

The Impact of Acquisitions on CEO Pay

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Abstract

We examine the impact of acquisition on the pay of CEOs of S&P 1500 firms from 1994-2010. We find insignificant effect of firm performance on post-acquisition CEO pay. Controlling for firm size, CEOs are paid about 3.5-4% premium in post-acquisition pay, which increases the pay of the median CEO of an acquiring firm in the sample by US\$ 1,73,000. We find no evidence of differential pay increase for domestic and international acquisitions. Post-acquisition increase in CEO pay is not contingent on the wealth effects and CEOs are not penalized for 'wealth-reducing' acquisitions. Our results suggest that a part of acquisition premium in CEO pay can be attributed to the strength of governance. Controlling for survivor bias, we observe a smaller acquisition premium in CEO pay.

KEY WORDS: CEO Pay, M&A, Personnel Economics,

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1 Introduction

The last decade has witnessed a proliferation of Mergers and Acquisitions (henceforth M&A) with increasing deal values. Thomson's Worldwide Mergers and Acquisitions Database reports that in the year 2000, there were 20,000 M&A deals in the USA worth over US\$ 2 trillion reaching up to US\$ 4.83 trillion by the end of 2007 (Wall Street Journal, 2007). However, empirical evidence suggests that M&As at best do not lead to a gain in shareholder's wealth of acquiring firms and at worst, leads to a decline in firm profitability and shareholder's wealth (Dickerson et al. 1997). Empirical evidence on CEO pay establishes strong, positive and statistically significant firm size-CEO pay elasticity (Conyon and Gregg 1994, Rosen, 2001). In comparison, the firm performance-CEO pay sensitivity is smaller and less robust, often sensitive to functional forms of performance and pay variables employed (Murphy 1999).

This leads to a widely held view in economic literature that the motivations of M&A are not to enhance shareholder's wealth but self-serving desires of CEOs to increase firm size in an attempt to increase her own compensation (Jensen, 1986).. Khorana and Zenner (1998), Bliss and Rosen (2001) and Grinstein and Hribar (2004) finds evidence that CEOs of acquiring firms enjoy higher compensation post-M&A. However, Anderson et al (2004) finds no evidence that this increase in CEO pay is greater than is expected from internal growth. Evidences are also mixed on whether CEOs are rewarded differentially for good and bad acquisitions. Bliss and Rosen (2001) and Anderson et al (2004) finds no evidence of differential rewards to CEOs for "good" and "bad" acquisitions whereas Khorana and Zenner (1994) and Girma et al (2006) provides evidence of decrease in CEO pay for 'wealth reducing' M&As and that only 'wealth enhancing' M&As has a positive effect on CEO pay.

If the CEOs undertake M&A to increase their pay by increasing the firm size, such deviation from optimal contracting can be mitigated by strong corporate governance. The evidences on the role of corporate governance in post-M&A CEO pay rise are inconclusive. Anderson et al (2004) finds no evidence that CEO share ownership or entrenchment has any effect on post-acquisition CEO pay, whereas Grinstein and Hribar (2004) and Coakley and Iliopoulou (2006) reports higher M&A bonuses in firms with weak corporate governance.

The evidences on the major issues surrounding post-acquisition CEO pay are mixed for both US and UK samples. A major limitation of extant literature is that most studies in the context of USA are restricted in using data from up to the year 2000 and doesn't reflect the period of increasing concerns and regulations on corporate governance. No noted study analyzes the effect of Sarbanes Oxley Act (SOX) and governance reforms on the post-acquisition CEO pay. Guest (2008) provides evidence of no significant difference in CEO pay for domestic and international M&A for UK firms. My study analyzes the same in the context of USA firms. No previous studies with US samples examine the difference in CEO pay increase for domestic and international M&As. Evidences from a vast majority of existing study is limited by the use only cash compensation as a measure of CEO pay (Guest 2008, Girma et al, 2006). Using a cash-only measure of CEO pay may lead to overestimation of the merger effect on CEO pay. Analysis with different components of CEO pay may provide further insights into the dynamics of post-M&A pay increase.

In this paper we study the effect of M&A on the pay of acquiring CEOs using a sample of 1210 domestic and international acquisitions completed by 2673 US firms listed in S&P 1500 in the period January 1, 1994- December 31, 2010. we examine the effect of M&A on post-acquisition CEO pay and analyze whether the pay premium is associated with wealth effect of the M&A. we also analyze the role of corporate governance (in particular, SOX) on the effect of post-acquisition CEO pay.

we use fixed effects estimation of the effect of acquisitions on CEO pay, controlling for endogeneity in acquisition decisions. we use Heckman selection model to control for potential survivor

bias and arrive at qualitatively similar results. we find evidence that acquiring CEOs are paid higher compared to non-acquiring CEOs. we also examine whether acquisition premium in CEO pay is contingent upon the wealth effect of the acquisition. Using average annual performance of firm's stocks with respect to the industry, we analyze whether CEOs have a misaligned interest in undertaking acquisitions at the cost of shareholders' wealth. In contrast to the findings of Girma et al. (2006) using UK sample, we find no evidence of differential acquisition premium in pay for wealth-enhancing and wealth-reducing acquisitions. These results are consistent in the second sub-period (2003-2010) of the sample.

Thirdly, we provide evidence on the effect of corporate governance on the post-M&A pay of acquiring CEO. Using a dataset that includes the post-SOX period, we provide evidence that a small and independent board is associated with lower acquisition premium. Thus these results suggest that a part of the acquisition premium can be attributed to the strength of corporate governance. However, even in the post SOX period, post-acquisition pay increase does not depend on the wealth effect of the acquisition.

This paper contributes to several strands of literature on M&A and CEO pay and corporate governance. By expanding the scope of the sample to include the recent decade of enhanced scrutiny on CEO pay and corporate governance, my results reflect the effects of recent regulations on corporate governance.

Secondly, we provide the first empirical evidence on the difference in post-acquisition CEO pay for domestic and cross border acquisitions. we find no evidence of greater pay increase in the event of international acquisitions with respect to domestic acquisitions. This is consistent with the findings of Guest (2008) who used a sample of UK firms and noted that target nationality doesn't have an impact on post-acquisition pay of target CEOs.

One of the contributions of this paper is controlling for survivor bias in estimating acquisition premium in CEO pay. Extant literature acknowledges the probability of survivor bias in estimation but this is the first study to control for survivor bias using Heckman selection models. Controlling for selection bias, we find evidence of a stronger role of corporate governance. This can be because a part of the role of board of directors to enforce corporate discipline is in replacing the non-performing managers. Controlling for strength of corporate governance in the Heckman models leads to a downward adjustment in acquisition premium in CEO pay.

The findings of my research have a number of policy implications:

Consistent with findings of Guest (2009) and Harford and Li (2007), my estimations suggest that M&A has a significantly positive impact on CEO pay and that this increase is more sensitive to firm size than firm performance. Thus, CEOs have an incentive to undertake acquisitions in an attempt to increase their own pay. we find no evidence that the acquisition premium in CEO pay is contingent on the wealth effects. These results are consistent in both the pre-SOX period and post-SOX period. Thus we provide evidence of systematic agency problem in the current CEO compensation contracts.

A key finding of this paper is the role of corporate governance in determining the acquisition premium in CEO pay. Higher post-acquisition CEO pay can be partially attributed to poor corporate governance. However, controlling for survivor bias, we find a stronger effect of governance on post-acquisition CEO pay indicating that board of directors enforce corporate discipline by replacing non-performing managers as evident from increased risk of turnover for acquiring managers.

The rest of the paper is structured as follows: section 2, briefly summarizes the relevant literature on the debate on firm size-CEO pay elasticity and the effects of M&A on CEO pay. Section 3 discusses the data, sources, limitations, transformations and descriptive statistics. In Section 4, we discuss the choice of methodology and robustness tests. Findings from empirical analysis are discussed in Section 5 whereas Section 6 concludes.

2 Theory and Literature Review

Two differing views on CEO compensation exist in economic literature. The principal-agent view of incentive alignment suggests that CEOs are rewarded for their skills and contribution to company performance and that under the condition of incomplete monitoring, reward structure should be designed to align the interests of the (risk-neutral) shareholders and the (risk-averse) CEOs (Jensen and Meckling, 1976). This theory posits a strong link between firm performance and CEO pay. Bebchuk et al (2003) argues that the optimal contracting framework is fraught with problems of moral hazard as monitoring and incentive alignments are only partial and often costly. Consistent with his argument, empirical evidence suggests that statistical relationship between CEO pay and firm performance is weak and less robust to changes in specifications and functional forms of the variables. Conyon and Leech (1994) and Gregg et al (1993) find weak pay-performance relationship using samples of UK firms. Murphy (1999) tests the hypothesis on US sample and notes that there exists a significant but small positive association of CEO pay and firm performance. Many empirical analyses, including Murphy (1985, 1999) have estimated low pay performance sensitivity as reflected by the semi-elasticity value of 0.12-0.16 (Coughlin and Schmidt 1985).

In contradiction to Murphy's estimation of semi-elasticity, Hall and Liebmann (1998) used a sample of 478 US firms from 1980-1994 to report a median semi-elasticity value of 3.9. The major difference in methodology is in the usage of a wider definition of CEO pay to include stock and option grants. Omitting the variances of stock and option grants from the model is shown to create a downward bias in pay-performance sensitivity. However, most studies in the US have noted a higher sensitivity of pay to accounting performance than to stock price performance (Girma et al 2006 and the references therein). However, extant literature with US samples seldom use industry benchmarked measures of performances as used by Guest (2008) and Girma et al (2006) with UK samples. Also, most noted US studies use a sample up to the year 2000 and thus doesn't reflect the last decade's increased scrutiny on CEO pay and corporate governance.

In contrast, a large body of literature reports a positive and robust association between CEO pay and firm size with a higher magnitude of elasticity than the CEO pay-firm performance elasticity (Rosen 1992, Murphy 1999, etc.). These findings are consistent with the implications of tournament theory (Lazear and Rosen 1981). In essence, tournament model predicts that compensation is a convex function of organizational levels (Lambert et al, 1993; Main et al, 1993). If a larger firm has a higher average pay, then the CEO needs to be paid higher in a larger firm to maintain the pay-differential with the next highest level and to compensate the CEO for the loss of option value of promotion. Rosen (1992) reports that CEO pay-firm size sensitivity has been of comparable magnitude (0.20-0.35) across different temporal, industry-specific and geographic dispersion of the sample. Firm size acts as an easily available and unambiguous yardstick for board of directors and remuneration committees to benchmark CEO pay and hence the elasticity is estimated to be of comparable magnitude over time and across geographies (Rosen 1992; Conyon 1997).

An alternative explanation of high levels of CEO pay can be provided using the managerial power and rent capture arguments. Core (1999) and Zhao and Lehn (2006) provides evidence that CEOs of firms with weaker corporate governance are systematically paid higher than their contemporaries in firms with stronger corporate governance. The CEOs may exert their power in a number of ways. A case in the point is the dual role of CEOs as the Chairman of the Board which significantly increases managerial influences over the board (Brickley et al. 1997) and reduces the degree of independent monitoring by the board (Jensen 1993). Empirical studies also note that CEOs receive higher pay if they have a greater influence in nomination and selection of board of directors (Main et al. 1995; Core et al. 1999).

The relationship between CEO pay and firm size, irrespective of reasons, has a potential implication on the motivation of a CEO to undertake acquisitions to increase her own pay. If CEO

pay is strongly associated with firm size, then undertaking acquisitions provide the CEO with a viable option to increase her own pay, even at the cost of shareholders. A higher firm size, along with tangible benefits to CEO wealth, also generates several non-pecuniary benefits to the CEO in terms of perquisites and lowering of the probability of her own firm getting acquired (Singh, 1975). Completions of M&A also serve as signals of managerial ability and may have an impact on the long term earnings of the CEO.

The literature on effects of M&A on CEO pay is fewer in comparison and provides mixed evidence on the gain in CEO earnings post-acquisition. Most studies provide evidence that CEOs of acquiring firms enjoy significant post-acquisition pay premium. In one of the earlier studies, Lambert and Larcker (1987) reports a small increase in post-acquisition salary of US CEOs and a similar decline in CEO wealth due to a fall in the values of stock and option grants. Using a sample of 54 large US firms from 1980s, Khorana and Zenner (1998) finds evidence that CEOs of acquiring firms enjoy 10.5% higher post-acquisition cash compensation than CEOs of non-acquiring firms. They also find evidence that acquisitions have a positive impact on salary by about 3% in the two years following the event. The impact on total compensation is estimated to be lower due to a decline in the average stock price following merger announcements ¹. Further evidence from the US banking industry shows that CEOs enjoyed higher post-acquisition pay following M&A during 1986-1995 (Bliss and Rosen 2001). In a recent study on US firms, Harford and Li (2007) finds a positive and significant impact of M&A on the post-acquisition pay of US CEOs between 1993-2000, even when the events have a negative impact on the shareholder's wealth. Studies from UK provide similar evidence. Girma et al (2006) reports an insignificant effect of firm performance but a strong positive association between firm size and CEO pay. In addition, they also report pure positive merger effect on post-acquisition pay after controlling for firm size. They attribute the pure merger effect to signaling effect of completion of acquisition as managerial ability. They also report differential impact on CEO pay depending on whether the merger was 'wealth-enhancing' or 'wealth-reducing'. In contrast, Guest (2008) finds a positive merger effect on CEO pay irrespective of the effect it has on shareholders' wealth and that corporate governance doesn't have a significant impact on post-acquisition CEO pay. He also finds no evidence of differential impact of target nationality on CEO pay.

Canyon et al (2002) suggests that acquisitions are often followed by spin-offs and divestments. Therefore contemporaneous increase in CEO pay due to acquisition may have a downward adjustment in the following years due to possible decline in sales level. Thus, the effect of merger on CEO pay may not be contemporaneous only but may be gradually adjusted to a higher level. The lagged increase in pay may also be due to deliberate smoothing of CEO pay rises to avoid attracting media and institutional shareholder attentions.

From the above discussion, a general model of CEO pay for i th firm in the year, 't' can be constructed as

$$Pay_{it} = \alpha + \beta_1 X_{it} + \beta_2 AcquisitionDummy_{it} + f_i + h_t + \varepsilon_{it} \quad (1)$$

In equation (1) β_1 reflects the effects of contemporaneous firm performance, firm size and governance variables and β_2 estimates the contemporaneous effects of M&A on CEO pay, after controlling for the effects of size and firm performances, f_i and h_t are firm fixed effects and year fixed effects to control for endogeneity of acquisitions and macro-economic shocks.

¹The fall in share price may not impact CEO wealth as the CEOs have the discretion not to exercise their stock grants at that point but wait for the price to increase.

3 Data

The data used in this analysis is derived from Standard and Poor’s Execucomp database. The Execucomp database provides detailed information on executive salary, bonus, stock and option awards and a range of firm and CEO specific information, generated from the annual proxy filings (Def-14A) of listed US firms. It covers executive compensation data from 1992 to 2010. The dataset contains firms listed in the S&P 1500 indices, representing about 90% of the US market capitalization.

The study period for this analysis is 1994-2010. The CEOANN field in Execucomp identifies the CEOs of a firm in a given financial year and provides compensation details for 3016 CEOs in that sample period. 313 firms do not report the CEOs or the full compensation details and have been omitted from this study. Probit regressions to analyze sample selectivity (not tabulated) was performed using firm performance, firm size and CEO pay measures but none of the parameters was estimated to be statistically significant and hence systematic non-disclosure of information was ruled out.

The remaining 2755 organizations are observed for the period 1994-2010. We also omit firms which are observed for less than 3 years within the sample period. This leads to omission of 3144 firm-year observations. Thus the final dataset contains 14767 firm-year observations for 2703 CEOs. The firms are observed from the first year they appear on the Execucomp database until the end of the study period or until the firm drops out of the sample due to mergers and acquisitions or delisting from the stock exchange.

The firm performance data is obtained from S&P’s COMPUSTAT Research Tape whereas the stock price data is obtained from Centre for Research in Securities Prices (CRSP) database. The databases were matched on the basis of the eight-digit Committee on Uniform Security Identification Procedures numbers (CUSIP) of the firms. A second level matching was done based on the ticker symbols of the firms. The industry performances are matched by the firm’s 2-digit SIC codes. we chose a set of firm performance measure based on discussions in extant literature (Hambrick and Cannella, 2004) and use Return on Total Assets (ROA) as accounting measures of firm performance².

Using Acquisition Weekly, Thomson One Banker and Forbes company database, the events of acquisitions are identified and categorized as domestic and international acquisitions. For the purpose of this study, acquisition is defined as an event whereby a firm owning less than 50% of the target’s voting shares before the acquisition increases the ownership to 50% or more after the event (Guest, 2008). In the sample period 8247 acquisition deals are reported. Following the sample selection method of Lehn and Zhao (2006), the sample for this study is selected using the following criteria: (a) The Mergers and Acquisitions were announced between January, 1, 1992 and December, 31, 2010 (b) the deals are categorized as Mergers or Acquisitions, (d) the deals are “completed” and (e) the size of the target firm, measured as natural logarithm of total assets, is at least 10% of that of the acquiring firm. These requirements leads to 3243 acquisitions in the sample period.

To isolate the effects of individual acquisitions, we apply a materiality constant of non-overlapping M&As, consistent with the definition used by Harford and Li (2007).. An overlap is categorized as a gap of less than 24 months between the announcements of two M&A. This leads to elimination of 1793 acquisitions

The final sample consists of 1450 acquisitions undertaken by 1230 firms in the sample period.

²Using Earning Before Interest and Taxes (EBIT) and Earnings Per Share (EPS) yields qualitatively similar estimates.

The control group of 1525 firms doesn't take part in any acquisition in the given sample period.³ An acquisition is classified as international if the target firm is not enlisted in an US stock exchange. Using this definition, there are 1145 domestic acquisitions and 305 international M&As. .

Data on corporate governance was obtained from the Risk Metrics database (formerly IRRC). The database provides information on board structure, composition and governance committees of S&P 1500 firms from 1996-2007. we augment information on board size, number of outside directors, CEO duality, independence of nomination committee and compensation committee, number of board directorships held by each director to analyse the effects of corporate governance on post-acquisition pay. Models specified with corporate governance variables contains 11522 firm-year observations. Using an indicator variable for the post-SOX period, we estimate the effects of regulatory change in corporate governance and financial disclosure norms on post-acquisition CEO pay.

4 Methodology

Recent studies on M&A and CEO pay in the context of UK samples have used a dynamic panel approach (Girma et al. 2006, Guest 2008). In the presence of time persistence in CEO pay, introducing a lagged dependent variable of CEO pay growth may help in capturing the effect of smoothed increase in post-acquisition CEO pay. we test for the existence of serial correlation of CEO pay using Wooldridge (2002) test for auto correlation in panel data. The test provides insufficient evidence to reject the null hypothesis of no first order auto-correlation in CEO pay ($p = 0.6862$).⁴ In the absence of first order autocorrelation in CEO pay, we employ a fixed effect estimation of the model for CEO pay. Hausman test suggests use of a fixed effect estimation over random effects ($p = 0.000$).

Using the various determinants of CEO pay identified in extant literature and discussed in Section 2, we construct the baseline model to estimate the effect of M&A on the post-acquisition CEO pay for firm 'i' in time 't'.

$$\ln Pay_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 Sales_{it} + \beta_3 X_{it} + \beta_5 \sigma_{Re_{it}} + \beta_4 AcquisitionDummy_{it} + f_i + h_t + \varepsilon_{it} \quad (2)$$

In equation (2), Pay_{it} is calculated as the sum of the Salary, Bonus, Black Scholes value of stock and option awards granted in the year t, non-equity incentives, value of Restricted Stock Grants and Long Term incentives due that year and all other compensation paid in that year⁵.

³Rossi and Volpin (2004) reports the percentage of hostile takeovers in USA from 1990-2002 to be 6.44%. In this study, I have not differentiated between hostile and friendly M&As because of the small proportion of hostile takeovers.

⁴The Wooldridge's test for autocorrelation assumes border-line significance at 10% level on using the natural log transformations of CEO pay. The use of monetary value of CEO pay yields no first-order autocorrelation in CEO pay. The significant autocorrelation in CEO pay as reported in UK studies may be due to the use of cash only measures of compensation.

Drukker (2003) notes that the test may have less power in the presence of conditional heteroskedastic error in small samples. However, simulations on power and sample size for AR and MA show that for our sample size, the power of the test is 1.00.

⁵Kaplan (2006) reports that Execucomp's Black-Scholes valuations may be overestimate the values of the stocks and options if the tenure is less than seven years since the valuations are done with an assumption of seven year vesting period. He proposed a binomial tree valuation approach. The median tenure of CEOs in my dataset is over 7 years and hence I use the Execucomp's valuation of stocks and options. Execucomp also values restricted stocks

Consistent with the argument that increase in CEO pay is adjusted over a period of time, we estimate the lagged effects of acquisition on CEO pay (Girma et al. 2006).

The coefficient β_1 estimates the effect of firm performance on CEO pay. There are contrasting views on the appropriate measures of firm performance. Choice of stock returns as measure of firm performance (Coughlan and Schmidt, 1985) reflects the expected value created by a CEO but is subject to market noise. Accounting measures only partially reflect the value created by the existing CEO and the remainder is reflected in future earnings (Engel et al. 2003). we use both accounting measures of firm performance (ROA_{it}) and stock price performance. we benchmark the annual average value weighted return on the firms stocks with respect to the annual average value weighted return of the median firm in the same industry (at 2-digit SIC level). This controls for the industry effects in firm performance. Consistent with existing literature, historical firm performance two lags of performance have been used (Geddes and Vinod, 1997).

$Sales_{it}$ is used as the measure of firm size.⁶ It is difficult to decompose the sales into organic sales and increase in sales due to acquisition particularly since acquisitions in the sample includes cross border targets for which data is often not available. Extant literature predicts a significant positive association of pay with firm size. Thus, β_2 reflects the effect of increase in firm size, allowing β_3 to capture the pure acquisition effect on CEO pay. If acquisitions are associated with a rise in CEO pay, then the coefficients on the Acquisition dummy (and its lags) will be significant and positive. Acquisition Dummy is a set of dummy variables which takes on values of '1' if an acquisition is undertaken in a given year or in the previous two years. Use of lagged acquisition dummies are expected to yield qualitatively similar results to that obtained from dynamic panel models. we also control for trend effects in CEO pay to isolate the pure acquisition effect. β_3 captures the effects of all other observable firm performance measures contained in the vector, X_{it} .

A set of year dummies, h_t are used to account for any macroeconomic shocks. Natural log transformations of all monetary variables have been used in the estimation. The estimation reports robust standard errors that are clustered at firm level.

Next, we examine whether CEOs are rewarded differentially for 'wealth-enhancing' and 'wealth-reducing' acquisitions. In equation (3), we introduce interaction dummies of acquisitions with the positive and negative annual returns on the firm's annual benchmarked stock returns (Harford and Li, 2007). This is in contrast to studies that use 3-day Cumulative Abnormal Returns around the announcement date to categorize 'wealth-enhancing' and 'wealth-reducing' acquisitions (Girma et al. 2006, Lehn and Zhao, 2006). However, the horizon of the performance effect of the acquisition and the unvested equity options of the CEO extend beyond few days around the announcement. (Vijh 1997; Rau and Vermaelen, 1998). Thus announcement effect on stock returns is short-term, if not insufficient, statistic to use as a proxy for wealth effects of merger. Consistent with the arguments of Harford and Li (2007), we use industry-benchmarked annual value weighted return on a firm's stocks of a firm as a metric to assess the wealth effects of acquisitions. *Positive Return_{it}* (*Negative Return_{it}*) is an indicator variable that takes the value of '1' if the change in annual value weighted return on the firm's stocks are higher (lower) than the change in annual value weighted return of the median firm in the same 2-digit SIC level. The interaction of *Positive Return_{it}* (*Negative Return_{it}*) with *Acquisition_{it}* are used to estimate the effects of wealth-enhancing (wealth-reducing) acquisitions on CEO pay. Using standard deviations of the previous two years annual percentage stock returns, we control risk in firm's information and operating environment, which is reported to be a significant determinant of CEO pay (Core et al. 1999).

with the assumption of fully vested stocks which may overestimate CEO pay. Lack of practicable alternatives and assuming the effect to be similar for all, I use Execucomp valuation for restricted stocks.

The estimations are robust to alternative definition of Total Compensation that excludes option grants and non-equity incentive as suggested by Bebchuk and Fried (2002).

⁶Qualitatively similar results are obtained using Number of employees and Total Assets as measures of firm size.

$$\begin{aligned}
LnPay_{it} = & \alpha + \beta_1 ROA_{it} + \beta_2 \sigma_{Ret_{it}} + \beta_3 Sales_{it} + \beta_4 Acquisition_{it} + \\
& + \beta_5 Negative Return_{it} + \beta_6 (Acquisition_{it} * Negative Return_{it}) + \\
& f_i + h_t + \varepsilon_{it}
\end{aligned} \tag{3}$$

In the final specification, we control for strength and independence of corporate governance to examine the effect of corporate governance on post-acquisition pay premiums. If weak corporate governance is associated with higher post-acquisition pay increase, it may be suggestive of agency problems. we control for CEO duality, board size, board independence, board busyness and percentage of CEO shareholding in the firm. The number of directors on the board is used to control for board size. A board is classified as independent if its constituted with more than 20% outside directors⁷ and the CEO is not the Chairman of the Board. Average number of board memberships held by the directors of a sample firm is used to control for the busyness of the board. A busy board may indicate a dilution in strength of monitoring or may also indicate that firms optimally choose directors who are highly skilled and hence are in short supply.

If the acquisition premium in CEO is due to weak corporate governance, the governance variables in equation (4) will be significant and controlling for the strength of governance, the estimate of acquisition dummy shall be insignificantly different from zero. Using the indicator variable $Acquisition_{it} * Negative Return_{it} * IndependentBoard_{it}$, we estimate whether a more independent board is associated with a lower post-acquisition pay premium for wealth-reducing acquisitions. Independent Board indicator equals to '1' if the CEO is not the chairman of the board, the percentage of outside directors' representation on the board is more than 50% and if the CEO is not the Chairman of the nominating committee and the compensation committee.

$$\begin{aligned}
LnPay_{it} = & \alpha + \beta_1 ROA_{it} + \beta_2 \sigma_{Ret_{it}} + \beta_3 Sales_{it} + \beta_4 Acquisition_{it} + \beta_5 Negative Return_{it} \\
& + \beta_6 Board Size_{it} + \beta_7 IndependentBoard_{it} + \beta_8 BoardBusyness_{it} \\
& + \beta_9 (Acquisition_{it} * Negative Return_{it} * IndependentBoard_{it}) + f_i + h_t + \varepsilon_{it}
\end{aligned} \tag{4}$$

A potential problem of endogeneity and selection bias in the analysis may result from the fact that acquiring firms are not a randomly selected subsample and the decisions to undertake M&A may be endogenous. we circumvent this problem in two ways. Firstly, we use firm fixed effects in the model to mitigate potential biases due to omitted variables. Secondly, we instrument the probability of a firm undertaking an acquisition using firm size, firm profitability (ROA and annual average share returns), CEO power and board characteristics and whether the firm has undertaken acquisition(s) in the previous two years and year dummies. The instrumentaion helps in estimating pure acquisition effect in the presence of bias due to endogenous choice to undertake M&As. Results of Sargan Test (p=0.088) and tests for weak instruments [$F = 138.31$] suggest that the set of instruments used are valid and uncorrelated to the distribution of errors. The results (Table 7) are qualitatively similar to the results obtained from fixed effects estimation.

Studies on effects of M&A on CEO pay are often fraught with survivor bias by not controlling for post-acquisition CEO turnover (Guest 2008; Girma et al. 2006; Buchholtz et al. 2003). These studies either limit their sample to acquiring firms whose CEO remain in post for at least one

⁷Directors who are not employees, relatives of employees, former employees or employees, attorneys, solicitors and accountants of any other firm which has contractual relations with the sample firm are classified as outside directors.

year from the date of announcement or assigns zero compensation to the departing CEOs in the subsequent years. Harford and Li (2007) report no significant difference in turnover probability for acquiring and non-acquiring CEOs. Extant literature, therefore, either limits the understanding of the effect of CEO turnover or suffers from survivor bias and over-estimates the merger effect. we control for survivor bias by estimating a two stage Heckman selection model.

The first stage of the model is a probit estimation of the probability of CEO retention post-M&A using controls for contemporaneous and lagged firm performance measures, firm size, corporate governance measures, industry dummies and, termination payment and change in control payment as exclusion restrictions. Termination payment is the payment eligibility of a CEO in the event of an involuntary turnover whereas change in control payment is the payment eligibility of the CEO in the event of involuntary turnover arising out of change in corporate control (M&As). A priori, it can be expected that a higher termination payment and change in control payment will increase the probability of CEO retention post M&A. Turnover payment and change in control payment is only relevant when an event of turnover is under consideration and effects the pay of a CEO only through its effect on survival probability. Thus, these two variables can act as valid exclusion restrictions for the two-stage model. In the second stage, the predicted probability of CEO retention is used to estimate the effect of M&A on CEO pay using the same set of parameters as delineated in equation (2). we estimate the following model to control for endogenously determined CEO turnover decisions and control for survivor bias.

$$LnPay_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 Sales_{it} + \beta_3 X_{it} + \beta_4 AcquisitionDummy_{it} + f_i + h_t + \varepsilon_{it} \quad (5)$$

Where observations of Pay_{it} is conditional on the outcome of the selection equation specified as

$$Retention_{it} = \begin{cases} 1 & \text{if } \gamma z_{it} + \nu_{it} > 0 \\ 0 & \text{Otherwise} \end{cases} \quad (6)$$

z_{it} contains all the observable parameters of firm performance, firm size, CEO tenure, corporate governance measures and industry classifications that contribute to the probability of retention of the CEO in the event of an M&A.

Theoretically Heckman model is identified when the same explanatory variables appear in the selection and the outcome equations. However, the identification is conditional upon distributional assumptions of the residuals and the non-linearity of the inverse mills ratio. Following (Sartori 2003), we include two variables that hold theoretical significance in the selection equation but not in the outcome. These exclusion restrictions act as instruments and hence serve as identification parameters for the two equations without the rigid assumptions on distributions. It can be shown that in the presence of an exclusion restriction, Heckman selection models are identified up to an unknown constant (see Appendix 1).

5 Results And Analysis

5.1 Do acquisitions impact CEO Pay?

The estimation results are tabulated in Table 3-with four different specifications of compensation: (1) Salary, (2) Bonus, (3) Variable Pay,⁸ (4) and (5) Total Pay. Estimations in column (4) and (5) estimates the post-acquisition premium in Total CEO pay using alternate measures of firm performance. Estimates in column (6) are corrected for endogeneity using instruments for undertaking acquisition. The estimates of acquisition dummy are of similar order of magnitude across specifications (4) and (6). Thus the results are robust to specification error arising out of endogenous choice to undertake acquisition.

The effect of accounting firm performance on CEO pay is insignificant in specifications (1)-(4). In specification (5), we use industry-benchmarked stock returns as a measure of firm performance. The semi-elasticity of firm performance and CEO pay is estimated to be 0.029 which is significant at 5% level. This estimate is in the same order as the estimates on firm performance measures for US samples (Harford and Li, 2007) and UK samples (Girma et al. 2006). Thus, executive pay is marginally impacted by changes in firm performance.⁹ In comparison, the effect of firm size on all the specifications of CEO pay is much larger. The effect of firm size is more pronounced for post-acquisition bonuses and variable pay. Overall, a percentage point increase in firm size leads to a 0.41 units increase in CEO pay, *ceteris paribus*.

From Table 3, the coefficient on the acquisition dummy is positive in all specifications, after controlling for firm size. However, the estimates are borderline significant for Total Pay and insignificant for specifications with bonus and salary. we find no contemporaneous pure acquisition effect on CEO bonus and that the growth in post-acquisition CEO bonus can be attributed to the increased firm size. Acquisitions have a negative contemporaneous effect on variable pay, probably arising out of decline in average stock price. A priori, there is no reason to believe the distribution of CEO pay to be normally distributed. We use quantile regressions to test the effect of acquisition on CEO pay at the 25th and the 75th percentile. The co-efficient on acquisition dummy for the 75th percentile is 0.056 and 0.023 for the 25th percentile. Both the estimates are significant at 1% significance level but the difference of the two point estimates is not statistically significant. Thus, the pure acquisition effect on CEO pay seems to persist across the distribution. For brevity, we do not include the estimation results.

The coefficients on the indicators for lagged effects of acquisition are positive across all specifications. Controlling for firm size and performance, pure acquisition effect on Total Pay persists for the next two years after the event, suggesting some degree of smoothing over time. The effect of acquisition of both Salary and Bonus in the first lag is positive and significant, indicating absence of any substitution effect in the Total Pay design. The lagged positive effect of acquisition on the variable pay component counter-balances the decline in variable pay in the year of acquisition. The acquisition effect persists in the second lag although the effect weakens. Thus, after controlling for increase in firm size, CEOs are paid a 3.5-4% post-acquisition premium in total pay. The increase is driven not only by bonus as suggested by Grinstein and Hribar (2004) but all the components of Total Pay as evident from estimations in Column (1)-(5). Thus, a mean CEO undertaking an

⁸Variable Pay = All performance related pay components- Bonus+ Stock Grants + Option Grants + Restricted Stocks + Long Term Incentives and all other annual pay

⁹The estimations are robust to specifications with alternate measures of firm performance like and EBIT and annual value wighted return of firm's stocks (not tabulated).

acquisition experiences an increase of US\$ 173,000 (US\$ 4,329,000 X 4%) in total pay in the year of acquisition and similar pay increase in the next year.

To test the effects of target nationality on post-acquisition pay premium, we employ an indicator variable for cross-border acquisitions that takes on the value of '1' if the target firm of the acquisition is not listed on a US stock exchange, and '0' otherwise. Consistent with the findings of Guest (2008), we find no differential effect of target nationality on post-acquisition CEO pay. The indicator for cross border M&A is estimated to be insignificant across specifications. This is the first study to separately analyze the effects of international and domestic M&A on CEO pay in the context of US firms. There is no evidence that acquisition of a foreign target has a differential effect on post-acquisition CEO pay.

In summary, we estimate a 4% post-acquisition increase in CEO pay, after controlling for the effect of increased firm size, firm performance and fixed effects. The pure acquisition effect is estimated in all specifications and is persistent up to two years after an event. This suggests that acquisition premium in CEO pay is not only an idiosyncratic increase arising out of a higher bonus in the year of the event (Grinstein and Hribar, 2004) but is a systematic increase in the components of Total pay. Lagged increase in pay is suggestive of smoothing in post-acquisition pay increase. we also find no differential increase in pay for international M&A, providing evidence that target nationality has insignificant effects on post-acquisition CEO pay.

5.2 Are CEOs rewarded differentially for ‘wealth-enhancing’ and ‘wealth-reducing’ acquisitions?

In this section, we examine whether the CEO pay increase post-acquisition is contingent on the effect of the acquisition on shareholder’s wealth. In other words, we examine whether CEOs are motivated to carry out bad acquisitions for self-serving interests even if it reduces shareholders’ wealth. From an agency-theory framework, CEO and firm performance is expected to be asymmetric for positive and negative firm performance (Harford and Li, 2007 and the references therein). we use indicators for positive (negative) benchmarked annual value weighted returns on the firm’s stocks in the year of announcement of acquisition which takes on a value of ‘1’ if the benchmarked annual value weighted returns on the firm’s stocks in the year of announcement of acquisition is positive (negative) or ‘0’ otherwise.

we measure the wealth effect of acquisitions by introducing an interaction variable. $Acquisition_{it} * Negative Annual Return_{it}$ that takes on the value of '1' if a firm 'i' undertakes an acquisition in the year, 't', and there is negative annual return on its stocks in that year benchmarked to returns on the median firm in the same 2-digit SIC code, thus characterizing ‘wealth-reducing’ acquisitions. we also estimate the lagged effects of wealth-reducing acquisitions on managerial pay. If the coefficients on the $Acquisition_{it} * Negative Annual Return_{it}$ dummy (and its lags) are positive, then the hypothesis of asymmetry of CEO pay-firm performance will not hold and CEOs undertaking acquisitions will seem to be rewarded in the same way for good and bad acquisitions. Core et al. (1999) and Harford and Li (2007) indicates that risk in firm’s information and operating environment is a significant determinant of CEO pay, particularly in the events of M&A. A significant and positive coefficient on firm risk parameters will indicate that post-acquisition CEO pay change can be partially due to the change in the firm’s risk environment. we control for the risk in firm’s operating environment by using standard deviations of annual value weighted return on firm stocks for the prior two years.

The results of the estimation are presented in Table 4. In column (1), we present estimations of the effects of wealth-reducing acquisitions on Total Pay and column (2) re-estimates specification (1) with correction for endogeneity. The estimations include year fixed effects with robust standard

errors clustered at firm level. The effects of firm performance, firm size and acquisition are similar to the estimates reported in Table 3. ROA has insignificant effect on post-acquisition CEO pay. Firm size is significantly positive and have stronger association with pay than ROA. The estimated coefficient on the measure of firm risk is positive and significant indicating that greater risk in firm's information and operating environment increases the CEO pay. The coefficient on $Acquisition_{it}$ is positive and significant indicating the pure acquisition effect in CEO pay.

Using indicators for positive and negative benchmarked returns, we find that changes in CEO pay are more strongly related with positive returns than negative returns. However, the coefficient on both the indicators are significantly positive, indicating that CEOs are paid higher for positive annual returns with respect to median firm in the same industry but the pay increase is lower if the annual returns are negative. This indicates asymmetric benchmarking in CEO compensation contracts. The estimate on the interaction indicator of acquisition and negative benchmarked return is negative and insignificant. The lagged effects of the indicator variable is also estimated to be insignificant. The results suggest that while non-acquiring CEOs experience a lower pay growth for negative benchmarked performance, there is no differential effect on pay for acquiring CEOs for undertaking bad acquisitions. Thus, the wealth effects of the acquisitions have insignificant effect on post-acquisition pay of CEOs. Controlling for endogeneity in column (2) produces qualitatively similar estimates. There seems to exist further incentives for CEOs to undertake self-serving acquisitions as their pay is largely decoupled from the wealth effects of the acquisition.

5.3 How much of the acquisition premium in CEO pay can be explained by poor corporate governance?

Next, we analyze whether the increase in post-acquisition CEO pay can be attributed to agency problems. A priori, we would expect weak corporate governance to be associated with higher post-acquisition pay, if the weak association of firm performance and CEO pay is not contractually optimal. No unique measure for strength of corporate governance exists in the literature (see Hermalin and Weisbach (2003) for overview). Hermalin and Weisbach (2003) and Harford and Li (2007) used CEO tenure as a proxy for the relative strength of the board and the CEO. However, this measure can reflect the tenure effect on CEO pay.

we use a set of variables to proxy for board strength and board independence. Consistent with the methodology of Harford and Li (2007), we use interaction variables, $Independent\ Board_{it} * Acquisition_{it}$

*Negative Annual Return $_{it}$ to estimate the effect of governance on post-acquisition pay in events of wealth-reducing acquisitions. A negative coefficient on the interaction dummy would indicate that presence of an independent board leads to differential post-acquisition pay with respect to wealth effect of the acquisitions. In other words, a negative relationship will imply that the post-acquisition pay premium of CEO can be, in part, attributed to weak corporate governance and captive boards.

The results of the estimations are presented in Table 4. Column (3) presents estimations with the individual measures of corporate governance while column (4) provides endogeneity corrected estimation results. The coefficient on board size is positive and significant. A smaller board pays lower than a larger board. A higher percentage of outside directors on the board is associated with lower CEO pay. Board busyness¹⁰ and equity ownership of the CEO has insignificant effects on acquisition premium in CEO pay. These estimates suggest that smaller and more independent boards are more effective in enforcing managerial discipline.

¹⁰Banding the average number of board memberships held by the directors of the board of a sample firm yields qualitatively similar results.

Next, we test if stronger corporate governance leads to differential post-acquisition CEO pay contingent on the wealth effects of the acquisition. The coefficient on $\text{Independent Board}_{it} * \text{Acquisition}_{it}$

* $\text{Negative Annual Return}_{it}$ is negative and significant. This indicates that ceteris paribus, CEOs in firms with independent corporate governance are paid lower for wealth reducing acquisitions and acquisition premium in CEO pay can be partially attributed to weak and captive boards.

Further, we test the effect of regulatory changes in corporate governance on post-acquisition CEO pay. Using Sarbanes Oxley Act (SOX), and NASDAQ and NQSE reforms of 2002¹¹ as exogenous changes in corporate governance regulations, we test the effects of governance regulations on post-acquisition pay premium in CEO pay. In column (5), we use an indicator variable which is equal to '1' for the post-SOX sub period of the sample (2003-2010) and '0' otherwise. The coefficient on SOX dummy is positive and significant indicating higher pay for CEOs in post-SOX period. The effects of firm size and firm performance are similar to the estimations in specifications (1)-(4). The pure acquisition effect is smaller but comparable to the estimates in specification (5) indicating consistent acquisition premium in CEO pay in the post-SOX period. However, the estimate on $\text{Negative Annual Return}_{it}$ is insignificant in specification (5) which may suggest that in the post-SOX period, CEO pay increase is insignificant for negative benchmarked return on firm's stocks whereas the association of CEO pay with positive benchmarked annual returns is strongly positive. The coefficient on, $\text{Independent Board}_{it} * \text{Acquisition}_{it} * \text{Negative Annual Return}_{it}$ is negative and of the same order as specification (4). The interactions of acquisition dummy and the measures of corporate governance with SOX are all estimated to be insignificant at 10% significance level, indicating so significant difference of acquisition premium in pay or corporate governance measures on acquisition premium in CEO in the post-SOX period but better benchmarking to firm performance outcomes with respect to the industry.¹²

5.4 CEO Turnover and Survivor-Bias

we control for CEO turnover post-M&A, and estimate the post-acquisition premium on CEO pay, conditional on the probability that a CEO retains her job, by employing a two-stage Heckman selection model. In this analysis we use the Termination Pay eligibility of the CEO in the event of involuntary turnover arising out of change in corporate control as the exclusion restriction. There are no readily available tests for instrument validity for Heckman selection models. However, regression estimates of the exclusion restriction on CEO pay and probability of CEO turnover suggests that termination pay eligibility is significantly (and negatively) associated with probability of CEO turnover but has an insignificant effect on CEO pay. Also, the exclusion restriction accounts for 5.7% variation in the probability of CEO turnover following M&A. Thus, eligibility of change and control payments is used as valid exclusion restrictions for the Heckman two stage models.

The basic premise of selection in the Heckman models may bias the estimations with heteroskedastic errors. Estimation of Heckman selection models by Stata yields correct and unbiased standard errors. we have also used bootstrapped standard errors for precision of estimation and the results obtained are similar to that of the non-bootstrapped models. For brevity, we do not include the results of bootstrapped estimations.

The estimates of the Heckman selection models, presented in Table 5 are qualitatively similar to the results from our earlier estimations. Panel A and Panel B presents the results of first stage

¹¹SOX mandates enhanced accounting disclosure, independence of audit committee and stock swap deals. It also makes the executives liable to forfeit bonus and compensation in the events of material non-compliance in disclosure and imposes criminal penalties for corporate fraud.

NASDAQ and NQSE reforms includes stringent director and board independence standards on public companies.

¹²The post-SOX period overlaps with the financial crisis of 2007 and it is not possible to decouple these effects.

and second stage of estimations, respectively. In column (1) we tabulate the results of the baseline specification of the Heckman selection model. In specification (2) we add the interaction dummies to estimate the differential effects of wealth-enhancing and wealth-reducing M&A on CEO pay and in column (3), we further add the corporate governance dummies and interaction variable as described in subsection 5.3. The association parameter (ρ) of the estimation is significantly positive ($\rho = 0.215$) indicating that any parameter that increases the probability of retention in the event of an M&A also increase the post-M&A CEO pay.

From the first stage of estimation, previous and contemporaneous firm performance is significantly (and negatively) associated with the probability of retention in the event of acquisition whereas firm size (measured by sales and total assets of the firm) has insignificant effects. The exclusion restriction is significant and positive, providing evidence to the hypothesis that higher termination payment and change in control payment lowers the hazard of CEO exit. More importantly, acquiring CEOs have a higher probability of turnover. The estimation results of the outcome equation suggest that acquiring CEOs enjoy a post-acquisition premium in pay, after controlling for firm size, firm performance and turnover hazards. Increase in firm size due to acquisition partially accounts for this increase in pay. Consistent with the results from fixed effects estimation, we find no evidence that CEOs are rewarded differentially for wealth-enhancing and wealth-reducing acquisitions. However, the acquisition premium in CEO pay in specification (5) is significantly lower than the fixed effects estimations. Thus, controlling for the strength of corporate governance and the hazards of post-acquisition turnover downward adjusts the pure acquisition effect in CEO pay. The results indicate that a part of estimated premium in post-acquisition CEO pay can be attributed to the survivor bias in the estimations. Strong corporate governance has an impact on both CEO pay and post-acquisition survival rates. This is further strengthened by the corporate governance regulations as evident from a small decline in post-acquisition pay premium in the post-SOX period compared to the full sample. The sub-period 2003-2010 is also associated with a higher pay-performance sensitivity than the overall sample period, indicating some degree of effectiveness of SOX and stock market reforms in enforcing managerial discipline.

6 Conclusion

In this paper we use a sample of 2755 US firms from 1992-2010 to estimate the effect of acquisition on CEO pay. we also seek to determine whether CEOs are rewarded differentially for wealth reducing and wealth enhancing acquisitions and whether the post-acquisition pay premium can be attributed to the strength of corporate governance. Previous studies are limited by their sample period up to 2000 and hence don't reflect the last decade of increased regulatory scrutiny on CEO pay and corporate governance.

we find that CEOs have a misaligned incentive to undertake acquisitions, even at the cost of decline in shareholders' wealth. Following the work of Guest (2009) with UK sample, we examine if target nationality have an impact on the post-acquisition CEO pay. we find no evidence of higher pay increases for international acquisitions with respect to domestic acquisitions. This adds to the existing literature on executive compensation in the USA. Existing literature uses cash compensation as a measure of CEO pay. we provide a more detailed analysis of CEO pay, using a wider range of components of CEO pay. My estimations suggest that CEOs experience a rise in salary post-acquisition, possibly through a renegotiation of the contract but the impact of acquisition on CEO bonus is due to the increased size of the firm. we also provide evidence that acquisitions reduce the valuation of the CEOs variable pay component of pay, due mainly to a

decline in the average share price. However, as pointed out by Harford and Li (2007), the horizon of these grants are long term and a short term decline in their valuation are unlikely to impact the overall CEO wealth as CEOs have the discretion in timing the exercise of these options. Thus we find evidence that CEOs have an incentive to undertake acquisitions to increase their own pay.

One of the key concerns in principal-agent literature is whether CEOs undertake acquisitions for self-serving interest and whether they are rewarded differentially for wealth-enhancing and wealth-reducing acquisitions. Using industry-adjusted and market-adjusted firm performance, we find no evidence that post-acquisition pay rise is related to the wealth effect of the acquisition and CEOs enjoy an acquisition premium even for bad wealth-reducing acquisitions. Therefore we find evidence of misaligned interests of CEOs in undertaking acquisitions, even after controlling for the change in risk environment after an acquisition.

Another focus of recent times is the role of corporate governance in aligning the interests of CEOs and shareholders'. Using a wider range of controls for corporate governance, we find evidence that strong and independent boards are associated with lower post-acquisition pay rises. CEO duality, higher percentage of equity holding of the CEO and a lower percentage of independent directors lead to magnification of the post-acquisition pay premium. However, we find no evidence of asymmetric benchmarking of CEO pay depending on the wealth effects even in the presence of a strong and independent board. Thus, a strong and independent board seems to partially mitigate the misaligned incentive in the current executive compensation system. we also find evidence of the effectiveness of corporate governance regulations on managerial discipline. The post-SOX sub-period is associated with a higher pay-performance sensitivity and a lower pure acquisition premium in pay.

Unlike majority of extant literature which does not control for post-acquisition CEO turnover, we use of Heckman selection models to control for survivor bias in the estimation and provide evidence that controlling for strength of corporate governance, the effect of acquisition on CEO pay is significantly lower. Controlling for CEO turnovers, we find evidence of a stronger role of corporate governance. This can be because a part of the role of board of directors to enforce corporate discipline is in replacing the non-performing managers. Thus by jointly estimating post-acquisition CEO pay and CEO turnover, we find evidence of lower acquisition premium in CEO pay. .

References

- [1] Dickerson, A., Gibson, H. and Tsakalotos, E. (1997). The impact of acquisitions on company performance: Evidence from a large panel of UK firms *Oxford Economic Papers*, 49, 344–361.
- [2] Bebchuk, L.A. and Fried, J.M. (2003). Executive Compensation as an Agency Problem. *The Journal of Economic Perspectives*, 17(3), 71-92.
- [3] Conyon, M.J. and Gregg, P.. (1994) Pay at the top: a study of the sensitivity of top director remuneration to company specific shocks, *National Institute Economic Review* 3, 83–92.
- [4] Coakley, J. and Iliopoulou, S. (2006) Bidder CEO and Other Executive Compensation in UK M&As, *European Financial Management*, 12(4), 609-631.
- [5] Bliss, R.T and Rosen, R.J (2001), CEO Compensation and Bank Mergers, *Journal of Financial Economics*, 61(1), 107-138.
- [6] Engel, E., Hayes, R.M., Want, X. (2003). CEO turnover and properties of accounting information. *Journal of Accounting and Economics*, 36 (1–3), 227-233.

- [7] Geddes, R.R. and Vinod, H.D. (1997) CEO Age and Outside Directors: A Hazard Analysis, *Review of Industrial Organization*, 12(5-6), 767-780.
- [8] Vijh, A.M. and Loughran, T. (1997) Do Long-Term Shareholders Benefit From Corporate Acquisitions? *The Journal of Finance*, 52(5), 1765-1790.
- [9] Rau, P.R. and Vermaelen, T. (1998) Glamour, value and the post-acquisition performance of acquiring firms, *Journal of Financial Economics*, 49(2), 223-253.
- [10] Murphy, K.J., (1999). Executive compensation. In: O. Ashenfelter and D. Card (Eds.), *Handbook of Labor Economics*. Elsevier, Amsterdam, pp. 2485–2563.
- [11] Jensen, M.C. (1986) Agency Costs of Free Cash Flow, *Corporate Finance and Takeovers*, *The American Economic Review*, 76(2), 323-329
- [12] Hermalin, E., and Weisbach, M.S. (2003) Boards of directors as an endogenously determined institution: A survey of the economic literature, *Economic Policy Review*, 9, 07–26.
- [13] Coughlan, A.T. and Schmidt, R. (1985). Executive compensation, management turnover and firm performance: an empirical investigation, *Journal of Accounting and Economics*, 7(2), 43-66.
- [14] Grinstein, Y and Hribar, P (2004). CEO Compensation and Incentives: Evidence from M&A bonuses, *Journal of Financial Economics*, 73(1), 119-143.
- [15] Girma, S., Thompson, S., Wright, P.W. (2006) The Impact of Merger Activity on Executive Pay in the United Kingdom, *Economica*, 73(290), 321-339.
- [16] Guest, P. (2008). The impact of mergers and acquisitions on executive pay in United Kingdom, *Economica*, 76, 149-175
- [17] Hall, B. and Liebman, J. (1998) Are CEOs Really Paid Like Bureaucrats? *Quarterly Journal of Economics*, 113, 653–691
- [18] Hambrick, D.C and Cannella, A.A (1993) Relative Standing: A Framework for Understanding Departures of Acquired Executives, *Academy of Management Journal*, 36(4), 733-762
- [19] Harford, J. (2003) Takeover bids and target directors' incentives: the impact of a bid on directors' wealth and board seats, *Journal of Financial Economics*, 69(1), 51-83
- [20] Hartzell, J.C. and Starks, L.T. (2003) Institutional Investors and Executive Compensation, *The Journal of Finance*, 58(6), 2351-2374.
- [21] Jensen, M. (1988). Agency cost of free cash flow, corporate finance and takeovers, *American Economic Review Papers and Proceedings* 76, 323-329.
- [22] Jensen, M.C. (1994) Takeovers: Their causes and consequences, *The Journal of Economic Perspectives*, 2(1), 21-48
- [23] Jensen, M.C. and Meckling, W.H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360
- [24] Conyon, M.J. and Leech, D (1994) Top Pay, Company Performance and Corporate Governance. *Oxford Bulletin of Economics and Statistics*. 56(3), 229-247.
- [25] Lazear, E.P., Rosen, S. 1981. Rank order tournaments as an optimum labor contract. *Journal of Political Economy* 89, 561–580.

- [26] Lambert, R.A., Larcker, D.F. and Weigelt, K. (1993) The Structure of Organizational Incentives, *Administrative Science Quarterly*, 38(3), 438-461
- [27] Main, B.G.M, O'Reilly, C.A. and Wade, J. (1993) Top Executive Pay: Tournament or Teamwork? *Journal of Labour Economics*, 11(4), 606-628.
- [28] Conyon, M.J. (1997) Corporate Governance and Executive Compensation, *International Journal of Industrial Organization*, 15(4), 493-509.
- [29] Core, J.E. , Holthausen, R.W. and Larcker, D.F. (1999) Corporate Governance, chief executive officer compensation and firm performance, *Journal of Financial Economics*, 51, 371-406
- [30] Lehn, K.M. and Zhao, M (2006) CEO Turnover after Acquisitions: Are Bad Bidders Fired?, *The Journal of Finance*, 61(4), 1759-1811
- [31] Jensen, M.C., Murphy, K.J. and Wruck, E.G. (2004), Remuneration: Where we've been, how we got here, what are the problems and how to fix them, Harvard Business School NOM Research Paper No. 04-28
- [32] Brickley, J.A., Coles, J.L. and Jarrell, G (1997) Leadership structure: Separating the CEO and Chairman of the Board , *Journal of Corporate Finance*, 3(3), 189-220.
- [33] Main, B.G.M, O'Reilly, C.A. and Wade, J. (1995) The CEO, the Board of Directors and Executive Compensation: Economic and Psychological Perspectives, *Industrial and Corporate Change*, 4(2), 293-332.
- [34] Singh, A. (1975), Take-overs, Economic Natural Selection, and the Theory of The Firm: Evidence from the Postwar United Kingdom Experience, *The Economic Journal*, 85(339), 497-515.
- [35] Kaplan, S.N. and Minton, B.A. (2006). How has CEO Turnover Changed? Increasingly Performance sensitive Boards and Increasingly Uneasy CEOs. NBER Working Paper Series, Working Paper # 12465, National Bureau of Economic Research.
- [36] Khoranna, A. and Zenner, M. (1998). Executive compensation of large acquirers in the 1980s, *Journal of Corporate Finance* 4, 209-240.
- [37] Murphy, K.J. (1985). Corporate performance and managerial remuneration. *Journal of Accounting and Economics*, 7(2), 11-42.
- [38] Lambert, R.A., Larcker, D.F. (1987) An Analysis of the use of Accounting and Market Measures of Performance in Executive Compensation Contracts, *Journal of Accounting Research*, 25, 85-125
- [39] Harford, J and Li, K. (2007) Decoupling CEO Wealth and Firm Performance: The Case of Acquiring CEOs, *The Journal of Finance*, 62(2), 917-949.
- [40] Conyon, M.J., Girma, S., Thompson, and S., Wright, P.W. (2006) The impact of mergers and acquisitions on company employment in the United Kingdom, *European Economic Review*, 46(1), 31-49.
- [41] Rossi, S. and Volpin, P.F. (2004) Cross Country Determinants of Mergers and Acquisitions, *Journal of Financial Economics*, 74(2), 277-304

Table 1: Variable Descriptions

Variable	Descriptions
Turnover	Indicator for event of CEO exit for a firm in a given year
Duration	Length of CEO tenure in a firm
CEO Pay	Salary + Bonus + Stock awards + LTI +RSU + Option_awards + nonequity incentives
RSU	Restricted Stock Units
LTI	Long Term Incentives
EBIT	Earnings Before Interest and Taxes = Revenue – Operating expenses + Non-operating income
ROA	Return on Assets = Net Profit/Total Assets
Value Weighted Return	Weighted average of all stock returns, weights given by the market value of the stock issue (price*shares outstanding) at the end of the previous trading period.
Benchmarked Value Weighted Return	Difference of firm’s annual value weighted return from that of the median firm in the 2-digit SIC level
M&A	Indicator for event of M&A in a given year
Board Size	Number of Directors on a board
Board Independence	Percentage of outside Directors on the board
Board Busyness	Average number of directorships held by the Directors
CEO Duality	Indicator for Chairman-CEOs

Table 2: Sample Characteristics

	N	Mean	Median	SD	Max	Min
CEO pay ('000 US\$)	14767	4329.13	1610.22	10252.03	295136.40	0.01
ROA ('000 US\$)	14748	2.53	3.81	43.38	3551.35	-1314.88
Average Value weighted Return	14767	0.0033	0.0115	0.0494	0.1105	-0.1846
Sale ('000 US\$)	14767	4137.88	899.39	13858.90	425071.00	0.00
Termination Payment ('000 US\$)	12081	3111.11	1393.78	12448.36	525360.10	0.00
CEO Share Ownership (%)	12081	0.7022	0.00	3.83	87.60	0.00
Board Size	11522	9.52	9.00	2.63	34.00	3.00
Outside Directors (No.)	11522	1.86	1.71	1.09	20.00	0.00
Outside Directors (%)	11522	19.72	16.54	10.87	80.00	8.61
No. of Directorships	11522	2.73	3.10	8.61	14.00	0.00

Table 3: Impacts of M&A on CEO Pay

Parameters	(1)	(2)	(3)	(4)	(5)	(6)*
Dependent Variable	Ln Salary	Ln Bonus	Ln VariablePay	Ln TotalPay	Ln TotalPay	Ln TotalPay
ROA	0.0871 (0.126)	0.003 (0.244)	0.003 (0.127)	0.00191 (0.178)		
Benchmarked Value Weighted Return	0.006 (0.233)	0.012** (0.020)	0.037** (0.009)		0.029** (0.018)	0.032** (0.018)
σ_{Ret}	0.013 (0.112)	0.119** (0.011)	0.138** (0.003)	0.091** (0.008)	0.110** (0.005)	0.110** (0.003)
Firm Size (Ln Sales)	0.104*** (0.000)	0.604*** (0.000)	0.656*** (0.000)	0.434** (0.008)	0.412*** (0.000)	0.412*** (0.000)
Acquisition _{it}	0.018** (0.023)	0.098 (0.147)	-0.096** (0.017)	0.042** (0.037)	0.037** (0.013)	0.040** (0.042)
Acquisition _{it-1}	0.017** (0.013)	0.026* (0.070)	0.097*** (0.000)	0.052** (0.015)	0.038** (0.011)	0.043** (0.013)
Acquisition _{it-2}	0.002* (0.056)	0.012** (0.015)	0.018*** (0.000)	0.027** (0.041)	0.029** (0.038)	0.027** (0.025)
International Acquisition	0.043 (0.167)	0.203 (0.179)	-0.063 (0.420)	0.034 (0.573)	0.034 (0.686)	0.035 (0.531)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R ²	0.30	0.38	0.32	0.31	0.33	0.33
No. of Observation	14767	14697	14363	14767	14767	9583

Column (4) estimates the sensitivity of total pay to Return on Assets and Column (5) estimates benchmarked stock return-CEO pay sensitivity. Estimation results in Column (6) are endogeneity corrected using Heckman (1978) control function. Models are estimated with robust standard errors to control for heteroskedasticity. *, **, *** indicate significance at 10%, 5% and 1% levels respectively. The p-values are given in the brackets.

Table 4: Estimates of Wealth Effects
and Governance on Post-acquisition CEO Pay

Parameters	(1)	(2)*	(3)	(4)*	(5)
ROA _{it}	0.016 (0.108)	0.018 (0.102)	0.016* (0.090)	0.018* (0.088)	0.016* (0.060)
σ_{vwr}	0.110** (0.018)	0.110** (0.015)	0.114** (0.020)	0.115** (0.018)	0.122** (0.003)
Firm Size (Ln Sales)	0.397*** (0.000)	0.397*** (0.000)	0.381*** (0.000)	0.393*** (0.000)	0.385*** (0.000)
Acquisition _{it}	0.032*** (0.000)	0.032*** (0.001)	0.029** (0.004)	0.030** (0.002)	0.025** (0.002)
Negative Annual Return _{it}	-0.080** (0.011)	-0.080** (0.009)	-0.033** (0.027)	-0.031** (0.020)	-0.079** (0.008)
Acquisition _{it} * Negative Annual Return _{it}	-0.350 (0.198)	-0.360 (0.199)	-0.301 (0.262)	-0.300 (0.255)	-0.297 (0.438)
Acquisition _{it-1} * Negative Annual Return _{it-1}	-0.077 (0.260)	-0.075 (0.250)			
Acquisition _{it-2} * Negative Annual Return _{it-2}	-0.075 (0.269)	-0.074 (0.265)		0.022** (0.004)	0.010* (0.055)
Board Size			0.022** (0.009)	0.022*** (0.000)	0.010** (0.000)
Board Independence			-0.030*** (0.000)	-0.031** (0.004)	-0.035* (0.055)
Board Busyness			0.008 (0.118)	0.007 (0.104)	0.009 (0.111)
Acquisition _{it} * Negative Annual Return _{it}			-0.154** (0.040)	-0.156** (0.020)	-0.151** (0.009)
* Independent Board SOX					0.234** (0.002)
SOX* Acquisition _{it}					-0.0214 (0.654)
SOX* Negative Return _{it}					-0.068 (0.255)
SOX*Acquisition _{it} * Negative Annual Return _{it}					-0.053 (0.765)
Year Dummies	Yes	Yes	Yes	Yes	No
Adj. R ²	0.299	0.302	0.364	0.367	0.191
No. of Observation	14767	9583	11234	6699	14767

Dependent variable in all the specifications is LnPay_{it}

Estimations in Column (2) and (4) are endogeneity corrected variable. Specification (5) is estimations for the sub-period (2003-2010)

Models are estimated with robust standard errors to control for heteroskedasticity. *, **, *** indicate significance at 10%, 5% and 1% levels respectively. The p-values are given in the brackets.

Table 5: Estimates with Control for Survivor Bias

Parameters	Full Sample (1992-2010)			2003-2010	
	Selection Equation (1)	Heckman Corrected (2)	Fixed Effects (3)	Selection Equation (4)	Outcome Equation (5)
Benchmarked value weighted return	0.034*** (0.000)	0.012 (0.783)	0.016* (0.090)	0.041** (0.003)	0.027** (0.021)
Firm Size (Ln Sales)	0.038* (0.059)	0.373*** (0.000)	0.381*** (0.000)	0.040** (0.036)	0.643*** (0.000)
Acquisition	-0.351*** (0.000)	0.018** (0.003)	0.029** (0.004)	-0.411** (0.009)	0.016** (0.012)
Change in Control Payments	-0.016** (0.010)				
Board Size	0.973** (0.003)	0.111** (0.005)	0.022*** (0.000)	0.991** (0.008)	0.017* (0.000)
Board Independence SOX	-1.132** (0.045)	-0.047** (0.002)	-0.030** (0.004)	-0.872** (0.112)	-0.034* (0.060)
				-0.117** (0.013)	0.477*** (0.000)
ρ	0.215				0.214

The dependent variables in columns (1) and (4) is probability of retention and that in columns (2), (3) and (5) is LnPay_{it} . The estimates in column (2) are survivor bias corrected and in column (5) is for the sub-period 2003-2010. Estimates in column (3) are marginal effects from two-step Models are estimated with robust standard errors. *, **, *** indicate significance at 10%, 5% and 1% levels respectively. The p-values are given in the brackets.