ESSAYS IN CORPORATE FINANCE

by

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Essays in Corporate Finance: Executive Compensation and Takeover Premium

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ABSTRACT

Incentives of executives and board of directors play an important role in corporate decisions. Principal agent theory suggests a tradeoff between risk and incentives in optimal compensation contracts for managers. The first essay of this dissertation explores the relationship between the distribution of incentive compensation among top executives and firm risk. This essay develops and tests a two-agent model of optimal incentive compensation for corporate executives. The model investigates the effects of firm risk and cooperation among executives in the design of incentive contracts and offers two contrasting propositions: 1. When importance of cooperation is invariant to risk, the ratio of incentive compensation of the CEO to that of other top executive(s) increases with risk. 2. In contrast, when importance of co-operation increases with risk, the ratio of incentive compensation first increases and then decreases with risk. Using EXECUCOMP data from 1992 to 2002 I test these propositions and find evidence supporting the second proposition, but none for the first.

The second essay examines the relation between board independence of target firms and the returns to targets and acquirers around takeover announcements. Using a sample of 232 large relative size takeovers, I reexamine whether target board independence is related to target or acquirer returns and their share in the total wealth change around announcements. Unlike Cotter et al. (1997), I do not find independent target boards to be associated with higher target premiums or lower acquirer returns. Similar to Wulf (2004), I find that target returns are lower when target CEOs obtain CEO positions in the merged firm. However, target board independence does not mitigate the lower premium targets receive when their CEOs are CEOs of the merged firm. I conclude that the takeover market is competitive such that target board independence is unrelated to gain sharing between targets and acquirers in larger relative size takeovers.

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INTRODUCTION

Incentives of top executives and board of directors play an important role in corporate decisions. Jensen and Meckling (1976) view the firm as a nexus of contracts and argue that these contracts determine the incentives of various parties. Particularly, when managers have less than complete ownership of assets over which they have decision rights, there will be divergence between their decisions and those decisions that might maximize the principal's welfare. This divergence can cause a loss to the principal, termed as 'residual loss' (Jensen and Meckling (1976)). Positive monitoring and other bonding costs imply that these losses cannot be reduced to zero as long as some separation exists between ownership and control of assets. Jensen and Meckling suggest that ownership by insiders and extent of outside equity will evolve endogenously because insiders will bear the cost of any divergence of their incentives from the incentives of outside shareholders, when they obtain external equity financing. Consistent with that, Demsetz and Lehn (1985) find that ownership structures are determined endogenously based on the firm's asset characteristics and the environment in which it operates.

However, because of positive monitoring and contracting costs and change in firm characteristics over time, incentives of agents might diverge from those of their principals requiring continuous re-contracting and monitoring. Principal agent theory suggests two important mechanisms (among others) to align incentives of the managers to that of the shareholders. 1. Alignment of managerial interests with that of the shareholders through compensation contracts. 2. Monitoring of the managers by a board of directors representing shareholder interests.

Holmstrom (1979) argues that contracts based on payoffs to the principal alone can be improved by using information about agent's actions. Milgrom and Roberts (1992) call this as the 'Informativeness Principle' of contract design. Holmstrom and Milgrom (1987) argue that the optimal

incentive contract is linear in the relationship between agent's pay and the observed signals regarding effort. Based on this principle, compensation contracts typically include components that are contingent on measures of firm performance which might be informative about managerial actions. These components include stock grants, option grants and bonuses which might be based on accounting measures of performance. However, relating pay to performance increases the risk to agents, which has to be compensated by higher pay. Prendergast (1999) argues that this implies a tradeoff between risk and incentives in optimal compensation contracts for managers. The empirical literature on this is mixed with evidence for both increasing and decreasing incentives as firm risk increases (for example, Aggarwal and Samwick (1999), Core and Guay (2002)). Baker, Jensen and Murphy (1988) state that our understanding of the internal incentive structures in organizations is far from complete. They state that typical explanations offered for many aspects of compensation contracts, by psychologists, behaviorists, human resource consultants, and personnel executives are distinctly uneconomic—focusing on notions such as fairness, equity, morale, trust, social responsibility, and culture.

Attempts to provide rational economic explanations for explaining observed compensation structures for top managers have focused mainly on the role of competition and design of tournaments within organizations (Lazear and Rosen (1981), Rosen (1986)). As Prendergast (1999) summarizes, these designs reduce some of the risk of compensation contracts for agents by adjusting for common factors that affect their output and performance. However, co-operation between agents is likely to be as important as competition. Evidence from turnover studies of US executives suggests that top executives are evaluated as a team and are hired and fired together (Fee and Hadlock (2004), Mian (2001), and Hermalin and Weisbach (1988)). If the firm is a nexus of contracts and if contracts are incomplete, then some degree of cooperation among agents should be valuable to firm output. This is especially true in case of repeated interactions. James (2002) argues that studies of prisoners' dilemma problem indicate

that people are often more willing to cooperate in such environments than what is predicted by theory. Dawes and Thaler (1988) quote Hershleifer (1985) that "*the analytically uncomfortable (though humanly gratifying) fact remains: from the most primitive to the most advanced societies, a higher degree of cooperation takes place than can be explained as a merely pragmatic strategy for egoistic man*".

If cooperation among agents is valuable for the principal, then compensation structures might be designed to elicit the optimal cooperation among agents. Rob and Zemsky (2002) develop a model in which workers derive utility from co-operation and incentives are designed optimally to maximize this utility. Itoh (1991) develops a model in which the principal designs tasks to satisfy its own preference of unambiguous division of labor or substantial teamwork. The agents respond by either co-operating with other agents or by choosing own effort to improve outcome of their individual tasks. In his model however, the principal strictly chooses either specialized tasks with zero cooperation or team based tasks with substantial co-operation.

In contrast to Itoh (1991), the model proposed in the first essay provides for both individual effort as well as for each agent to affect other's output via cooperation. This model extends the literature on designing of incentive contracts by explicitly considering the effect of co-operation on firm output. The model investigates the effects of firm risk and cooperation among executives in the design of relative incentive compensation schemes for top executives and offers two contrasting propositions: 1. When importance of cooperation is invariant to risk, the ratio of incentive compensation of the CEO to that of other top executive(s) increases with risk. 2. In contrast, when importance of co-operation increases with risk, the ratio of incentive compensation first increases and then decreases with risk. Using EXECUCOMP data from 1992 to 2002, I test these propositions and find evidence supporting the second proposition, but none for the first.

Since principals cannot contract on every aspect of agent's actions without involving substantial costs and since several actions of the agents might be unobservable to the principal, designing of incentive contracts alone is not sufficient. Monitoring of managers by board of directors who represent shareholders is an additional mechanism to motivate managers to take actions in the interest of shareholders. Fama and Jensen (1983) argue that separation of ownership and control also leads to some separation of decision rights at the top of organizations. One mechanism via which this separation occurs is the board of directors which delegate most decision rights to managers but continue to exercise the rights to hire and fire these managers and ratify important corporate decisions. They argue that outsider directors play an important role by acting as arbiters in disagreements among internal managers and carrying out tasks which involve serious agency problems between managers and residual claimants. Such outsiders have incentives to develop reputation as experts in decision control as these outsiders themselves are important decision agents in other organizations.

The above argument regarding effectiveness of outsider directors in monitoring has led to suggestions, both by economists and regulators, that board of directors in companies to consist of a majority of independent outsider directors. In contrast, empirical evidence on the effectiveness of board independence mainly suggests that board independence is unrelated to financial performance. However independent boards seem to take different decisions in matters related to executive compensation, hiring or firing of CEOs and takeovers (see Hermalin and Weisbach (2003) for a survey and references).

The second chapter examines the relation between board independence of target firms and the returns to targets and acquirers around takeover announcements. Using a sample of 232 large relative size takeovers, I reexamine whether target board independence is related to target or acquirer returns and their share in the total wealth change around announcements. Unlike Cotter et al. (1997), I do not find independent target boards to be associated with higher target premiums or lower acquirer returns.

Similar to Wulf (2004), I find that target returns are lower when target CEOs obtain CEO positions in the merged firm. However, target board independence does not mitigate the lower premium targets receive when their CEOs are CEOs of the merged firm. I conclude that the takeover market is competitive such that target board independence is unrelated to gain sharing between targets and acquirers in larger relative size takeovers.

Overall the results of this dissertation show that observed compensation structures and board structures are determined endogenously based on optimal contracting between principals and agents. The results of the first essay indicate that compensation distribution among top executives is designed in a way that is consistent with providing appropriate incentives to these executives to cooperate with each other as firm risk increases. The results of the second essay are consistent with the hypothesis that observed board structures are optimal such that board characteristics like independence are unrelated to the returns firms obtain when they are takeover targets. These results are also consistent with the takeover market being competitive such that acquirers do not obtain a better or worse deal when they acquire targets with independent or non-independent boards.

1.0 COOPERATION OR COMPETITION? THE DISTRIBUTION OF COMPENSATON IN THE EXECUTIVE SUITE

1.1 INTRODUCTION

There is significant evidence that US CEOs are paid significantly more than their counterparts in other developed countries[1]. Partially fuelled by stock option plans in the second half of the 1990s, the level of CEO compensation rose to levels unseen in the past. However, there has been less interest in examining the way compensation is distributed in the executive suite. Comparing the compensation of non-CEO top executives in the US to their counterparts internationally suggests that the 'US premium' is confined mainly to CEO pay and does not extend to lower levels.[2]

The broader question, however, is related to how distribution of compensation affects incentives in a corporation. Incentive contracts can be designed to induce an optimal mix of competition (tournaments) and cooperation among executives.[3] This chapter develops and empirically tests a model for an optimal compensation contract for a team of executives. Specifically, the model implies testable implications on the relation between firm risk and distribution of incentive compensation among top executives. The first prediction of the model is that, when the importance of cooperation among executives is small, the ratio of incentive compensation of the CEO to that of the other executive(s) increases with firm risk. The second prediction is that, when the importance of cooperation is an increasing function of risk, the same

[1] See Abowd and Kaplan (1999), Conyon and Murphy (2002) and Conyon, Core and Guay (2005) for recent comparisons of US CEO pay to that of UK and OCED countries' CEO pay.

[2] See Abowd and Kaplan (1999)

[3] See, for example, Itoh (1991).

ratio first increases, and then decreases with risk. Empirical testing of these predictions indicates that the second prediction better fits the data. In other words, actual compensation contracts I observe in the data suggest that firms operate in environments, where cooperation between executives becomes more valuable as firm risk increases.

The intuition for the results is as follows. As risk increases, it becomes more expensive to compensate agents with incentive compensation. However, since maintaining CEO incentives is more important than doing so for other executives, the reduction in CEO's incentive compensation is less than that for other executives. Absent any other effect, this could lead to higher incentive compensation for the CEO as compared to other top executives as firm risk increases. However, in high risk environments, executives' need to cooperate with each other increases. As cooperation becomes more valuable for the firm's principals, the need to maintain the incentives of the other top executive also increases. As a result, though the absolute incentives for both the CEO and the other executives decrease with increase in risk, the optimal incentive compensation for the CEO and the other executives converge.

The chapter is organized as follows. Section 1.2 discusses the extant literature on the topic. Section 1.3 introduces the model and hypotheses. Section 1.4 describes the data and methodology employed. Section 1.5 discusses the findings and Section 1.6 concludes.

1.2 LITERATURE REVIEW

On one hand, there is evidence that suggests that US CEOs are paid significantly higher than CEOs elsewhere and this so called US 'premium' for CEO pay does not extend to pay for other top executives.[4] This suggests that the difference in the importance / impact of CEOs versus that of other executives is higher in the US as compared to other countries. That CEOs are more

[4] See for example, Abowd and Bognanno (1995) and Core, Guay and Conyon (2005).

important than other top executives is perhaps self evident. Hayes and Schaefer (1999) show that when CEOs are poached, firms that lose the CEOs suffer an average abnormal return of -1.13%. When a broader sample of executives who are poached from their firms is examined, the abnormal return for the firm losing the executive is insignificant.

On the other hand, turnover studies on US executives suggest that top executives are evaluated as a team. Fee and Hadlock (2004), Mian (2001), and Hermalin and Weisbach (1988) provide evidence that turnover of non-CEO executives, CFOs and insider directors clusters around CEO turnover. Research on other areas, which studied compensation practices of college faculty (Pfeffer and Langton (1993)), corporate executives (Main et al. (1993)) and professional athletes (Harder (1992)), suggests that considerations of fairness or equality might be important for team performance. Yet, not much is known about how US firms compensate top executives other than the CEO and more importantly how the distribution of top executive compensation affects their behavior. Aggarwal and Samwick (2003) show that, on average CEOs have much higher pay performance sensitivities[5] as compared to oversight and divisional executives. Ang et al. (2002) document that pay performance elasticity and the proportion of pay contingent on performance are higher for CEOs as compared to that for other top executives, while there is no significant difference in pay performance elasticity among the non-CEO top executives. Barron and Waddell (2003) show that incentive compensation as a proportion of total (compensation), increases with rank for top executives.

There exist some prior attempts to explain the distribution of compensation among top executives, mainly based on tournament theory posited by Lazear and Rosen (1981) and Rosen (1986). The main prediction from this theory is that there will be an increasing ratio of pay

[5] Measured as $ change in wealth of executive for a $1000 change in firm wealth

(between levels) as individuals move up in the hierarchy. At each level, executives are incentivized not only by the pay at that level but the 'prize' they might win if they advance to the next higher level. Since there is no further prize to be won after becoming the CEO, CEOs should be given an extra prize, i.e. the percent spread between CEO pay and the rank-2 executive pay should be much larger than the spread between pay of Rank2 and lower level executives. Several studies including O'Reilly et al. (1988), Leonard (1990), Main et al. (1993), Lambert et al. (1993), Baker et al. (1994), Lazear (1995) and Eriksson (1999), document this relation between pay and hierarchy levels. There have been a few studies that examine relationship between competition for CEO position and the CEO to non-CEO pay differential, but the conclusions from these studies are mixed.[6]

However none of these studies analyze whether compensation distribution among top executives is systematically related to firm and executive characteristics. Lazear and Rosen (1981) (L&R) posit that firms in which managerial output is more difficult to measure are more likely to use tournament structure to compensate top managers. L&R also argue that when the firm's environment is more susceptible to change, risk-averse workers increase utility by competing against other workers in the same firm and thus eliminating the common firm effect on their compensation. Lazear (1995) hypothesizes that industries which operate in a changing environment are likely to have larger wage spreads. Chiang and Gort (1998) argue that different types of risk tolerant individuals self select among firms requiring higher or lower risk taking behavior from their managers. Facing workers with different risk aversions, firms that require higher risk taking from managers tailor their wage structure by offering greater wage inequality to such managers. The only empirical study I am aware of, that relates firm characteristics to pay

[6] See for example O' Reilly et al. (1988), Main et al. (1993) and Bognanno (2001)

differential is Eriksson (1999). Using a sample of 260 Danish firms, he shows that variation in firm sales and industry output is positively associated with CEO to non-CEO wage spread. Lambert et al. (1993) find that executive pay levels are related to characteristics like CEO ownership, external directors' ownership, internal and external block-holders' ownership, proportion of outsider directors on the board and proportion of outsider directors appointed by the CEO. However they do not analyze whether any of these board / executive characteristics affect the pay differential between CEOs and non-CEOs.

One of the central predictions of principal agent models is that as performance measures become noisy their importance in the incentive contracts of executives should decrease. As pointed by Prendergast (1999), this implies that as firm risk increases, the relationship between pay and performance should be weaker. The empirical evidence on this issue is not conclusive.[7] For example, Aggarwal and Samwick (1999) infer that executive pay performance sensitivity decreases with firm risk. On the other hand, Core and Guay (2002) argue that pay performance sensitivity increases with firm risk.

1.3 MODEL DEVELOPMENT AND HYPOTHESES

To derive the optimal incentive compensation ratio, firm output is modeled as a function of the effort and marginal product of two agents, with different marginal products (impact). Each agent affects the output through her own effort as well as by impacting the effort of the other agent through a co-operation parameter. Co-operation is assumed to be less important than either agent's individual effort. The risk neutral principal maximizes the output less the compensation paid to the two agents. The agent's compensation in turn consists of a fixed component and an

[7] See Prendergast (1999) for list of some papers that empirically examine this issue.

incentive component which is a linear function of the firm output. Each individual agent is assumed to be risk averse and maximizes the utility of her compensation less the disutility of own effort. In the model the agent with the higher marginal product receives higher incentive compensation. A detailed description and development of the model follows.

Assume that the firm output x, by a team of two agents, is given by the following:

$$x = a_1(e_1 + be_2) + a_2(e_2 + be_1) + \varepsilon$$

where a_1 and a_2 are the marginal products, b is the parameter of cooperation, and e_1 and e_2 measure the effort levels. Note that the higher the value of b, the higher the contribution of each agent's effort in the other's output. ε is the component of output that is not related to effort. This component could be interpreted as the effect of all other factors that determine firm output plus random shocks to the same. ε is assumed to be normally distributed with a mean of zero and a variance of σ^2. Assuming a non-zero mean for ε does not change the results and is equivalent to adding a constant to the output and assuming ε normally distributed with a zero mean.

I further assume that

$$a_1 > a_2 = 1 > b > 0$$

which implies that the marginal product for the first agent is greater than that of the second and that cooperation is less important than individual effort. One way to think of this condition is that the first agent is the CEO with higher marginal product, whereas the second agent represents

the executive next in the hierarchy (or the rest of the management team). These assumptions help us capture the effect of cooperation in optimal incentive contracting for both agents.

I assume exponential utility for each agent, which implies constant absolute risk aversion (CARA):

$$u_i(w_i, e_i) = -e^{-\eta(w_i - \frac{1}{2}e_i^2)}$$

where η is the absolute risk aversion coefficient and $\frac{1}{2}e^2$ is the cost of effort. Assuming linear contracts, the compensation for agent i takes the following form,

$$w_i = \alpha_i x + f_i$$

The risk-neutral principal's problem, then, becomes:

$$\begin{aligned} &\max_{e_1, e_2, f_1, f_2, \alpha_1, \alpha_2,} \quad E(x - w_1 - w_2) \\ &\text{s.t.} \\ &EU_1 \geq U(\bar{w}_1) \\ &EU_2 \geq U(\bar{w}_2) \\ &e_1 \in \arg \max_{e_1} EU_1 \\ &e_2 \in \arg \max_{e_2} EU_2 \end{aligned}$$

where $U(\bar{w}_i)$ is the reservation utility of agent i and $\bar{w}_i$ denotes the minimum acceptable certainty equivalent of the agent i's contract.

Since for agent i, expected utility, for exponential utility function and normal distribution, is identical to

$$EU_i = -e^{-(\alpha i x + f_i - \frac{1}{2}e_i^2 - \frac{1}{2}\eta\alpha_i^2\sigma^2)},$$

maximizing expected utility is identical to maximizing

$$\alpha_i x + f_i - \frac{1}{2}e_i^2 - \frac{1}{2}\eta\alpha_i^2\sigma^2.$$

The agent wants to maximize compensation net of the cost of her effort and the risk premium, which is increasing is η and σ. Therefore, the optimization problem of the agent 'i 'is:

$$e_i \in \arg\max_{e_i} \alpha_i x + f_i - \frac{1}{2}e_i^2 - \frac{1}{2}\eta\alpha_i^2\sigma^2$$

The first-order conditions, after some algebra, indicate that

$$e_1 = \alpha_1(a_1 + b)$$
$$e_2 = \alpha_2(1 + ba_1)$$

Then, the expected output and the principal's objective function can be rewritten as:

$$E(x) = a_1^2(\alpha_1 + b^2\alpha_2) + (\alpha_2 + b^2\alpha_1) + 2ba_1(\alpha_1 + \alpha_2)$$
$$E(x - w_1 - w_2) =$$
$$(1 - \alpha_1 - \alpha_2)\left[a_1^2(\alpha_1 + b^2\alpha_2) + (\alpha_2 + b^2\alpha_1) + 2ba_1(\alpha_1 + \alpha_2)\right] - f_1 - f_2$$

Restating the principal's optimization, we obtain

$$\max_{f_1,f_2,\alpha_1,\alpha_2} (1-\alpha_1-\alpha_2)\left[a_1^2(\alpha_1+b^2\alpha_2)+(\alpha_2+b^2\alpha_1)+2ba_1(\alpha_1+\alpha_2)\right]-f_1-f_2$$

s.t.

$$\alpha_1\left[a_1^2(\alpha_1+b^2\alpha_2)+(\alpha_2+b^2\alpha_1)+2ba_1(\alpha_1+\alpha_2)\right]+f_1-\frac{1}{2}e_1^2-\frac{1}{2}\eta\alpha_1^2\sigma^2=\bar{w}_1$$

$$\alpha_2\left[a_1^2(\alpha_1+b^2\alpha_2)+(\alpha_2+b^2\alpha_1)+2ba_1(\alpha_1+\alpha_2)\right]+f_2-\frac{1}{2}e_2^2-\frac{1}{2}\eta\alpha_2^2\sigma^2=\bar{w}_2$$

The solution to the problem is:

$$\alpha_1=\frac{(a_1+b)^2}{(a_1+b)^2+\eta\sigma^2},\alpha_2=\frac{(1+ba_1)^2}{(1+ba_1)^2+\eta\sigma^2}$$

Therefore the ratio of the incentive for agent 1 to the incentive for the agent 2 is given by

$$\frac{\alpha_1}{\alpha_2}=\frac{(a_1+b)^2(1+ba_1)^2+(a_1+b)^2\eta\sigma^2}{(a_1+b)^2(1+ba_1)^2+(1+ba_1)^2\eta\sigma^2}$$

Proposition 1: For $a_1 > a_2 = 1 > b$, the optimal incentive ratio increases with uncertainty.

$$\frac{\partial\alpha_1/\ \alpha_2}{\partial\sigma}>0$$

Proof: See Appendix 3.

Proposition 2: For $a_1 > a_2 = 1 > b$, the optimal incentive ratio decreases with the relative importance of cooperation.

$$\frac{\partial \alpha_1 / \alpha_2}{\partial b} < 0$$

Proof: See Appendix 3.

Propositions 1 and 2 state that the optimal ratio is related to the trade-off between the importance of cooperation and uncertainty, unlike in tournaments type models where it will be only related to uncertainty. Now, I conjecture that b is a monotone increasing function of σ with an upper bound of a_2, which takes us to Proposition 3.

Proposition 3: If b is a monotone increasing function of σ with an upper bound of a_2, the optimal incentive ratio first increases and then decreases with risk.

To see this, let's consider the following functional form for the relationship between b and σ:

$$b(\sigma) = \frac{a_2}{\kappa}(\kappa - e^{-\sigma}),$$

where κ is a shape parameter that has a value that is greater than 1. Figure 1 depicts the specific shape of the function that corresponds to the above relationship between b and σ. Note that $\partial \alpha_1 / \alpha_2$ first increase with σ, peaks, and then decreases with σ.

In general, note that as b approaches to one from below, the optimal incentive compensation ratio also approaches to one:

$$\lim_{b\to 1}\frac{\alpha_1}{\alpha_2}=\lim_{b\to 1}\frac{(a_1+b)^2(1+ba_1)^2+(a_1+b)^2\eta\sigma^2}{(a_1+b)^2(1+ba_1)^2+(1+ba_1)^2\eta\sigma^2}=1$$

This unique behavior is the result of the above conjecture that the importance of cooperation increases with firm risk. A competing assumption would be that importance of co-operation is invariant to firm risk. These two assumptions lead us to the following two testable competing hypotheses:

H1: If b (importance of co-operation) is invariant to firm risk the ratio of CEO to non-CEO incentive compensation increases in firm risk.

H2: When b (importance of co-operation) is increasing function of risk, the ratio of CEO to non-CEO incentive compensation first increases, and then decreases with respect to firm risk.

The predicted shapes of the relationships are depicted in Figure 1. For comparison I show in Figure 2 how the incentive compensation ratio data varies with various measure of firm uncertainty or risk. A visual comparison suggests that H2 is a better fit with the data compared to H1. This is tested more rigorously in the next section.

1.4 DATA AND METHODOLOGY

1.4.1 Sample Construction and Compensation Ratios Definitions

I start with the COMPUSTAT Executive Compensation (EXECCOMP) data for the years 1992-2002 and remove executives lacking data on total compensation (variable TDC1 in

EXECCOMP). All executives within a firm year are ranked on TDC1 to identify the highest paid executive who is not the CEO (from here on referred to as the Rank2 executive). CEO for the firm year is identified using the CEOANN indicator in EXECCOMP. I remove firm years where CEOANN variable is missing, i.e. a CEO is not identifiable. Since, the regression specifications require CEO tenure data, for each CEO where available, I calculate the length of employment with the firm (TENURE) and tenure as CEO (CEOTENR) as of the compensation date from the date the executive joins the firm and the date the executive became the CEO.[8] If TENURE is less than CEOTENR, I check the proxy statements of the firm to get the correct 'joining' dates and 'became CEO' dates and correct these variables. I also remove firm years which have CEOs with negative CEOTENR. I also remove from the sample any data points where the total compensation figure for the CEO or the NCEO is $1 (TDC1 = 0.001) since this leads to extreme outliers in the CEO to non-CEO compensation ratios. Where available, I get firm characteristics data from COMPUSTAT and return data from CRSP. This results in a sample of 14766 firm years.

1.4.1.1 Dependent Variables

The main dependent variable, which I call as CEONXTIN, is the ratio of incentive compensation of the CEO to the incentive compensation of the Rank2 executive. This variable is used as a proxy for α_1 / α_2, the ratio of CEO to Rank2 incentive compensation in the model. Incentive compensation for the CEO, CEOIN, is defined as the sum of dollar values of Stock Grants, Stock

[8] In few cases this anomaly occurs when after a merger the date ' CEO joined firm' is coded as after / around the merger whereas the 'became CEO' date remains as the date when the executive was CEO of one of the merging firms.

Option Grants, Long Term Incentive Plans and Bonuses, granted in a particular year.[9] Incentive compensation of the Rank2 executive is denoted NCEOIN and is calculated similarly. CEONXTIN, CEOIN and NCEOIN are calculated only if at least one of the four components of incentive compensation (as mentioned above) is available for both the CEO and the Rank2 executive, and if the incentive compensation as calculated above is non-zero for both the CEO and the Rank2 executive. I also calculate the Herfindahl Index for the incentive compensation of the 2 executives (CEO and Rank2), using CEOIN and NCEOIN. The sample size for which I can get the incentive compensation ratio CEONXTIN is 13704 firm-years (2408 firms).

Since, top executives are often paid a significant portion of their compensation via long term stock and option grants that vest over a multi year period, these grants might act as multi year compensation incentives. Executives might be given a large stock / option grant in any given year to incentivize them for several years in the future. This could cause sudden jumps in compensation of individual executives in certain years and it is possible that such jumps do not occur at the same time for all executives in the firm. If executive compensation is lumpy, taking yearly compensation ratios might overstate the extent of true variation in these ratios[10].

To mitigate the above problem, I average compensation data for each firm for all the years a given firm exists in the sample. Thus, aggregate CEO incentive compensation (ACEOIN)

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[9] I also use an alternative definition of incentive compensation as 'total compensation minus salary' (TDC1- SALARY). Results using this definition are similar to those reported in the paper.

[10] For example, Steve Jobs the CEO of Apple Computers from 1998 till 2002, is paid $1 as total compensation for years 1998 and 1999 while for years 2000, 2001 and 2002 his total compensation is $600 million, $84 million and $93 million respectively. The CEONEXT variable for the 5 years for Apple varies from close to 0 for 1998-1999 to 139 for 2002. If the compensation of the CEO and the highest paid non-CEO is averaged for the 5 years, the CEONEXT calculated from the average 5 year compensation is 11.07. The latter is a more meaningful comparison of the relative compensation paid to Steve Jobs compared to the non-CEO rather than the annual ratios of 0 to 139.

is calculated as the sum of incentive compensation to the CEO for all the years the firm exists in the sample[11]. Aggregate Rank2 incentive compensation (ANCEOIN) is calculated similarly. The aggregate incentive compensation ratio is then calculated as ACEONXTIN = ACEOIN / ANCEOIN. Similar to firm-year data, I also calculate the Herfindahl Index of for aggregate incentive compensation using ACEOIN and ANCEOIN. The aggregated data sample consists of 2408 data points, one each for the 2408 firms in the sample.

1.4.1.2 Independent Variables – Proxies for Risk

I examine the relationship between CEO to Rank2 incentive compensation ratio and uncertainty in the firm output, using three different measures of risk or uncertainty: firm's market to book ratio of assets (MTOBA), firm's stock price volatility (STKVOL) and standard deviation of firm's accounting returns (SDROA). If higher growth opportunities (as indicated by high MTOBA) lead to higher uncertainty in the firm future output, MTOBA could proxy for the extent to which future output is affected by factors other than managerial effort. MTOBA is calculated as of the date of the compensation data. A second measure of firm uncertainty, STKVOL, is the volatility of the firm's past stock returns. STKVOL is calculated using daily returns for up to 250 trading days prior to the fiscal year end date (date of the compensation data). Finally I use the standard deviation of the firm's annual accounting return on assets[12] for the past 5 years including the year of compensation data.

[11] Defined as $ value sum of Stock Grants, Option Grants, Long Term Incentive Plans (LTIP) and Bonuses.

[12] Defined as Net Income / Book Value of Assets (COMPUSTAT item numbers 172 and 6)

1.4.1.3 Independent Variables - Other Controls

Firm Size: It is well established[13] that executive compensation in general is positively related to firm size. Baker and Hall (2004) argue that CEO incentives as measured by the $ value of CEO equity stake increases with firm size. This should be true for the Rank2 executive as well. Based on this argument alone one cannot posit what would happen to the ratio of CEO to Rank2 incentive compensation as firm size increases. Lazear and Rosen (1981) posit that firms in which managerial output is difficult to measure will evaluate managers by ordinal ranking and such firms are more likely to have a prize component in compensation. Since larger firms are more complex, making monitoring of managers more difficult as size increases, such firms are more likely to have a prize structure in their compensation leading to higher CEO to Rank2 compensation ratio. One way to look at the higher compensation ratio in larger firms is that it acts as an incentive for managers to participate in a more complex tournament.

Since CEOs are more likely than Rank2 executives to have a higher proportion of their compensation that is incentive based[14] and since higher executive compensation as firm size increases comes mainly from stock / option grants[15], one would expect CEO to Rank2 incentive compensation ratio to increase with firm size. Strictly speaking, as total compensation rises with firm size, as long as the proportion of that rise from incentive based compensation, is not less for CEOs than for the Rank2 executives, the incentive compensation ratio should increase with firm size.

[13] See Murphy (1999), especially Figure 3

[14] See Barron and Waddell (2003)

[15] See again Murphy (1999), Figure 3

Past Market Adjusted Performance: Hermalin and Weisbach (1998) argue that CEO bargaining power depends on his / her perceived ability as compared to potential replacement / successors. If an executive team has performed well in the past, especially relative to the market or industry, the perceived value of the CEO and the Rank2 executive increases. In an efficient labor market this should translate into higher pay for both executives, both incentive based and fixed. If firms reward (or punish) CEOs and Rank2 executives similarly for past firm performance, there should be no relationship between past firm performance and CEO to non-CEO pay ratios. On the other hand, if the evaluation is asymmetric, it is more likely that the CEO obtains higher rewards for good past performance (lesser punishment for poor past performance). In that case, the ratio of CEO to Rank2 compensation should be positively related to past market / industry adjusted performance.

Executive Ownership: Higher CEO ownership would imply that even without incentive compensation, CEO wealth would be highly sensitive to firm wealth. Jensen and Murphy (1990) show that on average, pay performance sensitivity (PPS) from ownership constitutes 77% ($2.5 out of $3.25) of total CEO PPS.[16] The weight of ownership in total incentives rises as firm size decreases (as average CEO ownership percentage rises). From the point of view of incentive provision, higher ownership could lead to lesser need to incentivize the CEO using fresh stock and option grants. The better incentive alignment resulting from higher CEO ownership should also lower need for monitoring and lead to lower CEO compensation.[17]

[16] The total pay performance sensitivity includes that from compensation, dismissal and ownership

[17] On the other hand, if high CEO ownership leads to managerial entrenchment it could lead to higher CEO compensation. More generally, the extent of CEO ownership and level and form of compensation would evolve endogenously. Core et al (1999) find that CEO compensation is a decreasing function of CEO ownership which suggests that the effect of lesser need for compensation incentives dominates the entrenchment effect.

Similar arguments can be made for ownership of Rank2 executive negatively affecting his/ her incentive compensation. In the sample, average CEO ownership is more than 5 times the average ownership of the Rank2 executive. A higher CEO to Rank2 ownership ratio would imply a higher (negative) effect of ownership on CEO compensation than on Rank2 compensation. Thus I expect the CEO to Rank2 ownership ratio to be negatively related to the CEO to Rank2 incentive compensation ratio.

I also examine CEO and non-CEO ownership separately instead of using the ratio of ownership. If CEO ownership is negatively related to CEO incentive compensation but only weakly related to Rank2 incentive compensation, I expect CEO ownership to be negatively related to the CEO to non-CEO compensation ratio. It is possible that Rank2 ownership is positively correlated with CEO ownership (correlation coefficient between the two in the data is only 0.11). If that is the case, higher CEO (and Rank2) ownership would be negatively related to incentive compensation for both the CEO and Rank2 executive and unrelated to the incentive compensation ratio.

CEO Tenure: Firms hire a new CEO (internally or externally) with only imperfect information about the CEO's ability and her fit with the new job. Over time, the signal regarding CEO ability and fit becomes clearer. If the revealed quality of the CEO is above a certain threshold, the CEO continues, else she is fired and the firm searches for a new CEO. This process implies that CEOs who survive in their jobs longer are on average better quality managers than CEOs who get booted out earlier.[18] Hermalin and Weisbach (1998) model CEO and board evolution and argue

[18] One could argue that higher CEO tenure reflects entrenchment or weak governance. But, consistent with Hermalin and Weisbach (1998) model, most CEOs start as new CEOs (except maybe founders) and it is higher CEO ability that enables the

that higher the perceived ability of the CEO as compared to potential successors, higher the CEO influence over the selection of new board members. Such CEOs are also likely to survive longer. Also, as the tenure of the CEO increases, assuming a non-zero board turnover, the proportion of board members hired during the CEO's realm should increase. Higher CEO tenure is thus likely to be related to higher influence over board decisions like executive compensation. This influence is more likely to be reflected in CEO compensation and only to a lesser extent in the compensation of other top executives. I expect the ratio of CEO to non-CEO incentive compensation to be positively related to CEO tenure.[19]

CEO is Board Chair: One could argue that CEOs who take on the Chair position do so because it results in more efficient information sharing with the board and because the CEOs are more capable to handle the additional responsibilities. An alternative view is that of an entrenched CEO who takes on the position of the board Chair.[20]

Irrespective of which of the two views hold, one would expect CEO compensation to be higher when the CEO is also the board Chair. Core et al. (1999) show that this is indeed the case. Similar to the effect of CEO tenure, the fact that the CEO is the board chair is likely to have higher positive effect on CEO's own compensation than on the compensation of other top executives. I expect the CEO to non-CEO pay ratio to be higher when the CEO is the Chair.

CEO to survive long and possibly get entrenched. If the CEO was of poor quality he / she would have been shown the door much earlier with little possibility of entrenchment.

[19] Similarly, the tenure of non-CEO executives should be related to their compensation, but since the data on this is scarce for most executives, I do not use the same. Also, if turnover of top executives is correlated, so should be their tenures at a firm.

[20] The evidence to sort out which of the two views is more close to reality is inconclusive. Goyal and Park (2002) show that when the CEO is also the board Chair, CEO turnover is less sensitive to firm performance than when she is not. On the other hand, Zhao and Lehn (2006) show that the probability that bad bidder CEOs are replaced does not depend on whether the CEO is the board Chair. Brickley et al. (1997) show that, firms that separate CEO and Chair positions do not perform better or worse than firms that have a single person holding the two positions.

Non-CEO director: Similar arguments as above (for CEO Chair status) hold regarding the director status of a non-CEO executive. I expect the director status to be associated with higher incentive compensation for the non-CEO executive and thus negatively associated with the CEO to non-CEO incentive compensation ratio. One could also look at the director status of the non-CEO executive as indication of higher importance of co-operation, associated with a lower CEO to Rank2 incentive compensation ratio as predicted by the model.

Industry Effects: Industries could differ on dimensions like their growth opportunities, extent and type of competition which could lead to different demands on talents from their managers and their risk taking behavior. All this could lead to different organizational and industry structures and managerial incentives. The relative importance of CEOs and other top executives might vary with industry. Industry concentration for example might affect the number of prospective employers, entry and exit of firms and lead to different labor market opportunities for the CEO and other top executives. I control for industry concentration by using the Herfindahl Index of industry sales, for any given firm –year. To control for industry effects not captured by sales concentration, I use industry dummies based on industry definitions by Kenneth French. I classify firms into the 48 industry groups defined by Kenneth French based on the firm's primary SIC code as of the compensation date.

1.4.2 Descriptive Statistics: Firm Characteristics, Compensation Levels and Ratios

As seen from Table 1 - Panel A, median CEO incentive compensation (sum of stock grants, option grants, bonuses and Long Term Incentive Plans) is $0.6 million which is about 30% of the median total CEO compensation of $2.06 million. On average the Salary and Incentive compensation as defined above account for 64% of the total compensation for the CEO and 61%

of total compensation for the Rank2 executive. The remaining 36% compensation for the CEO and 39% of compensation for the Rank2 executive I cannot classify definitively as being fixed or incentive based[21].

As seen from Panel C, the median CEO makes 1.62 times the total compensation of the Rank2 executive but 1.72 times Rank2 incentive compensation. The corresponding figures for aggregate data are 1.56 and 1.63 respectively. These ratios are consistent with Barron et al. (2003) who find that the proportion of incentive compensation increases with rank in the firm. A comparison of Panel C and Panel D shows that the standard deviation of aggregate compensation ratios (ACEONXT and ACEONXTIN) are much lower (1.13 and 2.4 respectively) than the corresponding figures for the firm-year rations (1.72 and 7.13). This is not surprising as one effect of aggregating data is to reduce the variation in firm-year compensation ratios, caused by stock / option grants to CEOs and Rank2 executives that do not occur at the same time.

The median CEO owns 5 times as many shares as the shares owned by the Rank2 executive (Panel E) and is 5 times more likely as the Rank2 executive to have 5% or more ownership stake in the firm. (Panel I). At the mean (median) a CEO has been in office for 91 (72) months and has been employed with the firm for 221 (195) months. Thus at the mean (median), the CEO has been with the firm for 130 (123) months before becoming the CEO. In 1149 firm years (about 8.39% of the sample) the CEO has been in office for less than a year. For 67.8% of the sample the CEO is also the Chairperson. This is less than the 83.6% figure reported

[21] The two compensation components from EXECOMP that account for all or most of this remainder are 'Other Annual' (OTHANN) and 'All Other Total' (ALLOTHTOT), which include components like perquisites, loan forgiveness, retirement contributions, tax reimbursements, payments for unused vacation, payments for cancellation of stock options and other miscellaneous compensation components

by Shivdasani and Yermack (1999) for a 1994 sample of Fortune 500 firms (excluding Utilities and Financials) and 80.46% reported by Goyal and Park (2002) for a 1992-96 sample of 3694 EXECCOMP firms years. I believe that the lower percentage in my sample is due to two reasons. One, unlike Shivdasani and Yermack (1999) and Goyal and Park (2002) my sample contains data till 2002. The proportion of CEOs who hold Chair positions has declined steadily over time (from 74.43% in 1993 to 64% in 2002 for my sample) leading to the lower figure.[22] Two, my sample consists of all EXECCOMP firms for which I have compensation data and thus includes smaller firms from the S&P Mid-Cap and Small-Cap categories, as opposed to Shivdasani and Yermack who have Fortune 500 firms only. Similar to the percentage of CEOs who are board Chair, the percentage of highest paid non-CEOs who are directors also steadily decreases from 59.7% in 1993 to 34.5% in 2002.[23] Clearly the trend in the past decade has been towards more independent boards and separation of the CEO and Chair positions. The median firm-year had sales of $1.23 billion and MVA of $2.54 billion. The largest MVAs are in excess of $1 trillion which are firms in the Banking and Financial services industry. The mean (median) MTOBA is 2.09 (1.46).

1.4.3 Regression Model Description

The analysis proceeds as follows. For univariate analyses, I first split the sample at the median of the 3 risk proxy variables, MTOBA, STKVOL and SDROA and analyze whether the incentive compensation ratio is different for high versus low values of these risk values (Table 2). I then analyze the compensation levels of the CEO, Rank2 executive and executives Ranked 3 to 5 on

[22] The percentage for 1992 is 75%. I do not include this year for comparison due to the much smaller number of large firms (200) in 1992 as compared to rest of the years (greater than 1000) in the sample.

[23] I do not investigate how much of this is due to newer firms (with less insider representation and separation of CEO and Chair positions) entering the sample and how much is due to surviving firms moving towards separation of CEO and Chair positions and lower number of insiders on the board.

the set of explanatory variables to make sure that these variables have explanatory power for compensation levels (Table 3).

I then run regressions using the incentive compensation ratio for both yearly and aggregate data (CEONXTIN and ACEONXTIN) as the dependent variables and each of the three risk variables as explanatory variables, along with the other controls. As expected the incentive compensation ratio shows no linear relationship with the risk variables (Table 4). Then I plot the incentive compensation ratio data with each of the 3 risk proxies. These are shown in Figure 2. The pattern of this empirical plot looks very similar to the inverse U-shaped pattern I predict using the model.

I then inspect each of the 3 plots in Figure 2 to identify flex points at which the relationship between the incentive compensation ratio and the risk variables changes shape. I then split the sample at these values of the risk variables and run the regressions separately for each of these split samples (Table 5). Finally, following the methodology of Morck et al. (1988), I form piecewise linear variables, for each of these 3 risk variables, and run the regressions using these piecewise variables instead of the risk variables (Table 6). I report all the analysis using aggregated incentive compensation ratios, though the results are similar for firm-year incentive compensation ratios.

1.5 RESULTS

1.5.1 Univariate Analysis

As seen from Table 2- Panel A, the CEO to Rank2 incentive compensation ratio, CEONXTIN is not significantly different for lower than versus higher than median values of MTOBA,

STKVOL and SDROA. The results with respect to Herfindahl index of compensation are mixed. Low MTOBA firms have higher HHIIN than high MTOBA firms, while low SDROA firms and low STKVOL firms have lower HHIIN than high SDROA and high STKVOL firms respectively. Also for MTOBA, the results for HHIIN and CEONXTIN are not in the same direction. While lower MTOBA firms have significantly higher HHIIN, indicating higher dispersion in compensation, the compensation ratio for these firms is on average lower than the high MTOBA firms, though the latter difference is not significant. I suspect that the inconsistency in results for HHIIN is because unlike compensation ratios, HHIIN does not increase universally when CEO compensation is higher compared to Rank2 executives. The Herfindahl Index of compensation is a good measure of dispersion. However it does not distinguish between high and low compensation ratios that cause the same dispersion. For example a CEONXTIN value of 2 or 0.5 would both lead to same value of HHIIN.[24]

Since firm-year compensation ratios are more dispersed, it makes sense to look at aggregate compensation ratios to see how CEOs and Rank2 executives fare with respect to each other over a longer period. As seen from Panel B, the differences in CEONXTIN continue to be insignificant for low versus high MTOBA, SDROA and STKVOL. The difference in HHIIN is reduced in significance.

With respect to ownership (Panel C), as expected the mean CEONXTIN is lower when CEO ownership is higher than median compared to when ownership is less than median, though this difference is not significant. CEONEXIN is significantly lower when the Rank2 executive ownership is greater than median, which implies than when the Rank2 executive has high ownership, the incentive compensation of the two executives is closer to each others levels. This

[24] If I include only data where CEONXTIN is greater than 1, only an increase in CEONXTIN will correspond to increase in the dispersion measure HHHIN. For such cases, the results using HHIIN are similar to with those using CEONXTIN

is consistent with the model if higher Rank2 ownership is taken as an indicator of higher importance of co-operation. When the CEO is board Chair, she does not get higher incentive compensation as compared to the Rank2 executive. However, when the Rank2 executive is on the board, she gets incentive compensation that is more close to CEO levels (CEONXTIN is lower), again consistent with higher importance of co-operation in such cases. Consistent with results for CEONXTIN, the distribution of incentive compensation between the CEO and the Rank2 executive, as indicated by HHIIN, is less equitable (one of the Executive,. Typically the CEO gets more)[25] when the CEO is the board chair, when the Rank2 executive is not on the board, and when the CEO or the Rank2 executive have less than median ownership in their firms.

To further confirm the ownership results in Panel C, I test if the CEO and Rank2 ownership are different when the CEO executive gets more versus less incentive compensation than the Rank2 executive. As reported in Panel D, CEOs who get less incentive compensation than Rank2 executives have significantly higher ownership than CEOs who get higher incentive compensation than Rank2 executives. Further, the Rank2 executive ownership is not different between the two sub-samples, indicating that the phenomenon of CEO getting less incentive compensation than Rank2 is unlikely to be related to Rank2 ownership and is mostly driven by higher CEO ownership.

1.5.2 Characterizing Compensation

Before moving on to the regressions for the incentive compensation ratios, I test whether the compensation levels in the data are explained by the explanatory variables I have chosen. As

[25] The CEO is the highest paid executive in about 90% of the sample firm years.

seen from Table 4, total compensation for the CEO, Rank2 executive and executives ranked 3 to 5 (i.e. all top 5 executives), is as expected, positively related to firm size, MTOBA and past performance. Industry concentration seems to be more related to compensation of non-CEO executives (ranked 2 to 4) than that of CEOs. One implication of this could be that these executives are more likely to compete in the executive labor market for the same industry while CEOs are more likely to compete in the executive labor market across industries**.**

CEO tenure is unrelated to own compensation, but negatively related to compensation of other executives. This suggests that in firms with longer tenure CEO, other top executives fare worse. One explanation of this could be that in such firms there exists an 'heir apparent'. Fee and Hadlock (2003) argue that in firms with an 'heir apparent', the non-CEO executives are more likely to look for positions elsewhere. Irrespective of whether or not there is a heir apparent, in firms which the CEO stays too long, other executives are more likely to look for positions elsewhere. Thus, those who stay are likely to be executives with lower outside opportunities and are thus paid lower compared to their counterparts in other firms. This inference is consistent with Bates et al. (2000) who argue in family firms, where succession to the CEO position is less likely for other (non-family) top executives, the compensation of these executives is lower than their counterparts in non-family firms.

As expected, CEO ownership is negatively related to CEO compensation levels. Compensation of all top 5 executives is positively related to CEO's board Chair status, while the Board status of the Rank2 executive is positively related to only that executive's compensation.

1.5.3 Relative Incentive Compensation

1.5.3.1 Test for Linear Relationship

Looking at Figure 2 it is clear that the relationship between the incentive compensation ratio and the risk variables MTOBA, SDROA and STKVOL is non-linear. However, I still test if the coefficient on any of these 3 variables is significant in a linear specification. The results in Table 5 indicate that none of these risk variables are related to the incentive compensation ratio, either for firm-year data or for aggregated data. Only stock volatility (STKVOL) is significant in the column with CEONXTIN as the dependent variable. Firm size is unrelated to the incentive compensation ratios in all specifications, indicating that the ratio of CEO to Rank2 incentives does not change with firm size, though each individual executive's compensation increases with firm size.

Market adjusted past performance is positively related to CEONXTIN, indicating that better stock price performance translates into higher incentive based rewards for the CEOs as compared to Rank2 executives. Holmstrom (1979) argues that the importance of a particular measure for executive compensation decreases as the measure becomes a more noisy proxy for evaluating the executive's actions. The result is consistent with stock performance being a less noisy signal for evaluating CEO performance than it is for evaluating the performance of the Rank2 executive**.** As expected, CEO tenure and Board Chair status are both positively related to incentive compensation ratio, indicating that CEOs who are board Chair and CEOs with longer tenure are rewarded with higher compensation as compared to other executives within the firm, and this higher compensation has a significant incentive component as well. As expected, CEO ownership and Rank2 ownership are respectively negatively and positively related to

CEONXTIN, indicating that controlling for firm and other executive characteristics, executives with higher ownership stake are likely to receive lower incentive based compensation.

Consistent with the model, I find that the director status of the Rank2 executive is negatively related to the incentive compensation ratio. This indicates that when co-operation between the Rank2 executive and CEO is more important – i.e. when the former is on the board (the CEO is almost always on the board), the level of incentive compensation of the two executives is more similar.

1.5.3.2 Test for Non-Linear Relationship – Split Sample

I next test if there exists, as indicated in Figure 2, a non-linear relationship between the incentive compensation ratios and firm risk measures. I am specifically interested in the relation between incentive compensation ratios and firm risk, when the latter is high. With high levels of uncertainty in the firm output, tournament theory predicts a higher compensation ratio to motivate managers to compete in the more difficult and complex tournament. In contrast, the model posits higher importance of co-operation as firm risk increases and predicts lower dispersion in top executive compensation for higher levels of firm risk.

In Table 5, I report results for samples split based on the values of the 3 risk variables to test if the relationship between compensation ratio and firm risk measures is different at high versus low levels of these risk measures. I report results for ACEONXTIN (aggregate data), though the results for CEONXTIN are similar. To identify the value of the risk variable, at which the sample should be split, I first regress ACEONXTIN against all the variables (including time and industry dummies) in the specification of Table 4, except any of the risk variables (MTOBA, STKVOL and SDROA). I then plot the residuals from this regression against each of the 3 risk measures. These plots look very similar to those in Figure 2, indicating that the non-linear

relationship between incentive compensation ratios and risk measures remains even after controlling for other characteristics. I then visually inspect each plot to identify the value of the risk variables, at or close to the peak of the inverse-U shaped plots. In the spirit of Morck et al. (1988) I try several points close to the peak, at which to split the sample and choose the one that gives us the best possible fit[26]. I expect that for values of the risk variable below this peak, CEONXTIN will be positively related to the risk variable, and for values of the risk variable above this peak, it will be negatively related to the same.

The values of MTOBA, SDROA and STKVOL, at which the sample is split, are all lower than the corresponding median values of these variables respectively, indicating that there are significantly higher number of sample data points above the peak than there are below the peak. This is again consistent with the shape of the α_1 / α_2 versus σ graph based on the model in Figure 1, which is skewed towards the right.

As seen from Table 5, for higher values of the risk variable (above the peak), each of the 3 risk variables are negatively related to the incentive compensation ratio, which is consistent with the model. For values below the peak, the risk variables are unrelated to the incentive compensation ratio. This, along with the result on compensation levels in Table 3, suggests that at lower values of uncertainty, higher uncertainty is related to higher incentive compensation for both the CEO and the Rank2 executive, with their relative incentive compensation remaining the same. At higher values of uncertainty, higher importance of co-operation is likely to be associated with lower differential between the CEO and Rank2 incentive compensation. Again, as predicted by model, the director status of the Rank2 executive is negatively related to the

[26] i.e. The highest R-square. For example, I report results with sample split at aggregate MTOBA = 1.2125 but the results are similar if I use any value between 1.20 and 1.25.

compensation ratio, consistent with higher importance of co-operation being associated with closer compensation levels.

1.5.3.3 Test for Non-Linear Relationship – Piecewise Linear Specification

In Table 6, I report results of analyses similar to that in Table 5, but instead of splitting the sample based on the residual plot as mentioned above, I use two piecewise linear variables, following the procedure in Morck et al. (1988). Again, similar to Table 5, I observe that the piecewise variables for higher values of the risk are negatively related to the incentive compensation ratio, while those for lower values of risk are unrelated to the incentive compensation ratio. CEO ownership, Chair status and director status of the Rank2 executive are significant in the direction expected.

1.5.4 Robustness Checks

1.5.4.1 Definition of Incentive Compensation

As mentioned in section 4.2 and footnote 21, slightly over one third of the total compensation paid to the CEO and the Rank2 executive consists of components like perquisites, loan forgiveness, retirement contributions, tax reimbursements and other miscellaneous components.[27] As mentioned in footnote 9, page 12, I alternatively define incentive compensation as total compensation (TDC1) less SALARY. This definition implies that all other components of compensation except salary are incentives provided to the CEO. The results using this alternative definition are same as those reported.

[27] To the extent these reported by the firm as part of the total compensation and included in EXECOMP pay components like "OTHANN" and "ALLOTH"

1.5.4.2 Alternative Definitions of the Independent Variable

The model derives proposition for the incentive compensation ratio α_1 / α_2 assuming that the executive with the higher impact gets higher incentive compensation ($a_1 > a_2 = 1 > b > 0$). Using the ratio CEONXTIN assumes that the CEO has a higher impact than the Rank2 executive and is the highest paid executive in the firm. However in about 11% of the sample, this is not the case. Strictly speaking, the empirical proxy for the ratio α_1 / α_2 should be the ratio of compensation of the highest paid executive (irrespective of whether or not that executive is the CEO) to that of the compensation of the second highest paid executive.

To take into account the above, I perform two different sets of analyses. First, I include only those cases where the CEO is the highest paid executive. Second, for each firm year I identify the executives with the highest and second highest incentive compensation and use the ratio of the highest incentive compensation to second highest incentive compensation (similar ratio for aggregate data) as the dependent variable. In most cases (in 64% of the sample, or 7% of the sample) this is equivalent to inverting the CEONXTIN ratio when it is less than one.[28] In both the cases, the results are similar to those reported.

1.6 CONCLUSIONS AND DISCUSSION

Most existing principal-agent models focus on a single agent and similarly most empirical tests focus on investigation of only CEO compensation. Relatively very little attention has been given to the distribution of compensation among the top executives or to explaining the cross-sectional variation in observed incentive compensation ratios.

[28] In the remaining 36% of the cases, or 3% of the sample, the CEO is not even the second highest paid executive. The sample already excludes cases where the CEO is paid a nominal compensation of $1 (TDC1 = 0.001).

This chapter develops and tests a model of compensation distribution in the executive suite by explicitly considering the impact of co-operation among executives on their relative compensation. Consistent with predictions from existing principal agent models and empirical tests by Aggarwal and Samwick (1999), the model predicts both α_1 and α_2 (which denote the proportion of firm output that is paid as incentive compensation) to decrease with firm risk. However the model goes further and predicts a non linear relationship between firm risk and relative compensation of the CEO to the other top executives.

To empirically examine the model predictions, I first characterize the level of executive compensation and show that the data conforms to previous research that examined CEO compensation. I then test for a non-linear relationship between the CEO to Rank2 executive incentive compensation ratio and various measures of firm risk. Specifically, I observe that for low (high) levels of firm risk, the incentive compensation ratio increases (decreases) with risk. This pattern is consistent with the model, which assumes that the importance of cooperation among executives increases with firm risk.

The model adds to the literature by depicting the significance of cooperation among executives and its implications for optimal incentive contracting. For parsimony, I have not considered a more general model explicitly contrasting tournaments and cooperation, which constitutes a direction for further research.

2.0 TARGET BOARD CHARACTERISTICS AND DISTRIBUTION OF TAKEOVER GAINS BETWEEN TARGETS AND ACQUIRERS

2.1 INTRODUCTION

The literature on governance usually takes one of the following two views with respect to the relation between firm governance characteristics and firm performance. One view[29] is that governance characteristics are largely optimal and are determined by firm characteristics, including its performance. On the other hand, several researchers argue that certain governance characteristics are desirable and are associated with better firm performance.[30]

In this context, the role of board independence in corporate decision making has received considerable academic as well as regulatory attention. Particular attention has been paid to board independence with recommendations by regulatory bodies regarding their composition. In their survey on board literature, Hermalin and Weisbach (2003) argue that board independence is not related to firm financial performance, but independent boards seem to make different decisions when it comes to issues like acquisitions, executive compensation, CEO replacement and poison pills. Their conclusion regarding board independence is based mainly on evidence from Shivdasani (1993), Cotter et al. (1997) and Byrd and Hickman (1992).

If targets board independence is associated with a higher premium for the targets, it is not clear what the source of this higher premium is. The higher premium could be either because such takeovers result in higher overall gains or because of better negotiating ability of the target independent board or both. The first case can be interpreted as independent target boards

[29] See for example, Demsetz and Lehn (1985), Himmelberg Hubbard and Palia (1999), Demsetz and Villalonga (2001), Boone et al. (2004).

[30] See among others, Morck, Schliefer and Vishny (1988) and Gompers, Ishi and Metric (2003).

approving takeovers with higher potential gains. In this case higher gains to the target should not be related to lower acquirer gains. If the higher premium is because of better negotiating ability of the target such that the targets (acquirers) obtain a higher (lower) proportion of the total gains from the takeover, then higher target gains should be related to corresponding lower gains for the acquirer.[31]

Competition in the market for corporate control has different implications for acquirers than for targets, when the target or acquirer board makes a bad takeover decision. If acquirers with non-independent directors make worse (than acquirers with independent boards) takeover decisions or overpay to acquire, they are likely to face little if any competition in the market for corporate control. But it is a different matter when a target board approves a takeover offer that is not optimal.

If independent target boards negotiate a better premium than non-independent boards and targets benefit at the expense of the acquirers, then the corollary is that non-independent target boards somehow agree to accept a lower-than-optimum premium. The implication is that the acquirers in such cases, on average, walk away with a better deal by offering a premium that is lower than what an independent target board would have bargained for. If they are able to do so, the market for corporate control is less than competitive, because other potential acquirers pass up the opportunity to increase the bid and still make positive gains[32]. Evidence from most

[31] When total wealth gains from the takeover are positive, a higher share is better than a lower share or not doing the deal. On the other hand, if total wealth gains are negative, then a lower share (defined as Target Wealth Change/ Total Wealth Change, for more explanation see Appendix B and Section 3.2) is better than a higher share and a negative share is better than not doing the deal.

[32] Unless the first acquirer is making losses even when offering the so called 'lower' premium to non-independent board targets, but then the implication is that the acquirer would have made an even higher loss if an independent target board extracted a higher premium.

takeover studies[33] suggests that acquirers exhibit zero or insignificant abnormal returns when acquiring public targets. Andrade et al. (2001) suggest that the presence of (or potential for them to appear) competing bidders might explain why targets are able to extract most of the gains from the transaction. Thus it seems that competition (actual or potential) in the market for corporate control drives acquirer returns close to zero. In a recent study, Bange and Mazzeo (2004) find no relation between target board independence and returns. Even though they do not analyze acquirer returns, their results suggest that in sample of mergers, targets with independent boards perform no better than those with non-independent boards.

It thus seems unlikely that acquirers can 'get away' by offering a lower-than-optimum premium when they acquire targets with non-independent or independent boards. More plausibly, the optimum premium in each case is determined by the transaction characteristics. Acquirers on average are likely to pay a competitive premium whether they acquire targets with independent or non-independent boards.

Cotter et al. (1997) argue that for their sample of tender offers, independent target directors enhance target shareholder wealth and these gains come at the expense of bidder gains. In this chapter, I reexamine whether these results continue to hold for a sample consisting primarily of mergers. To test whether these targets gain at the expense of acquirers, I examine acquirer returns and the share of targets and acquirers in the total wealth change related to these mergers. I use a sample of takeovers with large relative size of targets to acquirers to enable better detection, if any, of the effect of target premium on acquirer returns. Since my sample contains mergers where the targets are large relative to their acquirer, it contains several Mergers of Equals (MOEs). Wulf (2004) concludes that in (MOEs), target CEOs sacrifice a portion of the

[33] Jensen and Ruback (1983), Jarrell, Brickley and Netter (1988), Andrade, Mitchell and Stafford (2001), and Bruner (2003).

premium for a position on the merged company, with the combined returns being no different than that for a matched sample. The implication is that in such cases, the acquirers should fare better since target returns are lower while combined returns are not. I extend the analyses in Wulf (2004) in three important ways.

First, I test whether acquirer returns and the share of the target in total wealth change are related to the target CEO being the CEO of the merged company. Second, unlike her sample, I have non-MOEs as well. I test whether target returns, acquirer returns and target share in total wealth change are related to its CEO becoming the CEO of the merged firm, for non-MOEs. Third, I test how returns for the targets and acquirers are related to the target CEO being a board member of the merged firm. If, as posited by Wulf (2004), target CEOs sacrifice premium for position when they acquire CEO positions in the merged firm, it is interesting to test if they do so when they are mere board members in merged firm.

I also analyze the role of target board independence in the context of its CEO obtaining a board or CEO position in the merged firm. If target premiums are lower when its CEO becomes the CEO of the merged firm, it is interesting to test if target board-independence has any effect on premiums in these cases. If target board independence is associated with higher premium for the target, then it should be negatively related to the probability of the target CEO being the merged firm CEO (and in the process lowering target premium). When the target firm CEO becomes the merged firm CEO, an independent board might mitigate the premium lowering effect of this event by negotiating a better deal with the acquirer. I test whether this is the case.

I find that unlike the results in Cotter et al. (1997), target board independence is unrelated to target premium and cumulative abnormal returns (CARs). This result persists for different event windows around the announcement date. Other target board and ownership characteristics; board

interlock between the target and acquirer, number of directorships for target outsider directors and target ownership by board insiders, board outsiders, affiliated and unaffiliated blocks are unrelated to target premium or acquirer returns. This suggests that these characteristics are unrelated to total (target + acquirer) shareholder gains when the target is large relative to the acquirer. I find that target industry adjusted ROA positively related to premium. Since historical target ROA should be already reflected in its pre takeover stock price, it is not immediately clear why this should be the case. One explanation is that targets that are above average performers in their industry lead to higher synergies which drive the higher premium. An alternative explanation is that acquirers tend to overpay for targets with above industry-average performance. Evidence from acquirer returns in this paper suggests the latter; acquirer returns are negatively related to target industry adjusted ROA.

Similar to Wulf (2004), I find the MOE indicator to be negatively related to target premium. This, plus the lack of relation between the MOE indicator and acquirer return, suggests that mergers of similar sized companies, create less value than comparable non-MOE mergers. Examining acquirer returns, I find that, similar to target returns, they are unrelated to target board independence, suggesting that acquirers do not systematically fare better or worse when they acquire targets with independent or non-independent boards. Acquirer returns are positively related to target insider director ownership and negatively related to target outsider director ownership. One might conclude that this suggests that high ownership by target outsider directors might make them more likely to negotiate a higher premium for the target, resulting in a lower return for the acquirer. But target outside director ownership is unrelated to target premium, even though the sign on the coefficient is negative. This suggests that higher ownership by target directors is related to lower overall (target plus acquirer) gains from the

takeover. Target industry adjusted ROA is negatively related to acquirer returns suggesting that acquirers are worse off when they bid for targets that are above average industry performers, perhaps because of the higher likelihood of overpayment. I find that acquirer returns are not higher in MOEs, suggesting that the lower target returns in such cases do not imply a higher gain to the acquirers but result from these takeovers having lower overall gains.

Analyzing targets' share of the wealth change around announcements, I find that consistent with the results for target returns, targets' share of total (target + acquirer) wealth change is unrelated to its board independence or other board and ownership characteristics.

With respect to target CEO status post-merger, I find that when the target CEO is on the merged company board (might or might not be the CEO of the merged company) targets share in the wealth change is unaffected when the total wealth change from the takeover is positive. Targets have a higher share in the loss however, when the total wealth change from the takeover is negative. In such takeovers, target board independence is negatively related to target's share of wealth change. Lower target share in such cases implies that the target obtains a better deal. This suggests that independent target boards might protect targets in takeovers with negative total wealth change, especially when the target CEO is on the merged company board.

When the target CEO is the merged company CEO, I find that target returns are lower. The lower target premium does not imply that acquirers fare better as their returns are unrelated to the target CEO being the CEO of the combined firm. Thus, from the point of view of the acquirer, offering the combined firm CEO position to the target CEO seems to be an optimum decision. This suggests that overall gains from the takeover are lower when target CEOs are CEOs of merged firm. This is similar to the result in Wulf (2004). However the Wulf (2004) results are for a sample consisting of MOEs only, while the sample here consists of MOEs as

well as non-MOEs. However the reduction in premium when the target's CEO becomes the merged firm CEO is higher for MOEs than that for non-MOEs. Further, this reduction in premium is not related to target board independence. Thus independent boards do not appear to mitigate the lower premium targets obtain when their CEOs are CEOs of the merged firm. Overall, I find that target board independence is unrelated to target premium or CAR, acquirer CARs, and the share of targets in wealth change.

The rest of the chapter proceeds as follows. In section 2.2, I review some of the literature on board composition and present arguments on the effectiveness of board independence in the context of takeover decisions. In section 2.3, I present my sample selection procedure, methodology and data summary. Section 2.4 present the analyses results and section 2.5 the results for robustness checks. Section 2.6 concludes.

2.2 TARGET BOARD INDEPENDENCE AND ANNOUNCEMENT RETURNS

Fama (1980) and Fama and Jensen (1983) argue that outside directors have incentives to build reputation as expert monitors, which might make them act in the best interest of shareholders. On the other hand, Hermalin and Weisbach (2003) suggest that a reputation for not creating trouble for the CEO might also be important. Empirical evidence regarding the fate of outsider directors in takeovers (Harford (2003)) suggests that most outsider directors get fired when their firm gets taken over and that they hold fewer director positions in the future, implying that the loss of a directorial seat is difficult to replace. Harford concludes that even accounting for outsider director ownership, the net financial effect of a completed takeover is negative for outsider directors. In the event of a takeover bid, these directors thus have little incentive to negotiate for a higher premium if successful completion means a net loss. In fact, outsider directors of poorly performing target firms have higher incentives to complete a merger rather than negotiate a

higher premium and risk non-completion, because completion (termination) of merger results in a higher (lower) number of directorships in the future for these outside directors.

If this is the case it is not clear why, controlling for ownership, target outsider directors have better incentives than insiders to negotiate a higher premium. In fact, insider directors, by virtue of their higher ownership are more likely to negotiate a higher premium as they stand to gain much more than outside directors from a higher takeover premium.[34] Other than their gains from ownership, insider directors are more likely to get compensated in case of change of control via golden parachutes (GP) and similar arrangements. Walkling and Long (1984), Lambert and Larcker (1985) find that existence of golden parachute arrangements has a positive effect on the reaction of target management to takeover bids. Lefanowicz et al. (2000) argue that managers (which should include insider directors) negotiate for higher premium to compensate for lost compensation. In their sample of acquisitions from 1980-1995 they find that 59% of target managers had some form of GP arrangements. Though, I am not aware of any research that documents such compensating arrangements (in event of a change of control event) for outside directors, such arrangements are likely to be rare if any.

Empirical evidence on the relation between target board independence and premium is scarce and mainly comes from studies regarding tender offers. Byrd and Hickman (1992) examine 128 tender offer bids from 1980-1987 and find that acquirers who have independent boards have higher announcement returns than those with non-independent boards, suggesting that independent boards make better (or 'less bad') acquisition decisions. Cotter et al. (1997) using a sample of 169 tender offers for 1989-1992, conclude that independent target boards enhance target shareholder wealth during tender offers and they do this by obtaining higher

[34] In my sample, the average ownership of insider directors is more than 8 times that of the outsider directors.

premiums and not by affecting the likelihood of takeover success. They further suggest that higher returns to the targets with independent boards come at the expense of acquirers and not from higher overall takeover gains. However, there is no study that examines whether target board independence is related to premium in mergers and whether this relation has sustained in the late 1990s. There is little reason to believe that the incentives of target outsider directors would be different in the case of a merger versus in a tender offer.

2.3 DATA AND METHODOLOGY

2.3.1 Sample Construction

The main aim of this paper is to reexamine whether target board independence is related to higher target returns around takeover announcements and whether the higher target returns accrue at the cost of their acquirers. For targets that are small as compared to the acquirer, it would be difficult to detect the effect of higher or lower target premium on acquirer returns due to noise in the latter. To better observe the effect of target returns on the acquirers, I choose takeovers where the target market value of equity (TMVE) is large relative to the acquirer market value of equity (AMVE). To ensure that the takeovers selected based on largest relative size are not clustered in few particular years, I take 25 takeovers each year from 1993-2001[35]. To ensure a manageable sample size because of data collection required from proxy statements, I limit the sample to 25 takeovers per year or 225 in total.

[35] The selection procedure I use ensures even spread across years and significantly lesser industry clustering than selecting the largest 225 relative size takeovers for the entire period from 1992-2001. Using the latter procedure, about 68% of takeovers are in the three year period from 1997-1999, clustered mainly in the banking and telecom industries.

There is evidence that the percentage shares acquired in the takeover and the prior ownership of acquirer in the target (toe-hold) are related to target premium and acquirer returns[36]. In cases where acquirer has a toe-hold, the acquirer ownership might give it an influence over the decision making process of the target board. Because the aim of this paper is to analyze difference in decision making by independent versus non-independent target boards, I abstract from any influence the acquirer might have based on its ownership in the target firm. Similarly, percentage shares acquired in the transaction might affect premium. In cases where acquirers acquire less than 100% (either because of toehold or because of its intention to acquire less than 100% or because it is a multi-stage acquisition) it is difficult to get a complete and accurate measure of the premium that the target might receive for 100% of its shares. To remove the difficulty in measuring premium in cases where acquirers make less than 100% acquisitions or purchase shares in the target in more than one bid, I include only those takeovers where the acquirer has zero[37] ownership in the target before the announcement and 100% ownership after the merger completion. This procedure also ensures that I include only completed mergers in my sample.

For each year from 1993 to 2001, I identify takeovers from the SDC database which have the required characteristics[38] and rank them by the ratio 'Target Market Value of Equity / Acquirer Market Value of Equity (TMVE / AMVE), where the market values are as of 21

[36] See Betton and Eckbo (2000).
[37] As reported by SDC. I examine the last target proxy statement before the announcement date and eliminate the takeover if the acquirer is listed as a block holder with 5% or more in the target firm. In cases where acquirers might have less than 5% ownership in the target, I rely on SDC data.
[38] Zero ownership by acquirer pre-merger, 100% ownership by acquirer post merger, completed merger and both acquirer and target are publicly listed US companies.

trading days prior to the announcement date[39]. I select the takeover which has the largest TMVE / AMVE and required data from SDC, CRSP, COMPUSTAT and company proxy statements[40].

All data from SDC is verified using merger proxy statements and news searches regarding the deal from Factiva (see sections 3.2 and 3.3 for details on how data for each variable is collected). If the transaction has all the required data, I include it in my sample. I move to the takeover with the second largest TMVE / AMVE and so on, till I have 25 transactions for each year. This procedure results in 225 transactions for the years 1993-2001. I further include seven more MOEs that are in Wulf (2004) but were not included in my sample.[41] The final sample consists of 232 takeovers.

2.3.2 Dependent Variables - Target and Acquirer Returns and Wealth Changes

I verify the announcement date for each transaction using Factiva and form my return measures for various windows around the announcement date using CRSP data. I use raw holding period returns, market adjusted and market model cumulative abnormal returns (CARs). For the latter, I estimate the market model beta using up to 200 (minimum 50) days of daily returns from the period (-250, -50) (trading days) with respect to the announcement date. I also use as a dependent variable,

$$\text{'Target Final Premium'} = (\text{Final Price Paid} - P20) / P20, \qquad \textbf{(1)}$$

[39] Announcement date is verified using Factiva to ensure the correct date of first announcement of the deal is used.
[40] SDC data is as reported in the database, CRSP data is for various windows around the announcement date, COMPUSTAT data is for the last fiscal year of the target prior to the deal announcement. Proxy statement is the last proxy statement in the 12 months period before the announcement date.
[41] Of the MOEs in Wulf (2004), my original sample did not include 8. One of these is in the year 1991 and is not included in my sample. The other 7 were not included because either they were not 100% acquisitions or had some data point missing. Excluding these MOEs does not affect the results.

where P20 is the price per share for target stock 20 trading days before the announcement date and the 'Final Price Paid' is the price per share finally paid to target shareholders, obtained from merger proxies and news searches[42].

Higher (or lower) target gains in a takeover can be associated with a) higher total shareholder (target plus acquirer) gains from the transaction[43] or b) wealth transfer from acquirer shareholders to target shareholders or c) both. It is difficult to determine which of the three scenarios above hold by separately examining target and acquirer returns. Examination of the target's share of total (Target + Acquirer) shareholder wealth gains can potentially indicate whether the target benefits at the expense of acquirers.

When total wealth change is positive, a higher value of 'Target Share' defined as

Target Shareholder Wealth Change / (Target Shareholder Wealth Change + Acquirer Shareholder Wealth Change) **(2)**

is better than a lower value. In this case, a higher share implies higher wealth gains for the target (or acquirer) shareholders. Not doing the deal is better than a negative value of the share, because the latter implies a negative wealth change for your shareholders (target or acquirer) even when the total (Target + Acquirer) shareholder wealth change is positive.

As pointed out by Kale et al. (2003), defining sharing of total (Target + Acquirer) shareholder wealth change between targets and acquirers, is tricky when the total shareholder wealth change is negative. In this case, a lower value of 'Target Share' as defined in (2), is better

[42] An adjustment is made in the price on day -21 for splits and other distributions during the period from day -21 to the merger completion date.
[43] Total shareholder gains in a transaction includes could arise from various effects including possible wealth transfers from target and /or acquirer non-equity securities to target and / or acquirer equity holders

than a higher value. Not doing a deal is better than a positive value of 'Target Share' as the latter implies negative wealth change for the target shareholders. Similar arguments as above hold true for 'Acquirer Share' defined as '1 – Target Share'.

Because the 'Target Share' variable behaves differently when total shareholder wealth change is positive versus when it is negative, I analyze separately takeovers with positive and negative total wealth gains when 'Target Share' (or Acquire Share) is a dependent variable.[44] If target board independence is related to targets obtaining a better deal from the acquirer, board independence should be positively related to 'Target Share' (as defined above) when the total (Target + Acquirer) wealth change is positive and negatively related to the same when the total wealth change is negative.

2.3.3 Independent Variables

Cotter et al. (1997) find board independence to be highly positively related to target premium in tender offers while Brickley, Coles and Terry (1994) argue that independent boards are more likely to use poison pills to enhance shareholder wealth. More recently, Bange and Mazzeo (2004) argues that bidders consider target board independence while deciding offer type and premiums. They find that when the target's board is independent, the target is less likely to receive a high premium and the offer is less likely to succeed.

I control for insider director ownership because it may affect their gains from takeover and hence resistance to any potential bid. Stulz (1988) argues that as managerial ownership increases, the probability that a firm is target of a takeover bid decreases while premium increases. On the contrary, empirical evidence in Mikkelson and Partch (1989) and Cotter and

[44] See Appendix B for examples with all possible combinations of target and acquirer wealth changes and calculation of this measure.

Zenner (1994), suggests that the greater ownership by target managers leads to lower resistance and greater probability of a firm being acquired. Since incentives of outsider directors are also related to their ownership, I control for that as well. Schliefer and Vishny (1986) find that affiliated block holders side with managers in control contests while unaffiliated block holders facilitate change in control. Gorton and Kahl (1999) derive a model in which institutional investors (who are more likely to be un-affiliated block holders) facilitate change in control by selling to 'rich investors' who engage in takeover bids. I control for reputation concerns for outside directors by including number of additional directorships for target outsider directors. If, as argued by Fama (1980) and Fama and Jensen (1983), reputation concerns provide incentives to outsiders directors to be better monitors, these incentives are likely to be higher more the number of directorships they have. As indicated by Harford (2003) most target outsider directors lose their directorship in a successful takeover. The loss of a given directorship is likely to be less important for a director as the number of additional directorships held by the outside director increases. Finally, I control for interlock between target and acquirer boards as such interlock is likely to create conflict of interest for the director(s) common to both the target and the acquirer. Director interlock is also likely to influence target board decision making and might facilitate negotiations by reducing the information asymmetry between the two parties to the takeover.

Data on board size, director status (Insider, Outsider or Gray), executive and director ownership, affiliated and unaffiliated block ownership, number of directorships for outside directors, and director interlock between the target and acquirer, are collected from the last target proxy statement before the announcement date.[45] Directors are classified into insiders, outsiders and gray following standard definitions. A board is defined as 'Independent' if the proportion of

[45] A target (and the transaction) is included in the sample only if the last proxy statement before the announcement date is not more than 12 months old.

outsider directors is more than 50%. Block ownership is separated into affiliated and unaffiliated blocks, with the former defined as employee stock option plans (ESOPs), pension plans or any other plans or trusts over which the target management might have influence based on their membership or trusteeship on its board. All other block ownership is defined as unaffiliated block ownership.

I also control for target and deal characteristics that are known to affect premium. Schwert (2000) finds that large targets are more likely to receive hostile bids, possibly because of larger gains from takeover resistance. Cotter et al. (1997) argue that larger target firms are likely to have more resources to thwart takeover attempts. Moeller et al. (2004) find that acquirer returns are positively related to relative size of the target while Wulf (2004) finds that target premiums are negatively related to relative size of the target as compared to its acquirer. I control for both absolute target size (market value of equity 20 trading days before announcement) and target size relative to that of the acquirer (target market value of equity / acquirer market value of equity, both as of 20 trading days prior to the announcement). I add the MOE indicator to Cotter et al. specification because as reported in Wulf (2004) and indicated by univariate results here (Table 8 – Panel C), target returns are lower in MOEs compared to those in non-MOEs. MOEs and non-MOEs are also analyzed separately to test if any of the independent variables behave differently in the two sub-samples.

Similar to Cotter et al., I control for target industry adjusted ROA, since target performance might be reflective of its management quality. Return on assets (ROA) is measured as of the average ROA for up to last 3 fiscal years before the announcement date, with at least one year of available data.[46] ROA for the target is adjusted for industry average ROA, with the

[46] I include a transaction if the ROA for at least one year before the announcement date is available for the target.

industry defined as all firms in the year of the announcement that have the same 2-digit primary SIC code as that of the target.

Malatesta and Walkling (1988) and Ryngaert (1988) find that poison pills increase target's ability to resist a takeover bid. More recently Heron and Lie (2005) find that presence of poison pills increase takeover bids but do not alter takeover likelihood. I control for the presence or absence of poison pills. I control for presence of golden parachute arrangements since Walkling and Long (1984), Lambert and Larcker (1985) find that existence of such arrangements has a positive effect on the reaction of target management to takeover bids. Agrawal, Jaffe and Mandelker (1992) and Loughran and Vijh (1997) and Rau and Vermaelen (1998), based on long run performance of mergers and tender offers, suggest that takeovers using stock payment perform worse that those using cash payment. Travlos (1987) finds that proportion of payment by cash is significantly positively related to target returns. I define 'Payment Method' as 'CASH' (STOCK) if cash (merged or acquirer company stock) constitutes more than 50% of the payment made to target shareholders. In all other cases, the payment method is defined as 'MIXED'. Loughran and Vijh (1997) also finds that targets in their top quartile of target to acquirer size ratio, earn negative excess returns in stock mergers. I also include an indicator for competing bid (bids) for the target since prior research indicates that presence of competing bids is likely to affect target returns (Berkovitch and Narayanan (1990), Schwert (2000), Burch (2001) and others).

Data on payment method, presence or absence of poison pills and golden parachute agreements for target management are collected using merger proxy statements where available

and supplemented using news searches around the announcement date[47]. Data on presence of a competing bid for the target are collected by checking news items for up to one year prior to the announcement date of the deal.

2.3.4 Descriptive Statistics

As seen from Table 7, Panel A, the mean market model CAR for the targets for the period (-20, 1) is around 13.5% with average holding period return for the same period of 15.1%. This is consistent with the range of target returns (from 45% to 10%) reported in various studies summarized in Bruner (2003). The closest to my sample is Wulf (2004) who has a sample of MOEs and matching firms with large relative sizes of targets to acquirers[48]. The 2-day (-1, 0) CAR for her sample is 9.44% which is close to the 10.8% holding period return for the 3-day window (-1, 1) in the sample used in this paper.

The average 'Target Final Premium' (as defined in (1)) which accounts for the price finally paid to target shareholders is 27.5%. Broken down into MOEs and non-MOEs, the average 'Target Final Premium' is 9.17% for MOEs and 32.9% for non-MOEs. These numbers are again close to the corresponding returns reported by Wulf (2004); 11% for MOEs and 30.4%

[47] SDC data on percent Cash, Stock and Other payment cannot be used as it reflects total transaction value including assumption of target debt and other contingent liabilities by the acquirer. Thus even in cases where target shareholders receive 100% of payment in acquirer stock, SDC data indicates stock payment of less than 100% and a positive payment percentage for 'Cash' and 'Other'

[48] In her sample, Target value / (Target + Acquirer Value) is 0.442 for MOEs and 0.40 for non- MOE matching sample. This compares to corresponding values in my sample of 0.459 for MOEs and 0.41 for non-MOEs. See Table 1, Panel C, bottom three rows, for Relative Size (Target value /Acquirer value).

for non-MOEs matching sample respectively.[49] Average acquirer returns for the sample in this paper are close to zero similar to that reported by several previous studies.[50]

I measure target share of wealth change separately for positive and negative total wealth change takeovers. As seen in Table 7- Panel B, for the positive wealth change sample (N=136), the average target gains about $460 million in the period (-20, 20) trading days around the announcement and the average acquirer gains $221.1 million in the same period. However, the average share of acquirer in the wealth change is -10%. This is because there are several cases where the acquirer fares significantly worse when compared to the total wealth change. In fact in only 2 of the 136 cases the acquirer share of total wealth change is greater than 100% (both are MOEs, so the definition of target and acquirer can be blurred), but in 44 of 136 cases the acquirer share is negative. For the sub-sample where total (Target + Acquirer) shareholder wealth change is positive, median share of targets and acquirers in the wealth change is 68% and 32% respectively. When the total (Target + Acquirer) shareholder wealth change is negative, for every $100 of total wealth loss, the median target loses $24 while the median acquirer loses $76.

With respect to target governance characteristics (Table 7 - Panel C), the mean (median) board size is 9.2 (9). The average proportion of outside directors for the sample is 50%, with the median proportion of 60%. In 57% of the sample, targets have an independent board[51]. Outsider directors on average hold 1.5 board memberships in addition to the membership on the target board and any board membership in their primary employer. Median total ownership of insider directors is 3.4%, which is more than 8 times the median total ownership of outsider directors of

[49] Since my sample of 53 MOEs includes 39 of the 40 MOEs reported by Wulf (2004), this suggests that the target returns on the 14 MOEs in my sample that are not included in Wulf (2004) have even lower returns than the preceding MOEs.
[50] See Bruner (2003) and Jarrell, Brickley and Netter (1988) for surveys and summary results of the papers surveyed.
[51] 132 out of 232 firms

0.4%. The median ownership of all insider directors and executive officers is 8.5% which is 21 times the median ownership by all outsider directors. In 19 of the 232 cases, the targets and the acquirers share one or more director (director interlock).

The median (average) target market value of equity is $487 million ($2.494 billion). Because of the way the sample is constructed, average target size (Target market value of equity as of 21 trading days before announcement) is about 70% of the acquirer size (Acquirer market value of equity as of 21 trading days before announcement). 'Relative Size' (Target market value of equity/ Acquirer market value of equity) is significantly higher for MOEs (86.6%) than that for non-MOEs (62.2%). The large average 'Relative Size' for the sample transactions makes it more likely that the effect of any overpayment to the targets is likely to be reflected in acquirer returns.[52]

2.4 RESULTS

2.4.1 Univariate Analysis

To test whether target returns are different for independent versus non-independent boards, the sample is split based on this variable. Contrary to expectations, raw or unadjusted target returns for all event windows {(-20, 1), (-1, 1), and (-20, 20)} are lower when target boards are independent (Panel A). Even the target final premium which is the return based on price on day -20 with respect to the announcement date to the final offer price is lower for targets with independent boards. Target CARs (both market-adjusted and market model) for the window (-20,

[52] The 5th percentile of Relative Size is 46.4%. Only 6 transactions have Relative Size less than 15%. Excluding them does not affect the results qualitatively. See Section 5 on robustness checks.

1) are not different for the two sub-samples. This holds for other event window definitions ((-1, 1), (-20, 20)) as well.

Contrary to results for unadjusted target returns and similar to that for target CARs, acquirer returns are not different for the two sub-samples. I find no evidence that targets with independent boards perform better or benefit at the expense of acquirers. Panel B, presents results for the sample split at the median board size of 9. Again, target or acquirer returns are no different when target boards are larger or smaller than the median board. Taken together these results suggest that the two board characteristics that have received the most attention in literature i.e. board size and independence, are mostly unrelated to how the targets or acquirer returns.

Wulf (2004) argues that in MOEs, target returns are lower than returns to targets in comparable non-MOE. I test whether the same phenomenon holds for the current sample. Consistent with Wulf (2004), I find that MOEs exhibit a significantly lower average return of 2.9% for the 3-day window (-1, 1) around the announcement date, as compared to the corresponding average return of 13.1% for non-MOEs. This difference is significant at less than 1% level. 'Target final premium' for MOEs is 23.7% (9.2% v/s 32.9%) lower than that for non-MOEs.

Acquirer returns are however not different in MOEs versus non-MOEs. One inference from these results for targets and acquirers in MOEs is that in such deals, acquirers do not benefit by offering a lower premium to the target. Rather these mergers might create lower total gains than those from non-MOE transactions, resulting in a lower premium for the target. As reported later in Table 13, target returns for MOEs are significantly lower when the target CEO is the CEO of the merged firm than when he is not.

To analyze if target board independence matters differently for MOEs versus non-MOEs, the sample is split based on the MOE indicator. Returns for independent versus non-independent board targets are then compared for each sub-sample. As seen from panel D, target final premium and returns for both the target and the acquirer, for the longer window of (-20, 20), are lower when targets have independent boards. This suggests that in case of mergers of equals, independent target boards make no better decisions than non-independent boards. When the transactions are non-MOEs, target board independence is not related to target or acquirer returns.

Out of 53 sample MOEs, the target CEO is the CEO of the merged firm in 19 cases. In another 33 cases the target CEO is a board member (but not CEO) in the merged firm. In only one MOE, the target CEO is neither the CEO nor a board member of the combined firm. Splitting the sample further based on target board independence, makes the individual sample sizes too small for univariate analyses. Out of the 179 non-MOEs, target CEO is the CEO of the merged company in 12 of cases while he is a board member (but not the CEO) in 123 of the cases. In 44 cases the target CEO is neither the CEO nor a board member in the combined firm.

The non-MOE sample is split based on whether or not the target CEO is the CEO of the merged firm to test whether board independence matters differently in the two sun-samples. For each sub-sample I test whether the target and acquirer returns are significantly different for independent versus non-independent target boards. The results are in Table 8 - Panel F. As seen from the table, target or acquirer returns are not different when target board is independent versus when it is not, both when the target CEO is the merged firm CEO and when he is not. The results are similar when different windows around the announcement are considered (results not reported). Though I do not test it here, the target returns appear to be lower when its CEO is the

CEO of merged firm versus when it is not. This is consistent with the results in Table 13 (discussed later) where is target announcement returns are negatively related to the 'Target CEO is merged company CEO' indicator.

When the sample is split on other target governance attributes (median values of ownership of insider and outsider directors, affiliated and un-affiliated block ownership, presence of a CEO with 5% or more ownership), mean target or acquirer returns are found to be no different for the sub-samples[53].

2.4.2 Multivariate Results

I start with the specification from Cotter et al. (1997) and augment it using variables that are known to explain target returns (see the previous section for explanation on usage of control variables). The dependent variables are target and acquirer CARs, target final premium[54] and the share of the target in total (target + acquirer) shareholder wealth change. For analyzing target share of wealth change, the sample based is split based on whether the total (target + acquirer) shareholder wealth change is positive or negative. Indicators for whether or not the target CEO is on the merged company board and for whether or not the target CEO is the CEO of the merged company are added to see if these variables explain target returns. These indicators are interacted with target board independence indicators to test if board independence is related to the lower premium that targets obtain when their CEOs obtain positions in the merged firm.

[53] Results not reported.
[54] Defined as (Price Paid – P20) / p20, where P20 = price of target share 20 trading days before announcement, Price Paid = final price per share paid to acquirer shareholders, from news items and post merger proxy.

2.4.2.1 Target Board Characteristics and Returns to Targets and Acquirers

Target holding period return for the window (-20, 1)[55] is used as the dependent variable (Table 9 – Column 2). Unlike Cotter et al. (1997), where board independence dummy is significant at 10% level, the coefficient on this variable is insignificant. The only variable that is found to be significant is targets' industry adjusted ROA indicating higher premium for more profitable targets. However if the dependent variable is market model or market adjusted CAR instead of raw returns, the significance of this variable vanishes. The only variables found to be significant for all specification in Table 9, are the MOE dummy and Stock Payment dummy, both of which are negatively related to target holding period returns and CARs.

I then examine acquirer returns (Table 10) to test whether they are related to target governance characteristics, specifically, its board independence. As in the univariate results reported in Table 8, target board independence is unrelated to target announcement returns and CARs. Moreover, the results in Table 10 suggest a role for target insider directors' ownership, which is positively related to acquirer returns.[56] However, this does not imply that the targets are worse off with high insider director ownership, since this variable is unrelated to target returns.

With respect to target profitability, acquirer returns are negatively related to target's industry adjusted return on assets (ROA). This combined with the higher target returns for higher ROA targets suggests that acquirers might tend to overpay for highly profitable targets. If the acquirer paid a fair price, target ROA would be expected to be unrelated to acquirer returns even though it could still be positively relate to target returns. Finally, MOE indicator is unrelated to acquirer returns. This along with the negative relationship between MOE indicator and target

[55] Similar to Cotter et al. (1997), I refer to this variable as the 'Target Initial Premium'
[56] A potential explanation, which I do not test, is that this could be because of a block formation in the combined firm resulting from acquisition of a target with high insider ownership.

returns, suggests that the lower premium to targets in MOEs does not imply that the acquirers are better off in such cases, but possibly these mergers of similar sized, large companies create less value. Consistent with this notion, the median market value of equity for targets (acquirers) in case of MOEs is $1,134 million ($1,367 million) which is significantly higher than the average market value for non-MOE targets (acquirers) of $279 million ($624 million). This is also consistent with Moeller et al. (2005) who, although they do not look at MOEs specifically, document wealth destruction in large acquisitions with more than $1 billion in shareholder wealth change.

2.4.2.2 Target Board Independence and its Share in Total Wealth Change

Analyzing target gains alone does not indicate whether the higher (lower) gains to targets accrue from higher (lower) total gains from the transaction or because the target is able to obtain a higher (lower) share of the total gains. One can argue that the potential role of target board is different in each case. In the first case (higher overall gains from the transaction) one could argue that the target board selects (or approves) takeovers with higher potential gains. In the second case, the target board can be said to do a better job at bargaining a higher share of the total takeover gains. Higher target gains could be at the expense of the acquirer in the second case.

Irrespective of whether higher target gains come from a larger pie or a larger target share of a pie, one measure of target board effectiveness is whether, given the size of the pie (overall takeover gains), they negotiate a higher share for the target. To analyze this issue, target share is regressed against its board and ownership characteristics (Table 11). As explained earlier in Section 3, measuring target (or acquirer) share of wealth gains is difficult when the total gains are negative. A meaningful measure is obtained when takeovers with positive gains and those

with negative gains are separated. In the first case, a higher target share[57] is better for the target, while in the second case a lower share is better.

If independent target boards do a better job of extracting target share from the total takeover gains, board independence should be positively related to target share when the total gains are positive and negatively related to target share when the total gains are negative. On the other hand, if target board independence does not make a difference to how much share the target receives from the total takeover gains, it should be unrelated to target share irrespective of whether total takeover gains are positive or negative. As seen from Table 11, this is indeed the case. The regression p-values indicate that the target board characteristics and other variables have little power in explaining target share of total takeover gains. Even when the sample is split into MOEs and non-MOEs, target board independence continues to be unrelated to target share of wealth changes in each sub-sample.

2.4.2.3 Target Board Independence and the Status of its CEO in the Merged Firm

Wulf (2004) finds that target returns are lower in MOEs as compared to those in non-MOEs, while the total (target + acquirer) gains in MOEs are no different than in a matching sample of non-MOEs. She also finds that target CEOs accept lower premium in exchange for the CEO position in the merged firm. The latter result holds even after controlling for relative size of target to acquirer. I extend the analyses in Wulf (2004) in three important ways.

First, since my sample consists of large relative value acquisitions, I test whether the behavior exhibited in Wulf (2004) sample is limited to MOEs only or whether it holds more

[57] Measured as TSHR = TWCHG / TOTWCHG, where TOTWCHG = TWCHG + AWCHG. TWCHG and AWCHG are target and acquirer wealth changes respectively. TWCHG is target holding period return for the period (-20, 1) times the market value of equity on day -21 with respect to the announcement date. AWCHG definition is similar.

generally, for takeovers in which targets are large relative to the acquirers. 'Relative Size' (target market value of equity / acquirer market value of equity; measured 20 trading days before announcement) is quite large (62%) even in case of non-MOEs in my sample, though it is significantly less than the 'Relative Size' of MOEs in the sample (87%). In all specifications from Table 9 to Table 11, I replace the MOE dummy with 'Relative Size'[58]. The sign of coefficient on the relative size variable is same as that of the MOE dummy in all specifications. Though the relative size variable continues to be significant wherever MOE is significant, the significance of the former is lower than that for the latter. Moreover, this variable remains significant and negative even when the non-MOEs in my sample are analyzed separately. When the MOE and "Relative Size' variables are used simultaneously (correlation 15% in my sample) to explain target returns, the significance of MOE dummy reduces or vanishes while the 'Relative Size' variable remains negative and significant. This is consistent with the results in Wulf (2004) where, once relative size is accounted for, the MOE dummy is no longer significant for target returns[59]. This suggests that the market greets mergers with similar sized targets and acquirers less positively compared to when the targets are smaller than the acquirers, and this phenomenon is not limited to MOEs only.

Second, Wulf analyses only whether or not the target CEO is the CEO of the merged firm. Even when target CEOs are not CEOs of the merged firm, it is often the case that they remain on the merged firm board for at least some time after the merger. This could be optimal for the merged firm if the target CEO is useful in post-merger integration which could be crucial to realizing the merger synergies. In about 78% of my sample (181 out of 232), the target CEO

[58] Results not reported.
[59] Though the (second) and main result of her paper is unaffected, i.e. target board majority on the merged board and target CEO presence in the merged firm both continue to be negatively related to target CAR.

continues to be a board member of the merged firm, based on the first proxy statement of the merged firm.[60] I test whether indicators for a) 'Target CEO on merged company Board' (whether or not she is the CEO of the merged firm) and b) 'Target CEO merged company CEO' are related to target premium.

Third, I test whether target board independence has any mitigating effect on the lowering of premium when the target is the CEOs of the merged firm or is on the board of the merged firm. I test this by including interaction between target board independence dummy and the two indicators mentioned above. If independent target boards do a better job of takeover decisions, then one would expect this interaction term to be positively relate to target premium, positively related to target share of total gains when the latter is positive and negatively related to target share of total gains when the latter is negative

As seen in Table 12, Columns 1 and 2, the presence of target CEO on the merged company board is unrelated to both target and acquirer returns. Further when this variable is interacted with the target board independence, the interaction term is also insignificant. Analyzing target share of total gains, in cases where total merger gains are positive, the share of target is again unrelated to the presence or absence of the target CEO on the merged firm board (Table 12 -Column 3). In contrast, when total gains from the takeover are negative (Table 12 - Column 4), the target share of the loss is higher when the target CEO is on the merged firm board. This is consistent with target CEOs sacrificing some premium to be present on the merged firm board. More interestingly, the interaction term is negative and significant suggesting that

[60] It is possible that the target CEO is present on the combined firm board immediately after the merger but leaves before the first post-merger proxy statement comes out. In these cases, the former target CEO is mentioned in the proxy as an outgoing director. Such target CEO directors are considered as being present on the merged firm board for forming my indicator variable.

target board independence might be related to lower share of the target in takeovers which result in overall negative wealth change.

When target CEO is the merged firm CEO, target returns are lower (Table 12 - Column 5). This is in contrast to the insignificant coefficient when target CEO is merely a board member in the combined firm. This coefficient is significant even after including the MOE dummy, implying that target returns are not only lower in MOEs, but are further lower when target CEO continues to be the CEO of the merged firm. One explanation of this observation is that in such mergers of equals, where target CEO is the merged firm CEO, the identity of the target or acquirer is blurred. The interaction between target board independence and 'Target CEO is merged firm CEO' indicator is unrelated to target returns. This suggests that target board independence does not seem to mitigate lower premiums targets receive when their CEO becomes the CEO of the combined firm.

When acquirer returns are examined (Table 12 - Column 6), they are found to be unrelated to the target CEO being the CEO of the merge firm. This implies that the lower target returns are unlikely to be caused by acquirer bargaining for a better deal, but more likely because such mergers create overall lower gains. When the weighted CAR and total wealth gains[61] are regressed against the same specification (not reported), I find that the coefficient on 'Target CEO is merged company CEO' is significantly negative. Consistent with this result, I find that target share of wealth change (Table 12 - Columns 7-8) is not significantly related to whether or not the target CEO becomes the merged firm CEO. Target share is also unrelated to whether or not the merger is a MOE.

[61] CARs are market model for the window (-20, 1) around the announcement date and are weighted by the market value of equity of the firms 21 trading days before the announcement.

The results in Table 12 suggest negative association between 'Target CEO is merged company CEO' and target returns but no relation of the former to acquirer returns. This is in contrast to Wulf who finds that the lower returns to MOE targets are associated with higher acquirer returns. To test whether the results in my sample are driven by the non-MOEs, I separate the sample into MOEs and non-MOEs and repeat the analyses in Table 12 for the two sub-samples. The results are reported in Table 13. As seen from Columns 1 and 3, the variable 'Target CEO is merged company CEO' is negatively related to target return in both MOEs as well as in non-MOEs. However, the coefficient on the 'Target CEO is merged Company CEO' variable is significantly lower in case of MOEs (-0.21) than in the case of non-MOEs (-0.154). The two coefficients are statistically different at less than 5% significance level ('t' statistic = 2.566, p-value = 0.015 for a two sided test). This suggests that the though the effect of target CEO being the merged company CEO on target premium is negative in both MOEs and non-MOEs, it is stronger (in the direction of lowering the target premium) when the merger is a MOE versus when it is not. Similar to that in Table 12, the interaction term between target "Independent Board Dummy" and the 'Target CEO is merged Company CEO" variables continues to be insignificant.

Observing the coefficient on target industry adjusted ROA, one see that in MOEs, target industry adjusted ROA is positively related to both target and acquirer returns at announcement. In non-MOEs however, target industry adjusted ROAs is unrelated to target returns but negatively related to acquirer returns. This suggests that the result in Table 10, where acquirer returns are lower for higher ROA targets is driven mainly by non-MOEs in the sample. One interpretation of this is that the tendency to overpay for better performing targets is more likely

to be present in non-MOE takeovers, while in case of MOEs, acquirers tend to benefit from acquiring high ROA targets.

2.5 ROBUSTNESS CHECKS

2.5.1 Alternative Event Window and Return Definitions

I use different event windows (-5, 5), (-1, 1) and (-20, 20) for the announcement returns and wealth change measurement with little change in results. In tables 5 to 7, instead of using holding period returns for the period (-20, 1), I use the market adjusted holding period return and calculate target and acquirer wealth changes also using these market adjusted returns. The results are similar to those reported earlier. Importantly, target board independence remains unrelated to target market adjusted holding period return for the period (-20, 1) and to target share of market adjusted wealth change during the same period.[62]

2.5.2 Tender Offers versus Mergers

The current sample consists of mainly mergers, with tender offers consisting of only 16 of the 226 transactions used in the regressions. Fifteen of these sixteen tender offer transactions are with 100% cash payment and the remaining single tender offer has more than 50% of payment in cash. As a result, the stock payment dummy is significantly negatively related to the tender offer dummy (correlation = -0.5). A tender offer dummy is defined as 1 if the acquirer makes a direct offer to target shareholders to buy their shares in the target, and 0 otherwise. Data on whether or not the deal is via a tender offer is collected from news searches around the announcement date.

[62] The average value of targets' share of total wealth change increases when adjusted for market, presumably because adjusting for market has a greater effect on acquirer return than on target return.

When the tender offer dummy is used instead of the stock payment dummy, it shows a positive significant coefficient as expected. However, the significance and sign of coefficients on the target board independence dummy in various specifications is unaffected. When the tender offer dummy is interacted with the target board independence dummy, the interaction term is insignificant. This suggests that even in tender offers, target board independence is not related to target returns or share of wealth change. However, tender offers constitute a tiny portion of my sample. Hence it is difficult to say whether these results will hold in a larger sample of tender offers only.

Finally, when both the stock pay and the tender offer dummies are used together, the significance of both the variables is reduced. However, both the coefficients retain their sign and also significance in most cases.

2.6 CONCLUSIONS AND DISCUSSION

Board composition has been shown to be largely unrelated to firm financial performance. For a sample of takeover with large relative size of targets to acquirers, I find no evidence that target board independence is related to target returns, acquirer returns and percentage share of targets of the total (target + acquirer) shareholder wealth changes from takeovers. The results here are consistent with Bange and Mazzeo (2004) who find that target's are less likely to receive a high premium if their boards are independent. Unlike Cotter et al. (1997), I find no evidence that target shareholders benefit at the expense of acquirers when the target's board is independent.

Analyzing the relationship between target returns and the status of its CEO in the merged firm, I find that target returns are unrelated to its CEO being a mere board member of the combined firm. On the contrary, target returns are lower when its CEO becomes the CEO of the

merged firm. This paper extends the results in Wulf (2004), and finds that lower target returns in such cases are not limited to MOEs only but are present in non-MOE takeovers with large relative size of target to the acquirer.

Unlike the result in Wulf (2004), the evidence here suggests that lower returns to targets are not associated with higher acquirer returns but are more likely related to lower total (Target + Acquirer) returns. Finally, I find that target board independence does not 'protect' targets from lowering of premium when their CEOs become the CEO of the merged firm.

The evidence in this paper is consistent with the argument that, competition (actual or potential) in the market for corporate control is likely to drive acquirer returns to optimal levels, whether acquiring a target with independent or non-independent board. If the higher premium negotiated by targets with independent boards is competitive (such that acquirers gains are close to zero), then it implies that when bidders acquire targets with a non-independent board, other things remaining the same, they can obtain positive gains by offering a lower premium. This implies that the market for corporate control is less competitive when targets with non-independent boards are being acquired. On the other hand, if the premium offered to targets with non-independent boards competitive (such that acquirers make close to zero gains), then the inference is that bidders tend to overpay when they acquire targets with independent boards. The empirical evidence in this paper suggests that neither of the above two is the case; bidder returns are largely independent of target board independence. The evidence here also suggests independent target boards do not do a better job (than non-independent boards) of protecting target shareholders gains when its CEO obtains a position in the merger firm.

Outside directors have incentive related to their reputation in the directorial market. However, while insiders stand to gain from their higher ownership and golden parachute

arrangements, most outsider directors suffer the loss of their board seat (Harford (2003)). The evidence presented here is also consistent with the argument that outsider directors or target firms have no better incentives than insider directors to negotiate higher premium. The results here are also consistent with Bange and Mazzeo (2004) who find that target premium is unrelated to target board independence. However, they do not control for relative size of the target to the acquirer or whether the target CEO obtains a position (board membership or CEO) in the merged firm. Both factors are likely to be related to target management resistance and as shown in Wulf (2004) are negatively related to premium obtained by the target. Also, unlike this paper, their analysis does not indicate whether or not any higher (or lower) target premium is at the expense of the acquirer. The evidence in this paper, using acquirer returns and target share of total takeover gains provides much stronger evidence for lack of relationship between target board independence and returns for the targets or acquirers.

One potential explanation is that the relationship between board independence and target returns reported in Cotter et al. (1997) is valid for tender offers but not for a sample of mergers and tender offers. This begs the question as to why outsider directors have less of an incentive to negotiate a better deal for targets in the case of a merger than in the case of a tender offer. More work is needed to separately analyze tender offers and mergers in different time periods to see if either of the results shown here and in Cotter et al. (1997) hold true for different samples. Andrade et al. (2001) find that the nature of takeovers in the 1990s is very different from that in the 1980s, with significantly higher incidence of stock payment, friendly deals and single bidder deals. It is possible that in such environment, where observed deals are more likely to be with the approval of the target board, board resistance whether to enhance shareholder returns or entrench management has reduced in importance. Another possibility is that board structures, either

mandated by regulation or market forces have moved towards independence in the 1990s (compared to what they were in the 1989-1992 sample period of Cotter et al. (1997), such that the observed variation in board independence is no longer statistically related to decisions related to takeovers.

CONCLUSION

Principal agent theory posits that compensation contracts will be designed to provide a tradeoff between provision of incentives to executives and the risk the executives have to bear as a result of these incentives. This is likely to be true for the CEO as well as other top executives. Traditional principal agent models mainly rely on one principal – one agent models and do not provide any guidance on how compensation within organizations will be structured.

Another set of economics literature argues for designing of compensation structures which resemble tournament prizes and induce competition among executives (see Lazear and Rosen (1981) and Rosen (1986). These models provide some guidance on the relation between firm uncertainty and compensation structures. However most of these propositions are not derived by explicit contracting choices in which the principal and the multiple agents maximize their respective utilities. Also these models fail to incorporate tradeoff between competition and cooperation which might be desired by the principal when designing incentive contracts for more than one agent.

The model presented in the first essay explicitly incorporates cooperation between executives in deriving their optimal incentive contracts by making the firm output a function of both individual effort and co-operation. By hypothesizing cooperation to be an increasing function of firm risk, the model develops propositions for the relationship between relative incentive compensation among top executives and with firm risk. Empirical results using compensation data on top executives in US from 1992-2002 are consistent with the model proposition that the optimal incentive compensation ratio first increases and then decreases with firm risk. The results in the first essay are consistent with endogenous evolution of compensation distribution within top management, based on firm risk and other characteristics.

The second essay reexamines the role of target board independence in takeover decisions. If the market for takeovers is competitive, acquirers are unlikely to obtain higher or lower gains when they acquire targets with independent or non-independent boards. Conversely, targets are likely to obtain a competitive premium whether or not their boards are independent. The results in the second essay, using a sample of 225 large relative size takeovers are consistent with the hypotheses that target returns, acquirer returns and their share in total shareholder wealth change are unrelated to target board independence as measured by proportion of outsider directors on the board. Even in cases where target premium is lower (when its CEO becomes the CEO of the merged firm) target board independence is unrelated to its premium.

Grossman and Hart (1980) argue that target shareholders can free-ride on improvements made by acquirers by not tendering unless they are offered the full value of the benefits from the takeover. Even though such free riding can be avoided by making takeovers conditional on successful tendering of all shares, competition (potential or actual) in the market for corporate control could lead to the target capturing most of the gains from takeovers. Jensen and Ruback (1983), Jarrell et al. (1988), Burkart (1999), and Andrade et al. (2001) survey empirical research in takeovers and find that on average acquirers make zero returns from takeovers while almost all gains accrue to target shareholders. The evidence in the second essay is consistent with a competitive market for corporate control and optimal board structures such that observed variation in board independence is unrelated to returns obtained by targets and acquirers.

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APPENDIX A: VARIABLE DEFINITIONS FOR CHAPTER 1

I define the aggregated variables by attaching the prefix 'A" before the names of the variables defined above. Aggregated independent variables are averages of the annual values of the same over the years the firm exists in the sample. All aggregated variables are named by adding the prefix 'A' to the firm-year variable name. Aggregated compensation ratios are formed by first averaging the compensation values in $ over years and then taking the ratios. All other aggregated variables are averages of the firm-year variables for each firm, for all years the given firm exists in the sample.

Variable Name	Definition / Description
CEOSAL	CEO Salary for the firm year ('000 $)
CEOIN	CEO Incentive Compensation = Restricted Stock Grant + Stock Option Grant + Bonus + Long term Incentive Plan ('000 $)
TDC1	Total CEO compensation for the year ('000 $)
NCEOSAL	Salary for the highest paid non-CEO executive (Rank2 Executive) ('000 $)
Rank2 Executive	Highest Paid Executive for the firm year who is not the CEO (Could be paid higher than the CEO)
NCEOIN	Incentive Compensation for Rank2 Executive = Restricted Stock Grant + Stock Option Grant + Bonus + Long term Incentive Plan ('000 $)
NTDC1	Total compensation for the Rank2 executive ('000 $)
CEONXT	TDC1 / NTDC1
COMP3to5	Total Compensation for executives ranked 3 to 5, rank based on compensation
CEONXTIN	CEOIN / NCEOIN
HHIIN	Herfindahl-Hirschman Index of incentive compensation for the CEO and Rank2 executive (defined using CEOIN and NCEOIN)
CEOTENR	Number of months the current CEO held the CEO position as of the compensation date
PCEOWN	Percentage ownership of the CEO in the firm as of the compensation date
PNCEOWN	Percentage ownership of the Rank2 executive as of the compensation date
CEOCHM	Indicator for whether the CEO is the board Chair (0 = No, 1 = Yes)
NCEODIR	Indicator for whether the Rank2 executive is a director in the firm. (0 = No, 1 = Yes)
SALES	Firm sales in $ million for the year ending the compensation date
MVA	Market value of assets in $ million as of the compensation date
BVA	Book Value of Assets in $ million as of the fiscal year end date (compensation date)
MTOBA	MVA / BVA
HHISALES	Herfindahl Index of Sales for the firm's 2-digit SIC Industry in the year of compensation
HPRS3	Gross holding period return on the firm for 3 years ending the compensation date
HPRM3	Gross holding period return on the market for 3 years ending the compensation date
HPRADJ3	HPRS3 / HPRM3
STKVOL	Percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year (up to 250 trading days).
SDROA	Standard deviation of the firm's annual accounting return on assets for the past 5 fiscal years, including the year of the compensation data

APPENDIX B: CORRELATION MATRIX – CHAPTER 1 VARIABLES

Panel A: Dependent Variables

Firm-Year Data

	CEONXTIN	HHIIN	CEONXTIN2	HHIIN2	CEONXT
CEONXTIN	1				
HHIIN	0.19	1			
CEONXTIN2	0.4	0.04	1		
HHIIN2	0.13	0.7	0.05	1	
CEONXT	0.29	0.18	0.58	0.29	1

Aggregate Data

	ACEONXTIN	AHHIIN	ACEONXTIN2	AHHIIN2	ACEONXT
ACEONXTIN	1				
AHHIIN	0.39	1			
ACEONXTIN2	0.59	0.3	1		
AHHIIN2	0.24	0.75	0.4	1	
ACEONXT	0.56	0.31	0.95	0.39	1

Panel B: Executive Characteristics

Firm-Year Data

	CEOCHM	NCEODIR	PCEOWN	PNCEOWN	CEOTENR
CEOCHM	1				
NCEODIR	0.09	1			
PCEOWN	0.1	0.08	1		
PNCEOWN	-0.09	0.18	0.11	1	
CEOTENR	0.23	0.13	0.33	0.08	1

Panel C: Risk Variables

Firm-Year Data

	MTOBA	STKVOL	SDROA
MTOBA	1.00		
STKVOL	0.16	1.00	
SDROA	0.22	0.31	1.00

Aggregate Data

	AMTOBA	ASTKVOL	ASDROA
AMTOBA	1.00		
ASTKVOL	0.42	1.00	
ASDROA	0.24	0.44	1.00

APPENDIX C: PROOFS FOR CHAPTER 1

Proof of Proposition 1: For $a_1 > a_2 = 1 > b$, the optimal incentive compensation ratio decreases firm risk, σ.

$$\frac{\partial \alpha_1 / \alpha_2}{\partial \sigma} > 0$$

Recall that

$$\frac{\alpha_1}{\alpha_2} = \frac{(a_1 + b)^2(1 + ba_1)^2 + (a_1 + b)^2 \eta \sigma^2}{(a_1 + b)^2(1 + ba_1)^2 + (1 + ba_1)^2 \eta \sigma^2}$$

Let

$$g = (a_1 + b)^2(1 + ba_1)^2 + (a_1 + b)^2 \eta \sigma^2$$
$$h = (a_1 + b)^2(1 + ba_1)^2 + (1 + ba_1)^2 \eta \sigma^2$$
$$m = (a_1 + b)^2(1 + ba_1)^2$$

Then

$$\frac{\alpha_1}{\alpha_2} = \frac{g}{h}.$$

Taking the derivative with respect to b:

$$\frac{\partial \alpha_1 / \alpha_2}{\partial \sigma} = \frac{g'h - gh'}{h^2}$$

Since h^2 is positive, the sign of the derivative is the same as the sign of the numerator. Note that

$$g' = 2(a_1 + b)^2 \eta \sigma$$
$$h' = 2(1 + ba_1)^2 \eta \sigma$$

$$\begin{aligned} g'h - gh' &= 2(a_1 + b)^2 \eta \sigma \left[m + (1 + ba_1)^2 \eta \sigma^2 \right] - \left[m + (a_1 + b)^2 \eta \sigma^2 \right] 2(1 + ba_1)^2 \eta \sigma \\ &= 2\eta \sigma \left\{ (a_1 + b)^2 \left[m + (1 + ba_1)^2 \eta \sigma^2 \right] - (1 + ba_1)^2 \left[m + (a_1 + b)^2 \eta \sigma^2 \right] \right\} \\ &= 2\eta \sigma m \left[(a_1 + b)^2 - (1 + ba_1)^2 \right] > 0 \end{aligned}$$

Q.E.D.

Proof: of Proposition 2: For $a_1 > a_2 = 1 > b$, the optimal incentive compensation ratio decreases with the relative importance of cooperation, b.

$$\frac{\partial \alpha_1 / \alpha_2}{\partial b} < 0$$

Recall that

$$\frac{\alpha_1}{\alpha_2} = \frac{(a_1 + b)^2(1 + ba_1)^2 + (a_1 + b)^2\eta\sigma^2}{(a_1 + b)^2(1 + ba_1)^2 + (1 + ba_1)^2\eta\sigma^2}$$

Let

$$g = (a_1 + b)^2(1 + ba_1)^2 + (a_1 + b)^2\eta\sigma^2$$
$$h = (a_1 + b)^2(1 + ba_1)^2 + (1 + ba_1)^2\eta\sigma^2$$
$$m = (a_1 + b)^2(1 + ba_1)^2$$

Then

$$\frac{\alpha_1}{\alpha_2} = \frac{g}{h}.$$

Taking the derivative with respect to b:

$$\frac{\partial \alpha_1 / \alpha_2}{\partial b} = \frac{g'h - gh'}{h^2}$$

Since h^2 is positive, the sign of the derivative is the same as the sign of the numerator. Note that

$$g' = m' + 2(a_1 + b)\eta\sigma^2$$
$$h' = m' + 2a_1(1 + ba_1)\eta\sigma^2$$

$$\begin{aligned} g'h - gh' &= \left\{m' + 2(a_1 + b)\eta\sigma^2\right\}\left\{m + (1 + ba_1)^2\eta\sigma^2\right\} \\ &\quad - \left\{m + (a_1 + b)^2\eta\sigma^2\right\}\left\{m' + 2a_1(1 + ba_1)\eta\sigma^2\right\} \\ &= m'm + m'(1 + ba_1)^2\eta\sigma^2 + 2m(a_1 + b)\eta\sigma^2 + 2(a_1 + b)\eta\sigma^2(1 + ba_1)^2\eta\sigma^2 \\ &\quad - m'm - 2ma_1(1 + ba_1)\eta\sigma^2 - m'(a_1 + b)^2\eta\sigma^2 - 2a_1(1 + ba_1)\eta\sigma^2(a_1 + b)^2\eta\sigma^2 \\ &= m'\eta\sigma^2\left[(1 + ba_1)^2 - (a_1 + b)^2\right] + 2m\eta\sigma^2\left[(a_1 + b) - a_1(1 + ba_1)\right] \\ &\quad + 2\eta^2\sigma^4(a_1 + b)(1 + ba_1)\left[(1 + ba_1) - a_1(a_1 + b)\right] \end{aligned}$$

and,

$$m' = 2(a_1 + b)(1 + ba_1)^2 + 2a_1(a_1 + b)^2(1 + ba_1) > 0$$

$$\left[(1+ba_1)^2-(a_1+b)^2\right]<0$$
$$\left[(a_1+b)-a_1(1+ba_1)\right]<0$$
$$\left[(1+ba_1)-a_1(a_1+b)\right]<0$$

Q.E.D.

APPENDIX D: VARIABLE DEFINITIONS FOR CHAPTER 2

Variable Name	Definition / Description
Returns and Wealth Change variables	
Target (Acquirer) CAR – Market Adjusted (-20,1)	Cumulative Abnormal Return (CAR) for the Target (Acquirer) firm for the period from 20 trading days before the takeover announcement date to 1 day after the announcement, Abnormal Return = Target (Acquirer) return less CRSP value weighted index return
Target (Acquirer) CAR – Market Model (-20,1)	Same as above except – Abnormal Return = Target (Acquirer) return less expected return based on market model
Target Holding Period Return (-20,1) (THPR)	Return on Target stock (including distributions) for the period from 20 trading days before the takeover announcement date to 1 day after the announcement
Acquirer Holding Period Return (-20,1) (AHPR)	Return on Acquirer stock (including distributions) for the period from 20 trading days before the takeover announcement date to 1 day after the announcement
Target (Acquirer) Holding Period Return (-20,20)	Return on Target (acquirer) stock including distributions for the period from 20 trading days before the takeover announcement date to 20 days after the announcement
Target (Acquirer) Holding Period Return (-1,1)	Return on Target (acquirer) stock including distributions for the period from 1 trading day before the takeover announcement date to 1 day after the announcement
Target Final Premium	(Price Paid – P20) / P20, where Price Paid = Final price in $ per share paid to target shareholders, P20 = price of target stock 20 trading days before the takeover announcement adjusted for any intermediate dividends
Target MVE (TMVE)	Market value of equity of target company 20 trading days before the takeover announcement ($ millions)
Acquirer MVE (AMVE)	Market value of equity of acquirer company 20 trading days before the takeover announcement ($ millions)
Relative Size	TMVE / AMVE, where TMVE and AMVE are as defined above
Target Wealth Change (TWC)	Target MVE * Target Holding Period Return (-20,20), where Target MVE = Target market value of equity 20 trading days before announcement ($ millions)
Acquirer Wealth Change (AWC)	Acquirer MVE * Acquirer Holding Period Return (-20,20), where Acquirer MVE = Acquirer market value of equity 20 trading days before announcement ($ millions)
Total Wealth Change (TOTWC)	TWC + AWC, where TWC and AWC are as defined above
Target Share of Wealth Change (TSHR)	TWC / TOTWC, where TWC and TOTWC are as defined above
Acquirer Share of Wealth Change (ASHR)	AWC / TOTWC, where AWC and TOTWC are as defined above
Board and Ownership Variables	*All Board and ownership variables are as of the date of last proxy statement of the target, up to 12 months before the takeover announcement date*
Independent Board Dummy	Indicator variable = 1 if the proportion of outsider directors (not current or former executives and no potential business ties with the company) on the board is greater than or equal to (less than) 50 percent, 0 otherwise
Interlocking Directorships	Indicator variable = 1 if the target and acquirer companies have atleast one common director as of the takeover announcement date, 0 otherwise
Number of additional directorships per outside director	Average number of additional directorships (excluding the primary firm of employment and the target firm itself) for target outsider directors.
Outsider director ownership	Total percentage ownership of all target outsider directors in the target company
Log Market Value of Equity	Log (Target MVE)
Ownership of Affiliated Blocks	Ownership of blocks holders like Employee Stock Option Plans and other trusts/ funds on which target executives might have potential control (based on trust membership/ directorship).
Ownership of Unaffiliated Blocks	Ownership of block holders which are un-affiliated with the target board and executives.
Insider director ownership	Total percent ownership of all insider directors in the target firm
Outsider director ownership	Total percent ownership of all outsider directors in the target firm
Target and Deal Characterstics	
Target Return on Assets	Return on Assets (Net Income / Book Value of Assets) for the target company for the last 3 fiscal years prior to the announcement ate
Industry Adjusted ROA	Target Return on Assets - Average return on assets for the target's 2 digit SIC industry for corresponding period
MOE Indicator	Indicator variable equal to 1 (0) if the takeover is identified as a Merger Of Equals, based on news announcements, SDC indicators and merger proxy statements
Target CEO on merged company board	Indicator variable equal to 1 if the target CEO is present on the merged company board, 0 otherwise, based on the first proxy statement of the combined firm after the takeover
Target CEO is merged company CEO	Indicator variable equal to 1 if the target CEO is the CEO of the merged company, 0 otherwise, based on the first proxy statement of the combined firm after the takeover
Tender Offer Dummy	Indicator variable equal to 1 if the takeover is via a tender offer to target shareholders, 0 otherwise
Competing Bid Dummy	Indicator variable equal to 1 if there exists a competing bid for the target during the period from 1 year prior to the announcement date to the completion of the takeover, 0 otherwise
Cash Payment Dummy	Indicator variable = 1 if 50% or more of the payment to target shareholders is in cash, 0 otherwise.
Stock Payment Dummy	Indicator variable = 1 if 50% or more of the payment to target shareholders is in acquirer (or combined) company stock, 0 otherwise.

APPENDIX E: TOTAL WEALTH CHANGE SCENARIOS AND TARGET AND ACQUIRER SHARE OF TOTAL WEALTH CHANGE

Wealth Change Scenario			Total Wealth	Target Wealth	Acquirer Wealth	Target Share (TSHR)	Acquirer Share (ASHR)	
Total	Target	Acquirer	Change	Change	Change	= TWC/ TOTWC **	= AWC/ TOTWC **	Comment
+	+	-	100	150	-50	1.5	-0.5	
+	+	+	100	50	50	0.5	0.5	Higher value of
+	-	+	100	-50	150	-0.5	1.5	TSHR is better
-	-	+	-100	-150	50	1.5	-0.5	Lower value
-	-	-	-100	-50	-50	0.5	0.5	of TSHR is
-	+	-	-100	50	-150	-0.5	1.5	better

** TWC = Target Wealth Change, AWC = Acquirer Wealth Change, TOTWC = TWC + AWC

FIGURES FOR CHAPTER 1

Figure 1: Optimal Incentive Compensation Ratio when Cooperation is Constant

Parameter values for Figure 1: $a_1 = 2, b = 0.8, \sigma \in [0,5] = 2.$

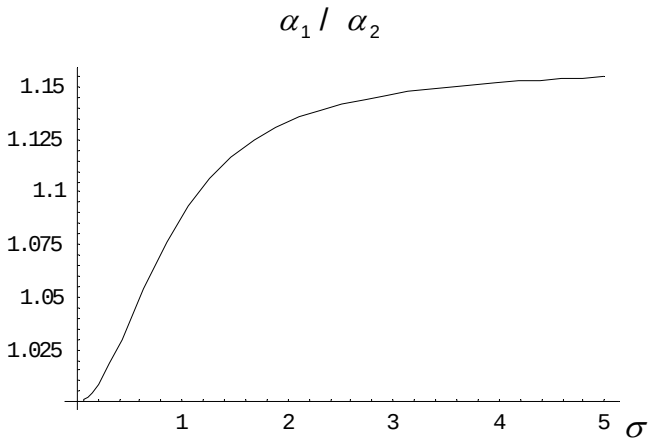


Figure 2: Optimal Incentive Compensation Ratio when Cooperation is a Monotone Increasing function of Risk

Parameter values for Figure 2: $a_1 = 2, b = \frac{1}{\kappa}(\kappa - e^{-\sigma}), \kappa = 2, \sigma \in [0,5]$

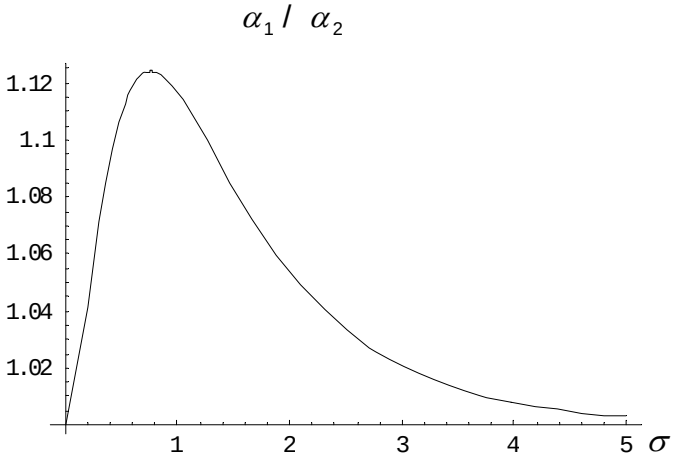
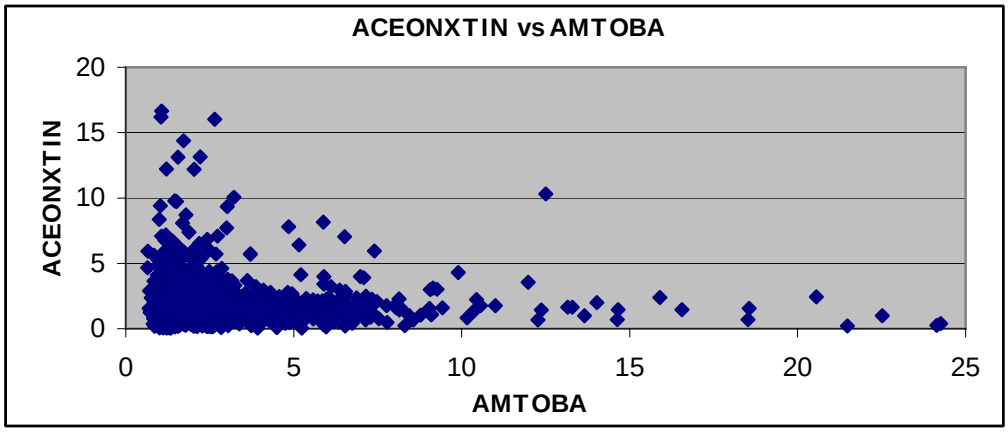
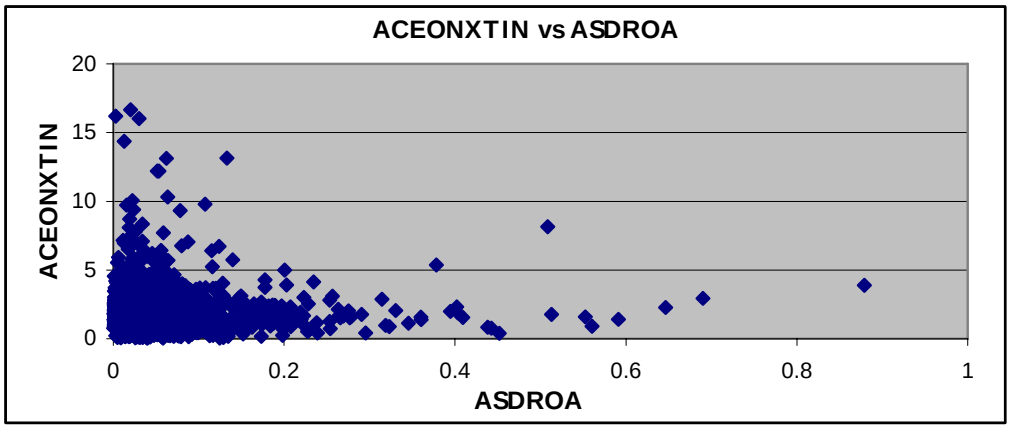
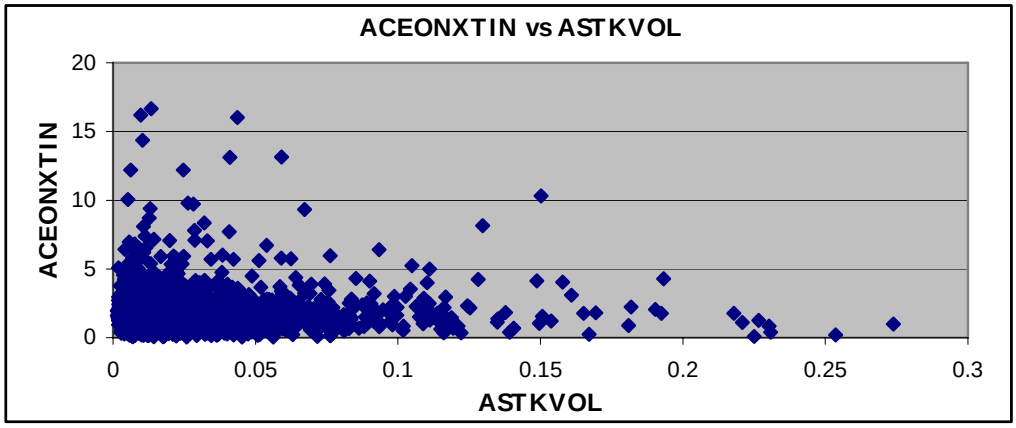


Figure 3: ACEONXTIN ratio versus Aggregate Firm Risk Measures

ACEONXTIN is the ratio of aggregate CEOIN to aggregate NCEOIN. Aggregate CEOIN is CEO incentive compensation = Restricted Stock Grant + Stock Option Grant + Bonus + Long term Incentive Plan ('000 $), and aggregate NCEOIN is incentive compensation for Rank2 Executive = Restricted Stock Grant + Stock Option Grant + Bonus + Long term Incentive Plan ('000 $). STKVOL Percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year (up to 250 trading days). AMTOBA is the average market to book ratio of assets. ASDROA is standard deviation of the firm's annual accounting return on assets for the past 5 fiscal years, including the year of the compensation data. ASTKVOL is percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year (up to 250 trading days).







TABLES FOR CHAPTER 1

Table 1: Summary Statistics

The sample consists of 13699 firm years (2408) firms, from 1992-2002 with available compensation data. CEOSAL is CEO salary for the given firm-year. CEOIN is the incentive compensation for the CEO defined as the sum of $ values of stock grant, option grant, long term incentive plans and bonus granted in a given year. TDC1 is the total CEO compensation as given by EXECCOMP which includes all compensation components. NCEOSAL, NCEOIN and NTDC1 are salary, incentive compensation and total compensation, defined similarly, for the highest paid non-CEO executive. In Panel B, the compensation variables are similar to that in Panel A, except the $ values of compensation are averaged for each firm over the number of years a given firm exists in the sample. CEONXT = TDC1/NTDC1 CEONXTIN = CEOIN/NCEOIN. HHIIN is defined as the Herfidahl index of incentive compensation for CEO and the highest paid non-CEO executive, defined using CEOIN and NCEOIN. ACEONXT = ATDC1/ANTDC1 and ACEONXTIN = ACEOIN/ ANCEOIN. AHHIIN is the herfindahl Index of incentive compensation defined using ACEOIN and ANCEOIN. PCEOWN and PNCEOWN is the share ownership in % of the CEO and the highest paid non-CEO executive for the give firm year. CEOTENR is the tenure of the CEO in months for the given firm year. APCEOWN is the average ownership in % for the CEO for all the years a given firm exists in the sample. APNCEOWN is defined similarly for the highest paid non-CEO executive. ACEOTENR is the average CEOTENR for a given firm for the years the firm remains in the sample. SALES is firm sales in $ millions. MTOBA is the ratio of market value of assets to book value of assets. HPRADJ3 is defined as the firm holding period return for 3 calendar years prior to the fiscal year end date (750 trading days) divided by the CRSP VW holding period return for the same period. HHISALES is the Herfindahl index of industry sales for the given year - with the industry defined as all Compustat firms in that year with the 2-digit SIC code as the given firm. STKVOL is the percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year. SDROA is the standard deviation of the firm's annual accounting return on assets (defined as Net Income divided by average of book value of assets for the current and the previous year) for the past 5 fiscal years, including the year of the compensation data. The variables in Panel H are averages of the corresponding annual values for all years a firm exists in the sample. CEOCHM is an indicator variable equal to one if the CEO is also the board chairperson and zero otherwise. NCEODIR is an indicator variable equal to one if the highest paid non-CEO executive is a director on the firm's board and zero otherwise.

Panel A: Compensation Levels ($ '000) - Firm Year Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
CEOSAL	605	550	315	4,000	0	110	1,600	13,699
CEOIN	1,443	600	6,326	654,412	0	19	12,825	13,699
TDC1	4,625	2,063	12,813	655,448	103	314	37,740	13,699
NCEOSAL	380	329	224	6,765	0	74	1,042	13,699
NCEOIN	891	351	3,578	328,706	1	15	9,147	13,699
NTDC1	2,886	1,297	7,684	364,108	140	236	25,415	13,699

Panel B: Compensation Levels ($ '000)- Aggregate Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
ACEOSAL	555	505	286	3,703	0	150	1,481	2,408
ACEOIN	1,199	587	2,427	65,764	5	33	9,628	2,408
ATDC1	4,227	2,224	7,457	132,450	185	325	32,777	2,408
ANCEOSAL	351	308	182	3,162	0	112	913	2,408
ANCEOIN	746	356	1,485	34,092	3	28	6,132	2,408
ANTDC1	2,667	1,447	4,195	66,770	167	269	21,609	2,408

Panel C: Compensation Ratios - Firm Year Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
CEONXT	1.93	1.62	1.72	66.86	0.00	0.20	8.29	13,699
CEONXTIN	2.40	1.72	7.13	636.58	0.00	0.10	13.61	13,699
HHIIN	0.58	0.55	0.09	1.00	0.50	0.50	0.91	13,699

Panel D: Compensation Ratios - Aggregate Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
ACEONXT	1.73	1.56	1.13	17.05	0.01	0.31	5.58	2,408
ACEONXTIN	1.97	1.63	2.40	68.31	0.04	0.18	7.80	2,408
AHHIIN	0.56	0.54	0.07	0.97	0.50	0.50	0.84	2,408

Table 1 - continued

Panel E: Ownership and Tenure - Firm Year Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
PCEOWN (%)	2.50	0.31	6.17	82.60	0.00	0.00	31.77	13,650
PNCEOWN (%)	0.52	0.06	2.23	55.57	0.00	0.00	9.35	13,160
CEOTENR (months)	90.84	71.85	82.89	659.84	0.00	5.95	417.91	13,699

Panel F: Ownership and Tenure - Aggregate Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
APCEOWN (%)	2.92	0.54	6.07	47.88	0.00	0.00	29.96	2,407
APNCEOWN (%)	0.63	0.11	2.18	45.61	0.00	0.00	9.51	2,394
ACEOTENR (months)	88.73	69.37	71.10	593.86	0.43	11.30	371.91	2,408

Panel G: Firm Charactersitics - Firm Year Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
SALES ($ million)	4,338.56	1,230.66	11,434.98	244,524.00	0.00	22.56	47,947.60	13,666
MTOBA	2.09	1.46	2.65	105.09	0.47	0.80	9.92	13,635
HPRADJ3	1.24	0.95	1.52	77.27	0.01	0.10	6.22	13,313
HHISALES	0.06	0.04	0.06	0.79	0.01	0.01	0.31	13,699
STKVOL (%)	1.88	1.07	3.38	248.83	0.07	0.15	12.44	13,313
SDROA (%)	4.03	2.49	7.12	334.80	0.00	0.12	24.99	13,408

Panel H: Firm Charactersitics - Aggregate Data

	Mean	Median	Std Dev.	Maximum	Minimum	1st Percentile	99th Percentile	N
ASALES ($ million)	3,204.00	891.61	8,728.01	165,561.10	0.20	20.48	31,799.00	2,407
AMTOBA	2.27	1.53	3.41	89.00	0.66	0.89	12.26	2,406
AHPRADJ3	1.31	1.05	1.22	21.51	0.01	0.20	5.79	2,386
AHHISALES	0.06	0.04	0.05	0.74	0.01	0.01	0.29	2,408
ASTKVOL (%)	2.41	1.35	3.33	63.74	0.14	0.23	15.03	2,386
ASDROA (%)	4.82	2.94	9.51	334.80	0.02	0.14	31.87	2,379

Panel I: Indicator Variables- Firm Year Data

	Yes	No	Precent yes	N
CEOCHM	9,284	4,415	67.8%	13,699
NCEODIR	6,524	7,175	47.6%	13,699
CEO owns 5% or more	1,881	11,769	13.8%	13,650
Highest paid non-CEO owns 5% or more	335	12,825	2.5%	13,160

Table 2: Univariate Analysis

The sample consists of 13699 firm years (2408) firms, from 1992-2002 with available compensation data. Please refer to Section ** on page ** for details on sample construction. CEONXTIN = CEOIN/NCEOIN where CEOIN is the incentive compensation for the CEO (defined as the sum of $ values of stock grant, option grant, long term incentive plans and bonus granted in a given year) and NCEOIN is incentive compensation, defined similarly, for the highest paid non-CEO executive. HHIIN is defined as the Herfidahl index of incentive compensation for CEO and the highest paid non-CEO executive, defined using CEOIN and NCEOIN. ACEONXTIN = ACEOIN/ ANCEOIN where ACEOIN is the average of CEOIN for all years a given firm exists in the sample. ANCEOIN is similarly the average of NCEOIN for all years a given firm exists in the sample. AHHIIN is the Herfindahl Index of incentive compensation defined using ACEOIN and ANCEOIN. MTOBA is the ratio of market value of assets to book value of assets. STKVOL is the percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year. SDROA is the standard deviation of the firm's annual accounting return on assets (defined as Net Income divided by average of book value of assets for the current and the previous year) for the past 5 fiscal years, including the year of the compensation data. The variables AMTOBA, ASDROA and ASTKVOL, in Panel B, are averages of the corresponding annual values for all years a firm exists in the sample. In Panel A, the sample is split at the median value of MTOBA, SDROA and STKVOL and the means and standard deviations are reported for CEONXTIN and HHIIN for the two samples, along with the p-values for their differences. Similarly, in Panel B, the sample is split at the median value of AMTOBA, ASDROA and ASTKVOL and the means and standard deviations are reported for ACEONXTIN and AHHIIN for the two samples, along with the p-values for their differences.

Panel A: Incentive Compensation Ratio and Firm Risk Measures - Firm year Data

	Mean	SD	N	Mean	SD	N	p-value for difference (A-B)	Significance
	MTOBA <= Median			MTOBA > Median				
CEONXTIN	2.3437	4.527	6850	2.4632	9.0316	6849	0.327	
HHIIN	0.5783	0.008	6850	0.5764	0.0896	6849	0.0798	*
	SDROA <= Median			SDROA > Median				
CEONXTIN	2.3638	8.8253	6850	2.4442	4.7675	6850	0.5097	
HHIIN	0.5726	0.08196	6850	0.5823	0.09536	6850	<0.0001	***
	STKVOL <= Median			ASTKVOL > Median				
CEONXTIN	2.3608	8.3164	6850	2.4481	5.6179	6850	0.4741	
HHIIN	0.5727	0.0808	6850	0.5823	0.0965	6850	<0.0001	***

Panel B: Incentive Compensation Ratio and Firm Risk Measures - Aggregate Data

	Mean	SD	N	Mean	SD	N	p-value for Difference	Significance
	AMTOBA <= Median			AMTOBA > Median				
ACEONXTIN	1.9347	1.7858	1204	2.0133	2.8923	1204	0.4223	
AHHIIN	0.55903	0.0673	1204	0.55996	0.0723	1204	0.7439	
	ASDROA <= Median			ASDROA > Median				
ACEONXTIN	1.9371	1.6993	1204	2.0116	2.954	1204	0.4469	
AHHIIN	0.5569	0.0635	1204	0.5622	0.0757	1204	0.0626	*
	ASTKVOL <= Median			ASTKVOL > Median				
ACEONXTIN	1.9427	1.7103	1204	2.0057	2.9452	1204	0.5201	
AHHIIN	0.5568	0.0632	1204	0.5622	0.0759	1204	0.0577	*

Table 2 – continued

Panel C: Incentive Compensation Ratio and Executive Characteristics - Firm-Year Data

	Mean	SD	N	Mean	SD	N	T-stat for Difference	Significance
	CEOWN <= Median			CEOWN > Median				
CEONXTIN	2.4567	8.9657	6825	2.3516	4.6627	6825	0.86	
HHIIN	0.579	0.0852	6825	0.5755	0.0924	6825	2.30	**
	NCEOWN <= Median			NCEOWN > Median				
CEONXTIN	2.634	8.8798	6580	2.1352	4.2995	6580	4.10	***
HHIIN	0.5856	0.0904	6580	0.568	0.0857	6580	11.46	***
	CEOCHM = 1			CEOCHM = 0				
CEONXTIN	2.4383	7.7783	9284	2.3292	5.5391	4415	0.94	
HHIIN	0.5791	0.0889	9284	0.5736	0.0889	4415	3.38	***
	NCEODIR = 1			NCEODIR = 0				
CEONXTIN	2.0222	4.7864	6524	2.7498	8.7228	7175	-6.12	***
HHIIN	0.5604	0.0842	6524	0.5927	0.0902	7175	-21.68	***

Panel D: CEO to Non-CEO Ownership Comparison and Incentive Compensation Ratio

	CEONXTIN < 1			CEONXTIN >= 1			T-stat for Difference	Significance
	Mean	SD	N	Mean	SD	N		
CEO Ownership	4%	8.04%	2275	2.20%	5.68%	11375	13.14	***
NCEO Ownership	0.57%	2.57%	2166	0.51%	2.16%	10994	1.14	

Table 3: Total Compensation Levels for the Top 5 Executives

The sample consists of 13699 firm years (2408) firms, from 1992-2002 with available compensation data. TDC1 is the total CEO compensation, NTDC1 is total compensation of Rank2 executive and COMP3to5 is total compensation of executives ranked 3 to 5. SALES is firm sales in $ millions. MTOBA is the ratio of market value of assets to book value of assets. HPRADJ3 is defined as the firm holding period return for 3 calendar years prior to the fiscal year end date (750 trading days) divided by the CRSP VW holding period return for the same period. HHISALES is the Herfindahl index of industry sales for the given year - with the industry defined as all Compustat firms in that year with the 2-digit SIC code as the given firm. PCEOWN and PNCEOWN is the share ownership in % of the CEO and the highest paid non-CEO executive for the give firm year. CEOTENR is the tenure of the CEO in months for the given firm year. CEOCHM is an indicator variable equal to one if the CEO is also the board chairperson and zero otherwise. NCEODIR is an indicator variable equal to one if the highest paid non-CEO executive is a director on the firm's board and zero otherwise. The variables in Panel B are averages of the annual values of the firm-year variables. For example, ATDC1, ANTDC1 and ACOMP3to5 are $ values of respective annual compensation (TDC1, NTDC1 and COMP3to5 respectively) averaged for each firm over the number of years a given firm exists in the sample.

Panel A: Firm year data

Dependent variable Log ()	**TDC1**	**NTDC1**	**COMP3to5**
Explanatory variables			
Intercept	3.549	3.335	4.523
	12.29	13.19	20.87
	***	***	***
log(SALES)	0.384	0.375	0.371
	65.88	73.56	84.78
	***	***	***
log(MOTBA)	0.347	0.431	0.406
	17.53	24.9	27.42
	***	***	***
log(HPRADJ3)	0.085	0.025	0.032
	6.78	2.29	3.43
	***	**	***
log(HHISALES)	0.015	0.035	0.031
	1.03	2.74	2.88
		***	***
log(CEOTENR)	0.01	-0.033	-0.021
	1.08	-4.24	-3.11
		***	***
log(PCEOOWN)	-0.038	-0.003	-0.006
	-8.51	-0.88	-1.98
	***		**
log(PNCEOOWN)	0.012	0.003	0.001
	2.8	0.77	0.44
	***		
CEOCHM	0.167	0.078	0.07
	9.61	5.12	5.35
	***	***	***
NCEO_DIR	-0.012	0.27	0.138
	-0.72	18.9	11.29
		***	***
Industry Dummies	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Number of Observations	12579	12591	12591
F - Statistic	151.9	193.2	241.1
Significance of F-Stat	***	***	***
Adjusted R-Square (%)	44.18	50.19	55.72

Panel B: Aggregated Data

Dependent variable Log ()	**ATDC1**	**ANTDC1**	**ACOMP3to5**
Explanatory variables			
Intercept	4.4451	4.275	4.84
	9.78	10.57	14.95
	***	***	***
log(ASALES)	0.402	0.389	0.376
	32.6	35.35	42.79
	***	***	***
log(AMOTBA)	0.501	0.635	0.531
	13.42	19.08	19.92
	***	***	***
log(AHPRADJ3)	0.101	0.071	0.089
	3.42	2.71	4.28
	***	***	***
log(AHHISALES)	0.016	0.023	0.032
	0.53	0.83	1.47
log(ACEOTENR)	-0.06	-0.119	-0.062
	-2.44	-5.46	-3.53
	**	***	***
log(APCEOWN)	-0.035	0.002	-0.005
	-3.32	0.21	-0.63
	***		
log(APNCEOWN)	0.001	0.008	0.000
	0.12	0.91	0.08
ACEOCHM	0.179	0.107	0.088
	4.23	2.83	2.91
	***	***	***
ANCEO_DIR	-0.086	0.209	0.009
	-1.84	4.98	0.28
	*	***	
Industry Dummies	Yes	Yes	Yes
Year Dummies	Not Applicable		
Number of Observations	2359	2359	2359
	35.8	44.3	59.1
	***	***	***
Adjusted R-Square (%)	45.21	50.67	57.99

Table 4: Incentive Compensation Ratio and Firm Risk Measures

CEONXTIN = CEOIN/NCEOIN where CEOIN is the incentive compensation for the CEO (defined as the sum of $ values of stock grant, option grant, long term incentive plans and bonus granted in a given year) and NCEOIN is incentive compensation, defined similarly, for the highest paid non-CEO executive. ACEONXTIN = ACEOIN/ ANCEOIN where ACEOIN is the average of CEOIN for all years a given firm exists in the sample. ANCEOIN is similarly the average of NCEOIN for all years a given firm exists in the sample. SALES is firm sales in $ millions. MTOBA is the ratio of market value of assets to book value of assets. STKVOL is the percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year. SDROA is the standard deviation of the firm's annual accounting return on assets (defined as Net Income divided by average of book value of assets for the current and the previous year) for the past 5 fiscal years, including the year of the compensation data. HPRADJ3 is defined as the firm holding period return for 3 calendar years prior to the fiscal year end date (750 trading days) divided by the CRSP VW holding period return for the same period. HHISALES is the Herfindahl index of industry sales for the given year - with the industry defined as all Compustat firms in that year with the 2-digit SIC code as the given firm. PCEOWN and PNCEOWN is the share ownership in % of the CEO and the highest paid non-CEO executive for the give firm year. CEOTENR is the tenure of the CEO in months for the given firm year. CEOCHM is an indicator variable equal to one if the CEO is also the board chairperson and zero otherwise. NCEODIR is an indicator variable equal to one if the highest paid non-CEO executive is a director on the firm's board and zero otherwise. The explanatory variables in Panel B are averages of the annual values of the corresponding firm-year variables in Panel A. Both Panel A and B includes industry dummies (defined based on 48 industry definitions by Kenneth French) whereas Panel A also includes year dummies.

Table 4 – continued

Dependent variable	Panel A: Firm year data CEONXTIN			Dependent variable	Panle B: Aggregated Data ACEONXTIN		
SALES	0	0	0	ASALES	0	0	0
	0.15	0.08	0		0.04	0.03	-0.03
MOTBA	-0.04			AMOTBA	-0.025		
	-1.02				-1.13		
SDROA		-0.78		ASDROA		-0.06	
		-0.76				-0.08	
STKVOL			-3.37	ASTKVOL			-1.53
			-1.67				-0.96
			*				
HPRADJ3	0.009	-0.01	-0.01	AHPRADJ3	0.1	0.083	0.09
	0.18	-0.36	-0.27		2.4	2.14	2.29
					***	**	**
HHISALES	-1.41	-1.42	-1.45	AHHISALES	-0.48	-0.446	-0.493
	-1.09	-1.1	-1.12		-0.49	-0.45	-0.51
CEOTENR	0	0	0	ACEOTENR	0.00007	0.00007	0.00006
	-0.89	-0.93	-0.94		2.81	2.82	2.76
					***	***	***
PCEOWN	-0.004	-0.004	-0.004	APCEOWN	-0.02	-0.02	-0.02
	-0.41	-0.4	-0.37		-2.32	-2.33	-2.27
					***	**	**
PNCEOWN	0.026	0.026	0.026	APNCEOWN	0.08	0.079	0.078
	0.88	0.91	0.89		3.48	3.5	3.48
					***	***	***
CEOCHM	0.255	0.251	0.245	ACEOCHM	0.203	0.206	0.195
	1.78	1.75	1.71		3.48	1.64	1.55
	*	*	*		***	*	
NCEO_DIR	-0.757	-0.762	-0.765	ANCEO_DIR	-0.726	-0.722	-0.735
	-5.62	-5.66	-5.68		-5.31	-5.25	-5.34
	***	***	***		***	***	***
# Observations	12602	12602	12602	# Observations	2346	2346	2346
F- Statistic	1.26	1.26	1.30		1.47	1.44	1.46
Significance of F-Stat			*		**	**	**
Adjusted R-Square (%)	0.13%	0.13%	0.15%		1.06%	1%	1.04%

Table 5: Aggregate Incentive Compensation Ratio and Firm Risk Measures- Split Sample

ACEONXTIN = ACEOIN/ ANCEOIN where ACEOIN is the average of CEOIN for all years a given firm exists in the sample. ANCEOIN is similarly the average of NCEOIN for all years a given firm exists in the sample. CEOIN is the incentive compensation for the CEO (defined as the sum of $ values of stock grant, option grant, long term incentive plans and bonus granted in a given year) and NCEOIN is incentive compensation, defined similarly, for the highest paid non-CEO executive. ASALES, AMTOBA, ASDROA, AHPRADJ3, AHHISALES, ACEOTENR, APCEOWN, APNCEOWN, ACEO_CHM and ANCEO_DIR are averages of annual values of SALES, MTOBA, SDROA, HPRADJ3, HHISALES, CEOTENR, PCEOWN, PNCEOWN, CEOCHM and ANCEODIR respectively. SALES is the value of sales in $ millions for a given firm year. MTOBA is the annual ratio of market value of assets to book value of assets. STKVOL is the percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year. SDROA is the standard deviation of the firm's annual accounting return on assets (defined as Net Income divided by average of book value of assets for the current and the previous year) for the past 5 fiscal years, including the year of the compensation data. HPRADJ3 is defined as the firm holding period return for 3 calendar years prior to the fiscal year end date (750 trading days) divided by the CRSP VW holding period return for the same period. HHISALES is the Herfindahl index of industry sales for the given year - with the industry defined as all Compustat firms in that year with the 2-digit SIC code as the given firm. PCEOWN and PNCEOWN is the share ownership in % of the CEO and the highest paid non-CEO executive for the give firm year. CEOTENR is the tenure of the CEO in months for the given firm year. CEOCHM is an indicator variable equal to one if the CEO is also the board chairperson and zero otherwise. NCEODIR is an indicator variable equal to one if the highest paid non-CEO executive is a director on the firm's board and zero otherwise.

In both Panel A and Panel B, the risk variable in Columns 1 and 2 is AMTOBA, ASDRROA in Columns 3 and 4, and ASTKVOL in columns 5 and 6. The sample is split at the value of AMTOBA, ASDROA and ASTKVOL as indicated. The split values are based on visual inspection of the plot of residuals of ACEONXTIN against AMTOBA, ASDROA and ASTKVOL. The residuals are from regression of ACEONXTIN against all the variables in the specification except AMTOBA, ASDROA and ASTKVOL.

Table 5 - continued

Panel A : With CEO and Non-CEO Ownership separately

Dependent variable	ACEONXTIN					
Filter	AMTOBA < 1.2125	AMTOBA > = 1.2125	ASDROA < 0.02	ASDROA >= 0.02	ASTKVOL < 0.00523	ASTKVOL >= 0.00523
ASALES	0	0	0	0	0	0
	-1.15	1.27	0.26	0.01	1.39	0.6
Risk Variable	-0.78	-0.038	-4.23	-0.796	-17.02	-2.01
	-1.57	-2.58	-0.47	-1.67	-0.29	-2
		***		*		**
AHPRADJ3	0.021	0.037	0.065	0.022	-0.252	0.32
	0.26	1.76	0.88	1.12	-1.75	1.59
		*			*	*
AHHISALES	0.32	-0.589	0.203	-0.796	-0.298	-0.248
	0.35	-1.1	0.28	-1.33	0.22	-0.51
ACEOTENR	0	0.0003	0	0.0002	0.0006	0
	-0.48	2.2	0.02	2.02	1.99	1.26
		**		**	**	
APCEOWN	-0.013	-0.017	0.009	-0.022	-0.032	-0.014
	-1.51	-3.79	1.04	-5	-1.86	-3.39
		***		***	*	***
APNCEOWN	-0.018	0.012	-0.027	0.001	0.088	-0.02
	-1.18	0.8	-1.12	0.12	3.68	-1.89
					***	*
ACEOCHM	0.421	0.176	0.185	0.222	0.451	0.191
	3.77	2.57	1.76	3.15	2.94	3.06
	***	***	*	***	***	***
ANCEO_DIR	-0.511	-0.605	-0.792	-0.487	-0.642	-0.576
	-4.42	-7.96	-7.21	-6.13	-4.21	-8.32
	***	***	***	***	***	***
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	670	1665	765	1547	284	2052
F - Statistic	2.15	2.64	2.16	3.10	1.51	3.31
Significance of F-Stat	***	***	***	***	**	***
Adjusted R-Square (%)	8.66%	5.17%	7.70%	7%	8.91%	5.88%

Table 5 – continued

Panel B: With CEO to Non-CEO Ownership Ratio

Dependent variable	ACEONXTIN					
Filter	MTOBA < 1.2125	MTOBA > = 1.2125	SDROA < 0.02	SDROA >= 0.02	STKVOL < 0.00523	STKVOL >= 0.00523
ASALES	0	0	0	0	0	0
	-0.97	1.57	0.25	0.51	1.09	-0.23
Risk Variable	-0.828	0.045	-3.325	-0.953	-6.12	-2.396
	-1.63	-3.04	-0.37	-1.88	-0.1	-2.26
	*	***		*		**
AHPRADJ3	0.022	0.029	0.066	0.016	-0.291	0.027
	0.28	1.39	0.9	0.78	-1.96	1.31
					**	
AHHISALES	0.567	-0.493	0.24	-0.555	0.065	-0.082
	0.58	-0.9	0.33	0.86	0.05	-0.16
ACEOTENR	0	0.0001	0	0	0.0006	0
	-0.88	1.3	0.66	0.65	1.79	0.4
					*	
PCEOWN / PNCEOWN	0	0	0	0	0	0
	-0.5	-0.85	-0.38	-0.083	0.3	-0.95
ACEOCHM	0.447	0.153	0.189	0.197	0.393	0.194
	4.04	2.23	1.79	2.78	2.52	3.11
	***	**	*	***	***	***
ANCEO_DIR	-0.561	-0.617	-0.816	-0.518	-0.56	-0.629
	-4.86	-8.21	-7.6	-6.5	-3.62	-9.13
	***	***	***	***	***	***
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	664	1636	757	1520	284	2017
F - Statistic	2.08	2.36	2.15	2.59	1.22	2.94
Significance of F-Stat	***	***	***	***		***
Adjusted R-Square (%)	8.24%	4.39%	7.72%	5.47%	3.76%	5.06%

Table 6: Aggregate Incentive Compensation Ratios and Firm Risk Measures

Piecewise Linear Specification

ACEONXTIN = ACEOIN/ ANCEOIN where ACEOIN is the average of CEOIN for all years a given firm exists in the sample. ANCEOIN is similarly the average of NCEOIN for all years a given firm exists in the sample. CEOIN is the incentive compensation for the CEO (defined as the sum of $ values of stock grant, option grant, long term incentive plans and bonus granted in a given year) and NCEOIN is incentive compensation, defined similarly, for the highest paid non-CEO executive. ASALES, AMTOBA, ASDROA, AHPRADJ3, AHHISALES, ACEOTENR, APCEOWN, APNCEOWN, ACEO_CHM and ANCEO_DIR are averages of annual values of SALES, MTOBA, SDROA, HPRADJ3, HHISALES, CEOTENR, PCEOWN, PNCEOWN, CEOCHM and ANCEODIR respectively. SALES is the value of sales in $ millions for a given firm year. MTOBA is the annual ratio of market value of assets to book value of assets. STKVOL is the percentage volatility of the firm's stock returns calculated using daily returns for the past 1 year. SDROA is the standard deviation of the firm's annual accounting return on assets (defined as Net Income divided by average of book value of assets for the current and the previous year) for the past 5 fiscal years, including the year of the compensation data. HPRADJ3 is defined as the firm holding period return for 3 calendar years prior to the fiscal year end date (750 trading days) divided by the CRSP VW holding period return for the same period. HHISALES is the Herfindahl index of industry sales for the given year - with the industry defined as all Compustat firms in that year with the 2-digit SIC code as the given firm. PCEOWN and PNCEOWN is the share ownership in % of the CEO and the highest paid non-CEO executive for the give firm year. CEOTENR is the tenure of the CEO in months for the given firm year. CEOCHM is an indicator variable equal to one if the CEO is also the board chairperson and zero otherwise. NCEODIR is an indicator variable equal to one if the highest paid non-CEO executive is a director on the firm's board and zero otherwise.

'Risk Variable Low' in Columns 1 and 4 is AMTOBALO, ASDROALO in Columns 2 and 5 and ASTKVOLLO in Columns 3 and 6. Similarly 'Risk Variable High' in Columns 1 and 4 is AMTOBAHI, ASDROAHI in Columns 2 and 5 and ASTKVOLHI in Columns 3 and 6.

AMTOBALO = AMTOBA when AMTOBA LE 1.2125 and
= 0 when AMTOBA GT 1.2125
AMTOBAHI = 0 when AMTOBA LE 1.2125 and
= AMTOBA – 1.2125 when AMTOBA GT 1.2125

ASDROALO and ASDROAHI are defined similarly based on whether ASDROA is greater than or less than 0.02 (2 percent) and ASTKVOLLO and ASTKVOLHI are defined similarly based on whether ASTKVOL is greater than or less than 0.00523 (2 percent). The piecewise variables are defined using the same method as followed in Morck et al. (1988).

The split values for AMTOBA, ASDROA and ASTKVOL are based on visual inspection of the plot of residuals of ACEONXTIN against AMTOBA, ASDROA and ASTKVOL. The residuals are from regression of ACEONXTIN against all the variables in the specification except AMTOBA, ASDROA and ASTKVOL. Intercept is included in each regression but not reported.

Table 6 – continued

Aggregate Incentive Compensation Ratio and Firm Risk Measures - Piecewise Linear variables

Dependent variable	ACEONXTIN					
Risk Variable	MTOBA	SDROA	STKVOL	MTOBA	SDROA	STKVOL
Explanatory Variables						
ASALES	0	0	0	0	0	0
	0.6	0.38	0.38	0.19	0.11	0.3
Risk Variable Low*	-0.04	3.179	6.41	-0.105	4.22	13.69
	-0.13	0.55	0.14	-0.33	0.73	0.3
Risk Variable High*	-0.039	-1.25	-2.35	-0.033	-1.116	-1.94
	-2.66	-2.59	-2.29	-2.29	-2.4	-2
	***	***	***	**	**	**
AHPRADJ3	0.03	0.018	0.024	0.036	0.026	0.03
	1.48	0.95	1.2	1.81	1.35	1.53
				*		
AHHISALES	-0.06	-0.077	-0.072	-0.216	-0.229	-0.222
	-0.14	-0.16	-0.15	-0.47	-0.5	-0.49
ACEOTENR	0	0	0	0.0001	0.0001	0.0001
	0.82	0.63	0.7	1.79	1.62	1.66
				*	*	*
APCEOWN				-0.016	-0.016	-0.015
				-4.03	-4	-3.94
				***	***	***
APNCEOWN				-0.005	-0.004	-0.004
				-0.49	-0.41	-0.42
APCEOWN / APNCEOWN	0	0	0			
	-1.01	-1.03	-0.97			
ACEOCHM	0.216	0.212	0.211	0.223	0.222	0.219
	3.72	3.65	3.63	3.85	3.82	3.76
	***	***	***	***	***	***
ANCEO_DIR	-0.604	-0.611	-0.618	-0.572	-0.576	-0.585
	-9.59	-9.62	-9.73	-9.04	-9.02	-9.14
	***	***	***	***	***	***
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
# Observations	2276	2276	2276	2311	2311	2311
F- Statistic	3.15	3.14	3.11	3.47	3.48	3.45
Significance of F-Stat	***	***	***	***	***	***
Adjusted R-Square (%)	4.99%	4.96%	4.90%	5.62%	5.63%	5.56%

TABLES FOR CHAPTER 2

Table 7: Descriptive Statistics

The sample consists of 232 takeovers with the largest relative size (defined as target market value of equity 20 / acquirer market value of equity, both measured as of 20 trading days before the takeover announcement) of target to acquirer for the years 1993 to 2001 with available data from CRSP, COMPUSTAT, SDC and proxy statements. See Section 3 for details on sample construction

Panel A: Target and Acquirer Returns around Announcement Dates

All dollar amounts are nominal. Holding period return, premium and CAR (Cumulative Abnormal Return) data are in percentages and are for the periods around the announcement date as indicated in parentheses. Announcement dates for the deals are collected from news searches using afctiva. Market adjusted CARs are defined as firm return less CRSP value weighted return including distributions (VWRETD). Market model returns are defined as firm return less expected return based on the market model. Betas for the market model calculated for the period (-50, -250) trading days with respect to the announcement date, using at least 50 days of return data. Target Final Premium is defined as (Price Paid - P20)/ P20, where P20 is the target share price 20 day before the announcement and 'Price Paid' is the final price paid to target shareholders.

	Mean	Median	SD	Max	Min	1st Percentile	99th Percentile	N
Target CAR - Market Adjusted (-20 to 1)	13.7%	14.2%	22.8%	133.8%	-84.0%	-59.1%	62.1%	230
Target CAR - Market Model (-20 to 1)	13.5%	13.6%	23.6%	162.9%	-68.4%	-53.8%	64.9%	230
Target Holding Period Return (-20 to 1)	15.1%	14.3%	22.4%	112.4%	-69.7%	-48.4%	63.0%	232
Target Holding Period Return (-1 to 1)	10.8%	8.9%	15.3%	59.0%	-56.3%	-23.2%	52.9%	232
Target Holding Period Return (-20 to 20)	14.4%	14.7%	25.6%	115.3%	-72.7%	-54.1%	87.8%	232
Target Final Premium	27.5%	25.5%	31.5%	189.5%	-60.4%	-46.7%	129.2%	229
Acquirer CAR - Market Adjusted (-20 to 1)	0.8%	-0.5%	20.3%	126.9%	-57.3%	-36.1%	67.8%	230
Acquirer CAR - Market Model (-20 to 1)	-0.6%	-2.3%	21.3%	155.1%	-43.9%	-41.2%	54.7%	230
Acquirer Holding Period Return (-20 to 1)	1.9%	0.0%	19.7%	128.6%	-65.1%	-38.9%	80.0%	232
Acquirer Holding Period Return (-1 to 1)	-2.2%	-2.6%	10.8%	41.4%	-45.5%	-27.9%	39.7%	232
Acquirer Holding Period Return (-20 to 20)	-0.1%	-3.0%	21.5%	188.6%	-47.9%	-40.9%	50.9%	232

Panel B: Change of Wealth and Sharing of Wealth Change between Targets and Acquirers

Target / Acquirer wealth changes are in $ millions and are calculated as the market value of equity of the firm on 20 trading days prior to takevoer announcement times the holding period return for the period (-20, +20). The dates -20 and +20 are number of trading days with respect to the announcement date. Total wealth change = Target Wealth Change + Acquirer Wealth change in $ millions.

Total (Target + Acquirer) Wealth Change Positive (N = 136)

	Mean	Median	SD	Max	Min	1st Percentile	99th Percentile
Target Wealth Change	459.6	106.7	949.0	8,994.4	-87.1	-35.3	2,727.7
Acquirer Wealth Change	221.1	30.4	820.6	6,264.1	-2,087.9	-1,293.7	2,972.5
Target Share of Wealth Change	110.1%	67.8%	156.3%	1260.4%	-289.7%	-3.0%	851.3%
Acquirer Share of Wealth Change	-10.1%	32.2%	156.3%	389.7%	-1160.4%	-751.3%	103.0%

Total (Target + Acquirer) Wealth Change Negative (N = 96)

	Mean	Median	SD	Max	Min	1st Percentile	99th Percentile
Target Wealth Change	-256.5	-8.7	1,429.5	1,624.4	-11,332.6	-11,332.6	1,624.4
Acquirer Wealth Change	-507.3	-72.0	1,831.3	23.5	-16,006.6	-16,006.6	23.5
Target Share of Wealth Change	-51.1%	23.9%	331.0%	482.0%	-2684.1%	-2684.1%	482.0%
Acquirer Share of Wealth Change	151.1%	76.1%	331.0%	2784.1%	-382.0%	-382.0%	2784.1%

Panel C: Target Board, Ownership and Asset Characteristics

	Mean	Median	SD	Max	Min	5th Percentile	95th Percentile
Board Characteristics							
Board Size	9.5	9.0	3.8	25.0	4.0	5.0	17.0
Number of Outside Directors	5.4	5.0	3.4	18.0	0.0	1.0	11.5
Proportion of Outside Directors	0.5	0.6	0.2	0.9	0.0	0.1	0.9
Number of Inside Directors	2.8	3.0	1.5	9.0	1.0	1.0	6.0
Proportion of Inside Directors	0.3	0.3	0.2	1.0	0.1	0.1	0.6
Number of directorships for Outside Directors	1.5	1.4	1.3	7.0	0.0	0.0	3.7
PercentOwnership for							
Outside Directors	2.5	0.4	6.2	61.4	0.0	0.0	11.8
Inside Directors	10.3	3.4	15.5	83.2	0.0	0.0	46.0
Affiliated Blocks and ESOPs	3.2	0.0	8.7	60.1	0.0	0.0	20.7
Unaffiliated Blocks	16.0	12.2	16.3	70.6	0.0	0.0	50.1
Directors and Executive Officers	15.0	8.5	16.5	84.4	0.0	0.6	47.2

Target and Acquirer market values of equity (MVE) are as of 20 trading days before the announcement date. Target return on assets is for the last 3 fiscal years before the announcement date. MOE = Merger of Equals

Target Asset Characteristics							
Target Market Value of Equity (MVE) ($mn)	2494.3	487.0	7170.3	58608.1	2.9	22.8	7265.6
Target Return on Assets (%)	4.01	6.08	17.75	37.12	-144.70	-20.95	19.05
Relative Size = Target MVE / Acquirer MVE (entire sample N = 232)	0.731	0.668	0.492	5.158	0.092	0.119	1.331
Relative Size = Target MVE / Acquirer MVE (Non MOEs, N = 179)	0.697	0.622	0.540	5.158	0.082	0.091	1.484
Relative Size = Target MVE / Acquirer MVE (MOEs, N = 53)	0.848	0.866	0.242	1.596	0.095	0.464	1.229

Panel D: Deal Characteristics

	Yes	No	Total	Percent Yes
Independent Board of Target	132	100	232	56.9%
Interlocking Directorships	19	213	232	8.2%
Competing Bid	8	224	232	3.4%
Tender Offer	16	216	232	6.9%
Tender Offer with Cash Payment of 50 percent or more	15	1	16	93.8%
Merger of Equals	53	179	232	22.8%
Total Wealth Change positive	136	96	232	58.6%
Targe CEO is merged company CEO	31	201	232	13.4%
Targe CEO is merged company CEO (non MOEs)	12	167	179	6.7%
Targe CEO is merged company CEO (MOEs)	19	34	53	35.8%
Target CEO on merged company board	181	51	232	78.0%
Cash Payment Dummy = 1 (Cash payment ≥ 50 percent)	40	192	232	17.2%
Stock Payment Dummy = 1 (Stock payment ≥ 50 percent)	184	48	232	79.3%
100 percent of payment to target shareholder is Cash	21		232	9.1%
100 percent of payment to target shareholder is Stock	174		232	75.0%
Payment to target shareholder is cash + stock + other securities	37		232	15.9%

Directors are defined as insiders if they are current or former executives of the firm or its subsidiaries, gray if they have potential business ties with the firm (auditors, lawyers, bankers etc) and outsiders otherwise. Independent Board is defined as one in which the proportion of outside directors is 50% or more. Interlocking directorships is a dummy variable equal to 1 if the target and acquirer share one or more directors before the announcement date, 0 otherwise. Competing Bid is indicator variables equal to 1 (0) indicating presence (absence) of any other bid for the target during the period from 1 year prior to the announcement date to the merger completion date. Tender offer is a dummy equal to 1 if the takeover is via a tender offer to target shareholders, 0 otherwise. Merger of Equals is a dummy equal to 1 if the takeover is a 'Merger Of Equals' as identified in news items, proxy statements or by SDC, 0 otherwise. Cash Payment dummy equals 1 if 50% or more of the payment to target shareholders is in cash, 0 otherwise. Stock Payment dummy is defined similarly.

Table 8: Univariate Results

The sample consists of 232 takeovers with the largest relative size of target to acquirer for the years 1993 to 2001 with available data from CRSP, COMPUSTAT, SDC and proxy statements. Holding period returns and Cumulative Abnormal Returns (CARs) for the target are for the window indicated around the announcement date. Target final premium is the target return based on the price 20 trading days before the announcement and the final price paid by the acquirer, obtained from SDC. Panel A splits the sample by board independence, Panel B by Board size (at the median size of 9 members) and Panel C by whether or not the takeover is a Merger of Equals (MOE). Finally, Panel D and E split the sample by Board Independence for MOEs and Non-MOEs respectively. ***, ** and * indicate respectively significance at 1% or less, 5% or less and 10% or less, for the difference between the means compared.

Panel A	Independent Board N = 132		Non Independent Board N = 100			
	MEAN	SD	MEAN	SD	T-stat	Significance
Target CAR - Market Model (-20 to 1)	12.2%	25.8%	15.2%	20.4%	-0.96	
Target Holding Period Return (-20 to 1)	12.5%	22.2%	18.6%	22.2%	-2.05	**
Target Holding Period Return (-1 to 1)	8.7%	15.3%	13.5%	15.0%	-2.40	**
Target Holding Period Return (-20 to 20)	10.3%	24.5%	19.7%	26.2%	-2.81	***
Target Final Premium	23.8%	27.9%	32.3%	35.1%	-2.03	**
Acquirer CAR - Market Model (-20 to 1)	-1.5%	21.2%	0.7%	21.4%	-0.76	
Acquirer Holding Period Return (-20 to 1)	1.6%	19.8%	2.3%	19.6%	-0.27	
Acquirer Holding Period Return (-1 to 1)	-2.1%	11.3%	-2.4%	10.0%	0.26	
Acquirer Holding Period Return (-20 to 20)	-2.0%	17.2%	2.4%	26.0%	-1.56	

Panel B	Board Size <= 9 (median) N = 139		Board Size > 9 (median) N = 93			
	MEAN	SD	MEAN	SD	T-stat	Significance
Target CAR - Market Model (-20 to 1)	14.5%	23.8%	12.0%	23.4%	0.77	
Target Holding Period Return (-20 to 1)	16.2%	25.7%	13.5%	16.1%	0.92	
Target Holding Period Return (-1 to 1)	11.3%	16.8%	10.0%	12.8%	0.61	
Target Holding Period Return (-20 to 20)	15.9%	28.7%	12.1%	20.1%	1.09	
Target Final Premium	30.2%	35.2%	23.5%	24.5%	1.58	
Acquirer CAR - Market Model (-20 to 1)	-0.6%	20.6%	-0.5%	22.4%	-0.04	
Acquirer Holding Period Return (-20 to 1)	2.3%	21.6%	1.2%	16.5%	0.42	
Acquirer Holding Period Return (-1 to 1)	-2.3%	11.5%	-2.1%	9.6%	-0.07	
Acquirer Holding Period Return (-20 to 20)	1.4%	25.4%	-2.3%	13.6%	1.31	

Table 8- Continued

Panel C	Merger of Equals (MOE) N = 53		Not MOE N = 179			
	MEAN	SD	MEAN	SD	T-stat	Significance
Target CAR - Market Model (-20 to 1)	1.3%	20.4%	17.2%	23.3%	-4.46	***
Target Holding Period Return (-20 to 1)	3.3%	17.9%	18.6%	22.4%	-4.55	***
Target Holding Period Return (-1 to 1)	2.9%	12.7%	13.1%	15.3%	-4.40	***
Target Holding Period Return (-20 to 20)	0.8%	19.1%	18.4%	25.9%	-4.58	***
Target Final Premium	9.2%	26.3%	32.9%	30.9%	-5.07	***
Acquirer CAR - Market Model (-20 to 1)	-0.8%	13.8%	-0.5%	23.1%	-0.11	
Acquirer Holding Period Return (-20 to 1)	1.4%	14.7%	2.0%	21.0%	-0.20	
Acquirer Holding Period Return (-1 to 1)	-0.1%	8.5%	-2.8%	11.3%	1.62	
Acquirer Holding Period Return (-20 to 20)	-2.1%	15.9%	0.5%	22.9%	-0.80	

Panel D - Merger of Equals	Independent Board N = 39		Non Independent Board N = 14			
	MEAN	SD	MEAN	SD	T-stat	Significance
Target CAR - Market Model (-20 to 1)	0.1%	21.5%	4.7%	17.1%	-0.72	
Target Holding Period Return (-20 to 1)	1.4%	16.8%	8.7%	20.4%	-1.31	
Target Holding Period Return (-1 to 1)	1.8%	13.4%	6.2%	10.3%	-1.12	
Target Holding Period Return (-20 to 20)	-2.2%	18.5%	9.0%	19.1%	-1.92	*
Target Final Premium	4.8%	19.0%	21.1%	38.3%	-2.06	**
Acquirer CAR - Market Model (-20 to 1)	-1.9%	12.7%	2.2%	16.5%	-0.97	
Acquirer Holding Period Return (-20 to 1)	0.2%	11.8%	4.7%	21.2%	-0.96	
Acquirer Holding Period Return (-1 to 1)	-0.4%	8.0%	0.6%	10.1%	-0.36	
Acquirer Holding Period Return (-20 to 20)	-4.8%	14.0%	5.3%	18.7%	-2.10	**

Panel E - Not Merger of Equals	Independent Board N = 93		Non Independent Board N = 86			
	MEAN	SD	MEAN	SD	T-stat	Significance
Target CAR - Market Model (-20 to 1)	17.3%	25.8%	16.9%	20.4%	0.11	
Target Holding Period Return (-20 to 1)	17.2%	22.6%	20.2%	22.2%	-0.89	
Target Holding Period Return (-1 to 1)	11.6%	15.2%	14.7%	15.4%	-1.36	
Target Holding Period Return (-20 to 20)	15.5%	24.9%	21.5%	26.9%	-1.53	
Target Final Premium	31.8%	27.2%	34.1%	34.5%	-0.49	
Acquirer CAR - Market Model (-20 to 1)	-1.3%	24.0%	0.4%	22.2%	-0.49	
Acquirer Holding Period Return (-20 to 1)	2.1%	22.4%	1.9%	19.4%	0.08	
Acquirer Holding Period Return (-1 to 1)	-2.8%	12.4%	-2.9%	10.0%	0.09	
Acquirer Holding Period Return (-20 to 20)	-0.8%	18.2%	2.0%	27.1%	-0.81	

Panel F: Non-MOEs (N = 179) **Target CEO Status in Merged Company**

	Target CEO is CEO of merged firm (N=12)				Target CEO is not CEO of merged firm (N = 167)				
Target Board	Independent **A (N = 6)**		Non-Independent **B (N = 6)**		Independent **C (N = 87)**		Non-Independent **D (N = 80)**		Significance of Difference
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	**A-B** **C-D**
Target CAR - Market Model (-20,1)	14.3%	22.3%	15.7%	25.1%	17.0%	25.6%	20.0%	24.1%	
Acquirer CAR - Market Model (-20,1)	-1.7%	13.7%	-2.1%	18.5%	-1.3%	24.3%	-0.3%	22.9%	

Table 9: Target Initial Premium and Cumulative Abnormal Returns

Target Initial Premium is defined as the holding period return on the target stock from 20 trading days before to 1 day after the announcement. In CSZ results, the inital premium is from 3- days before the first tender offer rumour to the first tender offer bid price. THPR (-20, 1) is return on the target from 20 trading days before the announcement to1 day after the announcement. Cumulative Abnormal Returns are for the window (-20,1) (trading days) around the announcement date. Numbers below the coefficients indicate p-values. ***, ** and * indicate significance at 1% or less, 5% or less and 10% or less respectively.

Dependent Variable	Target Initial Premium			Target CAR	
Explanatory Variables	CSZ Result*	THPR (-20,1)	THPR (-20,1)	Market Model	Market Adjusted
Intercept	0.58	0.356	0.372	0.361	0.278
	0.01	0.007	0.006	0.016	0.055
	***	***	***	**	*
Interlocking directorships (a)	-0.2	0.044	0.018	0.042	0.05
	0.02	0.415	0.726	0.467	0.367
	**				
Independent Board Dummy (b)	0.1	-0.014	-0.017	0.011	0.02
	0.08	0.693	0.603	0.76	0.56
	*				
Number of additional directorships per outside director (c)	0.03	-0.003	-0.004	0	-0.007
	0.22	0.781	0.752	0.968	0.575
Outsider director Ownership (d)	0.29	-0.002	-0.003	-0.003	-0.003
	0.43	0.352	0.249	0.175	0.216
Log Market value of Equity (e)	-0.02	-0.016	-0.007	-0.01	-0.005
	0.42	0.11	0.487	0.36	0.601
Ownership of Affiliated Blocks (f)	-0.39	0	0.0004	-0.001	0
	0.34	0.707	0.771	0.494	0.858
Ownership of Unaffiliated Blocks (g)	0.12	0	0.0005	0.001	0.001
	0.5	0.852	0.607	0.366	0.299
Insider director Ownership (h)	0.36	0	0	0	0
	0.06	0.378	0.983	0.855	0.592
	*				
Industry adjusted ROA (i)	-0.15	0.262	0.208	-0.142	-0.004
	0.2	0.003	0.016	0.13	0.958
		***	**		
MOE Indicator (j)			-0.117	-0.125	-0.135
			0.002	0.002	0
			***	***	***
Stock Payment Dummy (k)			-0.101	-0.09	-0.069
			0.01	0.033	0.09
			***	**	*
Adjusted R-Square % (l)	10	4.2	11.93	9.43	8.04
Regression p-value	0.01	0.03	0.0001	0.0007	0.0022
Sample Size for regression	169	226	226	224	224

Table 9 - continued

* From Cotter et. al (1997), Table 3, Model ii. All board and ownership variables are as of the last proxy statement of the target, up to 12 months before the announcement date

[a] Indicator variable equal to 1 if the target and the acquirer share at least one common director, 0 otherwise.

[b] Indicator variable equal to 1 if proportion of outside directors in the target board exceeds 50%, 0 otherwise. Outside directors are those directors who are not company executives (Insider directors) and those who do not have any business relationship (actual or potential) with the target firm.

[c] Average number of additional directorships (excluding the primary firm of employment and the target firm itself) for outsider directors.

[d] Total ownership of all outsider directors.

[e] Log of market value of equity of the target firm, 20 trading days before the announcement date.

[f] Ownership of blocks holders like Employee Stock Option Plans and other trusts/ funds on which target executives might have potential control (based on trust membership/ directorship).

[g] Ownership of block holders which are un-affiliated with the target board and executives.

[h] Total ownership of all insider directors (directors who are current or past executives of the firm).

[i] Average Return on Assets for the target firm for up to 3 years before the announcement date, less corresponding return the target's industry (defined by firms in the target's 2 digit SIC code).

[j] Indicator variable equal to 1 (0) if the takeover is a merger of equals defined based on announcements and merger proxies

[k] Indicator variable = 1 if the payment to target shareholders in stock is more than 50% of total payment, 0 otherwise

[l] Indicator variables (1 = presence, 0 = absence) for 1. Golden Parachute compensation arrangements for the target executives in the event of a takeover, 2. Poison Pill arrangements for the target stock and 3. Competing bid for the target during the period from 1 year prior to the announcement date to the completion of the takeover, are included in the regression but not reported. All these variables are insignificant in all specifications.

Table 10: Acquirer Returns and Target Governance Charactersitics

Acquirer return is the holding period return from 20 trading days before the announcement date to 1 day after the announcement. Cumulative Abnormal Returns are for the window (-20,1) trading days around the announcement date. The numbers below the coefficients indicate p-values. ***, ** and * indicate significance at 1% or less, 5% or less and 10% or less respectively.

Dependent Variable	Acquirer Return (-20,1)			Acquirer CAR - Market Model		
Explanatory Variables						
Intercept	0.052	0.057	0.076	0.111	0.122	0.184
	0.657	0.637	0.544		0.332	0.165
Interlocking directorships (a)	-0.021	-0.019	-0.021	-0.064	-0.061	-0.067
	0.674	0.691	0.672		0.233	0.194
Independent Board Dummy (b)	0.022	0.022	-0.02	-0.005	-0.006	-0.013
	0.482	0.491	0.539		0.837	0.693
Number of additional directorships per outside director (c)	-0.008	-0.008	-0.007	-0.004	-0.004	-0.003
	0.511	0.517	0.529		0.743	0.782
Outsider director Ownership (d)	-0.003	-0.003	-0.002	-0.005	-0.005	-0.005
	0.239	0.243	0.241	0.04	0.047	0.049
				**	**	**
Log Market value of Equity (e)	-0.004	-0.004	-0.004	-0.007	-0.008	-0.009
	0.678	0.65	0.645	0.452	0.393	0.362
Ownership of Affiliated Blocks (f)	0	0	0	0	0	0
	0.774	0.772	0.779	0.796	0.803	0.777
Ownership of Unaffiliated Blocks (g)	0	0	0	0	0	0
	0.628	0.625	0.661	0.981	0.971	0.902
Insider director Ownership (h)	0.002	0.002	0.002	0.002	0.002	0.001
	0.05	0.05	0.075	0.078	0.073	0.171
	**	**	*	*	*	
Industry adjusted ROA (i)	-0.154	-0.153	-0.158	-0.412	-0.409	-0.423
	0.05	0.06	0.053	0.0001	0.0001	0.0001
	**	*	*	***	***	***
MOE Indicator (j)		0.007	0.011		0.017	0.029
		0.837	0.753		0.615	0.417
Stock Payment Dummy (k)			-0.019			-0.057
			0.593			0.135
Adjusted R-Square % (l)	0.85	0.41	0.08	11.56	11.25	11.76
Regression p-value	0.287	0.369	0.433	0.0001	0.0001	0.0001
Sample Size for regression	226	226	226	224	224	224

Table 10 – continued

All board and ownership variables are as of the last proxy statement of the target, up to 12 months before the announcement date.
[a] Indicator variable equal to 1 if the target and the acquirer share at least one common director, 0 otherwise.
[b] Indicator variable equal to 1 if proportion of outside directors in the target board exceeds 50%, 0 otherwise.
Outside directors are those directors who are not company executives (Insider directors) and those who do not have any business relationship (actual or potential) with the target firm.
[c] Average number of additional directorships (excluding the primary firm of employment and the target firm itself) for outsider directors.
[d] Total ownership of all outsider directors.
[e] Log of market value of equity of the target firm, 20 trading days before the announcement date.
[f] Ownership of blocks holders like Employee Stock Option Plans and other trusts/ funds on which target executives might have potential control (based on trust membership/ directorship).
[g] Ownership of block holders which are un-affiliated with the target board and executives.
[h] Total ownership of all insider directors (directors who are current or past executives of the firm).
[i] Average Return on Assets for the target firm for up to 3 years before the announcement date, less corresponding return the target's industry (defined by firms in the target's 2 digit SIC code).
[j] Indicator variable equal to 1 if the takeover is a merger of equals defined based on announcements, SDC and merger proxies, 0 otherwise
[k] Indicator variable = 1 if the payment to target shareholders in stock is more than 50% of total payment, 0 otherwise
[l] Indicator variables (1 = presence, 0 = absence) for 1. Golden Parachute compensation arrangements for the target executives in the event of a takeover, 2. Poison Pill arrangements for the target stock and 3. Competing bid for the target during the period from 1 year prior to the announcement date to the completion of the takeover, are included in the regression but not reported. These variables are insignificant in all specifications.

Table 11: Target Governance and Target's Share of Wealth Change around Takeover Announcements

Target's share of wealth change (TSHR) is defined as Target Wealth Change / (Target Wealth Change + Acquirer Wealth Change). Target wealth change is defined as TMVE * THPR (-20, 1), where TMVE is target market value of equity 21 trading days before the announcement and THPR (-20, 1) is return on the target from 20 trading days before the announcement to1 day after the announcement. Acquirer wealth change is defined similarly. The wealth change measure is calculated separately for cases where total (Target + Acquirer) wealth change is positive and where it is negative. The numbers below the coefficients indicate p-values. ***, ** and * indicate significance at 1% or less, 5% or less and 10% or less respectively.

Dependent Variable	Target Share of Wealth Change					
	Entire Sample		Merger of Equals		Not Merger of Equals	
Total Wealth Change	Positive	Negative	Positive	Negative	Positive	Negative
Intercept	-2.556	-10.58	4.703	1.777	-2.816	-14.197
	0.461	0.857	0.154	0.49	0.493	0.863
Interlocking directorships (a), #	0.672	-6.32	2.283		0.862	-5.976
	0.613	0.804	0.4		0.573	0.845
Independent Board Dummy (b)	0.692	-21.95	-0.876	-0.064	0.824	-27.362
	0.458	0.111	0.182	0.933	0.463	0.155
Number of additional directorships per outside director (c)	-0.278	0.982	0.004	0.088	-0.312	1.134
	0.391	0.86	0.99	0.758	0.405	0.886
Outsider director Ownership (d)	0.153	0.497	-0.34	0.018	0.158	0.573
	0.08 *	0.489	0.293	0.806	0.108	0.566
Log Market value of Equity (e)	0.222	1.386	-0.167	-0.08	0.231	1.664
	0.377	0.736	0.387	0.673	0.439	0.776
Ownership of Affiliated Blocks (f)	0.005	0.013	-0.005	-0.015	0.004	0.099
	0.909	0.985	0.862	0.858	0.947	0.918
Ownership of Unaffiliated Blocks (g)	-0.001	0.57	-0.04	-0.03	0.002	0.73
	0.951	0.118	0.055 **	0.1 *	0.954	0.157
Insider director Ownership (h)	0.007	-0.337	-0.04	0	0.009	-0.345
	0.81	0.491	0.414	0.999	0.781	0.588
Industry adjusted ROA (i)	-0.105	15.787	-3.89	-0.611	-0.382	18.53
	0.981	0.538	0.56	0.795	0.937	0.585
MOE Indicator (j)	-1.574	-8.19	NA	NA	NA	NA
	0.152	0.548				
Stock Payment Dummy (k) *	1.139	6.39	NA	NA	1.183	6.4
	0.232	0.769			0.262	0.811
Adjusted R-Square % (l)	negative	negative	negative	negative	negative	negative
Regression p-value	0.685	0.824	0.538	0.814	0.807	0.872
Sample Size for regression	134	92	23	28	111	64

Table 11 – continued

* Stock payment dummy not used in MOE regressions as all MOEs have the same value for this variable. All board and ownership variables are as of the last proxy statement of the target, up to 12 months before the announcement date.
# Director interlock variable is not used in the case of subsample which are MOEs and have negative Total Wealth Change, (result column 4) because there is no variation in that variable within the subsample.
[a] Indicator variable equal to 1 if the target and the acquirer share at least one common director, 0 otherwise.
[b] Indicator variable equal to 1 if proportion of outside directors in the target board exceeds 50%, 0 otherwise.
Outside directors are those directors who are not company executives (Insider directors) and those who do not have any business relationship (actual or potential) with the target firm.
[c] Average number of additional directorships (excluding the primary firm of employment and the target firm itself) for outsider directors.
[d] Total ownership of all outsider directors.
[e] Log of market value of equity of the target firm, 20 trading days before the announcement date.
[f] Ownership of blocks holders like Employee Stock Option Plans and other trusts/ funds on which target executives might have potential control (based on trust membership/ directorship).
[g] Ownership of block holders which are un-affiliated with the target board and executives.
[h] Total ownership of all insider directors (directors who are current or past executives of the firm).
[i] Average Return on Assets for the target firm for upto 3 years before the announcement date, less corresponding return the target's industry (defined by firms in the target's 2 digit SIC code).
[j] Indicator variable equal to 1 if the takeover is a merger of equals defined based on announcements, SDC and merger proxy, 0 otherwise.
[k] Indicator variable = 1 if the payment to target shareholders in stock is more than 50% of total payment, 0 otherwise
[l] Indicator variables (1 = presence, 0 = absence) for 1. Golden Parachute compensation arrangements for the target executives in the event of a takeover, 2 Poison Pill arrangements for the target stock and 3. Competing bid for the target during the period from 1 year prior to the announcement date to the completion of the takeover,are included in the regression but not reported. These coefficients, are insignificant in all specifications.

Table 12: Target and Acquirer Returns and Target CEO Status in the Combined Firm

Target's share of wealth change (TSHR) is defined as Target Wealth Change / (Target Wealth Change + Acquirer Wealth Change). Target wealth change is defined as TMVE * THPR (-20, 1), where TMVE is target market value of equity 21 trading days before the announcement and THPR (-20, 1) is return on the target from 20 trading days before the announcement to1 day after the announcement. Acquirer wealth change is defined similarly. THPR and AHPR refer to THPR (-20,1) and AHPR (-20,1) as defined in the previous sentence. The wealth change measure is calculated separately for cases where total (Target + Acquirer) wealth change is positive and where it is negative. The numbers below the coefficients indicate p-values. ***, ** and * indicate significance at 1% or less, 5% or less and 10% or less respectively.

	Entire Sample		Total Wealth Change		Entire Sample		Total Wealth Change	
			Positive	Negative			Positive	Negative
Dependent Variable ?	**THPR**	**AHPR**	**TSHR**	**TSHR**	**THPR**	**AHPR**	**TSHR**	**TSHR**
Interlocking directorships (a), *	0.005	-0.039	1.223	-0.2	0.02	-0.03	0.333	0.794
	0.943	0.56	0.622	0.995	0.695	0.531	0.792	0.975
Target CEO on merged company board' * 'Independent Board Dummy' (b)	-0.03	0.028	1.161	-33.82				
	0.531	0.527	0.528	0.07 *				
Target CEO on merged company board (c)	-0.055	-0.019	-0.627	35.79				
	0.32	0.717	0.764	0.1 *				
Target CEO is merged company CEO * Independent Board Dummy (b)					-0.006	0.019	-0.286	-5.08
					0.943	0.816	0.921	0.87
Target CEO is merged company CEO (d)					-0.123	-0.054	-0.369	0.871
					0.088 *	0.431	0.861	0.975
Number of additional directorships per outside director (e)	-0.012	-0.011	-0.315	1.87	-0.004	-0.007	-0.249	0.998
	0.425	0.447	0.562	0.782	0.777	0.565	0.444	0.861
Outsider director Ownership (f)	-0.001	-0.003	0.242	0.581	-0.003	-0.002	0.161	0.271
	0.666	0.197	0.113	0.489	0.259	0.284	0.068 *	0.706
Log Market value of Equity (g)	0.014	0.014	-0.095	0.244	-0.007	-0.004	0.237	0.295
	0.296	0.25	0.84	0.965	0.419	0.683	0.345	0.944
Ownership of Affiliated Blocks (h)	0.001	0	0.028	-0.042	0	0	-0.005	-0.077
	0.468	0.847	0.691	0.96	0.917	0.913	0.896	0.918
Ownership of Unaffiliated Blocks (i)	0	0.002	0.004	0.725	0	0	-0.005	0.573
	0.683	0.066 *	0.92	0.103	0.576	0.7	0.847	0.127
Insider director Ownership (j)	0.002	0.003	-0.012	-0.562	0	0.001	-0.001	-0.063
	0.24	0.02 **	0.816	0.456	0.858	0.095 *	0.962	0.892
Industry adjusted ROA (k)	0.139	-0.226	-0.33	22.32	0.202	-0.166	-0.062	22.114
	0.1 *	0.013 **	0.966	0.455	0.018 **	0.041 **	0.989	0.395
MOE Indicator (l)	-0.081	0.002	-1.93	-13.46	-0.085	0.02	-1.324	-8.263
	0.057 *	0.952	0.24	0.4	0.027 **	0.544	0.262	0.565
Stock Payment Dummy (m)	-0.116	-0.045	2.48	3.86	-0.096	-0.02	0.981	6.865
	0.044 **	0.397	0.202	0.895	0.013 **	0.57	0.307	0.759
Adjusted R-Square % (n)	9.57	3.24	negative	negative	14.68	negative	negative	negative
Regression p-value	0.001	0.167	0.785	0.734	0.0001	0.467	0.796	0.982
Sample Size for regression	226	226	134	92	226	226	134	92

Table 12 – continued

* Intercept included in the regressions but not reported. All board and ownership variables are as of the last proxy statement of the target, up to 12 months before the announcement date.
[a] Indicator variable equal to 1 if the target and the acquirer share at least one common director, 0 otherwise.
[b] Indicator variable equal to 1 if proportion of outside directors in the target board exceeds 50%, 0 otherwise.
Outside directors are those directors who are not company executives (Insider directors) and those who do not have any business relationship (actual or potential) with the target firm.
[c] Indicator variable equal to 1 (0) if the target CEO is present on the merged company board.
[d] Indicator variable equal to 1 (0) if the target CEO is the CEO of the merged company.
[e] Average number of additional directorships (excluding the primary firm of employment and the target firm itself) for outsider directors.
[f] Total ownership of all outsider directors.
[g] Log of market value of equity of the target firm, 20 trading days before the announcement date.
[h] Ownership of blocks holders like Employee Stock Option Plans and other trusts/ funds on which target executives might have potential control (based on trust membership/ directorship).
[i] Ownership of block holders which are un-affiliated with the target board and executives.
[j] Total ownership of all insider directors (directors who are current or past executives of the firm).
[k] Average Return on Assets for the target firm for up to 3 years before the announcement date, less corresponding return the target's industry (defined by firms in the target's 2 digit SIC code).
[l] Indicator variable equal to 1 if the takeover is a merger of equals defined based on news announcements, SDC and merger proxies, 0 otherwise.
[m] Indicator variable = 1 if the payment to target shareholders in stock is more than 50% of total payment, 0 otherwise
[n] Indicator variables (1 = presence, 0 = absence) for 1. Golden Parachute compensation arrangements for the target executives in the event of a takeover, 2 Poison Pill arrangements for the target stock and 3. Competing bid for the target during the period from 1 year prior to the announcement date to the completion of the takeover,are included in the regression but not reported. These coefficients, are insignificant in all specifications.

Table 13: Target and Acquirer Returns and Target CEO Status in the Combined Firm – MOEs and non-MOEs

Target's share of wealth change (TSHR) is defined as Target Wealth Change / (Target Wealth Change + Acquirer Wealth Change). Target wealth change is defined as TMVE * THPR (-20, 1), where TMVE is target market value of equity 21 trading days before the announcement and THPR (-20, 1) is return on the target from 20 trading days before the announcement to1 day after the announcement. Acquirer wealth change is defined similarly. THPR and AHPR refer to THPR (-20,1) and AHPR (-20,1) as defined in the previous sentence. The wealth change measure is calculated separately for cases where total (Target + Acquirer) wealth change is positive and where it is negative. The numbers below the coefficients indicate p-values. ***, ** and * indicate significance at 1% or less, 5% or less and 10% or less respectively.

	All MOEs		All non-MOEs	
Dependent Variable ->	**THPR**	**AHPR**	**THPR**	**AHPR**
Intercept	-0.075	-0.314	0.452	0.167
	0.757	0.164	0.003	0.257
			***	
Interlocking directorships (a)	0.173	0.071	0.006	-0.041
	0.299	0.637	0.905	0.441
Target CEO is merged company CEO * Independent Board Dummy (b)	0.144	0.069	-0.067	0.056
	0.2	0.496	0.6	0.649
Target CEO is merged company CEO (c)	-0.21	-0.109	-0.154	-0.098
	0.053	0.261	0.097	0.273
	*		*	
Number of additional directorships per outside director (d)	-0.014	-0.024	0	-0.003
	0.585	0.297	0.985	0.838
Outsider director Ownership (e)	0	0.004	-0.001	-0.001
	0.937	0.488	0.573	0.556
Log Market value of Equity (f)	0.006	0.021	-0.011	-0.009
	0.755	0.208	0.279	0.393
Ownership of Affiliated Blocks (g)	0.005	0.004	-0.001	-0.001
	0.186	0.194	0.421	0.557
Ownership of Unaffiliated Blocks (h)	0	0.001	0	0
	0.663	0.343	0.489	0.919
Insider director Ownership (i)	0.005	0.004	0	0.001
	0.315	0.429	0.829	0.202
Industry adjusted ROA (j)	0.824	0.576	0.144	-0.226
	0.005	0.028	0.125	0.013
	***	**		**
Stock Payment Dummy (k)	NA	NA	-0.104	-0.025
			0.011	0.525
			**	
Adjusted R-Square % (l)	29.88	13.32	6.18	1.6
Regression p-value	0.005	0.098	0.027	0.254
Sample Size for regression	51	51	175	175

Table 13 – continued

All board and ownership variables are as of the last proxy statement of the target, up to 12 months before the announcement date.
[a] Indicator variable equal to 1 if the target and the acquirer share at least one common director, 0 otherwise.
[b] Indicator variable equal to 1 if proportion of outside directors in the target board exceeds 50%, 0 otherwise.
Outside directors are those directors who are not company executives (Insider directors) and those who do not have any business relationship (actual or potential) with the target firm.
[c] Indicator variable equal to 1 (0) if the target CEO is the CEO of the merged company.
[d] Average number of additional directorships (excluding the primary firm of employment and the target firm itself) for outsider directors.
[e] Total ownership of all outsider directors.
[f] Log of market value of equity of the target firm, 20 trading days before the announcement date.
[g] Ownership of blocks holders like Employee Stock Option Plans and other trusts/ funds on which target executives might have potential control (based on trust membership/ directorship).
[h] Ownership of block holders which are un-affiliated with the target board and executives.
[i] Total ownership of all insider directors (directors who are current or past executives of the firm).
[j] Average Return on Assets for the target firm for up to 3 years before the announcement date, less corresponding return the target's industry (defined by firms in the target's 2 digit SIC code).
[k] Indicator variable = 1 if the payment to target shareholders in stock is more than 50% of total payment, 0 otherwise
[l] Indicator variables (1 = presence, 0 = absence) for 1. Golden Parachute compensation arrangements for the target executives in the event of a takeover, 2 Poison Pill arrangements for the target stock and 3. Competing bid for the target during the period from 1 year prior to the announcement date to the completion of the takeover,are included in the regression but not reported. These coefficients, are insignificant in all specifications.