of a forced CEO turnover (Coughlan & Schmidt 1985; Warner et al. 1988; Weisbach 1988; Murphy & Zimmerman 1993; Lehn & Zhao 2006). The conventional wisdom suggests that CEOs undertake investment decisions in order to increase shareholder value. Moreover, in order to ensure that CEOs are aligned with shareholders, the board of directors plays the role of the company’s gate keepers to ensure that investments decisions are for the good of the firm and shareholders. However, as documented by the literature, a good number of CEOs engage in M&A activity for reasons other than increasing shareholder value. Fu et al., (2013), for example, find evidence that CEOs, who take advantage of weak corporate governance mechanisms, engage in value destroying acquisitions for the sole purpose of increasing their compensation value. On the other hand, as mentioned above, the behavioral finance literature focuses on how envy (i.e., managers who compare themselves to their peers in the same reference group) motivates CEOs to engage in M&A activity, whether it adds shareholder value or not. Goel & Thakor (2010) suggest that envy motivates CEOs to join the merger wave bandwagon even though they have already missed on positive synergies or good investment opportunities. They find evidence that suggests late bidders perform worse than early bidders during a merger wave. Specifically, early acquirers spot positive synergies in the early stages of the wave and incur higher returns relative to late bidders who already missed on the positive synergies in the marketplace. Consistent with this view, Doukas & Zhang (2014) find that envy (i.e., pay gap) is more pronounced in late bidders and as a result, the presence of envy motivates CEOs to join the banking merger wave even though they have already missed on the positive synergies offered in early stages of the wave and suffer lower returns. This supports the argument that CEOs could engage in M&A activity for reasons other than increasing firm value. Surprisingly, managers who join merger waves with the “presumable” goal of
increasing shareholder value have not gained much research attention. Although previous research has shown that CEOs with bad performance get disciplined, no study, to the best of our knowledge, has considered the fate of CEOs who are motivated by envy and engage in M&As during the late stages of merger waves.

While Goel and Thakor (2010) suggest that envy CEOs trigger merger waves, and Doukas and Zhang (2014) show that envy is more pronounced during the late stages of merger waves, and while Lehn and Zhao (2006) find that poor M&A decisions lead to CEO firings, we mainly focus on whether envy motivated CEOs engaging in M&As, especially during the late stages of merger waves, get disciplined. We address this issue by focusing on M&A of publicly listed U.S companies that acquire public targets from 1993 to 2015. We adopt the method of Bouwman et al., (2009) to outline a merger wave in our sample. After including M&A during merger waves only, the original sample decreases dramatically to comprise of 1,103 M&As conducted by 560 firms and 723 different CEOs. Our turnover sample comprises of 527 turnover cases while the forced turnover sample consists of 188 forced cases out of the 527 turnovers. To analyze the success or failure of the M&A decision, we estimate the cumulative abnormal returns (CAR) around the M&A announcement date and we estimate the buy-and-hold (BHR+1) return one year after the announcement date. As a measure for late bidders, we adopt Goel and Thakor (2010) and Doukas and Zhang (2014) late bidders alternative definitions in order to infer how acquirers perform in different late phases during merger waves. As proxies for envy, we use the industry-size adjusted median pay gap (i.e., defined as the median CEOs pay in each industry-size group minus CEO pay in the corresponding reference group) and, for robustness tests, we adopt the Doukas and Zhang (2014) envy proxy of industry-size adjusted pay gap, top CEO pay gap, (i.e., defined as top CEO pay in each industry-size group minus other CEOs pay in the corresponding
reference group); finally, we use the industry-size adjusted top three CEOs pay gap (i.e., defined as the average pay of the top three highest paid CEOs in each industry-size group minus other CEOs pay in the corresponding group).

Consistent with previous literature, we find that late acquirers suffer from a higher level of envy, or higher pay gap, and miss on the positive synergies offered in the early stages during merger waves. That is, we find that envy is mostly more pronounced in late bidders. Furthermore, we find that late acquirers perform worse than early acquirers in the short run and in the long run with the difference denoted statistically significant at different levels (i.e., under the 5% significant level). These findings confirm the evidence provided by Doukas & Zhang (2014) envy-pay bank merger waves and Goel & Thakor (2010). More interestingly and consistent with our argument, the univariate results suggest that late acquirers face a higher probability of a forced turnover relative to early acquirers and the difference is statistically significant (i.e., under the 5% significant level).

In the multivariate results, we examine the effect of envious CEOs on the probability of getting fired via logistic regressions. We find that the probability of a forced turnover is higher during the late stages of merger waves when envious CEOs engage in poor performing acquisitions. Specifically, we use the CAR (-2, +2) to measure short term acquirer performance and separate our sample into low/high acquirer performance subgroups based on CAR. For low bidders’ performance (low CAR), the interaction of envy, median pay gap, and late acquirers provides consistent evidence with the univariate results that envious CEOs during the late stages of the merger waves with poor acquisition performance face a higher probability of getting fired. This finding is statistically significant at the 1% level for the late 10% and 20% bidders during merger waves. On the other hand, for acquirers with high performance (high CAR), the interaction of
envy, median pay gap, and late acquirers to investigate envious CEOs in the late stages during the merger waves with good performance does not provide us with any significant results. This further indicates that envy is associated more with poor performance in the late phases during merger waves. Taken together, the multivariate results show that i) envy is more pronounced during the late stages of the merger wave, ii) late acquirers motivated by envy perform poorly, and iii) envy motivated late acquirers have a higher probability of a forced turnover, relative to early acquirers. To further validate the previous findings, we re-run the analysis based on the 12-months performance of the bidders which we express as the BHR+1. For low acquirer BHR, the interaction of median pay gap and late acquirers during the merger wave provides additional evidence that CEOs motivated by envy in the late stages of the wave perform more poorly and face a higher propensity of a forced turnover. This finding is statistically significant at the 10% level for the late 10% bidders during merger waves.

Our results are robust to three additional robustness tests. First, inspired by Doukas & Zhang (2014), we use an additional proxy to capture envy (i.e., top CEO pay gap). It is defined as the pay gap between the top CEO in each ranked by industry-size group relative to other CEOs in the corresponding industry-size reference group. The logistic regressions show significant and consistent results with our main hypothesis. That is, for low acquirers’ performance (low CAR), the interaction of envy, top CEO pay gap defined above, and late bidders is statistically significant at the 1% and 5% level. This provides further evidence that envious CEOs during the late stages of the wave with poor acquisition performance face a higher propensity of a forced turnover. For high acquirers’ performance (high CAR), the interaction of top CEO pay gap and late bidders during the merger wave is insignificant. Additionally, using the long term performance (BHR+1) yields similar evidence. Second, we replicate the previous analysis using the top three CEOs pay
gap defined as the pay gap between the average pay of top three highest paid CEO in each industry-size group relative to other CEOs in the corresponding group. Consistent with our previous findings, we find envy CEOs with poor performance during the late stages of merger waves face a higher likelihood of a disciplinary turnover. Third, we re-run our analysis based on the operating performance of acquirers in the sample by estimating post announcement date 1-year return on assets (AROA+1) and further separate the sample to low/high operating performance subgroups and find evidence consistent with our central hypothesis. That is, for poor performing acquirers (low ROA), CEOs motivated by envy, measured by different pay gap proxies, who engage in acquisitions during the late stages of merger waves, face a higher propensity of a forced turnover.

This study contributes to the envy literature along with the M&A and the CEO turnover literature in two ways. First, unlike previous research that considers if envy exists among top executives, this paper further investigates whether CEO envy motivated investment decision are related to disciplinary actions. Our evidence shows that CEO envy related acquisitions, mostly during the late stages of merger waves, perform poorly relative to early bidders during the wave, and consequently, are punished by getting fired. Second, this study adds to the Lehn & Zhao (2006) findings by revealing that poor acquisition decisions by envious CEOs face a higher propensity of a forced turnover. Our findings further confirm the evidence provided by Goel & Thakor (2010) and Doukas & Zhang (2014) in the sense that envy motivated bidders, during the late stages of merger waves, engage in value destroying acquisitions due to higher envy intensity and the limited availability of high growth targets to realize valuable synergies.

The remainder of this paper is structured as follows. Section 2 offers the relevant literature review based on the hypothesis development. Section 3 describes the data and empirical methodology. Section 4 reports the empirical findings and the robustness test of whether envy
motivated CEOs during the late stages of merger waves are disciplined. Finally, section 5 offers the conclusion.

2. Related Literature and Hypothesis Development

Envy has been extensively studied in different disciplines such as biology, psychology, sociology, and economics. Aristotle notates that envy is “the pain caused by the good fortune of others” (*Rhetoric: p.1180b*). Parrott and Smith (1993) define envy as a feeling or an emotion that “occurs when a person lacks another’s (perceived) superior quality, achievement, or possession and either desires it or wishes that the other lacked it” (*Parrott and Smith: p.906*). Charness and Grosskopf (2001) design experimental games to test relative consumption preferences and illustrate that individuals are inclined to increase social welfare rather than to decrease discrepancies in payoffs. Goel & Thakor (2005) claim that individuals desire to decrease inequity due to fairness considerations. Additionally, previous work suggests that individuals tend to become more envious of similar reference groups (Elster 1991; Smith & Kim 2007; Shue 2013). Bouwman (2011) finds evidence that envy explains the geographic clustering of managerial compensation. Goel & Thakor (2005, 2010) find that managers compare their consumption to a reference group. In addition, Shue (2013) suggests that envy among peers with similar backgrounds sheds light on corporate policies. Stulz (1990) find that managers seek to increase their prestige. Additionally, empire building motivations reflect managers’ desire for power, prestige, and even compensation (Williamson 1974; Jensen 1986). Bebchuck and Grinstein (2009) find empirical evidence in relation to managerial pay and firm expansion. In the context of this paper, inspired by Goel and Thakor (2010) and Doukas and Zhang (2014), we argue that CEOs tend to be envious of other CEOs in their reference group and consequently, envious CEOs engage
in M&As in order to increase compensation, power, and prestige as a result of increased firm size and consequently, this results in envy driven acquisitions triggering merger waves.

Therefore, the industry-size adjusted pay gap between the median group pay of CEOs and the CEO pay in the corresponding reference group serves as a good proxy for managerial envy. That is, a CEO would feel the need to stand out from the average group pay in his industry and size circle. One could also argue that CEOs would envy the top paid CEO or the top three paid CEOs in their industry-size reference groups; therefore, in the robustness tests, we include two additional proxies of envy defined as the pay gap between the top paid CEO in the industry-size group and each CEO in the corresponding group, and the pay gap between the average pay of the top three highest paid CEOs in the industry-size group and each CEO in the corresponding reference group. Specifically, the higher the pay gap between the median CEOs pay in the industry-size group and CEO pay in the same group, the higher the level of envy induced by a CEO. Similarly, the higher the pay gap between the top CEO, or the top three CEOs average pay, and each CEO in the reference industry-size group, the higher the level of envy. Previous finance research on envy finds evidence that envy driven CEOs, mostly during the late stages of merger waves, engage in poor M&As, relative to early bidders who suffer from a lower level of envy (Goel & Thakor 2010; Doukas & Zhang 2014).

As indicated earlier, the goal of this study is to investigate whether CEOs during the late stages of merger waves face a higher propensity of a forced turnover due to engaging in envy motivated and value destroying M&As. Lehn & Zhao (2006) empirically investigate the relation between acquirers’ performance and forced CEO turnover and find that CEOs with poor investment decisions face a higher probability of a disciplinary turnover. This is in line with previous studies that empirically find a negative relation between firm performance and the propensity of a forced
turnover (Coughlan & Schmidt 1985; Warner et al. 1988; Weisbach 1988; Murphy & Zimmerman 1993; Peters & Wagner 2014). On the other hand, the agency theory specifies that managers tend to engage in investments to increase firm size beyond optimal necessity which in return increases managerial compensation even if such investments do not align with shareholder interest (Jensen & Meckling 1979; Fama & Jensen 1983). Consistent with the agency theory, Fu et al., (2013) finds evidence that CEOs undertake M&A for their own personal gains instead of increasing shareholder value. In relation to the envy literature, Goel & Thakor (2010) suggest that envy motivates CEOs to undertake acquisitions in order to increase compensation value during the late stages of merger waves even though they have already missed on the positive synergies offered during the early stages of merger waves. This results in envy driven late acquisitions suffering from negative returns. Additionally, Doukas & Zhang (2014) find that envy driven merger waves are also observable in the banking industry and find that envy motivated managers during the late stages of the banking merger waves perform poorly. This provides evidence that envy driven acquisitions is a broad phenomenon that warrants investigation to find out the extent of CEO disciplinary actions. Merger waves offer a fertile ground to explore whether the incident of CEO firings are linked with poor M&A decisions made by envious CEOs. Therefore, we predict that, for late bidders, the higher the pay gap is, the higher the level of envy experienced by the CEO, and consequently CEOs engage in low growth prospects M&As resulting in poor performance. This leads to the main hypothesis that envious CEOs, who perform poorly, during the late stages of merger waves face a higher likelihood of a forced turnover. Unlike previous studies, the novelty of this investigation is to shed light on whether the incidence of CEO firings is higher during the late stages of merger waves when merger activity is heightened by acquirers’ run by envy driven CEOs.
3. Data and Empirical Methodology

3.1 Acquisitions and Forced Turnover Samples

Our sample of M&A announcements in this study is from the Thomson One database for deals announced from 1993 through 2015. We collect the initial sample using the following criteria: (1) the M&A announcement date is between January 1, 1993 and December 31, 2015; (2) the acquirer and target firms are publicly traded; (3) financial services and public utilities firms with SIC codes 4900-4999 and 6000-6999 are excluded; (4) a deal is included only if the status is “completed”; (5) the minimum deal value is $5 million; and, (5) the percentage of shares acquired is a minimum of 50%. This criteria produces a preliminary sample of 3,997 M&A.

Furthermore, we require that the M&A sample is available on CRSP for stock returns, COMPSTAT for accounting data, and ExecuComp for CEO data. This reduces the sample to 1,815 M&A. To be more specific, we extract total assets from COMPSTAT and use (the log of) total assets as a proxy for firm size. From CRSP, we extract stock returns data to calculate abnormal returns. From the ExecuComp database, we extract CEO data such as total compensation (item tdc1), duality or CEO serving as a chairman (item titleann and ceoann), start date as a CEO (item datebecameceo), left date office (item leftofc), which are all used to identify the following variables: (1) compensation; (2) tenure; (3) turnover year; (4) duality; and (5) age. For further corporate governance variables, namely board size and the number of independent directors, we manually conduct an extensive search of company proxy statements (mostly DEF 14A).

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2 We exclude clustered acquisitions, or acquisitions announced within a 15-day window around the original acquisition date. This helps isolating possible overlapping effects that might occur on the bidder’s returns.
The task of identifying a forced CEO turnover is not simple. First, in order to define a CEO turnover, we use the turnover date (item leftofc) from the ExecuComp database. Further, in order to define a forced turnover, we conduct an extensive news search in LexisNexis and SEC Proxy statements. In the spirit of Parrino (1997), we first use the press-based approach and complement it with the age-based approach to address any bias in media articles. That is, if the CEO is fired or forced to step down, or if the CEO leaves because on unspecified reasons, or if the CEO leaves without at least a six months’ notice of leave, or if the CEO is under the age of 60 and the reasons for leaving do not include death, illness, or the acceptance of any position within or outside the firm, then the turnover is categorized as a forced turnover.\(^3\) We assign a dummy of one if the acquirer’s CEO is fired within five years of the acquisition announcement date, and zero if the CEO voluntarily stepped down. This results in 256 forced turnover and 730 turnover. Table 1 shows the M&A, turnover, and forced turnover distribution by year.

[Table 1 approximately here]

### 3.2 Merger Waves

In the spirit of Bouwman et al. (2009) and Goel and Thakor (2010), we categorize a month as a merger wave month based on the P/E ratio of the S&P 500 index.\(^4\) Specifically, we attain detrending of the S&P 500 P/E ratio by removing the best straight-line fit from the P/E of a specific month and the three preceding years.\(^5\) Figure 1 plots the detrended P/E ratio and if a month’s detrended P/E is positive, then we categorize that month as a merger wave month.

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\(^3\)^ Departures due to acquisitions, spin-offs, and restructuring are classified as a voluntary turnover. Furthermore, for departures that we cannot find enough data that the CEO was fired, we classify the turnover as voluntary.

\(^4\)^ In untabulated results available upon request, we detrend the M/B of the overall stock market and find consistent results with lower significant levels.

\(^5\)^ Bouwman et al., (2009) and Goel and Thakor (2010) use the prior five years average as a benchmark to classify a merger wave month. In unreported results available upon request, we use the past five years’ average as a benchmark but get a smaller sample with similar results and lower significant levels.
Additionally, following the steps of Doukas and Zhang (2014), we argue that it is more suitable to treat uninterrupted wave months as a single wave. Furthermore, we evenly divide the merger wave sample into 10’s based on a timeline. Since the main focus in this study are late acquirers, we define late acquisitions as the late 10%, 20%, 30%, 40%, or 50% of deals that are announced in each classified merger wave.

[Figure 1 approximately here]

The P/E detrended sample decreases our sample to 1,103 M&A conducted by 560 firms. Of these 560 firms, 223 firms engaged in multiple M&A during merger waves. And of these 223 firms, 115 firms had 367 different CEOs for different acquisitions, while the remaining 108 firms had the same CEO for different acquisitions. Following Lehn and Zhao (2006), we include the first acquisition of each CEO in the sample. The final sample used for the empirical tests consists of 1,103 acquisitions (723 acquisitions when we only include the first acquisition), 527 turnovers, and 188 forced turnovers. Table 2 shows the summary statistics for the detrended P/E wave sample. On average, approximately 19% of the sample uses stock only as a method of payment while approximately 48% of the sample uses cash only as a method of payment. This suggests that the method of payment is mostly in the form of cash for acquisitions during merger waves. Furthermore, the mean age of CEO is 55 years old for the full sample while the mean of CEO tenure is around 11.7 years. Around 65% of the CEOs in our sample occupy the chairman position as well. Additionally, the average board size of the sample is 10 directors and the average number of independent directors is 8 directors.

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6 We follow Lehn and Zhao (2006) by including the first M&A by each CEO. Further, in unreported results available upon request, we include two separated tests for the last acquisition and the biggest acquisition made by a CEO and we find consistent results with lower significant levels.

7 We find that late bidders use more cash. This supports the argument that late bidders motivated by envy are willing to use cash to catch up with early bidders during merger waves.
3.3 Envy

In order to construct a proxy for envy, we use the ExecuComp total compensation (item \textit{tdc1}). We then rank the CEOs sample provided to three groups based on industry-size and year. Then we calculate the median group pay of each industry-size group in every year. Specifically, we measure the median pay gap as the difference between the median group of CEOs pay in each industry-size group and CEO pay in the corresponding group. In this sense, we expect that the higher the median pay gap, the higher the level of envy induced by a CEO. Panel A of Table 3 shows the summary statistics for the number of late and early bidders during the P/E detrended waves using the five different alternative definitions of late acquisitions. Panel B shows the median pay gap during different stages of late and early acquisitions. Consistent with our prediction and with previous findings, we find that the late 10%, 20%, 30%, and 40% acquirers have a higher median pay gap which reveals an envy pattern among late acquirers.

3.4 M&A Performance

According to the efficient market hypothesis, returns around the announcement date of the acquisition are reflective of the success or failure of the investment decision (Lehn and Zhao, 2006). In other words, if the market reacts positively to the acquisition announcement, then it is safe to argue that the M&A decision is a success in the marketplace, and vice versa. This study uses the event study methodology in order to estimate CARs and BHRs around the acquisition announcement date using the Fama-French four factor model with the estimation period from $t =$
-350 to \( t = -50 \) prior to the announcement date.\(^8\) The announcement date of each M&A in the sample is obtained from the Thomson One database. CARs are estimated for every firm in the sample for different windows including the abnormal return on the announcement date. CAR \((-1, +1)\) is measured one trading day prior to the announcement day through one trading after the announcement date, CAR \((-2, +2)\) is measured two trading days prior to the announcement day through two trading days after the announcement date. The prediction is that CAR will have an inverse relation to the likelihood of a forced turnover. Further, since CEO turnover might be related to poor performance prior to the M&A announcement date, we measure firm performance using the BHR approach for three years and one year before the announcement date (Pre BHR-1, and -3). Additionally, we use the operating performance of the acquiring firm measured as the industry-adjusted AROA (AROA-1) which captures the operating performance one year prior the announcement date. Conversely, we use the same market and operating performance proxies to estimate post-merger performance in order to control for poor firm performance after the acquisition announcement date. Following Lehn and Zhao (2006), if a CEO is replaced in less than 12 months or 36 months then the BHR and the AROA is estimated up to the turnover date. Both the BHR (Post BHR+1, and +3) and the industry-adjusted ROA (AROA+1, and +3) are used to measure firm performance one year and three years post the announcement date.\(^9\) We predict that the post-merger market performance and operating performance will have an inverse relation to the propensity of a disciplined turnover.

3.5 Other Variables

\(^8\) We obtain similar results using the market model that are available upon request.
\(^9\) Following Bouwman et al. (2009), we calculate the AROA+1 and AROA+3 as ROA one and three years after the announcement date minus the ROA one year prior to the announcement date.
In addition to the above variables, we use corporate governance variables that include board size, the number of independent directors, and CEO duality as control variables. When it comes to disciplining managers, it is well known that the board of directors is the first defense line for shareholders. Previous empirical evidence provides mixed evidence regarding the direct influence of board size, board independence, and CEO duality on forced turnover decisions (Weisbach 1988; Goyal and Park 2002; Lehn and Zhao 2006; Peters and Wagner 2014). We also use CEO age and CEO tenure as control variables, since younger CEOs and CEOs with shorter tenure tend to have a higher dismissal risk (Lehn and Zhao 2006; Peters and Wagner 2014). Further, deal characteristics such as the method of payment and the relative deal value are included as controls. We include a dummy of stock that equals one if the payment is fully made in stock and zero otherwise; moreover, we include a dummy of cash that equals one if the payment is fully made in cash and zero otherwise. Additionally, the relative deal value is measured as the log of deal value scaled by the log of total assets which is a proxy for firm size, and is also used as a control variable in the multivariate analysis.

4. Do Envious CEOs in Late Acquisitions Get Fired?

4.1 Univariate Analysis of Late vs. Early Acquirers’ Performance

In this section, we first test whether late bidders underperform early bidders during merger waves. We use the CAR estimated through a 5-days window for short term performance\(^{10}\). We also use the BHR estimated through a 12-months window for long term post acquisition performance. Furthermore, AROA+1 is used to proxy for 12-months operating performance. The results in Table 4 clearly supports the prediction that late bidders perform poorly relative to early

\(^{10}\) We obtain similar results using CAR (\(-1, +1\)) and CAR (\(-3, +3\)).
bidders regardless which measure of acquisition performance is used. As shown in Panel A, the CAR (-2, +2) shows that late acquirers always realize worse negative abnormal returns than early acquirers and the difference is statistically significant for the late 50% bidders. Specifically, the late 50% of acquirers during merger waves underperform early bidders by approximately 1.2% around the (-2, +2) announcement period. This pattern is even more pronounced in Panel B, when the 12-month performance BHR+1 measure is used. Late bidders systematically underperform early bidders in a 12-month window. The difference is statistically significant at the late 20%, 30%, and 40% bidders. For example, for the late 20%, 30%, and 40% of acquisitions during merger waves, late acquirers perform 5.5%, 5.7%, and 4.5%, respectively, worse than early acquirers during the merger wave. Panel C demonstrates that the 12 months operating performance of acquirers, AROA+1, is consistent with the evidence reported in the Panels A and B. As before, late acquirers underperform early acquirers and the difference is statistically significant at the late 30%, 40%, and 50% bidders during merger waves. For instance, for the late 30% of acquisitions, late acquirers underperform early acquirers by approximately 2.3%. Overall, consistent with Goel and Thakor (2010) and Doukas and Zhang (2014), these findings suggest that late bidders perform worse than early bidders around the acquisition announcement date and one year after the acquisition announcement.

[Table 4 approximately here]

4.2 Univariate Analysis of Late vs. Early Acquirers’ Forced Turnover

The evidence presented in Table 4 suggests that late bidders perform worse than early bidders. To address the question of whether poorly performing late acquirer CEOs have a higher probability of getting fired, we initially perform a difference-in-mean test for forced turnovers in
different late stages of merger waves. The results of this test in Table 5 reveal a pattern of disciplinary CEO turnovers that is clearly consistent with the main prediction of this study. Specifically, the evidence documents that CEOs who engage in late acquisitions are more likely to be fired than their early counterparts in every late stage of the merger wave. The difference is statistically significant for the 30% of M&A deals classified as late acquisitions. That is, for the late 30% of acquisitions in merger waves, CEOs involved in late acquisitions are fired 10.54% more than the early bidder CEOs. These forced turnover statistics during late stages of merger waves seem to suggest that poorly performing late CEO acquirers face a higher probability of a forced turnover due to destroying shareholder value as shown in Table 4. Hence, the prediction that poor performing acquirers tend to have a higher dismissal risk is consistent with Lehn & Zhao (2006). The evidence thus far, consistent with our prediction, suggests that forced CEO turnovers are more likely when they engage in acquisitions during the late stages of merger waves.

[Table 5 approximately here]

4.3 Univariate Analysis of Forced Turnover: Performance and CEO Envy

To examine whether poorly performing CEOs get fired and to examine whether envy driven CEOs face a higher dismissal risk, we conduct an additional difference-in-means test for pre-merger and post-merger performance for forced CEO turnovers; further, we examine CEO envy, measured by median pay gap, in relation to forced CEO turnover. Panel A in Table 6 shows that the difference between CEOs who are fired and CEOs who are not fired for the pre-merger performance, market or operating performance including (Pre-BHR (-1), Pre-BHR (-3), and Pre-ROA), is statistically insignificant. This suggests that one and three years prior to the acquisition announcement, firms with a turnover, whether voluntary or forced, perform similarly. In
contrast, Panel B of Table 6 indicates that CEOs who are fired have a statistical significant lower post-merger performance than their not fired counterparts. Specifically, fired CEOs underperform not fired CEOs by approximately 1.74 % one year after the acquisition announcement date for operating performance (AROA+1). Additionally, for three years operating performance based on AROA+3, fired CEOs underperform their counterparts by 2.9%. Interestingly, the results document that more envious CEOs, or CEOs with a higher median pay gap, are fired 13.33% more than less envious CEOs with a lower pay median gap. This further reinforces our prediction that fired CEOs perform poorly in the long run and envious CEOs are more fired than less envious CEOs due to value destroying acquisitions.

[Table 6 approximately here]

4.4 Multivariate Analysis for Low and High CAR

The univariate results presented in the previous section indicate that CEO envy surfaces during the late stages of merger waves resulting in forced CEO turnover as a result of engaging in poorly performing acquisitions that harm performance and firm value. However, it is salient to examine whether this pattern holds in a multivariate context where we control for other effects that are likely to influence the forced CEO turnover decision. Therefore, we estimate a logistic regression with the dependent variable, forced turnover, measuring the probability an acquirer CEO is replaced within 5 years of the M&A decision.\textsuperscript{11} We use the CAR (-2, +2) to measure short term performance and separate our sample into low/high acquirer performance subgroups based on CAR with a sample of 527 turnovers in which 188 are forced turnover and conduct the

\textsuperscript{11} We follow Lehn and Zhao (2006) by only including CEOs who are fired 5 years within the M&A announcement date.
analysis on the first acquisition made by each CEO. The following logistic model is used for the multivariate regressions:

\[
\text{Logit(Forced)} = \beta_0 + \beta_1 D_{\text{paygap}} + \beta_2 D_{\text{Late}} + \beta_3 D_{\text{paygap}} D_{\text{Late}} + \sum_{j=1}^{k} \gamma_j X_j + \epsilon_{i,t}
\]

The main variable of interest is the interaction of the median pay gap and late acquisitions, \(\text{paygap} \times \text{late}\), which captures the level of CEO envy during the late stages of merger waves. We use five different alternative definitions of late acquisitions (10%, 20%, 30%, 40%, and 50%).\(^{12}\) Additionally, our set of control variables includes CEO age and tenure, duality, board size, board independence, relative deal value, stock payment, cash payment, long term performance (BHR+1), and firm size. Based on the central prediction of our hypothesis that envious CEOs with poor performing acquisitions during the late stages of merger waves face a higher probability of a disciplinary turnover, we hypothesize that \(\beta_3 > 0\).

[Table 7 approximately here]

Table 7 contains the results for low and high acquirer CAR samples. In models (1) through (3), we estimate the logistic regression for the low acquirer CAR sample; in addition, we run three more models (models (4) through (6)) for the high acquirer CAR sample. For the first three models (low acquirer CAR), the coefficient estimates for the interaction of the median pay gap and late acquirers is consistent with our main hypothesis mentioned above and is statistically significant. Specifically, the coefficient on the interaction of the median pay gap and late acquirers is positive and significant at the 1\% level for both the late 10\% and 20\% bidders during

\(^{12}\) For the sake of brevity, we report results for the late 10\%, 20\%, and 30\% acquisitions only since the main goal is to capture the performance of the extreme late acquirers. Furthermore, although the late 40\%, and 50\% provide consistent evidence, they do not yield significant results in most of our analyses.
merger waves. This evidence indicates that, for low acquirer CAR, the higher the median pay gap (higher envy) during the late acquisitions of 10% and 20% stages of merger waves, the higher the likelihood that the CEO is fired. Furthermore, the coefficients on CEO duality are negative and significant at the 10% and 5% levels for all three models, suggesting that CEOs who hold the chairman position exercise the power they have in hand and face a lower dismissal risk. More importantly, the coefficients on board size are negative and significant at the 5% level for all low acquirer CAR models, which indicates that bigger boards are ineffective in monitoring CEO poor performance. Interestingly, the number of independent directors has a positive coefficient and is statistically significant for all low acquirer CAR models which provides evidence that independent directors have a positive relation with the propensity of a forced CEO turnover. Consistent with previous studies, the coefficients on CEO age are negative and significant at the 5% level for all models in Table 7, indicating that younger CEOs face a higher probability of getting fired. For the high acquirer CAR sample, or models (4) through (6), the interaction of median pay gap and late acquirers is insignificant for all estimated models. This suggests that envious CEOs only get disciplined if they engage in value destroying acquisitions during the late stages of merger waves. Jointly, the results in Table 7 demonstrate a positive and significant relationship between poor performing envious CEOs during the late stages of merger waves and the probability of getting fired.

4.5 Multivariate Analysis for Low and High BHR

In the previous section, the findings suggest that envious CEOs who engage in bad acquisitions during the late stages of merger waves are disciplined based on the CAR, or short term performance. To further validate the findings, we re-examine the effect of CEO envy and its interaction with late acquisitions on the probability of a forced turnover using a 12-months
performance of bidders, BHR+1 and we separate our sample into low/high acquirer performance subgroups. Table 8 shows the results based on low acquirer BHR+1, models (1) through (3), and high acquirer BHR+1, models (4) through (6). For low acquirer BHR, or models (1) through (3), the interaction of the median pay gap and late acquirers has a positive influence on the propensity of a forced turnover but is only statistically significant at the 10% level for the late 10% bidders. Consistent with our previous analysis and our central prediction, this evidence suggests that envious late CEO bidders, specifically the late 10% where envy is mostly pronounced, with poor long term stock performance have a higher probability of a forced turnover. For high acquirer BHR, or models (4) through (6), the interaction of the median pay gap and late acquirers is insignificant for all models, suggesting that the association of envy and late bidders is more pronounced for low stock performance bidders. Overall, although the BHR results are less significant than CAR results, empirical results in Table 8 still provide consistent evidence that envy driven CEOs engaging poor acquisitions during the late stages of waves face a higher propensity of getting fired.

[Table 8 approximately here]

4.6 Robustness Test: Alternative Envy Proxies

Our goal is to test whether the incident of CEO firings is more pronounced during the late stages of merger waves when acquisitions are mainly conducted by envy driven CEOs. In order to confirm consistency with the median pay gap envy proxy, inspired by Doukas and Zhang (2014), we use the top CEO pay gap as a robustness envy proxy. It is defined as the difference between the top CEO pay in each industry-size group minus CEO pay in the corresponding group. Additionally, we use the difference between the average pay of the top three highest paid CEOs in each industry-size group and CEO pay in the corresponding group, top 3 CEO pay gap.
The intuition behind both envy proxies is similar to the main median pay gap proxy in previous analyses; that is, the higher the pay gap, the higher the level of envy CEO. Hence, we re-run the same set of logistics regressions based on low and high acquirer CAR samples as presented in Tables 9 and 11, and low and high acquirer BHR samples as presented in Tables 10 and 12. Based on the central hypothesis of our study, the interaction of pay gap (i.e., top CEO and top 3 CEOs) and late acquirers should be positive. The evidence provided in Table 9 for the low acquirer CAR sample, models (1) through (3), indicates that envious CEOs with poor performance during the late stages of merger waves face a higher likelihood of getting fired. The coefficient on the interaction of top CEO pay gap and late acquirers is statistically significant at the 1% and 10% levels for the late 10% and 20% bidders, respectively. When we look at the control variables, we observe similar pattern to our main findings (Table 7). Specifically, CEO duality has a negative and significant influence on the propensity of a forced turnover at the 10% level for all three models. Further, younger CEOs face a higher dismissal risk and the finding is significant for all low acquirer CAR models at the 5% level. Finally, board size and board independence have a negative and positive significant influence, respectively, the probability of a forced turnover. For high acquirer CAR, models (4) through (6), the interaction of top CEO pay gap and late acquirer is insignificant which further reconfirms our prediction that envious CEOs with poor stock performance around the announcement date during the late stages of merger waves are disciplined. Similarly, in Table 10, where we use the top 3 CEOs pay gap as a proxy of envy, the findings document that envious CEOs with low CAR during the late stages of merger waves face a higher probability of a disciplinary turnover; specifically, models (1) through (3) show that the interaction of top 3 CEOs pay gap and late 10% and 20% acquirers is positive and statistically significant at the 1% and 5% significant levels, respectively. Whereas,
for high acquirer CAR, models (3) through (6), the interaction of top 3 CEOs pay gap and late acquirers is insignificant suggesting the envious CEOs are disciplined when they perform poorly during the late stages of merger waves.

[Table 9 approximately here]

[Table 10 approximately here]

We next re-test the same set of logistic regressions by subgrouping our sample of the 12-months stock performance, BHR+1, to low and high acquirer BHR. Table 11 and 12 tabulate the findings for top CEO pay gap and top 3 CEOs pay gap, respectively. In Table 11, for low acquirer BHR, models (1) through (3), the interaction of top CEO pay gap and late bidders has a positive and significant coefficient for the late 10% acquirer at the 5% significant level. For high acquirer BHR, models (4) through (6), the main variable of interest which is the interaction of top CEO pay gap and late bidders is insignificant for all three models. This indicates that envy motivated CEOs who engage in poor acquisitions and experience poor stock price performance during the late stages of merger waves face higher forced turnover risk. Similarly, using the top 3 CEOs pay gap to capture envy, according to Table 12 models (1) through (3), envious CEOs with poor stock performance during the late stages of merger waves face a higher probability of getting fired, thus supporting the main hypothesis of our paper. However, for high BHR, model (4) shows somewhat surprising results. The interaction of top 3 CEOs pay gap and late 10% acquirers is positive and significant at the 10% level indicating that envious CEOs with high BHR during the late 10% acquisitions in merger waves face a higher propensity of a forced turnover. While this is not in accord with the central hypothesis, this could be because the board of directors made inefficient decisions in terms of disciplining CEOs considering one year stock performance post the acquisition announcement date. Overall, the two alternative proxies of envy, top CEO pay gap and
top 3 CEOs pay gap, used in this study still provide concrete evidence that envious CEOs engaging in poor acquisitions, especially during the late stages of merger waves, face a higher probability of getting fired.

[Table 11 approximately here]

[Table 12 approximately here]

4.7 Robustness Test: Operating Performance

To test the sensitivity of our results to a performance measure different from stock returns, we conduct a further robustness test with the AROA as a proxy of long term operating performance. We replicate the previous analyses for all envy proxies (i.e., median pay gap, top CEO pay gap, and top 3 CEOs pay gap) and subgroup our sample to low and high acquirer AROA. Tables 13, 14, and 15 present the multivariate results showing the effect of envious CEOs during the late stages of merger waves, for both low and high acquirer AROA, on the probability of a forced turnover. Consistent with our main previous findings, we find that envy driven CEOs who perform poorly during the late stages of merger waves face a higher dismissal risk and the results are significant at different levels. Specifically, for Table 13, models (1) through (3), for low acquirer AROA, the coefficient of the median pay gap and late 10% and 20% acquirers during merger waves is positive and significant at the 1% level, indicating that envy CEOs with poor performing acquisitions during the late stages or merger waves, especially the late 10% and 20% bidders, face a higher probability of a forced CEO turnover. Whilst models (4) through (6), for high acquirer AROA, the interaction of the median pay gap and late bidders is insignificant, suggesting that the effect of envy is more pronounced for poor performing acquisitions.
Moreover, Tables 14 and 15 where envy is measured by top CEO pay gap and top 3 CEOs pay gap, for low acquirer AROA in models (1) through (3), the interaction of top CEO pay gap (top 3 CEOs pay gap) and late 10% and 20% bidders has a positive and significant influence on the probability that a CEO is fired at the 1% and 5% significant levels, respectively. Conversely, for high acquirer AROA, regressions (4) through (6) show that the interaction of top CEO pay gap (top 3 CEOs pay gap) and late bidders is insignificant which provides further evidence that envy is mostly associated with poor performance during the late stages of merger waves. In sum, the logistic regressions in Tables 14 and 15 further support our hypothesis that envious CEOs who perform poorly during the late stages of merger waves face a higher propensity of a forced turnover.

5. Conclusion

This study examines whether the incidence of forced turnovers is higher during the late stages of merger waves when merger activity is heightened by acquirers managed by envy driven CEOs. Following Goel and Thakor (2010) and Doukas and Zhang (2014) who find evidence that envy triggers CEOs to create merger waves, this paper documents that envy motivated CEOs engage in value destroying acquisitions during the late stages of merger waves and as a result, have a higher propensity of a forced turnover.

Our tests are performed using merger waves from 1993 through 2015. The evidence presented in this study suggests that envious CEOs perform poorly and are more fired, especially
during the late stages of waves. Using alternative pay gap proxies for envy as a robustness check, we find that envious CEOs who engage in poorly acquisitions in the short and the long run in the late stages of merger waves have a higher likelihood of being dismissed. Additionally, using operating performance instead of stock performance yields consistent findings with our evidence. This provides further evidence that our findings are not sensitive to different envy or performance proxies.
References:


Fama, E.F., Jensen, M.C., 1983. Separation of ownership and control. Journal of law and economics, 301-325


Jensen, M.C., 1993. The modern industrial revolution, exit, and the failure of internal control systems. the Journal of Finance 48, 831-880


Table 1. Distribution of Mergers & Acquisitions, Turnover, and Forced Turnover by year

This table reports the full sample of 1,815 M&A made by US firms from the period of 1993-2015. The number of acquisitions per year is also shown. Furthermore, the table reports the number of CEO turnovers per year. Finally, the table provides the frequency of forced turnover throughout the years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnover</th>
<th>Percentage of Turnover</th>
<th>Forced</th>
<th>Percentage of Forced</th>
<th>Number of M&amp;As</th>
<th>Percentage of M&amp;As</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>21</td>
<td>2.88%</td>
<td>6</td>
<td>2.34%</td>
<td>26</td>
<td>1.43%</td>
</tr>
<tr>
<td>1994</td>
<td>29</td>
<td>3.97%</td>
<td>5</td>
<td>1.95%</td>
<td>50</td>
<td>2.75%</td>
</tr>
<tr>
<td>1995</td>
<td>43</td>
<td>5.89%</td>
<td>15</td>
<td>5.86%</td>
<td>75</td>
<td>4.13%</td>
</tr>
<tr>
<td>1996</td>
<td>40</td>
<td>5.48%</td>
<td>12</td>
<td>4.69%</td>
<td>83</td>
<td>4.57%</td>
</tr>
<tr>
<td>1997</td>
<td>42</td>
<td>5.75%</td>
<td>14</td>
<td>5.47%</td>
<td>99</td>
<td>5.45%</td>
</tr>
<tr>
<td>1998</td>
<td>50</td>
<td>6.85%</td>
<td>20</td>
<td>7.81%</td>
<td>124</td>
<td>6.83%</td>
</tr>
<tr>
<td>1999</td>
<td>55</td>
<td>7.53%</td>
<td>21</td>
<td>8.20%</td>
<td>146</td>
<td>8.04%</td>
</tr>
<tr>
<td>2000</td>
<td>72</td>
<td>9.86%</td>
<td>27</td>
<td>10.55%</td>
<td>118</td>
<td>6.50%</td>
</tr>
<tr>
<td>2001</td>
<td>56</td>
<td>7.67%</td>
<td>21</td>
<td>8.20%</td>
<td>100</td>
<td>5.51%</td>
</tr>
<tr>
<td>2002</td>
<td>32</td>
<td>4.38%</td>
<td>13</td>
<td>5.08%</td>
<td>83</td>
<td>4.57%</td>
</tr>
<tr>
<td>2003</td>
<td>32</td>
<td>4.38%</td>
<td>4</td>
<td>1.56%</td>
<td>72</td>
<td>3.97%</td>
</tr>
<tr>
<td>2004</td>
<td>26</td>
<td>3.56%</td>
<td>9</td>
<td>3.52%</td>
<td>69</td>
<td>3.80%</td>
</tr>
<tr>
<td>2005</td>
<td>32</td>
<td>4.38%</td>
<td>13</td>
<td>5.08%</td>
<td>78</td>
<td>4.30%</td>
</tr>
<tr>
<td>2006</td>
<td>34</td>
<td>4.66%</td>
<td>14</td>
<td>5.47%</td>
<td>72</td>
<td>3.97%</td>
</tr>
<tr>
<td>2007</td>
<td>30</td>
<td>4.11%</td>
<td>11</td>
<td>4.30%</td>
<td>93</td>
<td>5.12%</td>
</tr>
<tr>
<td>2008</td>
<td>18</td>
<td>2.47%</td>
<td>9</td>
<td>3.52%</td>
<td>73</td>
<td>4.02%</td>
</tr>
<tr>
<td>2009</td>
<td>24</td>
<td>3.29%</td>
<td>10</td>
<td>3.91%</td>
<td>54</td>
<td>2.98%</td>
</tr>
<tr>
<td>2010</td>
<td>28</td>
<td>3.84%</td>
<td>9</td>
<td>3.52%</td>
<td>88</td>
<td>4.85%</td>
</tr>
<tr>
<td>2011</td>
<td>29</td>
<td>3.97%</td>
<td>7</td>
<td>2.73%</td>
<td>75</td>
<td>4.13%</td>
</tr>
<tr>
<td>2012</td>
<td>17</td>
<td>2.33%</td>
<td>7</td>
<td>2.73%</td>
<td>76</td>
<td>4.19%</td>
</tr>
<tr>
<td>2013</td>
<td>13</td>
<td>1.78%</td>
<td>5</td>
<td>1.95%</td>
<td>52</td>
<td>2.87%</td>
</tr>
<tr>
<td>2014</td>
<td>5</td>
<td>0.68%</td>
<td>3</td>
<td>1.17%</td>
<td>59</td>
<td>3.25%</td>
</tr>
<tr>
<td>2015</td>
<td>2</td>
<td>0.27%</td>
<td>1</td>
<td>0.39%</td>
<td>50</td>
<td>2.75%</td>
</tr>
<tr>
<td>Total</td>
<td>730</td>
<td>100.00%</td>
<td>256</td>
<td>100.00%</td>
<td>1,815</td>
<td>100.00%</td>
</tr>
</tbody>
</table>
Table 2. Descriptive statistics of firm, M&A and CEO characteristics during merger waves

This table shows the total number of observations, mean, standard deviation, and different percentiles values of all variables for the final M&A’s announced during merger waves from 1993 to 2015. Each month is classified as a merger wave month if the detrended P/E ratio is positive. The continuous merger wave months are considered a single merger wave. Each wave is evenly divided into tens. Panel A reports the statistics for firm and M&A characteristics while Panel B shows the statistics for CEO and corporate governance variables. Appendix I provides the variables’ description.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observations</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>25th Percentile</th>
<th>50th Percentile</th>
<th>75th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A: Firm and M&amp;A Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log of Firm Size</td>
<td>1,103</td>
<td>8.618</td>
<td>1.759</td>
<td>7.313</td>
<td>8.489</td>
<td>9.768</td>
</tr>
<tr>
<td>Relative Deal Value</td>
<td>1,103</td>
<td>0.688</td>
<td>0.188</td>
<td>0.550</td>
<td>0.697</td>
<td>0.823</td>
</tr>
<tr>
<td>100% Cash Payment</td>
<td>1,103</td>
<td>0.481</td>
<td>0.500</td>
<td>0.000</td>
<td>0.000</td>
<td>1.000</td>
</tr>
<tr>
<td>100% Stock Payment</td>
<td>1,103</td>
<td>0.189</td>
<td>0.392</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Panel B: CEO Characteristics and Corporate Governance</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO Age</td>
<td>1,103</td>
<td>55.476</td>
<td>6.827</td>
<td>51.000</td>
<td>56.000</td>
<td>60.000</td>
</tr>
<tr>
<td>Tenure</td>
<td>1,103</td>
<td>11.683</td>
<td>7.721</td>
<td>6.000</td>
<td>10.000</td>
<td>14.000</td>
</tr>
<tr>
<td>Duality</td>
<td>1,103</td>
<td>0.648</td>
<td>0.478</td>
<td>0.000</td>
<td>1.000</td>
<td>1.000</td>
</tr>
<tr>
<td>Board Size</td>
<td>723</td>
<td>9.844</td>
<td>2.503</td>
<td>8.000</td>
<td>10.000</td>
<td>11.000</td>
</tr>
<tr>
<td>Board Independence</td>
<td>723</td>
<td>7.845</td>
<td>2.406</td>
<td>6.000</td>
<td>8.000</td>
<td>9.000</td>
</tr>
<tr>
<td>Log of Median Pay Gap</td>
<td>1,100</td>
<td>0.126</td>
<td>0.900</td>
<td>-0.442</td>
<td>0.118</td>
<td>0.649</td>
</tr>
</tbody>
</table>
Table 3. Summary Statistics of late versus early acquisitions in merger waves

This table reports the number of late and early acquisitions in the merger wave using alternative definitions of late acquisitions (Panel A) and the industry-size adjusted median pay gap (Panel B) between the median CEOs group pay and CEO pay in the corresponding group. The sample period is from 1993 to 2015. Each month is classified as a merger wave month if the detrended P/E is positive. The continuous merger wave months are considered a single merger wave. Each wave is evenly divided into tens. Late acquisitions are the late 10%, 20%, 30%, 40%, and 50% of acquisitions during merger waves. The remaining deals are categorized as early acquisitions.

Panel A: Number of late acquisitions vs. early acquisitions

<table>
<thead>
<tr>
<th>Percentage of deals classified as late acquisitions</th>
<th>Late 10%</th>
<th>Late 20%</th>
<th>Late 30%</th>
<th>Late 40%</th>
<th>Late 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Acquisitions</td>
<td>993</td>
<td>882</td>
<td>772</td>
<td>662</td>
<td>551</td>
</tr>
<tr>
<td>Late Acquisitions</td>
<td>110</td>
<td>221</td>
<td>331</td>
<td>441</td>
<td>552</td>
</tr>
<tr>
<td>All acquisitions</td>
<td>1,103</td>
<td>1,103</td>
<td>1,103</td>
<td>1,103</td>
<td>1,103</td>
</tr>
</tbody>
</table>

Panel B: Median pay gap in late acquisitions vs. early acquisitions

<table>
<thead>
<tr>
<th>Percentage of deals classified as late acquisitions</th>
<th>Late 10%</th>
<th>Late 20%</th>
<th>Late 30%</th>
<th>Late 40%</th>
<th>Late 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Pay Gap in Early Acquisitions (thousands $)</td>
<td>-5491.4</td>
<td>-5376.0</td>
<td>-5442.1</td>
<td>-5572.4</td>
<td>-5243.3</td>
</tr>
<tr>
<td>Median Pay Gap in Late Acquisitions (thousands $)</td>
<td>-4218.9</td>
<td>-5330.4</td>
<td>-5190.1</td>
<td>-5055.9</td>
<td>-5491.2</td>
</tr>
<tr>
<td>Difference</td>
<td>1272.5</td>
<td>45.58</td>
<td>252</td>
<td>516.5</td>
<td>-247.8</td>
</tr>
<tr>
<td>t-value</td>
<td>(1.45)</td>
<td>(0.18)</td>
<td>(0.23)</td>
<td>(0.49)</td>
<td>(-0.23)</td>
</tr>
</tbody>
</table>
Table 4. Univariate results of acquirers’ performance: late vs. early acquisitions

This table reports the performance measures (CAR, BHR, and AROA) for late acquirers vs. early acquirers. The sample period is from 1993 to 2015. Each month is classified as a merger wave month if the detrended P/E is positive. The continuous merger wave months are considered a single merger wave. Each wave is evenly divided into tens. CAR (Panel A) are estimated using the four-factor model. The estimation period is from \( t = -350 \) to \( t = -50 \). BHR (Panel B) is estimated using the four-factor model for a 12-month window. AROA (Panel C) is the difference between the industry adjusted ROA one year after the announcement date and the industry adjusted ROA one year prior the announcement date. In addition, the table reports the statistical significance for the difference-in-means test. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

<table>
<thead>
<tr>
<th>Panel A: CAR in late acquisitions vs. early acquisitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of deals classified as late acquisitions</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Late10%</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>CAR (-2,+2) in Early Acquisitions</td>
</tr>
<tr>
<td>-0.0047</td>
</tr>
<tr>
<td>CAR (-2,+2) in Late Acquisitions</td>
</tr>
<tr>
<td>-0.0089</td>
</tr>
<tr>
<td>Difference</td>
</tr>
<tr>
<td>t-value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: BHR+1 in late acquisitions vs. early acquisitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of deals classified as late acquisitions</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Late10%</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>BHR+1 in Early Acquisitions</td>
</tr>
<tr>
<td>0.0272</td>
</tr>
<tr>
<td>BHR+1 in Late Acquisitions</td>
</tr>
<tr>
<td>-0.0043</td>
</tr>
<tr>
<td>Difference</td>
</tr>
<tr>
<td>t-value</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel C: AROA+1 in late acquisitions vs. early acquisitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of deals classified as late acquisitions</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Late10%</td>
</tr>
<tr>
<td>----------------------</td>
</tr>
<tr>
<td>AROA+1 in Early Acquisitions</td>
</tr>
<tr>
<td>-0.0207</td>
</tr>
<tr>
<td>AROA+1 in Late Acquisitions</td>
</tr>
<tr>
<td>-0.0205</td>
</tr>
<tr>
<td>Difference</td>
</tr>
<tr>
<td>t-value</td>
</tr>
</tbody>
</table>
Table 5. Univariate results of forced CEO turnover: late vs. early acquisitions

This table reports the forced CEO turnover sample for late vs. early acquirers. For each CEO, we take the first M&A conducted in the sample. The sample period is from 1993 to 2015. Each month is classified as a merger wave month if the detrended P/E is positive. The continuous merger wave months are considered a single merger wave. Each wave is evenly divided into tens. The forced turnover variable (Panel A) is a dummy that equals 1 if the CEO was fired and 0 otherwise. An extensive search on LexisNexis and proxy statements is done in order to define a turnover as forced. In addition, the table reports the statistical significance for the difference-in-means test. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

<table>
<thead>
<tr>
<th>Percentage of deals classified as late acquisitions</th>
<th>Late 10%</th>
<th>Late 20%</th>
<th>Late 30%</th>
<th>Late 40%</th>
<th>Late 50%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forced in Early Acquisitions</td>
<td>0.3487</td>
<td>0.3472</td>
<td>0.3281</td>
<td>0.3374</td>
<td>0.3394</td>
</tr>
<tr>
<td>Forced in Late Acquisitions</td>
<td>0.4314</td>
<td>0.4000</td>
<td>0.4336</td>
<td>0.3889</td>
<td>0.3760</td>
</tr>
<tr>
<td>Difference</td>
<td>0.0826</td>
<td>0.0528</td>
<td>0.1054**</td>
<td>0.0515</td>
<td>0.0366</td>
</tr>
<tr>
<td>t-value</td>
<td>(1.13)</td>
<td>(0.95)</td>
<td>(2.20)</td>
<td>(1.19)</td>
<td>(0.87)</td>
</tr>
</tbody>
</table>
Table 6. Univariate results of forced CEO turnover: performance and CEO envy

This table reports the pre-merger and post-merger performance along with the log of median pay gap in relation to forced CEO turnover. For each CEO, we take the first M&A conducted in the sample. The sample period is from 1993 to 2015 merger waves by detrending the P/E ratio. CARs are estimated using the four-factor model. The estimation period is from \( t = -350 \) to \( t = -50 \). BHRS are estimated using the four-factor model for a 12-month window. AROA is the difference between the industry adjusted ROA one year after the announcement date and the industry adjusted ROA one year prior the announcement date. The log of pay gap is the industry-size adjusted pay gap between the average CEOs group pay and CEO pay in the corresponding group. In addition, the table reports the statistical significance for the difference-in-means test. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

<table>
<thead>
<tr>
<th>Forced CEO Turnover</th>
<th>Forced</th>
<th>Not Forced</th>
<th>Difference</th>
<th>t-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Pre-Merger Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-BHR (-1)</td>
<td>0.1700</td>
<td>0.1186</td>
<td>0.0513</td>
<td>(0.76)</td>
</tr>
<tr>
<td>Pre-BHR (-3)</td>
<td>0.6379</td>
<td>0.5497</td>
<td>0.0882</td>
<td>(0.34)</td>
</tr>
<tr>
<td>Pre-ROA</td>
<td>0.1520</td>
<td>0.1566</td>
<td>-0.0046</td>
<td>(-0.49)</td>
</tr>
<tr>
<td>B. Post-Merger Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-BHR (+1)</td>
<td>-0.0101</td>
<td>0.0227</td>
<td>-0.0327</td>
<td>(-0.88)</td>
</tr>
<tr>
<td>Post-BHR (+3)</td>
<td>-0.0138</td>
<td>0.0809</td>
<td>-0.0948</td>
<td>(-1.04)</td>
</tr>
<tr>
<td>AROA (+1)</td>
<td>-0.0313</td>
<td>-0.0136</td>
<td>-0.0174*</td>
<td>(-1.79)</td>
</tr>
<tr>
<td>AROA (+3)</td>
<td>-0.0405</td>
<td>-0.0105</td>
<td>-0.029*</td>
<td>(-1.95)</td>
</tr>
<tr>
<td>C. CEO Envy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log of Median Pay Gap</td>
<td>0.3220</td>
<td>0.1888</td>
<td>0.1333*</td>
<td>(1.75)</td>
</tr>
</tbody>
</table>

Observations 188 339 N/A N/A
Table 7. Logistic regression for late acquirers and median pay gap – Low vs. High CAR (short term performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high cumulative abnormal returns (CAR) around the 5-days window of an acquisition announcement in merger waves. CARs are estimated using the four-factor model and the estimation period is from $t = -350$ to $t = -50$. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer CAR. Regressions 1 to 3 include low CAR and regressions 4 to 6 include high CAR. Median pay gap is the industry-size adjusted pay gap between the median CEOs group pay and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
<table>
<thead>
<tr>
<th>Dependent Variable: Forced</th>
<th>Low CAR</th>
<th></th>
<th></th>
<th>High CAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Intercept</td>
<td>3.921**</td>
<td>3.790*</td>
<td>3.992**</td>
<td>5.819**</td>
</tr>
<tr>
<td></td>
<td>(0.0478)</td>
<td>(0.0543)</td>
<td>(0.0441)</td>
<td>(0.0113)</td>
</tr>
<tr>
<td>Median Pay Gap</td>
<td>-0.032</td>
<td>-0.030</td>
<td>-0.019</td>
<td>0.091</td>
</tr>
<tr>
<td></td>
<td>(0.8712)</td>
<td>(0.8786)</td>
<td>(0.9290)</td>
<td>(0.7074)</td>
</tr>
<tr>
<td>Late10</td>
<td>-0.883</td>
<td></td>
<td></td>
<td>-0.130</td>
</tr>
<tr>
<td></td>
<td>(0.2869)</td>
<td></td>
<td></td>
<td>(0.8356)</td>
</tr>
<tr>
<td>Late20</td>
<td>0.014</td>
<td></td>
<td></td>
<td>-0.670</td>
</tr>
<tr>
<td></td>
<td>(0.9771)</td>
<td></td>
<td></td>
<td>(1.1723)</td>
</tr>
<tr>
<td>Late30</td>
<td>0.612</td>
<td></td>
<td></td>
<td>-0.644</td>
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<tr>
<td></td>
<td>(0.1178)</td>
<td></td>
<td></td>
<td>(0.1405)</td>
</tr>
<tr>
<td>Median Pay Gap*Late10</td>
<td>2.023***</td>
<td></td>
<td></td>
<td>0.332</td>
</tr>
<tr>
<td></td>
<td>(0.0036)</td>
<td></td>
<td></td>
<td>(0.6668)</td>
</tr>
<tr>
<td>Median Pay Gap*Late20</td>
<td>1.369***</td>
<td></td>
<td></td>
<td>0.389</td>
</tr>
<tr>
<td></td>
<td>(0.0066)</td>
<td></td>
<td></td>
<td>(0.5029)</td>
</tr>
<tr>
<td>Median Pay Gap*Late30</td>
<td>0.718</td>
<td></td>
<td></td>
<td>0.689</td>
</tr>
<tr>
<td></td>
<td>(0.1602)</td>
<td></td>
<td></td>
<td>(0.1810)</td>
</tr>
<tr>
<td>BHR Post +1</td>
<td>-0.407</td>
<td>-0.369</td>
<td>-0.347</td>
<td>-0.059</td>
</tr>
<tr>
<td></td>
<td>(0.3506)</td>
<td>(0.3957)</td>
<td>(0.4388)</td>
<td>(0.9147)</td>
</tr>
<tr>
<td>CEO Age</td>
<td>-0.068**</td>
<td>-0.067**</td>
<td>-0.071**</td>
<td>-0.087**</td>
</tr>
<tr>
<td></td>
<td>(0.0274)</td>
<td>(0.0276)</td>
<td>(0.0203)</td>
<td>(0.0175)</td>
</tr>
<tr>
<td>CEO Tenure</td>
<td>-0.035</td>
<td>-0.032</td>
<td>-0.034</td>
<td>-0.006</td>
</tr>
<tr>
<td></td>
<td>(0.2294)</td>
<td>(0.2536)</td>
<td>(0.2527)</td>
<td>(0.8413)</td>
</tr>
<tr>
<td>Duality</td>
<td>-0.726*</td>
<td>-0.764**</td>
<td>-0.764*</td>
<td>-0.239</td>
</tr>
<tr>
<td></td>
<td>(0.0619)</td>
<td>(0.0483)</td>
<td>(0.0501)</td>
<td>(0.5640)</td>
</tr>
<tr>
<td>Board Size</td>
<td>-0.404***</td>
<td>-0.414***</td>
<td>-0.370***</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>(0.0160)</td>
<td>(0.0174)</td>
<td>(0.0322)</td>
<td>(0.7351)</td>
</tr>
<tr>
<td>Board Independence</td>
<td>0.331*</td>
<td>0.328*</td>
<td>0.301*</td>
<td>-0.201</td>
</tr>
<tr>
<td></td>
<td>(0.0544)</td>
<td>(0.0675)</td>
<td>(0.0904)</td>
<td>(0.3190)</td>
</tr>
<tr>
<td>Relative Deal Value</td>
<td>0.215</td>
<td>0.162</td>
<td>-0.018</td>
<td>-1.336</td>
</tr>
<tr>
<td></td>
<td>(0.8328)</td>
<td>(0.8746)</td>
<td>(0.9859)</td>
<td>(0.1560)</td>
</tr>
<tr>
<td>Stock</td>
<td>0.003</td>
<td>-0.003</td>
<td>0.028</td>
<td>0.573</td>
</tr>
<tr>
<td></td>
<td>(0.9944)</td>
<td>(0.9950)</td>
<td>(0.9498)</td>
<td>(0.2777)</td>
</tr>
<tr>
<td>Cash</td>
<td>-0.137</td>
<td>-0.167</td>
<td>-0.110</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>(0.7576)</td>
<td>(0.7041)</td>
<td>(0.8034)</td>
<td>(0.9976)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.201</td>
<td>0.227</td>
<td>0.199</td>
<td>0.065</td>
</tr>
<tr>
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<td>(0.1557)</td>
<td>(0.1215)</td>
<td>(0.1721)</td>
<td>(0.6125)</td>
</tr>
<tr>
<td>Pseudo R-squared</td>
<td>0.1852</td>
<td>0.1776</td>
<td>0.1778</td>
<td>0.1256</td>
</tr>
<tr>
<td></td>
<td>189</td>
<td>189</td>
<td>189</td>
<td>179</td>
</tr>
</tbody>
</table>
Table 8. Logistic regression for late acquirers and median pay gap – Low vs. High BHR (long term performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high buy-and-hold return (BHR) for a 12-months window post the acquisition announcement in merger waves. BHRs are estimated using the four-factor model for a 12-month window. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer BHR. Regressions 1 to 3 includes low BHR and regressions 4 to 6 include high BHR. The median pay gap is the industry-size adjusted pay gap between the median CEOs group pay and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
<table>
<thead>
<tr>
<th>Dependent Variable: Forced</th>
<th>Low BHR</th>
<th></th>
<th>High BHR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Intercept</td>
<td>4.064**</td>
<td>4.190**</td>
<td>4.488**</td>
</tr>
<tr>
<td></td>
<td>(0.0527)</td>
<td>(0.0462)</td>
<td>(0.0316)</td>
</tr>
<tr>
<td>Median Pay Gap</td>
<td>-0.033</td>
<td>-0.054</td>
<td>-0.019</td>
</tr>
<tr>
<td></td>
<td>(0.8724)</td>
<td>(0.7939)</td>
<td>(0.9311)</td>
</tr>
<tr>
<td>Late10</td>
<td>-0.331</td>
<td></td>
<td>-1.862*</td>
</tr>
<tr>
<td></td>
<td>(0.8481)</td>
<td></td>
<td>(0.4479)</td>
</tr>
<tr>
<td>Late20</td>
<td>-0.088</td>
<td></td>
<td>-0.555</td>
</tr>
<tr>
<td></td>
<td>(0.6316)</td>
<td></td>
<td>(0.9960)</td>
</tr>
<tr>
<td>Median Pay Gap*Late10</td>
<td>0.939*</td>
<td></td>
<td>2.306</td>
</tr>
<tr>
<td></td>
<td>(0.0319)</td>
<td></td>
<td>(0.1263)</td>
</tr>
<tr>
<td>Median Pay Gap*Late20</td>
<td>0.772</td>
<td></td>
<td>0.443</td>
</tr>
<tr>
<td></td>
<td>(0.6316)</td>
<td></td>
<td>(0.6316)</td>
</tr>
<tr>
<td>Median Pay Gap*Late30</td>
<td>0.295</td>
<td></td>
<td>0.903</td>
</tr>
<tr>
<td></td>
<td>(0.4842)</td>
<td></td>
<td>(0.1445)</td>
</tr>
<tr>
<td>CAR (-2,+2)</td>
<td>-4.071*</td>
<td>-4.072*</td>
<td>-4.150*</td>
</tr>
<tr>
<td></td>
<td>(0.0987)</td>
<td>(0.0963)</td>
<td>(0.0915)</td>
</tr>
<tr>
<td>CEO Age</td>
<td>-0.068**</td>
<td>-0.071**</td>
<td>-0.072**</td>
</tr>
<tr>
<td></td>
<td>(0.0216)</td>
<td>(0.0158)</td>
<td>(0.0146)</td>
</tr>
<tr>
<td>CEO Tenure</td>
<td>-0.069**</td>
<td>-0.068**</td>
<td>-0.073**</td>
</tr>
<tr>
<td></td>
<td>(0.0400)</td>
<td>(0.0403)</td>
<td>(0.0319)</td>
</tr>
<tr>
<td>Duality</td>
<td>0.311</td>
<td>0.300</td>
<td>0.314</td>
</tr>
<tr>
<td></td>
<td>(0.0403)</td>
<td>(0.4259)</td>
<td>(0.4049)</td>
</tr>
<tr>
<td>Board Size</td>
<td>-0.143</td>
<td>-0.160</td>
<td>-0.135</td>
</tr>
<tr>
<td></td>
<td>(0.4275)</td>
<td>(0.3808)</td>
<td>(0.4603)</td>
</tr>
<tr>
<td>Board Independence</td>
<td>0.052</td>
<td>0.061</td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td>(0.7892)</td>
<td>(0.7555)</td>
<td>(0.8744)</td>
</tr>
<tr>
<td>Relative Deal Value</td>
<td>-0.495</td>
<td>-0.583</td>
<td>-0.724</td>
</tr>
<tr>
<td></td>
<td>(0.6423)</td>
<td>(0.5855)</td>
<td>(0.4898)</td>
</tr>
<tr>
<td>Stock</td>
<td>0.182</td>
<td>0.215</td>
<td>0.156</td>
</tr>
<tr>
<td></td>
<td>(0.6735)</td>
<td>(0.6178)</td>
<td>(0.7181)</td>
</tr>
<tr>
<td>Cash</td>
<td>0.368</td>
<td>0.372</td>
<td>0.315</td>
</tr>
<tr>
<td></td>
<td>(0.3834)</td>
<td>(0.3715)</td>
<td>(0.4397)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.089</td>
<td>0.109</td>
<td>0.094</td>
</tr>
<tr>
<td></td>
<td>(0.5246)</td>
<td>(0.4464)</td>
<td>(0.5059)</td>
</tr>
<tr>
<td>Pseudo R-squared</td>
<td>0.1364</td>
<td>0.1371</td>
<td>0.1305</td>
</tr>
<tr>
<td>N</td>
<td>175</td>
<td>175</td>
<td>175</td>
</tr>
</tbody>
</table>
Table 9. Robustness test: late acquirers and top CEO pay gap – Low vs. High CAR (short term performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high cumulative abnormal returns (CAR) around the 5-days window of an acquisition announcement in merger waves. CARs are estimated using the four-factor model and the estimation period is from t = -350 to t = -50. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer CAR. Regressions 1 to 3 includes low CAR and regressions 4 to 6 include high CAR. Top CEO pay gap is the industry-size adjusted difference between the top CEO pay in each industry-size group and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
<table>
<thead>
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Table 10. Robustness test: late acquirers and top 3 CEOs pay gap – Low vs. High CAR (short term performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high cumulative abnormal returns (CAR) around the 5-days window of an acquisition announcement in merger waves. CARs are estimated using the four-factor model and the estimation period is from $t = -350$ to $t = -50$. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer CAR. Regressions 1 to 3 include low CAR and regressions 4 to 6 include high CAR. Top 3 CEOs pay gap is the industry-size adjusted difference between the top three highest paid CEOs average pay in each industry-size group and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

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Table 11. Robustness test: late acquirers and top CEO pay gap – Low vs. High BHR (long term performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high buy-and-hold return (BHR) for a 12-months window post the acquisition announcement in merger waves. BHRs are estimated using the four-factor model for a 12-month window. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer BHR. Regressions 1 to 3 includes low BHR and regressions 4 to 6 include high BHR. Top CEO pay gap is the industry-size adjusted difference between the top CEO pay in each industry-size group and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
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48
Table 12. Robustness test: late acquirers and top 3 CEOs pay gap – Low vs. High BHR (long term performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high buy-and-hold return (BHR) for a 12-months window post the acquisition announcement in merger waves. BHRs are estimated using the four-factor model for a 12-month window. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer BHR. Regressions 1 to 3 includes low BHR and regressions 4 to 6 include high BHR. Top 3 CEOs pay gap is the industry-size adjusted difference between the top three highest paid CEOs average pay in each industry-size group and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I.***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
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Table 13. Robustness test: late acquirers and median pay gap – Low vs. High AROA (operating performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high industry-adjusted return on assets (ROA) for 12-months post the acquisition announcement in merger waves. AROA are estimated as the industry adjusted ROA one year after the acquisition announcement minus industry adjusted ROA one year prior the announcement date in merger waves. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer AROA. Regressions 1 to 3 includes low ROA and regressions 4 to 6 include high ROA. Median pay gap is the industry-size adjusted pay gap between the median CEOs group pay and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

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<td>-0.058*</td>
<td>0.026</td>
<td>0.027</td>
<td>0.022</td>
</tr>
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<td></td>
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<td>(0.0918)</td>
<td>(0.0555)</td>
<td>(0.4583)</td>
<td>(0.4516)</td>
<td>(0.5196)</td>
</tr>
<tr>
<td>Duality</td>
<td>-0.113</td>
<td>-0.181</td>
<td>-0.177</td>
<td>-0.549</td>
<td>-0.581</td>
<td>-0.491</td>
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<td>(0.7796)</td>
<td>(0.6585)</td>
<td>(0.6578)</td>
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<td>(0.2258)</td>
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<td>-0.114</td>
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<td>-0.196</td>
<td>-0.219</td>
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<td>(0.5480)</td>
<td>(0.5392)</td>
<td>(0.3411)</td>
<td>(0.3369)</td>
<td>(0.3326)</td>
</tr>
<tr>
<td>Board Independence</td>
<td>-0.020</td>
<td>-0.051</td>
<td>-0.046</td>
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<td>0.182</td>
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<tr>
<td></td>
<td>(0.9173)</td>
<td>(0.8017)</td>
<td>(0.8193)</td>
<td>(0.4233)</td>
<td>(0.4155)</td>
<td>(0.4361)</td>
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<tr>
<td>Relative Deal Value</td>
<td>0.190</td>
<td>-0.080</td>
<td>-0.306</td>
<td>-1.494</td>
<td>-1.487</td>
<td>-1.576</td>
</tr>
<tr>
<td></td>
<td>(0.8544)</td>
<td>(0.9374)</td>
<td>(0.7577)</td>
<td>(0.2143)</td>
<td>(0.2110)</td>
<td>(0.1977)</td>
</tr>
<tr>
<td>Stock</td>
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<td>0.534</td>
<td>0.434</td>
<td>0.145</td>
<td>0.138</td>
<td>0.253</td>
</tr>
<tr>
<td></td>
<td>(0.2690)</td>
<td>(0.3009)</td>
<td>(0.3886)</td>
<td>(0.7879)</td>
<td>(0.7970)</td>
<td>(0.6340)</td>
</tr>
<tr>
<td>Cash</td>
<td>-0.010</td>
<td>0.022</td>
<td>-0.130</td>
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<td>0.301</td>
<td>0.374</td>
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<tr>
<td></td>
<td>(0.9803)</td>
<td>(0.9557)</td>
<td>(0.7391)</td>
<td>(0.4825)</td>
<td>(0.4992)</td>
<td>(0.4216)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.337</td>
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<td>0.078</td>
<td>0.085</td>
<td>0.073</td>
</tr>
<tr>
<td></td>
<td>(0.0398)</td>
<td>(0.0256)</td>
<td>(0.0550)</td>
<td>(0.6360)</td>
<td>(0.6040)</td>
<td>(0.6630)</td>
</tr>
<tr>
<td>Pseudo R-squared</td>
<td>0.1889</td>
<td>0.1797</td>
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<td>0.1717</td>
<td>0.1728</td>
<td>0.1779</td>
</tr>
<tr>
<td></td>
<td>(0.0044)</td>
<td>(0.0039)</td>
<td>(0.0032)</td>
<td>(0.0033)</td>
<td>(0.0032)</td>
<td>(0.0033)</td>
</tr>
<tr>
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<td>175</td>
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Table 14. Robustness test: late acquirers and top CEO pay gap – Low vs. High AROA (operating performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high industry-adjusted return on assets (ROA) for 12-months post the acquisition announcement in merger waves. AROA are estimated as the industry adjusted ROA one year after the acquisition announcement minus industry adjusted ROA one year prior the announcement date in merger waves. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer AROA. Regressions 1 to 3 includes low ROA and regressions 4 to 6 include high ROA. Top CEO pay gap is the industry-size adjusted difference between the top CEO pay in each industry-size group and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
<table>
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<tr>
<th>Dependent Variable: Forced</th>
<th>Low AROA</th>
<th>High AROA</th>
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<tbody>
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<td></td>
<td>1</td>
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<tr>
<td><strong>Intercept</strong></td>
<td>2.823</td>
<td>3.213</td>
</tr>
<tr>
<td></td>
<td>(0.2192)</td>
<td>(0.1609)</td>
</tr>
<tr>
<td><strong>Top CEO Pay Gap</strong></td>
<td>-0.061</td>
<td>-0.058</td>
</tr>
<tr>
<td></td>
<td>(0.7049)</td>
<td>(0.7162)</td>
</tr>
<tr>
<td><strong>Late10</strong></td>
<td>-4.277***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0004)</td>
<td></td>
</tr>
<tr>
<td><strong>Late20</strong></td>
<td>-2.125*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0532)</td>
<td></td>
</tr>
<tr>
<td><strong>Late30</strong></td>
<td></td>
<td>-0.687</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.4024)</td>
</tr>
<tr>
<td><strong>Top CEO Pay Gap</strong>*Late10</td>
<td>1.500***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0020)</td>
<td></td>
</tr>
<tr>
<td><strong>Top CEO Pay Gap</strong>*Late20</td>
<td>0.784*</td>
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<td></td>
<td>(0.0565)</td>
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</tr>
<tr>
<td><strong>Top CEO Pay Gap</strong>*Late30</td>
<td></td>
<td>0.293</td>
</tr>
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<td></td>
<td></td>
<td>(0.3564)</td>
</tr>
<tr>
<td></td>
<td>(0.3572)</td>
<td>(0.3381)</td>
</tr>
<tr>
<td><strong>CEO Age</strong></td>
<td>-0.066**</td>
<td>-0.071**</td>
</tr>
<tr>
<td></td>
<td>(0.0393)</td>
<td>(0.0336)</td>
</tr>
<tr>
<td><strong>CEO Tenure</strong></td>
<td>-0.059*</td>
<td>-0.055*</td>
</tr>
<tr>
<td></td>
<td>(0.0603)</td>
<td>(0.0876)</td>
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<tr>
<td><strong>Duality</strong></td>
<td>-0.118</td>
<td>-0.132</td>
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<tr>
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<td>(0.7696)</td>
<td>(0.7462)</td>
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<td><strong>Board Size</strong></td>
<td>-0.139</td>
<td>-0.113</td>
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<tr>
<td></td>
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<td>(0.5393)</td>
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<td><strong>Board Independence</strong></td>
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<td>(0.7694)</td>
</tr>
<tr>
<td><strong>Relative Deal Value</strong></td>
<td>0.163</td>
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<td>(0.9285)</td>
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<td><strong>Stock</strong></td>
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<td>0.537</td>
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<td>(0.2946)</td>
<td>(0.2992)</td>
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<td><strong>Cash</strong></td>
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<td>0.034</td>
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<td>(0.9331)</td>
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<td><strong>Firm Size</strong></td>
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<td>0.364**</td>
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<td>(0.0241)</td>
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<tr>
<td><strong>Pseudo R-squared</strong></td>
<td>0.1785</td>
<td>0.1627</td>
</tr>
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<td>175</td>
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Table 15. Robustness test: late acquirers and top 3 CEOs pay gap – Low vs. High AROA (operating performance):

This table provides the multivariate regression results for envious late acquirers CEOs with low and high industry-adjusted return on assets (ROA) for 12-months post the acquisition announcement in merger waves. AROA are estimated as the industry adjusted ROA one year after the acquisition announcement minus industry adjusted ROA one year prior the announcement date in merger waves. The dependent variable is a dummy that shows the probability that the bidder’s CEO is fired within 5 years of the acquisition announcement. We divide the sample into low/high acquirer AROA. Regressions 1 to 3 includes low ROA and regressions 4 to 6 include high ROA. Top 3 CEOs pay gap is the industry-size adjusted difference between the top three highest paid CEOs average pay in each industry-size group and CEO pay in the corresponding group. Late10 or late20 or late30 is a dummy that equals 1 if the acquisitions fall in the late 10% or 20% or 30% acquirers, respectively, and 0 otherwise. For brevity, we just report the late 10%, 20%, and 30%. The independent variables are defined in details in Appendix I. ***, **, and * are used to indicate significant levels at 1%, 5% and 10% respectively.

(Table is in the upcoming page)
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<th>High ROA</th>
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<td></td>
<td>(0.2306)</td>
<td>(0.1661)</td>
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<tr>
<td>Top 3 CEOs Pay Gap</td>
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<td>-0.137</td>
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<tr>
<td></td>
<td>(0.4005)</td>
<td>(0.3943)</td>
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<tr>
<td>Late10</td>
<td>-4.500***</td>
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</tr>
<tr>
<td></td>
<td>(0.0004)</td>
<td></td>
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<tr>
<td>Late20</td>
<td>-2.163**</td>
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<td></td>
<td>(0.0299)</td>
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</tr>
<tr>
<td>Late30</td>
<td></td>
<td>-0.666</td>
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<td></td>
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<td>Top 3 CEOs Pay Gap*Late10</td>
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<td>Top 3 CEOs Pay Gap*Late20</td>
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<td>Top 3 CEOs Pay Gap*Late30</td>
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<tr>
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<td>CAR (-2,+2)</td>
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<td>(0.4275)</td>
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<td>-0.071**</td>
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<td>(0.0399)</td>
<td>(0.0301)</td>
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<td>(0.8610)</td>
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<td>0.358**</td>
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Figure 1: Time series of detrended S&P500 P/E Ratio from 1993 to 2015

This figure plots the 3-year detrended S&P500 P/E ratio from 1993 through 2015. The months with positive detrended P/E are defined as merger wave months.
Appendix I – Variable description

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<tr>
<th>Variable</th>
<th>Description</th>
<th>Data Source</th>
</tr>
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<tbody>
<tr>
<td><strong>Firm &amp; Deal Characteristics</strong></td>
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<td></td>
</tr>
<tr>
<td>Log of Firm Size</td>
<td>Log of Total Assets</td>
<td>COMPUSTAT</td>
</tr>
<tr>
<td>Relative Deal Value</td>
<td>Log of Deal value scaled by the acquirer’s Log of Firm Size (total assets)</td>
<td>Thomson One</td>
</tr>
<tr>
<td>100% Cash Payment</td>
<td>1 if all cash, 0 otherwise</td>
<td>Thomson One</td>
</tr>
<tr>
<td>100% Stock Payment</td>
<td>1 if all stock, 0 otherwise</td>
<td>Thomson One</td>
</tr>
<tr>
<td><strong>CEO Characteristics &amp; Corporate Governance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CEO Age</td>
<td>CEO Age</td>
<td>EXECUCOMP</td>
</tr>
<tr>
<td>CEO Tenure</td>
<td>Tenure of the CEO</td>
<td>EXECUCOMP</td>
</tr>
<tr>
<td>CEO Duality</td>
<td>1 if Chief Executive and Chairman, 0 otherwise</td>
<td>EXECUCOMP</td>
</tr>
<tr>
<td>Board Size</td>
<td>The number of the board of directors serving in the company</td>
<td>Proxy Statements (SEC Edgar)</td>
</tr>
<tr>
<td>Board Independence</td>
<td>The number of independence directors serving in the board</td>
<td>Proxy Statements (SEC Edgar)</td>
</tr>
<tr>
<td>Turnover</td>
<td>CEOs who left their office</td>
<td>EXECUCOMP</td>
</tr>
<tr>
<td>Forced</td>
<td>1 if CEO is fired, 0 otherwise</td>
<td>LexisNexis and Proxy Statements</td>
</tr>
<tr>
<td>Log of Median Pay Gap</td>
<td>Industry-size adjusted median Pay Gap. Defined as median CEOs pay - CEO pay in the corresponding group</td>
<td>EXECUCOMP</td>
</tr>
<tr>
<td>Log of Top CEO Pay Gap</td>
<td>Industry-size adjusted top CEO Pay Gap. Defined as top CEO pay - CEO pay in the corresponding group</td>
<td>EXECUCOMP</td>
</tr>
<tr>
<td>Log of Top 3 CEOs Pay Gap</td>
<td>Industry-size adjusted top 3 CEOs average Pay Gap. Defined as top 3 CEOs average pay - CEO pay in the corresponding group</td>
<td>EXECUCOMP</td>
</tr>
</tbody>
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