Does Compensation Induce CEOs to Take Risk? Evidence from Acquisitions

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Abstract

This paper examines the effect of incentive compensation on acquisition bid probability. We provide evidence that CEOs with high equity-based pay are more likely to pursue an acquisition bid. A one standard deviation increase in the incentive compensation translates into an approximately 6% increase in the acquisition bid probability. Also importantly, incentive pay is positively associated with deals which are characterized by high risk, such as public acquisitions and/or large deals. Finally, equity-based compensation has, in general, an inverse effect on internal investments. Overall, the results are consistent with the theory that high incentive compensation induces CEOs to take risk.

***JEL Classification*:** G34; M12

***Keywords*:** CEO Pay; Incentive Compensation; Mergers and Acquisitions

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Does Compensation Induce CEOs to Take Risk? Evidence from Acquisitions

Mergers and Acquisitions (M&As) represent major corporate investments with CEOs receiving, very often, lucrative compensation packages (Grinstein and Hribar (2004)). Yet, acquisition projects are also investments under uncertainty, which may, to an extent, alter firm's *status quo* and increase risk for its managers (Datta, Iskandar-Datta and Raman (2001)).[1] Recent empirical evidence (Conyon, Core and Guay (2011) and Fernandes, Ferreira, Matos and Murphy (2012)) highlights that CEOs are not prone to accept risk without being properly compensated. In fact, they receive higher pay when the risk associated to executive compensation is relatively higher. Building on this insight, we investigate whether CEOs are offered higher incentive compensation before conducting an acquisition investment in order to accept the associated increase in risk.

Following the seminal work on agency theory by Jensen and Meckling (1976), there has been a continuous debate on how firm investment opportunity set, driven by manager's ability to influence future cash flows risk, is related to CEOs compensation package structure. A central principle of the principal-agent theory is the positive association between risk and incentives (Holmström and Milgrom (1987)); in particular, higher performance pay induces greater effort from the agents but increases the risk on their compensation. Additionally, based on Holmström and Ricart I Costa's (1986) theoretical model, executives are concerned about the impact of investment decisions on their future careers, which may, to an extent, create a potential misalignment of incentives. Nevertheless, the recent theoretical framework of Edmans and Gabaix (2011) predicts that risk-averse CEOs are offered compensation contracts with greater risk taking incentives, which induce them to take on high risk positive NPV projects. This is also consistent with Lewellen, Loderer and Martin's (1987) findings,

[1] Datta et al. (2001) provide evidence that acquirers with relatively higher equity-based compensation exhibit greater changes in stock return standard deviation post-acquisition.

which suggest that managerial risk aversion may be reduced by the increased use of equity-based remuneration.[2] Overall, the aforementioned discussion raises the following question regarding the relationship of executive incentive compensation and acquisition investments: Are CEOs indeed offered in advance relatively higher incentives for taking the risk to carry out an acquisition deal?

Motivated by the relationship between managerial incentive plans and firm investment policy, we address this question and test the role of equity-based plans in the context of M&As. Given the well-documented presence of substantial agency conflicts in M&As (Jensen (1986), Lewellen, Loderer and Rosenfeld (1985)), corporate takeovers serve as an ideal testing platform to explore the relation between managerial incentives and investment decisions. As Harford and Li (2007) argue, acquisition decisions may be the most important corporate resource allocation decisions that CEOs take and the potential wealth destruction to firm shareholders is large (Moeller, Schlingemann and Stulz (2005)) - especially in the case of public acquisitions.

Therefore, we explore the impact of compensation structure on the propensity of US firms to undertake M&A investments. Since firm risk gets more pronounced in the case of an M&A investment (Datta et al. (2001)), CEOs are less prone to conduct the investment. However, executive compensation linked to firm performance influences CEOs decisions aligning the interests of managers and shareholders. In this respect, Smith and Stulz (1985) argue that shareholders can reduce the likelihood of managers failing to undertake valuable risky projects by increasing the convexity of the relation between managers' wealth and firm performance. Given that equity-based contract plans increase significantly the sensitivity of managerial wealth to firm performance (Guay (1999)), highly incentivized CEOs have a stronger motivation than their counterparts to invest in order to maximize shareholder wealth.

[2] Lewellen et al. (1987) posit that offering high stock-based remuneration raises the cost to the manager of variance reducing projects, whereas it boosts the rewards for variance increasing projects.

In general, high risk taking CEO compensation induces a riskier investment policy (Coles, Daniel and Naveen (2006)). Along these lines, Guay (1999) documents that executive stock options are associated with increased firm risk. Therefore, we predict that in the case of an M&A investment CEOs receive a higher incentive pay before proceeding to a bid to compensate them for the risk to be taken. In sum, we argue that higher CEO incentive compensation will increase firm probability to carry out an acquisition bid.

We use a sample of US acquisitions over the period from 1997 to 2011 and find strong support to our conjecture. When we control for the effect of other factors known to affect acquisition probability, CEO incentive pay is positively associated to the M&A investment at the 1% significance level. A one standard deviation increase in the incentive compensation, in the year prior to the deal, results in an increase of approximately 6% in the propensity of an acquisition bid. This is consistent with Edmans and Gabaix (2011) theoretical model of CEOs being offered higher compensation contracts for greater risk taking incentives.

We also perform the following empirical tests. Firstly, we analyze acquisition deals with public target firms. Golubov, Petmezas and Travlos (2012) suggest that the reputational exposure risk effect of M&As is confined to public deals as they are closely followed by the market and often involve publicity as part of the bargaining process. In particular, the effect on CEOs reputational capital gets more prominent taking into account that public firms are relatively larger firms, and the related literature reports that large deals are associated with relatively lower announcement return.[3] Liu and McConnell (2012) also observe that the level and tone of media attention, which is likely to be considerably greater in large public deals than in small private ones, heighten the impact of a value-reducing acquisition on the

[3] Moeller, Schlingemann and Stulz (2004) show that large firms experience lower announcement returns than small firms, while Faccio, McConnell and Stolin (2006) provide evidence that acquisitions of public targets significantly underperform private ones. Further, Harford and Schonlau (2012) provide a different perspective for the effect of large acquisitions examining their impact on CEO's subsequent career opportunities and finding that large acquisitions are associated with significantly increased numbers of subsequent board seats for the acquiring firm CEO, target firm CEO and the directors.

manager's reputational capital. Assuming a link between compensation and firm performance, it is particularly these investments, where CEOs should be offered higher incentives to take risk.[4] In addition, public deals frequently require regulatory and/or shareholder approvals, which increase complexity, demanding strong CEO skills. Therefore CEO equity-based pay should be higher in acquisitions of listed target firms. We provide evidence of a strong positive relationship at the 1% significance level between CEO incentive pay and a public acquisition bid. Additionally, we show that a one standard deviation increase in the incentive compensation leads to an increase between 9% and 11% in the propensity of a public acquisition bid.

Secondly, we also perform an empirical analysis particularly on large acquisitions to investigate whether the generated relationship holds in deals which involve arguably higher risk (Alexandridis, Fuller, Terhaar and Travlos (2012)) and to rule out the possibility that small deals affect our results. We still obtain similar findings, i.e., incentive compensation is positively associated with acquisition bids in large deals.

Thirdly, we examine the relationship of incentive pay with the probability of a lower risk investment, namely internal investment (i.e., CAPEX investment), as proposed by Harford and Li (2007). We find that incentive compensation carries, in general, a negative coefficient at conventional levels. This result implies that the effect of incentive compensation on external investments (i.e., acquisitions), which are associated with greater uncertainty, is substantially more pronounced than its effect on internal investments, which provides further support to the theoretical predictions of Edmans and Gabaix (2011) model.

Additionally, it is likely firms that conducted acquisitions in the past will carry out more deals in the future; in this case, our results may be due to the increase in compensation related with past acquisitions and not to the incentives offered to CEOs to pursue new

[4] Nevertheless, it is worth noting that, while US public acquisitions are associated with negative acquiring firm announcement returns, on average, almost half of the deals (42%) are positive NPV investment projects (*The Boston Consulting Group* (July, 2007)).

acquisitions. Therefore, we regress the propensity of an acquisition on the excess incentive compensation. The excess incentive compensation measures are uncorrelated with the effect of past acquisitions, as well as other control variables. In accordance to our prior results, we report that excess incentive compensation increases the likelihood of an acquisition.

Finally, we examine the relationship between the quality of an acquisition around the announcement and CEO equity-based pay. We find that, in general, CEO incentive compensation is not associated with acquirer announcement returns. Though CEO incentive plans increase the probability of risk taking through M&A investments, this finding implies that they are not necessarily related with increased shareholders' wealth. This is consistent with Fahlenbrach and Stulz (2011) who do not provide evidence that banks with a better alignment of the CEO's interests with those of the shareholders had higher stock returns during the crisis. As they argue, one of the potential explanations is that option compensation gave incentives to CEOs to take more risks than would have been optimal for shareholders.

This study has important contributions to the incentive pay-risk taking and M&As-executive compensation literature. First, it offers empirical evidence, in the context of M&As, to the literature that proposes managers receive a higher pay for undertaking risky investments. In particular, we show that CEOs receive higher incentive compensation to take the risk of an acquisition bid and in takeover cases with high risk: acquisitions of public target firms and large deals. Second, it provides new evidence related to CEO pre-investment incentive compensation contracts and their relationship with internal investments (i.e., CAPEX investment) as compared with external ones (i.e., acquisitions). Third, it offers new insights to the existing literature on the relationship between executive pay contracts and shareholder value creation: we reveal that CEOs incentive compensation plans do not increase acquiring firms' shareholders wealth.

Our study is related to the work of Lewellen et al. (1987), Tehranian, Travlos and Waegelein (1987), Guay (1999), Datta et al. (2001), Grinstein and Hribar (2004), Coles et al. (2006), Harford and Li (2007) and Edmans and Gabaix (2011). Grinstein and Hribar (2004) examine the relationship between CEO pay and completion of M&A deals measuring compensation with cash bonus at the end of the acquisition year. We measure CEO pay with equity-based contracts prior to the year of the acquisition. Harford and Li (2007) document that compensation changes after external investments are much larger than after internal investments. Our paper shows the relationship between pre-event incentive compensation and external versus internal investments, highlighting that incentive pay has a considerably more profound effect in acquisitions than CAPEX investments. Tehranian et al. (1987) and Datta et al. (2001) examine within a sample of public acquisitions the effect of managers' long-term incentive plans and top five executives equity-based compensation contacts, respectively, on acquiring firm announcement returns. Apart from using a different sample period, our analysis differs from the above studies in the fact that we investigate the effect only of CEO compensation. Coles et al. (2006) suggest that high risk taking CEO compensation is associated with riskier investment policy. We provide evidence from the M&A setting of higher equity-based pay contracts in public deals and large acquisitions, which arguably involve high risk. Overall, the findings of this study are consistent with the predictions of the theoretical model of Edmans and Gabaix (2011) and the empirical findings of Lewellen et al. (1987) and Guay (1999), when applied in the context of M&As.

The rest of the paper is organized as follows. Section I discusses the relevant literature. Section II describes our sample and the variables used in the empirical analysis. Section III examines the effect of executive incentive compensation plans on acquisition probability for: i) all acquisitions; ii) public acquisitions; and iii) large acquisitions. It also provides evidence of the relationship between incentive pay and internal investment. Section IV investigates the

effect of excess incentive compensation on acquisition probability. Section V examines the association between the quality of acquisitions and CEO incentive pay contracts. Finally, Section VI concludes the paper.

I. Related Literature

A. Theoretical Framework

Holmström and Milgrom (1987) show, by maximizing the objective function of the principal subject to the participation and incentive compatibility constraints of the agent, that the optimal compensation scheme is a linear function of the risk involved. In addition, Holmström and Ricart I Costa (1986) investigate manager's decision of whether to take on a project of given riskiness, in a setting where the contract is contingent on the choice of whether to initiate, though not on the final outcome. The authors suggest that the optimal wage contract is an option of the value of the manager's human capital for insurance reasons and that consequently rationing of capital is often required to counterbalance the manager's resulting incentive to overinvest.

A recent theoretical work on the relationship between risk taking and incentives was conducted by Edmans and Gabaix (2011) who propose a model in which risk-averse CEOs receive higher incentive pay contracts for undertaking a risky positive NPV project, contrary to traditional models, which assume exogenous risk and predict a negative relationship. In particular, they argue that when the CEOs are more risk-averse or the firm is riskier, it is essential to offer them even more convexity to induce them to undertake a value-increasing risky investment.[5] The authors conclude by stating that there is a positive relation between incentives and the marginal increase in risk caused by value-enhancing actions, which has both cross-sectional and time-series implications. Finally, they argue that young firms are

[5] This is consistent with Core and Guay (1999) and Coles, Daniel and Naveen (2006), who find a positive relationship between incentives and risk.

more likely to explore for risky growth opportunities (Murphy (2003)), while firms in matured industries with projects that generate value with little risk require risk taking projects to increase their value.

B. Executive Compensation and M&As

In the M&A related studies, there is evidence that executive compensation may lead to less than optimal merger outcomes. For instance, previous studies provide evidence of special benefits and/or increased compensation irrespective of merger success paid to target firm CEOs (Hartzell, Ofek and Yermack (2004)), acquiring firm CEOs (Bliss and Rosen (2001) and Grinstein and Hribar (2004)), and how managerial power influences these perquisites (Grinstein and Hribar (2004)).

In addition, Tehranian et al. (1987) find that acquiring firms with long-term performance plans experience higher abnormal stock returns at the acquisition announcement relative to acquirers without these plans. Similarly, Datta et al. (2001) document a positive relationship between acquiring firm top five executives' equity-based pay, measured as a percentage of total compensation paid to them, and acquiring firm stock returns around and following public acquisition announcements. Further, Datta et al. (2001) show, within a sample of public acquisitions, that executives with higher equity-based compensation pursue riskier deals than executives with lower equity-based compensation. Harford and Li (2007), suggest that pay practices that supplement cash compensation with incentive pay plans provide incentives to CEOs to carry out acquisitions as their post-acquisition total compensation, with the exception of the best-governed firms, increases substantially irrespective of the merger performance. The authors also provide evidence that pay changes after large internal investments are much smaller than after acquisitions. Finally, Grinstein and Hribar (2004) find that CEOs who have more power to influence board decisions receive

significantly larger cash bonuses post-deal. In addition, the authors report a positive association between bonus compensation and measures of effort, but not between bonus compensation and deal performance.

II. Data and Methodology

A. Sample Statistics

Our sample consists of all NYSE, AMEX, and NASDAQ firms jointly listed on the COMPUSTAT ExecuComp Database, the COMPUSTAT annual industrial files, and the CRSP files from 1996 through 2010. Our sample is composed of 3,177 firms for a total of 30,702 firm/year observations.[6] Acquisition data are obtained from Thomson Financial SDC Mergers and Acquisitions Database and include all acquisitions by US publicly listed bidding firms over the period 1997 to 2011 with a deal value above $1 million. To be included in the acquisition sample, the acquirer must own less than 10% of the target's equity before the deal and must seek to purchase more than 90% of the acquirer's equity. After matching the two samples, we find that 2,056 acquirers (6,587 firm-year observations) in our sample conducted 9,789 acquisitions over the period 1997 to 2011, out of which 9,003 are completed.[7] Table I presents the sample of acquisitions. On average, the target firm is 12.70% the size of the bidder, but the relative size of the (average) acquisition varies greatly across the sample period.

[Please Insert Table I About Here]

CEO compensation figures are obtained from ExecuComp database. Following Cooper, Gulen and Rau (2011), we use the difference between total compensation and total cash compensation to capture the options and equity-linked components of total compensation.

[6] Excluding firms from financial industries (SIC codes 6000-6999) does not alter our main results. Specifically, 546 sample firms are from financial industries (4,390 firm/year observations). These firms carried out 1,556 acquisitions during our sample period.

[7] The remaining acquisitions are pending (460), intended (8), partially completed (4), and withdrawn (314). Our main results hold when we limit the sample to completed deals.

Total compensation (ExecuComp date item: TDC1) includes salary, bonus, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), and long term incentive payouts. Total cash compensation (ExecuComp date item: TCC) includes salary and bonus. We call the difference between total compensation and cash compensation (TDC1-TCC) incentive compensation, which includes restricted stock grants, option grants, long term incentive payouts, and other annual non-cash compensation. In addition to incentive compensation, we also use the incentive ratio as in Fernandes et al. (2012). The incentive ratio is the ratio between incentive compensation and total compensation.

Table II, Panel A reports descriptive statistics for CEO pay, breaking down total compensation into total cash compensation (salary plus bonus) and incentive compensation, and providing also statistics for the incentive ratio. Incentive ratio represents about 55% of the total pay.[8] Panel B presents the incentive compensation statistics by bidding versus non-bidding firms respectively. Total compensation, cash compensation, incentive compensation and incentive ratio are significantly higher, at the 1% level, in both mean and median terms, for firms involved in acquisitions versus non-bidding firms, respectively. Importantly, CEOs of bidding firms receive, on average, about $1.29 million more in incentive compensation than CEOs of non-bidding firms in the year prior to the acquisition bid.

Panel C shows that high incentive pay is not confined to the years of the dotcom bubble. In fact, after a decrease in the years immediately after the dotcom bubble, incentive compensation increased again in the period 2005-2010, with the notable exception of year 2009. It is worth noting the significant increase in the average incentive ratio, which starts from approximately 43% at the beginning of the sample period and rises to almost 70% in 2010, highlighting the growing role of equity-based compensation among listed US

[8] Our patterns are consistent with those presented by Cooper et al. (2011). The percentages shown in their paper correspond to the ratio between the grand average incentive compensation and the grand average total compensation. The above mentioned ratio of Cooper et al. (2011), which is basically a value-weighted average of incentive ratios, is different from the average of the incentive ratios because this latter statistic is an equally-weighted average of the incentive ratios at firm level.

companies. Panel C also illustrates a significant increase in compensation over the first part of sample period: total compensation, as well as incentive compensation, peaked in year 2000. Not surprisingly, pay fell in 2009 because of the financial crisis (in 2008 there was also a decrease). However, total compensation immediately rebounded in 2010, thanks to the incentive compensation component. Nevertheless, consistent with Kaplan (2012), average CEO pay is still lower in 2010 compared to 2000, indicating that CEO pay has declined since the large run-ups of the 1990s.

Finally, Panel D reports significant differences between bidding and non-bidding firms. In particular, bidding firms have lower b/m, larger cash reserves, lower leverage, larger cash flows, they are larger and younger, have younger CEOs, lower proportion of female CEOs, more overconfident CEOs, lower entrenchment index and larger board size than non-bidding firms. The differences are statistically significant in both mean and median terms (apart from size, in which the median differential is insignificant at conventional levels). The definition of the variables and their association with acquisition probability are presented in the next section.

[Please Insert Table II About Here]

Firms usually benchmark pay on peer groups based on industry or size (Bizjak, Lemmon and Naveen (2008) and Faulkender and Yang (2010)). Thus, we use industry- and size-adjusted CEO compensation (*I/S adjusted incentive compensation*), which is our primary variable of interest, as in Cooper et al. (2011). The initial stage is to assign firms into 49 industry portfolios using industry classifications from Ken French's website.[9] Next, we allocate firms by each industry into large and small size groups according to the median fiscal year-end sales of the firms in the industry.[10] Industry- and size- adjusted compensation for

[9] Ken French's website is the following:
http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/changes_ind.html

[10] We also use market capitalization, measured as firm's median fiscal year-end market value from COMPUSTAT of the firms in the industry, and our general results are not affected.

each firm is then measured as the difference between the compensation for firm *i* and the median compensation of the firms in the same industry and size portfolio. In addition to the *I/S adjusted incentive compensation,* we also use an alternative incentive compensation variable, namely industry- and size-adjusted incentive ratio (*I/S adjusted incentive ratio*). The process for the *I/S adjusted incentive ratio* is similar to the one above, but the difference is now between the incentive ratio for firm *i* and the median incentive ratio of the firms in the same industry and size portfolio.[11]

B. Variables

In our regression analysis, we control for the following variables that have been found by prior literature to be correlated with the propensity of an acquisition. Book-to-Market *(b/m)* is firm book value of equity divided by market value of equity at the end of year *t* from COMPUSTAT. According to the market-driven theory of acquisitions (Shleifer and Vishny (2003)), firms make more acquisitions when their stock is overvalued.

Cash reserves variable is defined as firm cash and short-term investments divided by the book value of total assets at the end of the year. Cash-rich firms are more likely to engage in acquisitions than other firms (Jensen (1986)), as also empirically documented by Harford (1999) and Faccio and Masulis (2005).

Leverage is defined as firm total financial debt (long-term debt plus debt in current liabilities) divided by the book value of total assets at the end of the fiscal year. Caprio, Croci and Del Giudice (2011) suggest that leverage has competing effects on the propensity to acquire. Leverage can increase the likelihood of being a bidder by inducing firms to take on risky investments; on the other hand, an excessive debt level may reduce the ability to acquire by exhausting new debt issuing capacity. While Harford (1999) finds no evidence that

[11] We have also used non-industry- and size-adjusted incentive compensation and incentive ratio as our main variables of interest and the patterns we obtain are even stronger throughout the empirical analysis.

leverage affects the probability to buy other firms, Faccio and Masulis (2005) document a positive relation between the propensity to acquire and leverage. Uysal (2011) observes that overleveraged firms are less likely to carry out acquisitions.

Cash flows variable, as used in Titman, Wei and Xie (2004), is defined as (operating income before depreciation minus interest expenses minus taxes minus preferred dividends minus common dividends) scaled by book value of total assets at the fiscal year-end, and it is our proxy for firm's internally generated funds.[12] Firms generating high levels of internal cash-flows are less constrained in their investment policies, thus increasing the likelihood of an acquisition (Billett and Qian (2008) and Bauguess and Stegemoller (2008)).

We use the log of sales, ln (sales), as a proxy for *size* conforming to the common practice of the CEO literature (see, e.g., Hall and Murphy (2002), Conyon et al. (2011), Cooper et al. (2011) and Fernandes et al. (2012)).[13] Sales represent the firm's total sales in year *t*. Harford (1999) and Faccio and Masulis (2005) find that large firms carry out more acquisitions.

Firm age is the age of the firm, and it is estimated based on the date on which pricing information about a firm first appeared in CRSP as in Gompers, Ishii and Metrick (2003) and Bebchuck, Cohen and Ferrell (2009). Mature firms may have exhausted possibilities to growth internally and they need to acquire other companies in order to grow.

Past acquisition is a binary variable that captures the effect of whether a firm has made an acquisition in the previous year. This variable accounts for the serial correlation in the firm's acquisition policy. In fact, Billett and Qian (2008) show that firms that made acquisitions in the past are more likely to acquire in the future.

[12] Cash flows variable is highly correlated with ROA (0.85). Thus, we do not include the profitability variable, which is defined as firm EBITDA divided by its book value of total assets at the fiscal year-end from COMPUSTAT, in our regression models.

[13] We also use market capitalization as a measure of size and our results are, in general, qualitatively similar.

Industry M&A liquidity represents the sum of acquisition deal values for each year and Fama and French 49 industry classification, divided by the book value of total assets of all COMPUSTAT firms in the same Fama and French industry and year. Uysal (2011) reports a positive association between industry M&A liquidity and acquisition probability.

We also include in our analysis CEO-specific variables, which are obtained from the ExecuComp database. Specifically, we include the CEO age (*CEO age*), gender (*female*) and tenure (*CEO tenure*). *CEO age* represents a proxy for risk aversion of the manager: young CEOs are willing to accept more risk, i.e., initiate more acquisitions, than older CEOs who do not want to risk their legacy and their job security. We also control for risk aversion with another variable, namely *female*. Barber and Odean (2001) suggest that male investors are more risk-prone and overconfident than female investors.[14] Finally, *CEO tenure* is a proxy for managerial entrenchment. Longer-tenured CEOs have usually more power than newly-appointed CEOs, and they can exert this power embarking in acquisition programs. CEO age, gender and tenure have also been found to be correlated with the probability to win awards. In particular, Malmendier and Tate (2009) provide evidence that more experienced, younger and female CEOs are more likely to enjoy "superstar" status. Furthermore, Malmendier and Tate (2009) find that superstar CEOs receive larger pay than non-superstar CEOs.

We also control for CEO overconfidence by constructing an overconfidence variable which is based on the Holder 67 measure of Malmendier and Tate (2005, 2008). In the spirit of Hirshleifer, Low and Teoh (2012), *overconfidence* is a binary variable that takes the value of one when a CEO fails to exercise options with five years remaining duration despite a stock price increase of at least 67% since the grant date, and zero otherwise. Differently from Malmendier and Tate (2005, 2008), where once a CEO is identified as overconfident, she

[14] However, Ahern and Dittmar (2012) find that an increase in female directors leads to more acquisitions in Norway.

remains so for the rest of the sample period, we measure overconfidence on a yearly basis.[15] As noted by Malmendier, Tate and Yan (2011) and Hirshleifer, Low and Teoh (2012), ExecuComp does not provide detailed data on the CEO's options holdings and exercise prices for each option grant for our entire sample period. To overcome this problem, we follow Campbell, Johnson, Rutherford and Stanley (2009) and Hirshleifer et al. (2012) in calculating an average moneyness of the CEO's option portfolio for each year. First, for each CEO-year, we divide the total realizable value of the options by the number of options held by the CEO to determine the average realizable value per option. The strike price is calculated as the fiscal year-end stock price minus the average realizable value. The average moneyness of the options is then calculated as the stock price divided by the estimated strike price minus one. Only the vested options held by the CEO are included in the computation. Malmendier and Tate (2008) argue that overconfident managers are more acquisitive.

The final set of variables takes into account several corporate governance characteristics at firm level. Bauguess and Stegemoller (2008) show that corporate governance characteristics affect the decision to acquire, providing evidence consistent with benefits to managerial initiative when managers are insulated from discipline, i.e., more value-increasing acquisitions. Data for the corporate governance variables are from RiskMetrics. Our set of corporate governance variables is composed of five variables: *entrenchment index, DCS, independent board*, *CEO/Chairman* and *board size*. *Entrenchment index* is an index proposed by Bebchuk, Cohen and Ferrell (2009), which contains a subset of the provisions included in the G Index of Gompers, Ishii and Metrick (2003).[16] The index is the sum of binary variables concerning the following provisions: 1) classified boards; 2)

[15] Treating overconfidence as a managerial fixed-effect as in Malmendier and Tate (2005, 2008) does not alter our results.

[16] We use the entrenchment index and not the G index because, after 2006, Riskmetrics stopped providing the G index and data concerning some of the provisions that compose the G index. Data for the G index are available up to 2006. We rerun our analysis with the G Index instead of the entrenchment index for the subsample up to 2006. We do not observe any significant change in the results.

limitations to shareholders' ability to amend the bylaws; 3) supermajority voting for business combinations; 4) supermajority requirements for charter amendments; 5) poison pills; and 6) golden parachutes. *DCS* is a binary variable that takes the value of one if the firm is a dual-class shares company, and zero otherwise. The dual class structure allows controlling shareholders to separate control from ownership, effectively controlling the company with a lower percentage of cash flows rights. Masulis, Wang and Xie (2009) find that executives related to the controlling shareholder in DCS firms receive higher total compensation than those in firms with single class shares, a result consistent with the managerial power theory (Bebchuk and Fried (2003)). We measure the independence of the board of directors with *independent board*, which is a binary variable that takes the value of one if firm's board has a majority of independent directors, and zero otherwise. A CEO is more powerful and entrenched when he/she is also Chairman of the board of directors. *CEO/Chairman* is a binary variable that takes the value of one if the roles of CEO and Chairman of the Board are not split, and zero otherwise. *Board size* is the number of directors on the board. Bauguess and Stegemoller (2008) report that acquisitions are more likely to occur when firms have large boards.

So far, from the preliminary statistics we have noticed that there are differences in CEO pay for bidding versus non-bidding firms. Therefore, in order to establish a more concrete statistical relationship, we run, in the next section, a multivariate analysis. The correlation matrix of the above variables is presented in Table III. Our main variables of interest – *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio*- do not exhibit high correlation with the control variables. This should moderate econometric difficulties (such as multicollinearity concerns) in disentangling any effects of the incentive compensation variables on the propensity of a firm to carry out an acquisition bid.

[Please Insert Table III About Here]

III. Empirical Analysis

A. Incentive Compensation and Likelihood of an Acquisition

We first examine, using pooled probit regressions, the relation between incentive compensation in the year prior to the announcement and the propensity to pursue an acquisition bid by controlling for various characteristics, which have been found in the prior literature to affect acquisition probability, winsorized at the 1% level on both tails.[17] All regressions also control for year and industry fixed effects whose coefficients are suppressed. Moreover, we use heteroskedasticity-robust standard errors adjusted also for clustering at firm level.

Table IV reports the results for this analysis, in which our main variables of interest are *I/S adjusted incentive compensation and I/S adjusted incentive ratio.* Specification (1) also includes several firm characteristics, such as *b/m, cash reserves, leverage, cash flows, size, firm age, past acquisition and industry M&A liquidity*. We find that the coefficient on *I/S adjusted incentive compensation* is positive and statistically significant at the 1% significance level. From the control variables, *b/m, leverage* and *firm age* exhibit a negative relationship with the propensity of an acquisition bid, while *cash reserves, cash flows, size* and *past acquisition* have a positive association with acquisition bid probability at conventional significance levels.[18] Specification (2) includes the same explanatory variables, but the main variable of interest is *I/S adjusted incentive ratio* this time. Again, the incentive compensation variable is strongly positively associated with the acquisition bid probability at the 1% significance level. All other control variables show exactly the same relationship with the propensity of an acquisition as in specification (1).

[17] We have also performed the analysis in our regression models with unwinsorized variables and our results are unaffected.

[18] Acquisition probability has a positive association with industry M&A liquidity when we run the regression without industry fixed effects, consistent with Uysal (2011).

Furthermore, specifications (3) and (4) add several CEO and corporate governance related characteristics such as *CEO age, female, CEO tenure, overconfidence, entrenchment index, DCS, independent board, CEO/Chairman and board size*. Our main variables of interest, *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio*, hold their positive and significant coefficient at the 1% level. This indicates that incentive compensation increases the probability of firms to carry out acquisitions. From the new control variables, only *CEO age* and *overconfidence* are statistically significant at conventional levels in both specifications with a negative sign for *CEO age* and positive sign for *overconfidence* in line with the existing M&A literature.

Finally, we find that a one standard deviation increase around the average value of the incentive compensation results in an increase in the propensity of an acquisition bid in the range from 5.78 to 6.58%. This percentage change in the probability is calculated as the difference between the probability to make an acquisition, with the *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio*, respectively, measured at the mean plus one-half its standard deviation, and the probability to make an acquisition with the *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio,* respectively, measured at the mean minus one-half its standard deviation, divided by the latter probability.[19] Overall, our results support Edmans and Gabaix (2011) theoretical model which predicts higher CEOs pay contracts for greater risk taking incentives.

[Please Insert Table IV About Here]

B. Incentive Compensation and Likelihood of a Public Acquisition

We further analyze the proposition that incentive compensation induces CEOs to undertake high risk investment initiatives. This is particularly the case in acquisitions of

[19] To compute these probabilities, all other control variables are fixed at their mean values.

public firms, which arguably entail high reputational exposure risk (Golubov et al. (2012) and Liu and McConnell, (2012)). Therefore, in this section we look into the relation between incentive pay and the propensity to carry out a public acquisition. We use pooled probit regressions and the same explanatory variables as in Table IV.

Table V presents the results for the probability of making at least one public acquisition in a given year. In three out of four specifications our main variables of interest, *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio*, have a positive association with the probability to carry out a public acquisition at the 1% significance level (apart from specification (4), in which *I/S adjusted incentive ratio* is significant at the 10% significance level). This finding implies that, *ceteris paribus*, CEOs receive higher incentive contracts for undertaking public acquisitions, which are related with high reputational exposure risk. From the control variables, *b/m, leverage, CEO age* and *independent board* reduce the probability of a public acquisition, whereas *cash reserves, cash flows, size* and *past acquisition* have a positive relationship with the propensity of a public acquisition at conventional significance levels.[20, 21] Finally, a one standard deviation increase in the incentive compensation leads to an increase in the propensity of a public acquisition, which ranges from 8.89% to 11.33%.

[Please Insert Table V About Here]

C. Incentive Compensation and Acquisition Size

So far in our analysis we have included all acquisitions with a deal value higher than US$1 million. However, large deals are riskier than small deals. For instance, Alexandridis et al. (2012) argue that large deals are associated with potential integration complexity, which

[20] In unreported analysis we repeat the exercise of Table V, but the sample is now restricted only to firm years in which acquisitions took place. Our results are similar to Table V as we find that *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio* have a positive relationship with the probability of a public acquisition.

[21] In unreported analysis, we also examine the relation between incentive compensation and the propensity to make a private acquisition. Our main variables of interest still hold a positive and significant coefficient, which indicates that CEOs incentive compensation also increases the probability of a private acquisition.

make expected synergies from the combination more uncertain. Additionally, they suggest that the difficulty to digest large targets into a combined entity might also result in a smaller pool of potential bidders. Furthermore, in our sample, several acquisitions are small relative to bidder size so it is likely they do not have any material effect to the incentive compensation adding noise to the analysis. We address this issue via two channels. First, we run pooled probit regressions, in which the dependent variable takes value of one if the sum of acquisition deal values in a given year is at least 10% of the firm's sales in the previous year, and zero otherwise.[22] We define this variable as *large acquisition*. Second, we run pooled tobit regressions in which the dependent variable is the sum of the deal values of acquisitions made in a given year scaled by firms' total sales in the previous year. We label this variable as *deal value*.[23]

Table VI presents the results. Specifications (1) and (2) deal with probit regressions and specifications (3) and (4) report the results for tobit regressions. Our main variables of interest are again the *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio*. All other control variables are the same as in previous tables. Our results are similar to our main findings in Table IV, as we provide evidence that both incentive compensation variables are positively associated with the probability of large acquisitions in all four specifications. The coefficients are significant at the 1% significance level in three out of four specifications (apart from specification (2), in which the coefficient is significant at the 5% significance level). The signs on the control variables are, generally, in line with the existing M&A literature. Moreover, a one standard deviation increase in the incentive compensation increases the propensity to conduct a large acquisition, and the sum of the deals made in one year, in the range from 9.05% to 10.92%, and by more than 6%, respectively. Our overall

[22] Changing the sample selection threshold to 5% or 25% deal relative size provides qualitatively similar results.
[23] We run tobit regressions because deal value is censored at zero.

results of the relationship between incentive compensation and acquisition size further corroborate the view that equity-based compensation increases investment risk.

[Please Insert Table VI About Here]

D. Incentive Compensation and CAPEX Investment

Our main argument, based on the theoretical predictions of Edmans and Gabaix (2011) model, is that risk-averse CEOs are offered compensation contracts with greater risk taking incentives to induce them to take high risk positive NPV projects. If this is the case, then lower risk projects should, in turn, be associated with lower CEOs incentive compensation. In this respect, Andrade and Stafford (2004) argue that there are important differences between internal and external investments. The authors posit that M&As, as in the case of internal investments, facilitate companies to growth, but only M&As appear to make possible industry contraction. Moreover, they observe that merger clustering by industry suggests that these deals are often a response to industry shocks. In line with Andrade and Stafford (2004), Harford and Li (2007) provide evidence that CEOs treat internal investments differently and that the uncertainty and information environment surrounding an acquisition allow the CEO more leeway in arguing for downside protection. According to Harford and Li (2007), an acquisition provides a natural point for pay renegotiation and increase, while a large capital expenditure does not. A priori, there is no reason to restrict our analysis to acquisition projects. Therefore, instead of merely examining the relationship between incentive compensation and external investments (i.e., acquisitions), we follow Harford and Li (2007) and conduct further analysis on a sample of firms that made internal investments (i.e., capital expenditures).

Table VII reports the results. We conform to the CAPEX definition of Titman, Wei and Xie (2004) and Harford and Li (2007) in order to have similar size-enlarging corporate

actions; we run pooled probit regressions where the dependent variable is the unexpected CAPEX investment, which is a binary variable that takes the value of one if the difference between CAPEX in year *t* and the average CAPEX in years *t-1*, *t-2*, and *t-3* is larger than 10% of the firm's sales at the end of year *t-1*, and zero otherwise from COMPUSTAT. Interestingly, in specifications (1) and (2) for *I/S adjusted incentive compensation*, and in specification (4) for *I/S adjusted incentive ratio*, our main variables of interest are negative and statistically significant at conventional levels. In specification (3) *I/S adjusted incentive ratio* has no significant association with the probability of a large unexpected CAPEX investment at conventional levels. These results indicate that large internal investments do not increase with incentive compensation. Further, a one standard deviation increase in the incentive compensation around its mean decreases the propensity of a large unexpected CAPEX investment in the range from 5.99% to 9.34%. All in all, our findings on CAPEX analysis provide evidence that incentive compensation has a substantially lower effect (and even opposite) on internal investments, which are characterized by lower risk, than external investments (i.e., acquisitions), reinforcing the theoretical predictions of the Edmans and Gabaix (2011) model.

[Please Insert Table VII About Here]

IV. Excess Incentive Compensation, Likelihood of an Acquisition and Acquisition Size

Previous empirical evidence has shown that CEO pay increases after acquisitions (Harford and Li (2007)). Since firms that conducted acquisitions in the past are also more likely to carry out them in the future, our results may be due to the increase in compensation that is associated with past acquisitions and not to the incentives offered to undertake new acquisitions. To rule out this possibility, we use as our main variables of interest the excess

industry- and size-adjusted incentive compensation (*excess I/S adjusted incentive compensation)* in Panel A and the excess industry- and size-adjusted incentive ratio (*excess I/S adjusted incentive ratio)* in Panel B. This represents the residual estimates from a panel model where I/S adjusted incentive compensation is regressed on size, cash flows, b/m, cash reserves, past acquisitions, industry M&A liquidity, and industry and time effects.[24] By construction, this excess compensation is not correlated with past acquisitions and their effect on compensation.

Table VIII reports the results. In specifications (1) and (2) we run pooled probit regressions with clustered standard errors at firm level where the dependent variable takes the value of one if the acquiring firm made at least one acquisition in a given year, and 0 otherwise. Our prediction is that the probability of an acquisition should be higher as excess incentive compensation increases. Additionally, to control for the size of the deal we run further pooled tobit regressions with clustered standard errors at firm level where the dependent variable is the sum of the acquisition deal values in a given year scaled by firms' total sales in the previous year (specifications (3) and (4)). Again, a positive relationship is expected between acquisition size and excess incentive compensation, as excess incentive compensation measures the increase in pay awarded to the CEO to take risk.

Indeed, in Panel A, the *excess I/S adjusted incentive compensation* exhibits a positive and significant relationship with the propensity to carry out an acquisition (specifications (1) and (2)). From the control variables, *b/m, leverage, firm age* and *female* obtain a negative and significant coefficient whereas *cash reserves, cash flows, size, past acquisition and industry M&A liquidity* hold a positive and significant coefficient. Similar results are found in specifications (3) and (4) for deal value. The *excess I/S adjusted incentive compensation* variable carries a positive coefficient significant at the 1% level. All other control variables

[24] The results of the first-stage regression model are not reported.

show the same relationship with the propensity of an acquisition as in the first two specifications apart from *leverage*, which is not statistically significant at conventional levels, *cash flows* which is not significant in specification (4) and board size that is positive and marginally significant at the 10% significance level in specification (4). In Panel B we re-run the same analysis but the main variable of interest is now the *excess I/S adjusted incentive ratio.* Again, the main variable of interest obtains a positive and significant coefficient, at conventional levels, in three out of four specifications (apart from specification (2)). All other control variables have the same pattern as in Panel A. Finally, a one standard deviation rise in the excess incentive compensation increases the probability of an acquisition bid by 1.37% to 2.55% and the deal value in a given year by 2.49% to 3.72%. In sum, these findings of Table VIII lend further support to the positive relationship between incentive pay and investment risk.

[Please Insert Table VIII About Here]

V. Incentive Compensation and Acquisition Quality

Finally, we address the question of whether CEO equity-based pay plans lead to larger acquiring firm announcement returns. Table IX presents the results for acquisition quality. Our main dependent variable is the acquirer 5-day CAR surrounding the acquisition announcement. The returns are calculated using the market model with the market model parameters estimated over the period starting 240 days and ending 41 days prior to the announcement. CRSP value-weighted index return is the market return.[25] Our main variables of interest are again the *I/S adjusted incentive compensation* and *I/S adjusted incentive ratio.* We use the same set of control variable used in previous analysis including also the variables

[25] We also use alternative short-run announcement period return windows such as (-1, +1) and (-5, +5); we use equally-weighted CRSP index (as opposed to value-weighted) as the market return; iii) we use market-adjusted abnormal returns (i.e., assuming $\alpha=0$ and $\beta=1$ as market model parameters); iv) we winsorize the returns at the 1st and 99th, or 5th and 95th percentiles to control for outliers. None of these variations change our results.

stock, private, relative size, diversifying, completed, hostile, and return volatility, which have been found to affect bidder announcement returns. Stock is a binary variable taking the value of one for acquisitions in which the means of exchange was 100% stock, and zero otherwise. Private is also a binary indicator taking the value of one for acquisitions of private targets, and zero otherwise. Relative size is the ratio between the deal value and the market capitalization of the acquiring firm 30 days prior to the acquisition announcement. Diversifying is a dummy variable that takes the value of one if the target firm operates in the same 4-digit SIC industry as the one of the bidder, and zero otherwise. Completed is a dummy variable that takes the value of one if the deal is completed, and zero otherwise. Hostile is a binary variable that takes the value of 1 for deals defined as "hostile" or "unsolicited" by Thomson Financial SDC, and zero otherwise. Finally, return volatility is the standard deviation of bidder stock returns over the year prior to the acquisition.

Both incentive compensation variables are statistically insignificant at conventional levels in the five out of the six models applied.[26] Only in specification (5) the *I/S adjusted incentive ratio* is positive and marginally significant at the 10% level. These findings indicate that, in general, CEO incentive pay plans are not related with an increase in shareholders' wealth. The signs on the control variables are, generally, consistent to the prior M&A literature. For instance, size, stock, industry M&A liquidity, cash reserves and relative size hold a negative coefficient, whereas private, completed, tender offer, firm age and CEO tenure are positively associated with bidder returns. Overall, this indifferent relationship between executive incentive compensation and acquirer stock returns does not allow us to conclude that rewarding CEOs for taking higher risk induce them to select investment opportunities of relatively better quality.

[Please Insert Table IX About Here]

[26] We perform the same analysis for the public acquisitions and private acquisitions subsample, respectively. Partitioning the sample by target listing status does not, generally, pick up any relationship between incentive compensation and acquiring firm announcement returns either.

VI. Conclusion

Consistent with the theoretical model of Edmans and Gabaix (2011), which predicts that risk-averse CEOs are offered pay contracts with greater risk taking incentives inducing them to undertake high-risk projects, we find that equity-based incentive compensation plans are related with a higher probability of an acquisition bid. In particular, we provide evidence that higher CEO incentive pay is positively associated with M&A investments. A one standard deviation increase around the mean value of the incentive compensation variable in the year prior to the deal translates into an increase of approximately 6% in the acquisition bid probability. Importantly, we also find a strong positive relationship between CEO incentive pay and investments which involve high risk. Specifically, we show a positive association between incentive compensation and public acquisitions, which is attributed to the reputational exposure risk effect involved in acquisitions of public target firms, or large deals, which are related with relatively higher integration complexity.

In addition, this study examines the impact of incentive pay on CAPEX investment. We show that incentive compensation has a substantially lower effect (and even inverse) on internal investments (i.e., CAPEX investment), which are characterized by lower risk, than external investments (i.e., acquisitions), rendering additional support to the theoretical predictions of the relationship between CEO incentive plans and risk taking investment policy. We further report that excess incentive compensation has also a positive association with the likelihood of an acquisition. Finally, we investigate the effect of CEO equity-based compensation on acquiring firm returns. Interestingly, we do not uncover, in general, any relationship.

Our findings have also important policy implications. In particular, higher equity-based CEO pay might have led to the increase in the M&A activity before the recent financial crisis in 2007. In addition, the indifferent relationship between executive compensation and

acquirer stock returns does not provide evidence supporting the view that rewarding managers for taking higher risk induce them to select investment opportunities of relatively better quality.

In response to the question raised in the introduction, the findings of this paper imply that CEO pay-risk taking incentives mechanism does function in firm investment decisions inducing CEOs to undertake risky projects such as acquisitions, in return for higher compensation. Overall, this paper provides new empirical evidence on the incentive compensation-risk taking association in the M&As setting – a major corporate finance topic.

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Appendix A. Variable Definitions

Variable	Definition
	Panel A: CEO Compensation Variables
Total Compensation	(ExecuComp data item: TDC1). It includes salary, bonus, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), and long term incentive payouts in the fiscal year *t-1*.
Cash Compensation	(ExecuComp data item TCC). It includes salary and bonus in the fiscal year *t-1*.
Incentive Compensation	The difference between TDC1 and TCC.
Incentive Ratio	The ratio between Incentive Compensation and TDC1.
I/S Adjusted Incentive Compensation	Industry- and size-adjusted incentive-compensation. The initial stage is to assign firms into 49 industry portfolios using industry classifications from Ken French's website. Next, we allocate firms by each industry into large and small size groups according to the median December sales of the firms in the industry. Industry- and size-adjusted incentive compensation for each firm is then measured as the difference between the incentive compensation for firm *i* and the median incentive compensation of the firms in the same industry and size portfolio.
I/S Adjusted Incentive Ratio	Industry- and size-adjusted incentive ratio. The initial stage is to assign firms into 49 industry portfolios using industry classifications from Ken French's website. Next, we allocate firms by each industry into large and small size groups according to the median December sales of the firms in the industry. Industry- and size-adjusted incentive ratio for each firm is then measured as the difference between the incentive ratio for firm *i* and the median incentive ratio of the firms in the same industry and size portfolio.
Excess I/S Adjusted Incentive Compensation	The residual estimates from a panel model where I/S Adjusted Incentive Compensation is regressed on Size, Cash Flows, B/M, Cash Reserves, Past Acquisitions, Industry M&A Liquidity and industry and time effects.
	Panel B: Acquisition Variables
Acquisition	Binary variable that takes the value of 1 if the firm made at least one acquisition in year *t*, 0 otherwise. The variable is created using data from Thomson Financial SDC.
Public Acquisition	Binary variable that takes the value of 1 if the firm made at least one public acquisition in year *t*, 0 otherwise. The variable is created using data from Thomson Financial SDC.
Large Acquisition	Binary variable that takes the value of 1 if the firm made acquisitions in year *t*, whose value is higher than 10% of the firm's sales in year *t-1*, 0 otherwise. Deal values are from Thomson Financial SDC, firm's sales are from COMPUSTAT.
Deal Value	It is the sum of the acquisition deal values in year *t* scaled by firm's sales in year *t-1*. Deal values are from Thomson Financial SDC, firm's sales are from COMPUSTAT.

Past Acquisition	Binary variable that takes value of 1 in year *t* if the firm made at least one acquisition in year *t-1*. The variable is created using data from Thomson Financial SDC.
Industry M&A Liquidity	It is the sum of the acquisition deal values for each year and Fama & French 49 industry classification, divided by the book value of total assets of all COMPUSTAT firms in the same Fama & French industry and year.
Bidder CAR (-2, 2)	Cumulative abnormal return for the acquiring firm in the 5-day event window (-2, +2) where 0 is the announcement day. The returns are calculated using the market model with the market model parameters estimated over the period starting 240 days and ending 41 days prior to the announcement. CRSP value-weighted index return is the market return.
Stock	Binary variable that takes value of 1 for deals where consideration is 100% stock, 0 otherwise. The variable is created using data from Thomson Financial SDC.
Private	Binary variable that takes the value of 1 if the target firm is a private firm, 0 otherwise. The variable is created using data from Thomson Financial SDC.
Relative Size	It is the ratio between the deal value and the market capitalization of the acquiring firm 30 days prior to the acquisition announcement. Deal value is from Thomson Financial SDC, Market capitalization is from CRSP.
Diversifying	Binary variable that takes the value of 1 if the target firm operates in the same 4-digit SIC industry as the one of the bidder, 0 otherwise
Completed	Binary variable that takes the value of 1 if the deal is completed, 0 otherwise. The variable is created using data from Thomson Financial SDC.
Hostile	Binary variable that takes the value of 1 for deals defined as "hostile" or "unsolicited" by Thomson Financial SDC, 0 otherwise.
Return Volatility	It is the standard deviation of bidder stock returns over the year prior to the acquisition.
	Panel C: Firm Variables
B/M	It is firm book value of equity divided by market value of equity at the fiscal year-end from COMPUSTAT.
Cash Reserves	It is defined as the firm cash and short-term investments divided by the book value of total assets at the fiscal year-end from COMPUSTAT.
Leverage	It is defined as the firm total financial debt (long-term debt plus debt in current liabilities) divided by the book value of total assets at the fiscal year-end from COMPUSTAT.
Cash Flows	It is defined as (operating income before depreciation minus interest expenses minus taxes minus preferred dividends minus

	common dividends) scaled by total assets in the fiscal year from COMPUSTAT.
Size	Log of Sales. Sales represent the firm's total sales in the fiscal year from COMPUSTAT.
Firm Age	It is estimated based on the date on which pricing information about a firm first appeared in CRSP.
Unexpected CAPEX Investment	It is a binary variable that takes the value of 1 if the difference between firm's capital expenditure (CAPEX) in year *t* and the average CAPEX in years *t-1*, *t-2*, and *t-3* is larger than 10% of the firm's sales at the end of year *t-1*, 0 otherwise. The variable is created using data from COMPUSTAT.
	Panel D: CEO Variables
CEO Age	Age of the firm's CEO from ExecuComp.
Female	Binary variable that takes value 1 if the CEO is female. The variable is created from the field "Gender" in ExecuComp.
CEO Tenure	It is the difference between year *t* and the year in which the CEO is appointed from ExecuComp.
Overconfidence	A CEO is overconfident if she postpones the exercise of vested options that are at least 67% in the money. Overconfidence is a binary variable that takes on the value one when the CEO is identified as overconfident, and zero otherwise. Overconfidence is measured for every sample year. For each CEO-year, firstly the total realizable value of the options is divided by the number of options held by the CEO to determine the average realizable value per option. The strike price is calculated as the fiscal year-end stock price minus the average realizable value. The average moneyness of the options is then calculated as the stock price divided by the estimated strike price minus one. Only the vested options held by the CEO are included in the computation.
	Panel E: Board Variables
Entrenchment Index	Bebchuk, Cohen and Ferrell (2009) Entrenchment Index from RiskMetrics. The index is the sum of binary variables concerning the following provisions: 1) Classified boards; 2) Limitations to shareholders' ability to amend the bylaws; 3) Supermajority voting for business combinations; 4) Supermajority requirements for charter amendments; 5) Poison pills; 6) Golden parachutes.
DCS	Binary variable that takes the value of 1 if the firm is a dual-class shares firm, 0 otherwise. The variable is created using data from RiskMetrics.
Independent Board	Binary variable that takes the value of 1 if the firm's board has a majority of independent directors, 0 otherwise. The variable is created using data from RiskMetrics.
CEO/Chairman	Binary variable that takes the value of 1 if the roles of CEO and Chairman of the Board are not split, 0 otherwise. The variable is created using data from RiskMetrics.
Board Size	Number of directors composing the Board of directors from RiskMetrics.

Table I

Descriptive Statistics on Acquisitions

The table presents yearly descriptive statistics for a sample of acquisitions by US publicly listed acquirers announced over the period between January 1, 1997 and December 31, 2011. N denotes the number of acquisition announcements by year. An acquisition is considered public (private) when the target firm is a publicly listed (private) company. An acquisition is considered completed when the offer is successful and the deal consummated. Relative size is the ratio between the deal value and the market capitalization of the acquiring firm 30 days prior to the acquisition announcement.

Year	N	Public	Private	Completed	Relative Size
1997	752	190	562	696	15.50%
1998	854	231	623	791	13.55%
1999	879	267	612	804	15.16%
2000	775	205	570	719	12.67%
2001	616	158	458	566	12.54%
2002	607	103	504	570	8.70%
2003	619	111	508	580	9.75%
2004	689	121	568	638	13.48%
2005	675	108	567	631	10.21%
2006	658	137	521	597	11.94%
2007	704	142	562	642	11.89%
2008	553	103	450	479	16.59%
2009	362	65	297	344	12.90%
2010	531	104	427	488	11.68%
2011	515	63	452	458	12.64%
Total	9,789	2,108	7,681	9,003	12.70%

Table II

Descriptive Statistics on CEO Compensation

The table presents descriptive statistics on CEO compensation for the universe of US publicly listed firms with data on ExecuComp over the period 1996-2010. Panel A reports mean, median, and other statistics for components of raw compensation (dollar values of compensation in $000s). Panel B reports statistics for total compensation, cash compensation and incentive compensation by bidding versus non-bidding firms. Panel C reports statistics for total compensation, cash compensation and incentive compensation by year. Finally, Panel D reports statistics for control variables used in the analysis. See Appendix A for definitions of the variables. Statistical tests for differences in means and equality of medians between the two paired groups are also presented in parenthesis. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. N denotes the number of observations.

Panel A: Compensation Components	**Mean**	**Median**	**Std. Dev**	**Max**	**N**
Total Compensation	4,894.57	2,473.36	10,366.89	655,448.00	28,332
Cash Compensation	1,250.40	858.93	1,804.20	102,448.80	28,332
Incentive Compensation	3,644.17	1,404.92	9,821.67	650,848.00	28,332
Incentive Ratio	0.5467	0.6075	0.2901	1.0000	28,268
Panel B: Compensation and Acquisitions					
Acquisition vs. No Acquisition					
No Acquisition **(1) Total Compensation**	4,554.11	2,325.30	9,508.04	655,448.00	21,861
(2) Cash Compensation	1,203.71	840.93	1,775.06	102,448.80	21,861
(3) Incentive Compensation	3,350.40	1,293.27	8,962.48	650,848.00	21,861
(4) Incentive Ratio	0.5362	0.5937	0.2910	1.0000	21,800
Acquisition **(5) Total Compensation**	6,044.71	3,009.51	12,784.64	600,347.40	6,471
(6) Cash Compensation	1,408.12	941.96	1,890.96	43,511.54	6,471
(7) Incentive Compensation	4,636.59	1,860.30	12,236.49	600,347.40	6,471
(8) Incentive Ratio	0.5821	0.6453	0.2843	1.0000	6,468
Difference (p-value) (5) – (1)	1,490.60	684.21			
	(0.000)	(0.000)			
Difference (p-value) (6) – (2)	204.41	101.03			
	(0.000)	(0.000)			
Difference (p-value) (7) – (3)	1,286.19	567.03			
	(0.000)	(0.000)			
Difference (p-value) (8) – (4)	0.0459	0.0516			
	(0.000)	(0.000)			

Table II – Continued

Panel C: Time Series						
Year	**Compensation**	**Mean**	**Median**	**Std. Dev**	**Max**	**N**
1996	**Total Compensation**	2,992.48	1,502.52	7,029.41	202,185.10	1,920
	Cash Compensation	1,074.11	750.00	2,536.29	102,448.80	1,920
	Incentive Compensation	1,918.37	631.15	5,962.71	193,535.10	1,920
	Incentive Ratio	0.43	0.44	0.28	1.00	1,913
1997	**Total Compensation**	3,561.68	1,691.50	7,532.22	140,918.30	1,970
	Cash Compensation	1,097.79	797.79	1,236.09	17,966.25	1,970
	Incentive Compensation	2,463.88	710.45	7,056.99	133,725.20	1,970
	Incentive Ratio	0.45	0.47	0.29	1.00	1,967
1998	**Total Compensation**	4,111.84	1,805.05	16,530.63	655,448.00	2,029
	Cash Compensation	1,094.37	782.50	1,170.03	14,500.00	2,029
	Incentive Compensation	3,017.47	831.28	16,231.88	650,848.00	2,029
	Incentive Ratio	0.48	0.53	0.29	1.00	2,026
1999	**Total Compensation**	5,109.04	2,121.13	11,698.07	193,784.10	1,926
	Cash Compensation	1,252.60	853.09	1,429.40	16,362.15	1,926
	Incentive Compensation	3,856.44	1,052.76	11,183.13	182,319.50	1,926
	Incentive Ratio	0.51	0.55	0.29	1.00	1,920
2000	**Total Compensation**	6,625.25	2,396.17	21,018.84	600,347.40	1,824
	Cash Compensation	1,339.81	900.00	1,605.44	19,484.41	1,824
	Incentive Compensation	5,285.43	1,209.32	20,607.74	600,347.40	1,824
	Incentive Ratio	0.51	0.56	0.30	1.00	1,821
2001	**Total Compensation**	6,011.00	2,440.25	14,784.49	369,888.00	1,778
	Cash Compensation	1,282.71	856.10	1,724.03	43,511.54	1,778
	Incentive Compensation	4,728.29	1,362.36	14,360.57	369,313.80	1,778
	Incentive Ratio	0.54	0.60	0.30	1.00	1,774
2002	**Total Compensation**	4,732.52	2,470.14	7,212.34	98,276.37	1,819
	Cash Compensation	1,338.77	958.19	1,332.29	20,129.99	1,819
	Incentive Compensation	3,393.75	1,229.38	6,670.23	95,356.37	1,819
	Incentive Ratio	0.51	0.57	0.29	1.00	1,816
2003	**Total Compensation**	4,378.95	2,328.05	6,210.21	90,192.02	1,913
	Cash Compensation	1,508.41	1,000.52	1,809.35	30,000.00	1,913
	Incentive Compensation	2,870.54	1,175.62	5,295.15	89,192.02	1,913
	Incentive Ratio	0.48	0.54	0.28	1.00	1,910
2004	**Total Compensation**	5,031.56	2,924.09	6,977.50	120,060.70	1,849
	Cash Compensation	1,720.91	1,195.00	1,997.11	31,702.45	1,849
	Incentive Compensation	3,310.65	1,508.44	5,939.86	119,460.70	1,849
	Incentive Ratio	0.50	0.55	0.27	1.00	1,846
2005	**Total Compensation**	5,394.74	3,120.04	7,246.13	92,199.77	1,747
	Cash Compensation	1,874.45	1,280.00	2,360.37	32,016.67	1,747
	Incentive Compensation	3,520.29	1,639.88	6,033.98	88,223.65	1,747
	Incentive Ratio	0.51	0.56	0.26	1.00	1,743
2006	**Total Compensation**	5,468.29	3,125.92	7,799.97	134,457.90	1,841
	Cash Compensation	1,189.41	825.00	1,887.79	32,208.33	1,841
	Incentive Compensation	4,278.89	2,102.09	7,169.27	129,126.40	1,841
	Incentive Ratio	0.63	0.71	0.27	1.00	1,837
2007	**Total Compensation**	5,239.30	2,977.32	7,431.17	141,718.20	2,043
	Cash Compensation	1,030.15	755.00	1,900.54	51,750.21	2,043
	Incentive Compensation	4,209.16	2,135.52	6,700.52	140,489.40	2,043
	Incentive Ratio	0.65	0.75	0.27	1.00	2,038
2008	**Total Compensation**	5,079.57	2,938.01	7,501.14	128,706.10	1,955
	Cash Compensation	1,034.93	796.31	2,616.95	77,926.00	1,955
	Incentive Compensation	4,044.64	2,068.17	6,276.23	83,501.76	1,955
	Incentive Ratio	0.65	0.74	0.26	1.00	1,948
2009	**Total Compensation**	4,521.25	2,939.72	5,124.84	70,143.08	1,887
	Cash Compensation	969.09	800.00	1,012.24	21,033.03	1,887
	Incentive Compensation	3,552.16	2,039.76	4,729.46	69,893.08	1,887
	Incentive Ratio	0.64	0.73	0.26	1.00	1,882
2010	**Total Compensation**	5,466.60	3,698.98	6,204.92	84,469.52	1,831
	Cash Compensation	1,048.77	830.00	1,174.20	31,013.46	1,831
	Incentive Compensation	4,417.83	2,773.73	5,802.16	81,844.52	1,831
	Incentive Ratio	0.69	0.77	0.24	1.00	1,827

Table II – Continued

Panel D: Descriptive Statistics for Control Variables

	All			Acquisition (1)			No Acquisition (2)			Difference (p-value) (1) – (2)	
	Mean	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**
B/M	0.5392	0.4604	24,358	0.4558	0.3981	5,531	0.5637	0.4853	18,827	(0.0000)	(0.0000)
Cash Reserves	0.1456	0.0710	28,262	0.1587	0.0793	6,469	0.1416	0.0682	21,793	(0.0000)	(0.0000)
Leverage	0.2288	0.2068	28,157	0.2124	0.1950	6,440	0.2336	0.2105	21,717	(0.0000)	(0.0000)
Cash Flows	0.0704	0.0742	28,270	0.0831	0.0845	6,469	0.0667	0.0710	21,801	0.0000)	(0.0000)
Size	7.0950	7.0230	28,204	7.2157	7.0596	6,465	7.0591	7.0101	21,739	(0.0000)	(0.1630)
Firm Age	21.7040	16.0000	27,591	21.1295	15.0000	6,387	21.8770	16.0000	21,204	(0.0012)	(0.0000)
Past Acquisition	0.2255	0.0000	28,332	0.4194	0.0000	6,471	0.1681	0.0000	21,861	(0.0000)	(0.0000)
CEO Age	55.3726	55.0000	25,562	54.8177	55.0000	5,819	55.5361	56.0000	19,743	(0.0000)	(0.0000)
Female	0.0201	0.0000	28,332	0.0161	0.0000	6,471	0.0213	0.0000	21,861	(0.0060)	(0.0120)
CEO Tenure	6.6935	5.0000	26,943	6.7291	5.0000	6,149	6.6830	4.0000	20,794	(0.5880)	(0.1170)
Overconfidence	0.4669	0.0000	28,310	0.5171	1.0000	6,461	0.4521	0.0000	21,849	(0.0000)	(0.0000)
Entrenchment Index	2.4507	2.0000	22,061	2.3886	2.0000	5,433	2.4710	2.0000	16,628	(0.0001)	(0.0180)
DCS	0.0878	0.0000	22,061	0.0832	0.0000	5,433	0.0893	0.0000	16,628	(0.1236)	(0.1370)
Independent Board	0.8332	1.0000	19,645	0.8342	1.0000	4,982	0.8329	1.0000	14,663	(0.7667)	n.m.
CEO/Chairman	0.5528	1.0000	28,332	0.5593	1.0000	6,471	0.5508	1.0000	21,861	(0.1748)	n.m.
Board Size	9.5131	9.0000	19,645	9.6672	9.0000	4,982	9.4607	9.0000	14,663	(0.0000)	(0.0200)

Table III

Variables Correlation Matrix

The table presents pairwise Pearson correlations of the variables used in the analysis. All variables are defined in Appendix A.

	Acquisition	Acquisition Size	I/S Adj. Incentive Compensation	I/S Adj. Incentive Ratio	B/M	Cash Reserves	Leverage	Cash Flows	Size	Firm Age
Acquisition	1									
Acquisition Size	0.50	1								
I/S Adj. Incentive Compensation	0.08	0.04	1							
I/S Adj. Incentive Ratio	0.04	0.04	0.48	1						
B/M	-0.08	-0.07	-0.07	-0.04	1					
Cash Reserves	0.04	0.09	0.05	0.00	-0.18	1				
Leverage	-0.04	-0.02	0.02	0.03	-0.01	-0.37	1			
Cash Flows	0.07	-0.03	0.02	0.03	-0.12	-0.10	-0.19	1		
Size	0.04	-0.12	0.24	0.07	0.05	-0.37	0.19	0.18	1	
Firm Age	-0.02	-0.08	0.05	0.00	0.07	-0.23	0.13	0.00	0.44	1
Past Acquisition	0.25	0.12	0.09	0.05	-0.05	-0.02	0.00	0.05	0.08	0.00
Industry M&A Liquidity	0.05	0.05	0.02	-0.01	-0.09	0.10	-0.03	0.07	-0.14	-0.12
CEO Age	-0.04	-0.06	-0.03	-0.09	0.04	-0.13	0.03	0.02	0.12	0.15
Female	-0.01	0.00	0.00	0.01	0.02	0.04	-0.03	0.00	-0.03	-0.02
CEO Tenure	0.00	-0.01	-0.04	-0.12	0.00	0.03	-0.05	0.05	-0.06	-0.04
Overconfidence	0.05	0.07	0.02	-0.04	-0.20	0.09	-0.09	0.14	-0.10	-0.17
Entrenchment Index	-0.02	-0.01	-0.04	0.07	0.08	-0.11	0.04	-0.02	0.03	0.05
DCS	-0.01	-0.02	-0.02	-0.04	0.02	-0.02	0.01	0.02	0.01	-0.07
Independent Board	0.00	-0.01	0.02	0.09	0.02	-0.02	0.01	-0.04	0.11	0.16
CEO/Chairman	0.01	-0.03	0.09	0.03	0.01	-0.14	0.07	0.05	0.25	0.21
Board Size	0.03	-0.03	0.11	0.06	0.03	-0.31	0.16	-0.10	0.50	0.33

	Past Acquisition	Industry M&A Liquidity	CEO Age	Female	CEO Tenure	Overconfidence	Entrenchment Index	DCS	Independent Board	CEO/ Chairman	Board Size
Past Acquisition	1										
Industry M&A Liquidity	0.05	1									
CEO Age	-0.03	-0.06	1								
Female	-0.01	-0.01	-0.1	1							
CEO Tenure	0.02	0.00	0.4	-0.04	1						
Overconfidence	0.03	0.08	0.00	-0.02	0.05	1					
Entrenchment Index	-0.02	-0.08	-0.03	0.01	-0.09	-0.10	1				
DCS	-0.01	0.00	0.04	0.01	0.11	0.02	-0.16	1			
Independent Board	0.00	-0.11	-0.03	0.02	-0.10	-0.09	0.22	-0.15	1		
CEO/Chairman	0.04	-0.02	0.28	-0.04	0.26	-0.05	0.02	-0.03	0.03	1	
Board Size	0.02	-0.13	0.10	-0.04	-0.08	-0.07	0.09	0.00	0.08	0.10	1

Table IV

Acquisition Probability and CEO Compensation

The table presents the estimates of pooled probit regressions with clustered standard errors at firm level where the dependent variable takes the value one if the firm made at least one acquisition in a given year over the period between January 1, 1997 and December 31, 2011, and zero otherwise, for the universe of US publicly listed firms with data on ExecuComp. See Appendix A for definitions of the variables. All independent variables are lagged with respect to the dependent variable. All variables are winsorized at the 1% on both tails, with the exception of binary variables. Year and industry fixed effects, whose coefficients are suppressed, are based on calendar year and Fama-French 49 industry classification dummies, respectively. Heteroskedasticity-robust clustered standard errors at firm level are reported in brackets. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The last row presents the % change in acquisition bid probability due to one standard deviation increase around I/S adjusted incentive compensation and I/S adjusted incentive ratio mean values.

	(1)	(2)	(3)	(4)
Constant	-1.3627***	-1.3845***	-0.8975***	-0.9510***
	[0.2781]	[0.2740]	[0.2916]	[0.2912]
I/S Adj. Incentive Comp.	0.0091***		0.0096***	
	[0.0023]		[0.0029]	
I/S Adj. Incentive Ratio		0.1786***		0.1513***
		[0.0406]		[0.0527]
B/M	-0.1339***	-0.1368***	-0.1610***	-0.1638***
	[0.0222]	[0.0224]	[0.0339]	[0.0340]
Cash Reserves	0.1532*	0.1592*	0.1387	0.1559
	[0.0844]	[0.0842]	[0.1075]	[0.1071]
Leverage	-0.1907***	-0.1975***	-0.2172**	-0.2240**
	[0.0697]	[0.0700]	[0.0905]	[0.0909]
Cash Flows	0.9256***	0.9030***	0.6914***	0.6615***
	[0.1348]	[0.1351]	[0.1924]	[0.1940]
Size	0.0802***	0.0868***	0.1097***	0.1187***
	[0.0104]	[0.0101]	[0.0139]	[0.0134]
Firm Age	-0.0017**	-0.0016**	-0.0021**	-0.0021**
	[0.0008]	[0.0008]	[0.0009]	[0.0009]
Past Acquisition	0.6019***	0.6023***	0.4807***	0.4826***
	[0.0259]	[0.0260]	[0.0297]	[0.0297]
Industry M&A Liquidity	-0.071	-0.0531	-0.2229	-0.2129
	[0.1679]	[0.1686]	[0.2038]	[0.2038]
CEO Age			-0.0058***	-0.0056**
			[0.0022]	[0.0022]
Female			-0.1652	-0.1673
			[0.1044]	[0.1046]
CEO Tenure			-0.0013	-0.0010
			[0.0022]	[0.0022]
Overconfidence			0.0808***	0.0843***
			[0.0262]	[0.0261]
Entrenchment Index			0.0074	0.0046
			[0.0115]	[0.0115]
DCS			-0.0164	-0.0171
			[0.0575]	[0.0572]
Independent Board			-0.0189	-0.0247
			[0.0380]	[0.0381]
CEO/Chairman			0.0081	0.0101
			[0.0291]	[0.0292]
Board Size			0.0069	0.0068
			[0.0069]	[0.0069]
Year-FE	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes
Pseudo R^2	0.0906	0.0908	0.0906	0.0903
Observations	23,750	23,704	15,209	15,194
% Change in Acq. Prob. due to 1 Standard Deviation Increase around Compensation Mean Value	5.78%	6.58%	5.81%	5.28%

Table V

Public Acquisition Probability and CEO Compensation

The table presents the estimates of pooled probit regressions with clustered standard errors at firm level where the dependent variable takes value one if an acquiring firm made at least one public acquisition in a given year over the period between January 1, 1997 and December 31, 2011, and zero otherwise, for the universe of US publicly listed firms with data on ExecuComp. See Appendix A for definitions of the variables. All independent variables are lagged with respect to the dependent variable. All variables are winsorized at the 1% on both tails, with the exception of binary variables. Year and industry fixed effects, whose coefficients are suppressed, are based on calendar year and Fama-French 49 industry classification dummies, respectively. Heteroskedasticity-robust clustered standard errors at firm level are reported in brackets. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The last row presents the % change in public acquisition bid probability due to one standard deviation increase around I/S adjusted incentive compensation and I/S adjusted incentive ratio mean values.

	(1)	(2)	(3)	(4)
Constant	-3.1960***	-3.2514***	-2.6981***	-2.7850***
	[0.3004]	[0.2792]	[0.4895]	[0.4623]
I/S Adj. Incentive Comp.	0.0111***		0.0109***	
	[0.0029]		[0.0034]	
I/S Adj. Incentive Ratio		0.1886***		0.1565*
		[0.0619]		[0.0799]
B/M	-0.1403***	-0.1463***	-0.1747***	-0.1817***
	[0.0323]	[0.0326]	[0.0507]	[0.0508]
Cash Reserves	0.3265***	0.3497***	0.3806**	0.4076***
	[0.1155]	[0.1157]	[0.1509]	[0.1508]
Leverage	-0.2265**	-0.2434**	-0.2890**	-0.3041**
	[0.1017]	[0.1023]	[0.1305]	[0.1307]
Cash Flows	0.4615**	0.4258**	0.4812*	0.4273
	[0.2012]	[0.2023]	[0.2852]	[0.2861]
Size	0.1784***	0.1900***	0.2150***	0.2281***
	[0.0134]	[0.0129]	[0.0187]	[0.0178]
Firm Age	0.0003	0.0002	-0.0009	-0.0009
	[0.0010]	[0.0010]	[0.0012]	[0.0012]
Past Acquisition	0.3695***	0.3729***	0.2933***	0.2977***
	[0.0328]	[0.0329]	[0.0376]	[0.0376]
Industry M&A Liquidity	-0.3459	-0.3279	-0.2698	-0.2604
	[0.2433]	[0.2429]	[0.3134]	[0.3128]
CEO Age			-0.0067**	-0.0065**
			[0.0032]	[0.0032]
Female			-0.1397	-0.1357
			[0.1608]	[0.1614]
CEO Tenure			-0.002	-0.0014
			[0.0034]	[0.0034]
Overconfidence			0.0222	0.0262
			[0.0386]	[0.0385]
Entrenchment Index			0.0021	-0.0003
			[0.0162]	[0.0163]
DCS			-0.0614	-0.0656
			[0.0767]	[0.0767]
Independent Board			-0.1203**	-0.1282**
			[0.0515]	[0.0517]
CEO/Chairman			0.0225	0.0248
			[0.0422]	[0.0427]
Board Size			0.0028	0.0029
			[0.0097]	[0.0097]
Year-FE	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes
Pseudo R^2	0.1089	0.1083	0.1227	0.1217
Observations	23,532	23,486	15,042	15,027
% Change in Public Acq. Prob. due to 1 Standard Deviation Increase around Compensation Mean Value	11.33%	11.12%	10.80%	8.89%

Table VI

Acquisition Size and CEO Compensation

The table presents in specifications (1) and (2) the estimates of pooled probit regressions with clustered standard errors at firm level where the dependent variable takes the value of one if the acquiring firm made acquisitions in a given year whose deal value exceeds 10% of the sales in the previous year, and zero otherwise. In specifications (3) and (4) we present the estimates of pooled tobit regressions with clustered standard errors at firm level where the dependent variable is the sum of the deal values of acquisitions made in a given year scaled by sales in the previous year. The sample period is between January 1, 1997 and December 31, 2011 for the universe of US publicly listed firms with data on ExecuComp. See Appendix A for definitions of the variables. All independent variables are lagged with respect to the dependent variable. All variables are winsorized at the 1% on both tails. Year and industry fixed effects, whose coefficients are suppressed, are based on calendar year and Fama-French 49 industry classification dummies, respectively. Heteroskedasticity-robust clustered standard errors at firm level are reported in brackets. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The last row presents the % change in large acquisition probability and sum of deal values due to one standard deviation increase around I/S adjusted incentive compensation and excess I/S adjusted incentive ratio mean values.

	Large Acquisition (Probit)		**Deal Value (Tobit)**	
	(1)	**(2)**	**(3)**	**(4)**
Constant	-0.7398**	-0.7789***	-0.2573	-0.2994*
	[0.2912]	[0.2847]	[0.1631]	[0.1530]
I/S Adj. Incentive Comp.	0.0094***		0.0067***	
	[0.0033]		[0.0016]	
I/S Adj. Incentive Ratio		0.1464**		0.1198***
		[0.0629]		[0.0291]
B/M	-0.1549***	-0.1576***	-0.1036***	-0.1053***
	[0.0397]	[0.0399]	[0.0199]	[0.0200]
Cash Reserves	0.1860	0.2001*	0.1580**	0.1682***
	[0.1217]	[0.1212]	[0.0636]	[0.0636]
Leverage	-0.0213	-0.0288	-0.0499	-0.0559
	[0.1006]	[0.1007]	[0.0494]	[0.0495]
Cash Flows	0.6009***	0.5697***	0.2204*	0.1955
	[0.2147]	[0.2171]	[0.1213]	[0.1239]
Size	-0.0754***	-0.0668***	0.0171**	0.0237***
	[0.0154]	[0.0148]	[0.0069]	[0.0065]
Firm Age	-0.0029***	-0.0029***	-0.0015***	-0.0015***
	[0.0010]	[0.0010]	[0.0005]	[0.0005]
Past Acquisition	0.3234***	0.3259***	0.2250***	0.2266***
	[0.0341]	[0.0341]	[0.0166]	[0.0167]
Industry M&A Liquidity	0.0064	0.0144	-0.0690	-0.0603
	[0.2612]	[0.2618]	[0.1225]	[0.1223]
CEO Age	-0.0061**	-0.0059**	-0.0039***	-0.0037***
	[0.0026]	[0.0026]	[0.0012]	[0.0012]
Female	-0.0220	-0.0220	-0.0353	-0.0367
	[0.1143]	[0.1148]	[0.0692]	[0.0700]
CEO Tenure	-0.0047*	-0.0044*	-0.0019	-0.0015
	[0.0026]	[0.0027]	[0.0012]	[0.0012]
Overconfidence	0.1058***	0.1090***	0.0479***	0.0505***
	[0.0302]	[0.0302]	[0.0142]	[0.0142]
Entrenchment Index	0.0158	0.0131	0.0058	0.0036
	[0.0131]	[0.0132]	[0.0062]	[0.0062]
DCS	-0.0589	-0.0589	-0.0243	-0.0253
	[0.0672]	[0.0671]	[0.0308]	[0.0306]
Independent Board	-0.0112	-0.0178	-0.0073	-0.012
	[0.0454]	[0.0457]	[0.0207]	[0.0207]
CEO/Chairman	0.0443	0.0461	0.0195	0.0202
	[0.0342]	[0.0344]	[0.0157]	[0.0158]
Board Size	0.0155*	0.0154*	0.0063*	0.0063*
	[0.0083]	[0.0083]	[0.0038]	[0.0038]
Year-FE	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes
Pseudo R^2	0.0766	0.0761	0.081	0.0802
Observations	15,212	15,213	15,212	15,213
% Change in Large Acq. Prob. (and Sum of Deal Values) due to 1 Standard Deviation Increase around Compensation Mean Value	9.05%	10.92%	(6.21%)	(6.41%)

Table VII

CAPEX Investment and CEO Compensation

The table presents presents the estimates of pooled probit regressions where the dependent variable is the binary variable of unexpected CAPEX investment. The sample consists of the universe of US publicly listed firms with data on ExecuComp over the period between January 1, 1997 and December 31, 2011. See Appendix A for definitions of the variables. All independent variables are lagged with respect to the dependent variable. All variables are winsorized at the 1% on both tails. Year and industry fixed effects, whose coefficients are suppressed, are based on calendar year and Fama-French 49 industry classification dummies, respectively. Heteroskedasticity-robust clustered standard errors at firm level are reported in brackets. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The last row presents the % change in CAPEX investment probability due to one standard deviation increase around I/S adjusted incentive compensation and I/S adjusted incentive ratio mean values.

	(1)	(2)	(3)	(4)
Constant	-1.7764***	-1.7535***	-2.0554***	-2.0307***
	[0.2685]	[0.2732]	[0.4693]	[0.4702]
I/S Adj. Incentive Comp.	-0.0106***		-0.0066	
	[0.0039]		[0.0046]	
I/S Adj. Incentive Ratio		-0.1360**		-0.1400*
		[0.0539]		[0.0729]
B/M	0.2494***	0.2486***	0.3828***	0.3826***
	[0.0340]	[0.0339]	[0.0500]	[0.0501]
Cash Reserves	-0.6984***	-0.7215***	-0.9056***	-0.9088***
	[0.1504]	[0.1506]	[0.2206]	[0.2208]
Leverage	0.7681***	0.7762***	0.7803***	0.7899***
	[0.1107]	[0.1108]	[0.1466]	[0.1466]
Cash Flows	0.9406***	0.9636***	1.6030***	1.6173***
	[0.2570]	[0.2572]	[0.3900]	[0.3894]
Size	-0.0119	-0.0181	0.0077	0.0028
	[0.0143]	[0.0138]	[0.0209]	[0.0202]
Firm Age	-0.0005	-0.0005	0.0009	0.0009
	[0.0011]	[0.0011]	[0.0014]	[0.0014]
Past Acquisition	-0.1403***	-0.1422***	-0.0929**	-0.0923**
	[0.0353]	[0.0352]	[0.0418]	[0.0417]
Industry M&A Liquidity	0.0198	0.0352	0.3478	0.3365
	[0.1900]	[0.1942]	[0.2551]	[0.2563]
CEO Age			-0.0007	-0.0009
			[0.0034]	[0.0034]
Female			0.1347	0.1404
			[0.1331]	[0.1330]
CEO Tenure			0.0057*	0.0053*
			[0.0032]	[0.0032]
Overconfidence			-0.0110	-0.0124
			[0.0397]	[0.0398]
BCE Index			0.0262	0.0261
			[0.0164]	[0.0164]
DCS			-0.1305	-0.1442*
			[0.0848]	[0.0851]
Independent Board			-0.0410	-0.0330
			[0.0539]	[0.0540]
CEO/Chairman			-0.0439	-0.0414
			[0.0451]	[0.0451]
Board Size			-0.0230**	-0.0226**
			[0.0103]	[0.0103]
Year-FE	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes
Pseudo R^2	0.2142	0.2144	0.239	0.2393
Observations	23,684	23,638	15,068	15,055
% Change in CAPEX due to 1 Standard Deviation Increase around Compensation Mean Value	-9.34%	-7.02%	-5.99%	-7.31%

Table VIII

Excess CEO Compensation, Acquisition Probability and Acquisition Size

The table presents in specifications (1) and (2) the estimates of pooled probit regressions with clustered standard errors at firm level where the dependent variable takes the value of one if an acquiring firm made at least one acquisition in a given year. In specifications (3) and (4) we present the estimates of pooled tobit regressions with clustered standard errors at firm level where the dependent variable is the sum of the deal values of acquisitions made in a given year scaled by sales in the previous year. Panel A (B) reports the results in which the main variable of interest is excess I/S adj. incentive compensation (excess I/S adj. incentive ratio). The sample period is between January 1, 1997 and December 31, 2011 for the universe of US publicly listed firms with data on ExecuComp. Excess I/S Adj. Incentive Comp. represents the residual estimates from a panel model where I/S adjusted incentive compensation is regressed on size, cash flows, b/m, cash reserves, past acquisitions, industry M&A liquidity and industry and time effects. See Appendix A for definitions of the variables. All independent variables are lagged with respect to the dependent variable. All variables are winsorized at the 1% on both tails. Year and industry fixed effects, whose coefficients are suppressed, are based on calendar year and Fama-French 49 industry classification dummies, respectively. Heteroskedasticity-robust clustered standard errors at firm level are reported in brackets. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively. The last row presents the % change in acquisition bid probability and sum of deal values due to one standard deviation change around the mean values of excess I/S adjusted incentive compensation (Panel A) and excess I/S adjusted incentive ratio (Panel B), respectively.

Panel A	**Acquisition (Probit)**		**Deal Value (Tobit)**	
	(1)	**(2)**	**(3)**	**(4)**
Constant	-1.4849***	-0.9643***	-0.8182***	-0.3095**
	[0.2665]	[0.2906]	[0.1538]	[0.1561]
Excess I/S Adj. Incentive Comp.	0.0046*	0.0057*	0.0045***	0.0053***
	[0.0025]	[0.0032]	[0.0016]	[0.0017]
B/M	-0.1222***	-0.1700***	-0.0924***	-0.1097***
	[0.0225]	[0.0340]	[0.0152]	[0.0200]
Cash Reserves	0.1801**	0.1769*	0.2387***	0.1844***
	[0.0835]	[0.1069]	[0.0585]	[0.0637]
Leverage	-0.1722**	-0.2174**	-0.0401	-0.0501
	[0.0704]	[0.0910]	[0.0475]	[0.0495]
Cash Flows	0.8321***	0.6617***	0.3178***	0.1992
	[0.1360]	[0.1932]	[0.1012]	[0.1225]
Size	0.0909***	0.1206***	0.0200***	0.0250***
	[0.0100]	[0.0134]	[0.0059]	[0.0065]
Firm Age	-0.0014*	-0.0021**	-0.0012**	-0.0016***
	[0.0008]	[0.0009]	[0.0005]	[0.0005]
Past Acquisition	0.6040***	0.4860***	0.3514***	0.2293***
	[0.0260]	[0.0298]	[0.0176]	[0.0167]
Industry M&A Liquidity	0.0858***	0.0821***	0.0667***	0.0487***
	[0.0213]	[0.0262]	[0.0137]	[0.0142]
CEO Age	-0.0706	-0.2181	0.0396	-0.0657
	[0.1685]	[0.2036]	[0.1103]	[0.1225]
Female		-0.0059***		-0.0040***
		[0.0022]		[0.0012]
CEO Tenure		-0.1625		-0.0332
		[0.1047]		[0.0699]
Overconfidence		-0.0013		-0.0019
		[0.0022]		[0.0012]
Entrenchment Index		0.0068		0.0053
		[0.0115]		[0.0062]
DCS		-0.0204		-0.0278
		[0.0571]		[0.0304]
Independent Board		-0.0175		-0.0063
		[0.0381]		[0.0209]
CEO/Chairman		0.0131		0.0226
		[0.0292]		[0.0158]
Board Size		0.0070		0.0064*
		[0.0070]		[0.0038]
Year-FE	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes
Pseudo R^2	0.0907	0.0899	0.079	0.0801
Observations	23,737	15,209	23,737	15,209
% Change in Acq. Prob. (and Sum of Deal Values) due to 1 Standard Deviation Increase around Compensation Mean Value	2.15%	2.55%	(2.49%)	(3.72%)

Panel B	Acquisition (Probit)		Deal Value (Tobit)	
	(1)	(2)	(3)	(4)
Constant	-1.4805***	-0.9573***	-0.8153***	-0.3064**
	[0.2664]	[0.2910]	[0.1539]	[0.1560]
Excess I/S Adj. Incentive Ratio	0.0737*	0.0500	0.0739**	0.0598*
	[0.0440]	[0.0586]	[0.0288]	[0.0310]
B/M	-0.1239***	-0.1720***	-0.0938***	-0.1117***
	[0.0225]	[0.0341]	[0.0152]	[0.0201]
Cash Reserves	0.1743**	0.1757	0.2349***	0.1841***
	[0.0835]	[0.1070]	[0.0585]	[0.0638]
Leverage	-0.1709**	-0.2188**	-0.0409	-0.0521
	[0.0706]	[0.0911]	[0.0476]	[0.0497]
Cash Flows	0.8285***	0.6615***	0.3149***	0.1958
	[0.1363]	[0.1944]	[0.1017]	[0.1241]
Size	0.0908***	0.1206***	0.0199***	0.0252***
	[0.0100]	[0.0134]	[0.0059]	[0.0065]
Firm Age	-0.0014*	-0.0022**	-0.0012**	-0.0016***
	[0.0008]	[0.0009]	[0.0005]	[0.0005]
Past Acquisition	0.6033***	0.4857***	0.3509***	0.2293***
	[0.0260]	[0.0298]	[0.0176]	[0.0167]
Industry M&A Liquidity	0.0873***	0.0815***	0.0677***	0.0483***
	[0.0213]	[0.0262]	[0.0137]	[0.0142]
CEO Age	-0.0610	-0.2182	0.0463	-0.0646
	[0.1703]	[0.2035]	[0.1113]	[0.1223]
Female		-0.0059***		-0.0040***
		[0.0022]		[0.0012]
CEO Tenure		-0.1637		-0.0342
		[0.1047]		[0.0702]
Overconfidence		-0.0014		-0.0019
		[0.0022]		[0.0012]
Entrenchment Index		0.0064		0.0052
		[0.0115]		[0.0062]
DCS		-0.0208		-0.0286
		[0.0571]		[0.0304]
Independent Board		-0.0186		-0.0072
		[0.0381]		[0.0209]
CEO/Chairman		0.0146		0.0238
		[0.0292]		[0.0159]
Board Size		0.0069		0.0063*
		[0.0069]		[0.0038]
Year-FE	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes
Pseudo R^2	0.0907	0.0898	0.079	0.0798
Observations	23,691	15,194	23,691	15,194
% Change in Acq. Prob. (and Sum of Deal Values) due to 1 Standard Deviation Increase around Compensation Mean Valu	2.10%	1.37%	(2.50%)	(2.61%)

Table IX

Acquiring Firm 5-day CAR & CEO Compensation

The table presents the estimates of pooled OLS regressions with clustered standard errors at firm level where the dependent variable is the 5-day cumulative abnormal return over the event window (-2, +2) around the acquisition announcement over the period between January 1, 1997 and December 31, 2011 for the universe of US publicly listed firms with data on ExecuComp. See Appendix A for definitions of the variables. All variables are winsorized at the 1% on both tails. Year and industry fixed effects, whose coefficients are suppressed, are based on calendar year and Fama-French 49 industry classification dummies, respectively. Heteroskedasticity-robust clustered standard errors at firm level are reported in brackets. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0720***	0.0729***	0.0931***	0.0946***	0.0994***	0.1008***
	[0.0110]	[0.0109]	[0.0208]	[0.0207]	[0.0252]	[0.0251]
I/S Adj. Incentive Comp.	0.0001		0.0003		0.0002	
	[0.0002]		[0.0002]		[0.0002]	
I/S Adj. Incentive Ratio		0.0002		0.0003*		0.0002
		[0.0002]		[0.0002]		[0.0002]
Size	-0.0018***	-0.0020***	-0.0040***	-0.0043***	-0.0039***	-0.0041***
	[0.0006]	[0.0006]	[0.0009]	[0.0009]	[0.0010]	[0.0011]
Stock	-0.0095***	-0.0095***	-0.0082*	-0.0083*	-0.0129***	-0.0130***
	[0.0030]	[0.0030]	[0.0044]	[0.0044]	[0.0046]	[0.0046]
Private	0.0191***	0.0191***	0.0169***	0.0169***	0.0150***	0.0149***
	[0.0020]	[0.0020]	[0.0028]	[0.0028]	[0.0028]	[0.0028]
Industry M&A Liquidity	-0.0380***	-0.0378***	-0.0132	-0.0129	-0.0142	-0.0139
	[0.0143]	[0.0143]	[0.0161]	[0.0161]	[0.0185]	[0.0184]
B/M			-0.0062	-0.0063	-0.0023	-0.0024
			[0.0053]	[0.0053]	[0.0060]	[0.0060]
Cash Reserves			-0.0256***	-0.0255***	-0.0210**	-0.0209**
			[0.0097]	[0.0097]	[0.0103]	[0.0103]
Leverage			-0.0001	-0.0004	-0.0079	-0.008
			[0.0093]	[0.0093]	[0.0101]	[0.0101]
Relative Size			-0.0122*	-0.0123*	-0.0170**	-0.0171**
			[0.0066]	[0.0066]	[0.0074]	[0.0074]
Diversifying			0.0012	0.0012	0.0015	0.0015
			[0.0023]	[0.0023]	[0.0025]	[0.0025]
Completed			0.0114**	0.0113**	0.0143***	0.0142***
			[0.0047]	[0.0047]	[0.0049]	[0.0049]
Hostile			-0.0058	-0.0059	-0.0011	-0.0011
			[0.0087]	[0.0087]	[0.0089]	[0.0089]
Tender Offer			0.0262*	0.0261*	0.0205	0.0203
			[0.0136]	[0.0136]	[0.0156]	[0.0156]
Return Volatility			-0.0572	-0.0628	-0.1127	-0.1181
			[0.1716]	[0.1716]	[0.1911]	[0.1908]
Cash Flows			0.0265	0.0267	0.0249	0.0252
			[0.0205]	[0.0205]	[0.0221]	[0.0221]
Firm Age			0.0001**	0.0001**	0.0001*	0.0001*
			[0.0001]	[0.0001]	[0.0001]	[0.0001]
CEO Age					-0.0001	-0.0001
					[0.0002]	[0.0002]
Female					-0.0023	-0.0023
					[0.0093]	[0.0094]
CEO Tenure					0.0007***	0.0007***
					[0.0003]	[0.0003]
Overconfidence					0.0001	0.0001
					[0.0024]	[0.0024]
Entrenchment Index					-0.0001	-0.0001
					[0.0009]	[0.0009]
DCS					-0.0053	-0.0052
					[0.0039]	[0.0039]
Independent Board					-0.0046	-0.0045
					[0.0037]	[0.0037]
Board Size					0.0003	0.0003
					[0.0005]	[0.0005]
Year-FE	yes	yes	yes	yes	yes	yes
Industry-FE	yes	yes	yes	yes	yes	yes
Adjusted R^2	0.0338	0.0339	0.0396	0.0398	0.0493	0.0495
Observations	6,680	6,680	4,038	4,038	3,191	3,191