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Unravelling overconfidence and dominance

An empirical study on overconfident and dominant CEOs during M&A transactions

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Abstract

This thesis researches the role of overconfidence and dominance of CEOs during M&As. This research contributes to the existing literature in several ways. Firstly, I challenge past empirical studies to see whether they hold in a different timespan with recent governance reforms and times of market disruptions. Secondly, I analyse the combined effect of two personal traits and find strong association between high overconfident CEOs with structural power and M&A deal completion. During this research I find sufficient evidence for the agency theory and the overconfidence effect, but no supportive evidence for the stewardship theory indicating that the stewardship theory does not hold during corporate investments events such as M&As.

Keywords: Mergers and Acquisitions, Corporate Governance, Overconfidence, Dominance

JEL Classification: G34, G41,G28

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1 Introduction

Since 1985, more than 325,000 Merger and Acquisitions (M&A) deals have been announced with a known value of $35,000 billion worldwide. M&As are one of the most important, if not the most important mean firms have as a response to the rapidly changing market conditions. M&A is an instrument of macroeconomic renewal (Burner & Perella, 2004), which deals with the combining, buying and selling of companies with the aim of helping the growth of the enterprise in its sector. Despite this astonishing number of M&A deals with the corresponding deal value, KPMG found in their M&A research of 2017 that only one-third of M&A deals resulted in actual value addition for the acquiring firm, while approximately 70% of the M&A deals were reducing shareholder value. Therefore one can argue that the majority of M&A deals fail to add shareholder value. This high percentage of M&As' failure to add shareholder value is not something new. Past empirical research in the field of M&A extensively tried to find explanations as to why firms engage in takeovers despite having the knowledge that the majority of the takeovers are not associated with gains and are highly likely to destroy shareholder value(Jensen & Ruback, 1983; Roll, 1986; Asquith, Burner, & Mullins, 1983; Andrade, Mitchell, & Stafford, 2001). Despite this high percentage of M&A failure, the number of M&A deals and the average size of the M&A deals keeps on increasing. This evidently resulted in a growing interest in the M&A field due to the increasing impact and magnitude of M&A deals.

Traditional corporate finance theories assumed that decision makers are rational and therefore neglected to examine behavioural characteristics of decision makers and their effects on firm performance and specifically M&A transactions. Although the rationale and performance of mergers have been examined extensively in the literature, only a few studies have focused on the overconfidence and dominance of chief executive officers (CEOs) and top managers as a factor in explaining the failure of M&A in creating shareholders value. Roll (1986) was the first one to recognize the influence of individual decision makers on firm performance by examining M&A activity. While Roll (1986) recognized the impact of individual decision makers, studies following Roll (1986) on behavioural impact did not produce a consensus on the impact of individual decision makers. Several other empirical studies found that behavioural characteristics such as overconfidence had a positive impact on firm performance (Goel & Thakor, 2008; Heaton, 2002), other studies found that managerial overconfidence tends to destroy firm value by engaging in unprofitable M&A deals and suboptimal investment behaviour (Malmendier & Tate, 2005).

The majority of research studies on the CEO's impact during M&A transactions focus on a time frame until 2000 and evidently centre on one aspect of the CEO. Hence neglecting to study the combined effect of multiple CEO traits during M&A transaction. Since then, new and more precise measurements have been created for overconfidence and dominance. Combined with new proxies and the lack of empirical studies focusing on multiple personality traits I developed the following research question:

'Do overconfident and dominant CEOs affect their firm's short-run performance and the M&A deal completing behaviour?

With the agency theory, the stewardship theory and the theory of overconfidence as the theoretical frameworks, I performed several regression analyses in order to answer the aforementioned research question. Firstly, I observed that the stock market's reaction as measured by the 3-days Average Cumulative Abnormal Return (ACAR[-1,+1]) of overconfident CEOs announcing M&A deals did not differ significantly compared to their non-overconfident counterparts. Secondly, consistent with past empirical studies (Bebchuk, Cremers, & Peyer, 2011; Adams, Almeida, & Ferreira, 2005) I verified that dominant CEOs have both statistic and economic impact on short-term announcements return. On average, one standard deviation increase in CEO dominance resulted in a loss of shareholders' value of approximately $9,2 million. Furthermore, I verified the existence of the overconfidence effect on M&A deal completing behaviour of the bidding firm. The likelihood of an overconfident CEO completing an M&A deal is several times larger than his/her non-overconfident counterpart. This result did not hold for dominant CEOs, where I failed to verify the effect on M&A deal completing behaviour. Furthermore, I did not find any statistical evidence of the combined effect of overconfidence and dominance of the CEO during M&A transaction. More importantly, I found that highly overconfident CEOs combined with increasing dominance within the enterprise corresponds with a significant increase in the likelihood of M&A completion. Overall, this research found sufficient evidence for the agency theory and the overconfidence effect, but no supportive evidence for the stewardship theory indicating that the stewardship theory does not hold during corporate investments events such as M&As

This research contributes to the existing literature in several ways. First, this thesis studies the impact of multiple personality traits for CEOs with a timespan ranging from 1996 until 2016, whereas other studies were limited to 2000 and earlier. After 2000, a number of important events have occurred which are important to take into account. Such as the dot-com bubble in 2000, the increased governance requirements also known as the Sarbanes-Oxley act (SOX) and the financial crisis of 2008. By focusing on a different timespan I challenge past empirical studies and results, to see whether they still hold. Secondly,

the results demonstrate the association of CEO overconfidence, CEO dominance and M&A activities. Not only does this research present statistical evidence, it also presents the economic significance of overconfidence and dominance during M&A activities. Past empirical studies with regards to CEO overconfidence have always focused on moderate overconfident CEOs (i.e. 67% in the money). In this research I have presented new evidence on the relevance and importance of highly overconfident CEOs. I found that highly overconfident CEOs, with increasing structural power are several times more likely to complete an M&A deal than their non-overconfident counterparts with similar structural power. Furthermore, this research contributes to shareholders who are tormented with value destroying behaviour of their principals. By providing both statistical and economic significant evidence of overconfidence and dominance, this research verifies the flaws of the one tier board structure. Centralizing the decision making power, does not have the desired effect on shareholder return during M&A transactions. Shareholders should revaluate their internal governance structure and implement proper policy to mitigate the centralization of decision making power and to mitigate overconfident top decision makers. Since increased overconfidence and dominance only incites more agency costs, which this research has shown is costly for the shareholders.

The remainder of this research is organized as follows. The second section provides a background to the study by discussing the relevant theories which are the agency theory, the stewardship theory, and the theory of overconfidence. In section 3, past literature, and the two hypotheses op importance are presented. Section 4 describes the research design, and respectively the regression models are presented. In section 5 the descriptive statistics of this research is presented, and the emperical anaylsis is discussed. Subsequently in chapter 5 additional resarch is presented. Finally, I finish this thesis with the conclusion, and a discussion on the limitations I encountered during this research and future research possibilities.

2 Theoretical background

The literature describes several explanations for inefficiencies that occur during corporate investments such as M&As. This research focuses on three possible explanations. The first explanation focuses on the agency theory. The second explanation of investment inefficiencies can be found in the stewardship theory, which presents a different view compared to the agency theory. Finally, the third explanation is the overconfidence effect. Past empirical research found that especially the agency theory and overconfidence effect are of importance when examining M&As.

2.1 Agency Theory

Traditional explanations for investment inefficiencies are the misalignment of managerial and shareholders' interest and asymmetric information between corporate insiders and the capital market (Malmendier & Tate, 2005). Both of these traditional explanations stem from the agency theory. In order to understand these reasons, it is necessary to discuss the agency theory.

In the absence of conflicts of interest (i.e. agency problems) all individuals associated with an organisation can be instructed to maximise profit or net market value, or to minimise costs (Hart, 1995). The principal-agent theory, also known as the agency theory emerged in the 1970's, is a much discussed management control phenomenon that arises within firms. In a principal-agent relationship, one party of the contract (e.g. stockholders) engages another party (e.g. CEO) to take actions on their behalf (Zajac, 1990). The agency theory revolves around solving problems that can arise in agency relationships due to misalignment of goals (goal incongruence) or information asymmetry. The problems that arise due to agency conflicts are known as the agency problems. The first agency problem, goal incongruence, states that despite being employed to act on behalf of the shareholders, the CEO seeks to maximise his/her own utility. The maximising of his/her own utility may be at odds with the utility function of the shareholders, resulting in the CEO choosing to maximise his/her own utility over the utility of the shareholders (Zhang, 2008; Zajac, 1990).

Secondly, information asymmetry[1] is an important part of the agency theory and has been prone to a substantial body of research within the field of economics. Information asymmetry operates under the assumption that in a ceteris paribus world the shareholder has less information than the CEO about the characteristics, the ability of the CEO, the decisions made and actions taken by the CEO (Zajac, 1990). These aspects of information asymmetry are known as adverse selection and moral hazard. Due to the existence of agency problems within the firms, CEOs are inclined to follow their own maximising beliefs, resulting in possible M&A deals that are harmful for the company. While CEOs are inclined to follow their beliefs, the CEO is bound by the board of directors (BOD) which is meant to perform the critical role of monitoring and advising the CEO. Therefore, increased CEO power within the firm will give the CEO leeway to follow his/her own maximising beliefs. Therefore motivated by agency theory, CEO dominance can be linked to a number of crucial corporate outcomes such as M&A decisions (Jiraporn, Chintrakarn, & Lui, 2012).

2.2 Stewardship theory

Agency and organizational economic theories predict that if the CEO holds the dual role of being both CEO and chairman, the interest of the shareholders will be sacrificed in favour of management, implying that there will be managerial opportunism and losses due to agency problems (Donaldson & Davis, 1991). While the agency theory (as discussed in chapter 2.1) states that there is a clear separation of objectives between the shareholders and the CEO, Donaldson and Davis (1991) introduced an alternative theory which offers opposing predictions about the objectives of the shareholders, and the CEO. This alternative theory is known as the stewardship theory.

The stewardship theory states that there is no existence of a motivation problem between the CEO and the shareholders, evidently assuming that the reasoning of agency theorists is incorrect. The stewardship theory identifies a setting in which CEOs are not motivated by individual goals, but rather are 'stewards' of the enterprise whose motives are aligned with the objectives of their shareholders (Davis, Schoormans, & Donaldson, 1997). Donaldson and Davis (1991) furthermore state that the organisation structure helps the CEO formulate and implement plans that result in high corporate performance. They continue to argue that another important aspect is that the firm facilitates the goal of the CEO to the extent that the firm provides clear and consistent expectations, and give the CEO enough power within the firm.

[1] George Akerlof, Michael Spence and Joseph E. Stiglitz won the Nobel prize in Economics for their analysis of markets with information asymmetry

Stewardship theorists believe that if a competent CEO is given more power for example by also giving him/her the role of chairman of the BOD, he/she will be fully empowered, and will deliver strong leadership (Desai, Kroll, & Wright, 2003). By combining the title of the CEO and the chairman of the BOD the enterprise will run more efficiently and will operate in line with the interests of the shareholders. Hence, arguing from the stewardships theorists view, increased power will translate itself into increased performance and increased returns due to strong leadership of the top management such as the CEO.

2.3 Overconfidence

'*Overconfidence is a well-established behavioural trait that causes people to overestimate their knowledge, underestimate their risks and exaggerate their ability to control events'*[2]. Overconfidence and other self-serving biases have had a more prominent position in social and experimental psychology studies for many decades (Malmendier & Tate, 2015). Only in the last several decades, managerial biases such as overconfidence started to make their march through the fields of economics and finance. Extensive experimental literature documented that there are three manifestations of overconfidence. The first one is the overestimation of one's actual ability (Weinstein & Klein, 2002). Malmendier and Tate (2005) describe that a CEO has the ultimate say on the firm's strategic choices, and decides about large scale investments such as an M&A's. Having such a position within a firm may induce the CEO to believe that he/she can control the outcome. CEOs tend to think that they are invulnerable and expect other to be victims to misfortunes. This overestimation of one's actual performance is also known as the illusion of control, since individuals are the most optimistic about outcomes which they believe are under their control (Langer, 1975).

The second manifestation of overconfidence is miscalibration, which is also known as overprecision. Overprecision is the systematic underestimation of the range of potential outcomes and excessive confidence about having accurate information[3]. Cooper, Woo, and Dunkelberg (1988) performed a study on entrepreneurs and their success chances in business. They found that 81% of their population answered that their chances of success in business is between 0 and 30%. When asking their sample if their business will fail, only 39% of them answered between 0 and 30%. Larwood and Whittaker (1977) found that

[2] professor Alexander Andonov – FEM11076 Advanced behavioural finance

overprecision is particular evident among corporate executives such as CEOs, CFOs and management students[3].

The final manifestation of overconfidence is also known as the overestimation of one's own skill. This overestimation of ones skills is also known in the literature as the 'better than average' effect. Camerer and Lovallo (1999) found that CEOs are prone to the 'better than average' effect for several reasons. Firstly, this effect is especially strong among skilled individuals, possibly due to insufficient weighting of a comparison group ('base rate neglect'). If CEOs compare themselves to an average manager, rather than another CEO, they may find that they are better than the average manager at picking investments and merger targets (Malmendier & Tate, 2005). Secondly, the 'better than average' effect tends to be the strongest when CEOs are in complex situations such as large-scale investments which are hard to compare across firms, making it harder to detect overestimation (Moore, 1977). The overconfident theory portrays a clear effect of behavioural bias on business decisions.

To summarize, while the agency theory paints a rather gloomy picture of the agent, the stewardship theory paints an excessively joy picture of the agent, also known as the steward. The agency theory centralizes itself with the notion that the CEO is always trying to maximize his/her own utility instead of shareholders' utility. While stewardship theorists argue that by maximising the utility of shareholders, the steward's utility will also be maximized. Finally, the overconfidence literature states that due to overconfidence CEOs expect their behaviour to produce successful outcomes. Miller and Ross (1975) found that individuals attribute successful outcomes to internal factors such as skill and behaviour and failure was attributed to external factors such as bad luck. Overconfidence is evidently the greatest when difficult tasks arise, projects with low predictability and are in the absence of fast, clear feedback. Corporate investments such as M&A meet these criteria.

[3] They performed a study with two samples , one consisting of management students and one consisting of corporate presidents

3 Literature review and hypotheses development

What drives M&As? As presented in section 2, there are several theories trying to substantiate the increasing takeover behaviour of firms. One-third of M&A deals resulted in actual value addition for the acquiring firm, while approximately 70% of the M&A deals were reducing shareholders value or at best had a neutral effect. Although being equipped with this knowledge, firms have been engaging in M&A deals for decades, and evidently the frequency and deal value has been increasing rapidly. CEOs being the highest executives within a firm play an important role in determining the M&A strategy of the firm. In this section I will discuss past empirical studies that examined the impact of individual decision making in corporate finance, and formulate my hypotheses.

3.1 CEO Overconfidence

In order to examine whether M&A creates value past empirical researches focused on short-term event studies. These short-term event studies examined abnormal returns surrounding M&A announcement dates and used it as an indicator for value creation or destruction (Mia, Pagan, & Chu, 2009; Grinstein & Hribar, 2004; Cai & Sevilir, 2012).

Jensen and Ruback (1983) examined several studies and found that for acquiring firms, no positive announcements returns are observed. They argue that the shareholders of the target firms benefit, while the shareholders of the bidding firms do not lose. Their results are somewhat in line with the studies of Moeller, Schlingemann, and Stulz (2005). Their study focused on the abnormal returns of M&A deals and found that on average the abnormal returns are slightly positive for the bidding firms. Moeller et al. (2005) did not include CEO characteristics in their research, therefore I do not expect that after including behavioural characteristics of CEOs their perceived positive effect still remains. Where Moeller et al. (2005) neglected to include the characteristics of the decision makers and the effect of corporate governance, Doukas and Dimitris (2007) did examine behavioural traits of decision makers. Doukas and Dimitris (2007) found that overconfident CEOs feel that they possess superior decision making ability compared to their non-overconfident peers. They found evidence that overconfidence does affect the acquirers' abnormal returns and that overconfident managers conduct less value-increasing M&As than their 'rational' counterparts. Furthermore, they found that the success of the first deal reinforces the manager's overconfidence views resulting in more acquisitions with even lower abnormal returns. Their studies provide additional support for the theoretical predictions of Malmendier and Tate (2005) who theorized

that overconfident managers fail to generate superior abnormal returns relative to managers who are rational. Following Doukas and Dimitris (2007), and Malmendier and Tate (2005) I therefore hypothesize the following with regards to abnormal returns following the announcement of a M&A by CEOs:

H1a: The short-term market reaction to the announcement of a M&A will be more negative if the acquiring firm has an overconfident CEO.

Roll (1986) was the first one to link behavioural traits of decision makers with corporate takeovers. The purpose of his paper was to find an explanation for the takeover phenomenon that occurred during mergers and tender offers. Roll's explanation for the takeover phenomenon of mergers and tender offers is nowadays known as the hubris hypothesis. In his paper, Roll found empirical evidence for the winner's curse, which states that in auctions with incomplete information the party that wins the auction will always overpay. Translating this to M&A deals, this implies that in successful M&A deals, the acquiring firms will on average overpay for their targets. Roll furthermore found that managerial hubris (i.e. overconfidence) is one of the explanations of value destroying mergers and the overpayment for target firms. Focusing on overconfidence Heaton (2002) performs a theoretical study and investigates the implication of overconfidence in firm decision making. He found that optimistic managers believe capital markets undervalue their firm's risky securities and hence are more likely to decline in positive bet value projects that must be financed externally. Heaton's theoretical results are supported by the empirical study of Malmendier and Tate (2005). They argue that rather than focusing on firm-level characteristics, it is more important to focus on the personal characteristics of policy makers, since decisions made regarding the firm are made by the top decision makers such as the CEO. Malmendier and Tate (2005) assume that a CEO who chooses to be exposed to a firm's idiosyncratic risk is likely to be confident about the firm's future prospects. Based on this assumption, they examine overconfidence by introducing a measurement based on a manager's increasing exposure to a firm's stock price through their stock option holdings. They provided empirical evidence suggesting that overconfidence will lead to overinvestment.

In 2008, Malmendier and Tate extended their 2005 research by examining corporate acquisitions. They analysed the impact of CEO overconfidence on merger decisions. By using the proxies for overconfidence that they devised in 2005 their empirical results show that there is strong evidence of higher M&A activity among overconfident CEOs. Therefore, combined with their 2005 studies I hypothesize the following with regards to M&A activity of CEOs:

H1b: Overconfident CEOs complete significantly more M&A deals than their non-overconfident counterparts

3.2 CEO Dominance

Executives can only impact firm outcomes if they have influence over crucial decisions (Adams, Almeida, & Ferreira, 2005). An important part of a company's choice to engage in M&A does not only depend on the CEO, which has been assumed in past empirical studies, but also the power that the CEO holds within the top management. An important dimension of the top management characteristics is the distribution of decision making power (Lui & Jiraporn, 2010). When the decision making power within a firm is concentrated in the hands of the CEO, the CEO has the possibility to exert his/her power to influence corporate decisions. Lui and Jiraporn (2010) argue that this concentration of power can have either positive or negative effect for the shareholders of the company. Since the CEO can use his dominant role to adjust the firm's policy or the CEO can decide to follow his/her own goals.

In order to examine CEO dominance, it is important to specify dominance. The literature subdivides the concept of power in multiple levels, where dominance is one of them. Power is defined as the capacity of individual actors to exert his/her will (Finkelstein, 1992). Finkelstein (1992) identifies four sources of power that are manifested in top managements: structural power, ownership power, expert power and prestige power. Structural power is the most commonly cited in literature and is based on organizational structure and hierarchical authority. CEOs typically have the most structural power because of their preeminent position within a firm, where they stand on the top of the firm's hierarchal pyramid, with the possibility that most of the decision making power is concentrated in their hands. Since dominance indicates how much decision-making power is concentrated in the hands of the CEO, I will use structural power as described by Finkelstein (1992) to define and quantify dominance during this research paper.

Furthermore, it is important to examine the market reaction to M&A deal announcements by dominant CEOs. Cosh, Guest, and Hughes (2006) studied UK firms and found a negative relation between CEO power where they used CEO duality as a proxy for power and short-run M&A announcements returns. In a later study, Dutta, MacAulay and Saadi (2011) developed a theoretical model where they use CEO excess pays as a proxy for CEO power, and continued to test their theoretical arguments through empirical investigations. Their study lead to significant different results compared to Cosh et al. (2006). Dutta et al. (2011) found no evidence of a significant relation between the market reaction to M&A announcements and CEO power. This implies that powerful CEOs do not necessarily engage in value destroying deals.

Bebchuk, Cremer and Peyer (2011) devised a measure for CEO dominance using the ratio of CEO compensation and the top 5 highest paid executives , which is known as CEO pay slice (CPS). Using a similar time period and similar data sample, Bebchuk et al. (2011) found different results compared to Dutta et al. (2011). Bebchuk et al. (2011) found that the stock market reacts less favourable to acquisition announcements made by dominant CEOs. They presented several interpretations of their findings. Their first remark is that the stock market reacts negatively to increases in CEO dominance. This negative relation between news of increases in dominance and the stock market's reaction is according to Bebchuk et al. (2011) driven by firms with high entrenchment. They furthermore argue that their finding is consistent with their previous studies where they found negative correlation between CPS and Tobin's Q. This negative correlation is evidently concentrated in firms with high entrenchment. These contradictory results are in line with a majority of the empirical findings concerning the stock market's reaction to M&A announcements. For acquiring firms, the empirical findings are still mixed, and inconclusive. Due to the mixed findings on the relationship between CEO dominance and the stock market reaction (which I measure in this research through the short-term announcement return), I formulate my hypothesis in null form, stating that:

H2a: There is no significant difference in the short-term market reaction to the announcement of a M&A between firms employing a dominant and non-dominant CEO.

In their recent study, Bebchuk et al. (2011) reported that strong CEO dominance resulted in lower firm value as measured through Tobin's Q, corresponding with lower profitability. They continue to argue that poor firm performance may be attributed to the agency conflict, since strong CEO power is also related to shareholder-manager (i.e. agency) related outcomes. In particular, strong CEO dominance is related to higher odds of the CEO receiving a lucky option grant at the lowest price of the month and also higher tendency to reward the CEO for luck resulting from positive industry shocks. In addition, firms with dominant CEOs show a lower likelihood of CEO turnover when controlling for prior performance. The results of Bebchuk et al. (2011) show us that CEO dominance is a critical variable that affects several important corporate outcomes. Specifically, the results of Bebchuk et al. (2011) suggest that increasing CEO dominance allows the CEO to act in a manner that is advantageous to their selves but not necessarily to shareholders, thereby worsening the agency conflict between themselves and the shareholders (goal incongruence). In a similar research Adams, Almeida, and Ferreira (2005) examined how powerful CEOs

influence firm performance variability. They provide evidence that firm performance will be more volatile as decision-making power becomes more concentrated in the hands of the CEO. They argue that powerful CEOs are less likely to compromise with other top executives, resulting in more extreme decisions such as M&A, which can be either beneficial or disastrous for the company.

Examining past empirical studies has shown me that the effect of CEO dominance on M&A deal completion has not been examined. Due to the limited research with regards to this subject, I should normally state the hypothesis in null form. But CEOs generally have the desire to increase the span of their control regardless of the firm's future profitability. CEOs, and other corporate decisions makers are presented with incentives to cause their firms to grow beyond the optimal size. This phenomenon is also known as empire building. Several past empirical studies (Schleifer & Vishny, 2003; Bliss & Rosen, 2001; Jensen & Murphy, 1990) focused on empire building and found that one of the most common reasons for CEOs to engage in M&A is to build an empire. Executives are thought to derive individual benefits from managing increasingly larger firms. Following the agency theory, which I have discussed in section 2., I argue that CEOs who pursue their utility, will overinvest by engaging in M&A deals to build a large corporate empire. By concentrating decision making power, I believe that it will provide the CEO with the desired leeway to engage in empire building behaviour, which eventually will result in increasing M&A deals as a result of increased CEO dominance. Therefore, I hypothesise that:

H2b: Dominant CEOs complete significantly more M&A deals than their non-dominant counterparts

By analysing my proposed hypotheses, I will examine the effect of CEO overconfidence and CEO dominance on the short-term firm performance and deal completing behaviour of the bidding firms, and their decision makers and try to answer the following research question:

'*Do overconfident and dominant CEOs affect their firm's short-run performance and M&A deal completing behaviour*?'

4 Research design

In this section the methodology of my research is presented. Firstly, I will present the predictive validity framework, also known as the Libby box. Secondly, I will present and discuss the dependent variables M&A deal completion and short-term acquirer's return and the independent variables CEO overconfidence and CEO dominance. Thereafter I will present various control variables that are of importance during this research. Finally, the sample used for this research is presented and discussed

4.1 Predictive validity framework

The predictive validity framework, also known as the Libby box is, presented in Appendix A. The presented Libby box is created to show the key variables of my thesis and the conceptual relations between these variables. These key variables will be operationalized in the next section. The purpose of this thesis is to answer the following research question:

> *RQ*: *Do overconfident and dominant CEOs affect their firm's short-run performance and M&A deal completing behaviour?*

By using the Libby box, I will operationalize the different variables. My first dependent variable is the Average Cumulative Abnormal Returns (i.e. ACAR), which represents the stock market's reaction to the announcement of the M&A deal. The ACAR can also be viewed as the average short–term acquirers' return. My second dependent variable during is deal completion. Deal completion meaning, whether the announced M&A deal is completed or not. Consequently my independent variables are CEO overconfidence and CEO dominance. Furthermore there are many variables that somehow affect M&A deal completion and the ACAR. Therefore I have tried to control for theses variables by including control variables. In section 4.2, I will operationalize all of my variables that I have presented in my Libby box. I refer to Appendix, for a summary of the variables used in this research and an overview of the database from which I derived my variables.

4.2 Variables description

4.2.1 Dependent Variables

Market reaction

The effects of M&A deal announcements and the reaction of the stock market to these deal announcements have been examined extensively. Hietala, Kaplan, and Robinson (2003) express that the announcement date of an acquisition contains information about the potential synergies arising from the combination, the stand-alone value of the firms involved in the M&A and how the value will be split between the target and the bidder(s). Furthermore, the most reliable evidence on whether M&A creates value for shareholders stems from short-term event studies (Andrade, Mitchell, & Stafford, 2001).

To examine the market's reaction to the announcement of M&A deals, I will use the standard short-term event study methodology as proposed by Brown and Warner (1985). In their work, Brown and Warner (1985) concluded that an event study based on the market model is both well specified and relatively powerful, which was later on also confirmed by MacKinlay (1997). Therefore I will also use the market model in which I will examine the abnormal returns of the M&A announcement. The literature describes the abnormal return as: '*the returns generated by a given security or portfolio over a period of time that is different from the expected rate of return'*.

The first assumption of the market model is that the return of a security (R_{it}) depends on the return of the market portfolio (R_{mt}) and the extent of the security's responsiveness as measured by β plus an unobserved error term ($\varepsilon_{i.t}$) (Sapelton & Subrahmanyam, 1993). The market model assumes the following linear relationship between the return of any security and the return of the market portfolio, also known as the single-index model:

$$(1)\quad R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{i.t}$$

The second step is to calculate the expected return. Figure 1. provides a visual representation of the return model. This visual representation helps me explain how the expected return is calculated. The first part is known as the estimation window. The estimation window is used to compute an estimate stock price for the event window based on past stock prices and the assumption of no M&A announcement occurring. The event window is the pre- M&A announcement date (T_1) , the day of M&A announcement (0) and the post- M&A announcement date (T_2).

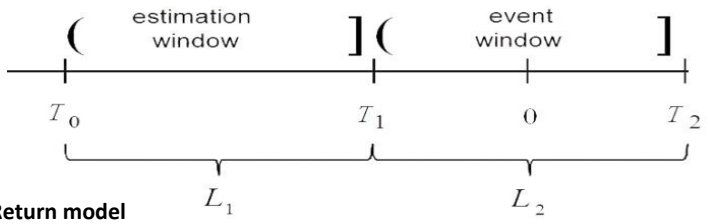

Figure 1. Return model

Lui, John, and Taffler (2011), and Brown and Warner (1980) found that an estimation window between 100-300 days prior to the event of interest is sufficient as a parameter of the event window. Therefore the estimation window during this research runs from -252 days to -11 days prior to the event [-252,-11]. The market model parameters $\check{\alpha}_i$ and $\check{\beta}_i$ are estimated for every deal in the estimation window [-252,-11] where the acquiring company's stock returns are regressed on market returns in a times-series OLS regressions. Based on the estimation window the expected return can be calculated $(\check{\alpha}_i + \check{\beta}_i R_{mt})$. By subtracting the expected return $(\check{\alpha}_i + \check{\beta}_i R_{mt})$ from actual realized returns (R_{it}) the abnormal returns $(AR_{it})$of a stock *I* in time can be calculated as follows:

$$(2) \quad AR_{it} = R_{it} - (\check{\alpha}_i + \check{\beta}_i R_{mt})$$

Next, the proper event window needs to be defined. In practice, if one is looking at the information content of a M&A deal, the event day will be the M&A announcement date and the event window will include the day of announcement, or the event day plus or minus several days. During this period the sample firm's returns are observed to assess whether something unusual has happened (Ma, Pagan, & Chu, 2009) . Therefore in line with Ma et al. (2009) I will use a three day period surrounding the M&A announcement [-1.+1] to examine the abnormal returns. This is a commonly used event window, since using one day before announcement date [-1] will capture possible information leakages prior to the official deal announcement (Malmendier & Tate, 2008; Mia, Pagan, & Chu, 2009). I will use one day after the announcement [+1] because this captures the market's reaction if the announcement occurs after trading hours (Ma, Pagan, & Chu, 2009). Several studies use a larger event window such as Bebchuk et al. (2011) where they used [-10,+10] as the event window, however increasing the days in the event window will result in a lower predictive power due to the possibility of confounding effects from other market events (MacKinlay, 1997). In my robustness check, where I will examine the sensitivity of my empirical results I will add different event window lengths ([-5,+5], [-10,+10]). By combining the abnormal returns

during the event window [-1,+1] I can proceed to calculate the cumulative abnormal returns $\mathrm{CAR}_{i(T_1-T_2)}$ for the bidding firm as following:

$$(3)\quad \mathrm{CAR}_{i(T_1-T_2)} = \sum_{t=T_1}^{T_2} AR_{it}$$

The $\mathrm{CAR}_{i(T_1-T_2)}$ represents the total abnormal return during the event window. Finally, by dividing the $\mathrm{CAR}_{i(T_1-T_2)}$ by the event window, I compute the average cumulative abnormal return as follows:

$$(4)\quad \mathrm{ACAR}_{i(T_1,T_2)} = \frac{1}{N}\sum_{i=1}^{N} CAR_i(T_1, T_2)$$

M&A deal completion

Secondly, a key pillar of this research is to examine the effect of overconfidence and dominance on the deal completing behaviour of firms. In this research I focus on M&A deals which have been completed by a firm in a given year. This is known as M&A deal completion. M&A deal completion is a dummy variable, which equals 1 if the bidding firm completed the announced M&A transaction, and 0 if it fails to do so.

4.2.2 Independent Variables

CEO overconfidence

Measuring CEO overconfidence is quite difficult since it cannot be observed directly, but it is not impossible. Past empirical literature has provided several ways to measure CEO overconfidence based on the actions taken by the CEO. Most measures of CEO overconfidence are built on a series of papers written by Malmendier and Tate (2005, 2008). Malmendier and Tate (2005) present three measures of CEO overconfidence based on the personal portfolio decisions of the CEO. These three measures are known as: Holder67, Long holder and Net Buyer. While the first two measures, Holder67 and Long holder, use the timing of option exercises to identify overconfidence, the third measure, *Net Buyer*, uses the acquisition of company stock (Malmendier & Tate, 2005). During this research I will focus on Holder67, nevertheless I will discuss the three methods of overconfidence measure.

CEOs are typically presented with executive stock options as part of their remuneration package. Executive stock options give the CEO the right to purchase stock of their own company. Executive stock options typically have a 10–year life, and are usually exercisable after a 4-year vesting period. Furthermore, it is important to know that since executive stock options are not tradable by the CEO. Contrary to regular shareholders, CEOs with stock options remain undiversified and are exposed to the idiosyncratic risk of the enterprise. In order to sufficiently mitigate this risk, standard model of decision making under uncertainty as discussed by Hall and Murphy (2002) state that CEOs should exercise their executive options after the vesting date, as long as the stock price is sufficiently high. However, Malmendier and Tate (2005, 2008) found that many CEOs fail to exercise their executive options despite the stock price being sufficiently high after their vesting date. This CEO behaviour of not exercising the vested options, despite the stock price being sufficiently high, is the most commonly used measure of overconfidence.

During this research I will use the Holder67 measure to identify overconfidence, which is the most common used method for measuring overconfidence (Campbell, Gallmeyer, Johnson, Rutherford, & Brook, 2011; Malmendier & Tate, 2008; Glasso & Simcoe, 2011). As discussed by Hall and Murphy (2002) CEOs should exercise their stock options if they exceed the stock price (i.e. if stock price is sufficiently high). Hall and Murphy (2002) elaborate this by stating that the value of the executive stock option depends on the executive's risk aversion, their initial wealth in the company stock and the degree of diversification of the executive's personal portfolio. The combination of these factors should determine the exercising moment of the stock option. Giving a constant coefficient of relative risk aversion of 3 (ρ=3) and CEOs

holding two-thirds of their wealth in company stock Hall and Murphy (2002) found that CEOs in their sample should exercise their options if they reach 40% in the money. Malmendier and Tate (2005) used a similar approach as Hall and Murphy (2002) and defined a CEO as overconfident if the CEO holds stock options that are more than 67% in the money, meaning that the stock price exceeds the exercise price more than 67%. Campbell et al. (2011) substantiate in their research that Malmendier and Tate (2005) calibrated the model of Murphy and Hall (2002) using a detailed dataset on executive option holding and exercise decisions, which lead to a better calibrated measurement of overconfidence.

Since the databases I will be using do not contain stock option specific grant prices which were used by Malmendier and Tate (2005) to construct their Holder67 measure, It is not possible to perform a similar construct of the measure as Malmendier and Tate (2005). Campbell et al. (2011) and Hirshleifer, Low and Teoh (2012) found themselves in a similar predicament. They presented a valid way to compute Holder67 using several variables of Execucomp and Compustat. Due to the availability of the data used by Campbell et al. (2011) and Hirshleifer et al. (2012) and the method they used for calculating overconfidence I will construct my overconfidence measure based on their research.

The first step is to compute the realizable value per option as follows :

$$(5)\quad Ralizable\ value\ per\ option = \frac{Total\ value\ of\ the\ exercisable\ options}{number\ of\ exercisable\ option}$$

In order to compute the average moneyness of a CEO's stock option for a given year, I proceed to calculate the average exercise price which is calculated as follows :

$$(6)\quad Average\ exercise\ price\ of\ the\ options = Stock\ price\ at\ fiscal\ year\ end - Realizable\ value\ per\ option$$

After having computed the average exercise price of the options, I proceed to calculate the average moneyness of the options which is computed as follows :

$$(7)\quad Average\ moneyness\ of\ the\ options = \frac{Realizable\ value\ per\ option}{Average\ exercise\ price\ of\ the\ options}$$

Since I want to identify CEOs who choose to hold options that could have been exercised (Campbell, Gallmeyer, Johnson, Rutherford, & Brook, 2011; Hirsheifer, Low, & Teoh, 2012). I will use the variables of Execucomp that only include exercisable options *(OPT_UNEX_EXER_EST_VAL and OPT_UNEX_EXER_NUM).*

Following Malmendier and Tate (2005) and Campbell et al. (2011), I apply the same cut-off (67%) as they did across my full sample in order to specify a CEO as overconfident. I require the CEO to exhibit option holding behaviour (i.e. average moneyness >67%) at least twice during the sample period. Hirshleifer et al.(2012) state that overconfidence is a persistent trait and if a CEO is identified as overconfident once, he/she will remain overconfident the rest of the sample period. But I argue that if a CEO exhibits a overconfident trait only once during my sample period, I allocate it to coincidence .

Thus If a CEO is identified as overconfident twice or more, I assume that he/she will remain overconfident for the rest of my sample period. After having computed average moneyness of the exercisable options, I am able to identify which CEOs are overconfident, by constructing an dummy variable named *Holder67*. The Holder67 variable will take a value of 1 if a CEO does not exercise the vested options that are at least 67% in the money and 0 otherwise.

CEO dominance

The second independent variable of importance during this thesis is CEO dominance. Past empirical research (Adams, Almeida, & Ferreira, 2005; Desai, Kroll, & Wright, 2003) examined different dimensions of CEO power, but none have provided solid measures of CEO dominance. Until Bebchuk et al. (2011) defined a measure of dominance, which incorporates the relative importance of the CEO within the top executive team (Zagonov & Shonshan-Salganik, 2018). Bebchuk et al. (2011) measure CEO dominance by calculating the CPS, which is computed as follows:

$$(8) \quad CPS = \frac{P_1}{P_1+P_2+P_3+P_4+P_5}$$

WhereP_1, P_2, P_3, P_4, and P_5 denote the total compensation of the CEO and each of the next top four executives. By total compensation I mean salary, bonus, other annual pay, total value of restricted stock granted that year, the Black and Scholes value of stock options granted that year, long-term incentive pay-outs and all other total compensation as reported in Execucomp (*TDC1*). Following Bebchuk et al. (2011) I restrict my sample to firm-years in which the CEO was in office for the entire year. By doing this I avoid creating a low CPS since my sample would include CEOs who received compensation for only a part of that year.

due to the fact that a CEO received compensation only for part of that year and many firms have more than five executives listed in Execucomp I will use only the top five executive with the highest compensation (i.e. the CEO + four other executives). Because the CPS is calculated using the compensation structure of the top executives, CPS controls for any firm-specific characteristics that affect the level of compensation of company level.

4.2.3 Control Variables

To isolate and to properly examine the effect of CEO overconfidence and CEO dominance it is important to control for the effects of firm characteristics, CEO characteristics, deal characteristics and other potentially important factors that could impact the decision to engage and to complete M&As. Therefore I will included several control variables in this research. In this part I divided them into four categories and continue to discuss them.

Firm specific control variables

CEOs of bigger firms tend to exhibit more overconfident behaviour (Ferris, Jayaraman, & Sabherwal, 2013). Therefore following Malmendier and Tate (2008) and Ferris et al. (2013) I decide to control for firm size. Since the residuals of size as measured through total assets have a skewed distribution, I will use the natural logarithm to obtain residuals that have a normal distribution. Therefore in order to control for firm size I include the natural logarithm of assets at the beginning of the year.

Secondly, to control for investment opportunities I use Tobin's Q at the beginning of the year. Hirshleifer et al. (2012) argue that an increased Tobin's Q captures growth opportunities, which correspond with increased odds of firms engaging in M&A. Tobin's Q is defined as the ratio of the market value of a firm to the replacement cost of its asset (Chung & Pruitt, 1994). In this research, I will compute approximate Tobin's Q using the method of Chung and Pruitt (1994). Chung and Pruitt (1994) calculated the approximate Tobin's Q as follows :

(9) $$Tobin's\ Q = \frac{(MVE+PS+Debt)}{TA}$$

(10) $$MVE = Share\ price\ at\ fiscal\ year\ end * common\ stock\ shares\ outstanding$$

Where *PS* stands for the liquidating value of the firm's outstanding preferred stock, and debt as the value of the enterprise's short-term liabilities of its short-term assets, plus the book value of the firm's long-term debt. *TA* stands for the book value of the total assets of the firm. This method of calculating Tobin's Q is commonly used, due to the fact the formula uses readily available balance sheet information, and that this computation of Tobin's Q offers a simple, tractable way to obtain accurate and timely q

values. Since I will use databases that use balance sheet information, this method is applicable in this research.

Next I decide to control for performance as measured by return on asset (ROA) at the beginning of the year. Following Hirshleifer et al. (2012) I calculate ROA as the ratio of net income to total assets. The final firm specific control variable that I will be using is leverage at the beginning of the year. I calculate leverage as the ratio of long-term debt to the sum of long term debt plus the market value of equity.

CEO specific control variables

Cain and McKeon (2016) found that when examining the risk taking of CEOs, several CEO characteristics are of importance. They found that CEO age is important due to the notion that older CEOs have developed an increased tolerance for risks, thus risk taking seems to decrease as age increases. Therefore I will control for CEO age. Levi, Li, and Feng (2010) found that male CEOs appear to be combative, resulting in being more acquisitive, but also are more likely to withdraw an offer. Furthermore they found that in M&A deals, males are more dominant than females, therefore I will also control for CEO gender. By creating a dummy variable, which is equal to 1 if the CEO is male and otherwise 0.

Governance specific control variables

The second set of control variables are related to the governance part of the firms. Firstly, I will control for board size. Several empirical papers bluntly use board size as a control variable, but Coles, Daniel, and Naveen (2008) argue that this is incorrect and propose a different way of controlling for board size. The argue there is a board size range which can be described as efficient board size. If the board of directors consists between 4 and 12 members, than the board can be classified as efficient. This representation of efficient board size is also implemented by Malmendier and Tate (2008). Therefore following Coles et al. (2008) and Malmendier and Tate (2008) I control for board size by using efficient board size which is a dummy variable equals to 1 if the BOD consists between 4 and 12 members and otherwise 0. Secondly, I will control for the advisory role of the board of directors, since CEOs of larger firms require more advice, by including the ratio of insiders on the board. Following Coles et al. (2008) I classify all directors who are employed by the company as insiders and combine those who are affiliated and independent together and classify them as outsiders. I then proceed to ratio of insiders by dividing the number of inside board members by the total number of board members.

Finally, I will control for the overall governance of the firms by including the Entrenchment index (hereafter abbreviated to E-index). Gompers, Ishii, and Metrick (2003) construct a governance index based on 24 governance rules where they found that corporate governance rules are strongly correlated with stock returns. But Bebchuk, Cohen, and Ferrell (2009) constructed the successor of the governance index, namely the E-index. After having investigated the relative importance of the twenty-four provisions as presented by Gompers et al. (2003), they found that only 6 provisions matter namely: staggered boards, limits to shareholder bylaw amendments, poison pills, golden parachutes, supermajority requirements for mergers and charter amendments. Following Bebchuk et al. (2009), I also constructed an E-index to control for corporate governance. I calculate the level of E-index by giving one point for each of the six provisions that the firm has.

M&A deal related control variables

Savor and Lu (2009) and Bebchuk et al. (2011) found that the method of payment in acquisitions does matter. In particular, stock-financed M&A deals are associated with negative stock returns for the acquiring firm, while they found a slightly positive relation between cash- financed acquisitions and stock returns. Following Savor and Liu (2009) and Bebchuk et al. (2011) I control for method of payment. I include a cash dummy which is equal to 1 if the M&A deal is fully financed with cash and otherwise 0. I furthermore include a stock dummy which is equal to 1 if the M&A deal is fully financed with equity (stock) and otherwise 0.

Furthermore, I continue to control for diversifying acquisitions because past empirical research has shown that the relatedness of business in M&A deals does affect market returns, and deal completion (Brown & Sarma, 2007; Malmendier & Tate, 2008; Hornstein & Nguyen, 2014). Diversifying acquisitions are characterized due to having the bidder and target firm operating in different industries. I create a dummy variable which is equal to 1 if the bidder and target firm operate in different industries, and otherwise 0. By using the two digit SIC codes of the bidder and target firm, I can differentiate whether the bidder and target firm operate in the same industry or not.

Year and Industry effects

Since my research focuses on a time frame of roughly 20 years, it is important to control for firms operating in different industries and of course different years. Since my research contains firms operating in several industries it is important to control for industry specific shocks that could affect my results therefore I will control for industry effects by creating industry dummy variables based on two-digit Standard Industrial Classification (SIC) codes. Secondly it is important to control for the variation in my regressions that happen over time and is not attributed to my explanatory variables for example inflation effects, or time specific shocks such as the financial crisis. Therefore I include year fixed effects by creating year dummies.

4.3 Regression models and model estimation

In section 3.2 I described the various dependent, independent and control variables that I will be using during this research. In this section, I will present my regression model, and I will discuss my estimations of the independent variables. For my first hypothesis I have devised the following regression model:

$$(11)\ ACAR[-1,+1] = \beta_0 + \beta_1 \text{Holder67}_{it} + \beta_2 \text{LN(AT)}_{it-1} + \beta_3 \text{ROA}_{it-1} + \beta_4 \text{Q}_{it-1} + \beta_5 \text{Leverage}_{it-1} + \beta_6 \text{E} - \text{index}_{it} + \beta_7 \text{Efficient boardsize}_{it} + \beta_8 \text{CEO ownership}_{it} + \beta_9 \text{Insider fraction}_{it} + \beta_{10} \text{CEO age}_{it} + \beta_{11} \text{Gender}_{it} + \beta_{12} \text{Relative dealsize}_{it} + \beta_{13} \text{Cash payment}_{it} + \beta_{14} \text{Stock payment}_{it} + \beta_{15} \text{Diversifying}_{it} + v_i + \omega_t + \varepsilon_{it}$$

As previously discussed, the variable of interest in the first regression model is $\beta_1 Holder67_{it}$, which is a representation of CEO overconfidence. I will regress it on $ACAR[-1,+1]$ which represents the 3 day Average cumulative abnormal return of the biddings firm shares surrounding the M&A announcement. Past empirical research (Bebchuk, Cremers, & Peyer, 2011; Brown & Sarma, 2007; Malmendier & Tate, 2008) found that the market reacts negatively to merger announcements done by overconfident CEOs. Therefore following past empirical research I predict that the sign of β_1 which is the coefficient of overconfidence measure will be negative. Furthermore, the variable v_i indicates industry fixed effects and ω_t represents time fixed effects.

$$(12)\ \text{M\&A deal completion} = \beta_0 + \beta_1 \text{Holder67}_{it} + \beta_2 \text{LN(AT)}_{it-1} + \beta_3 \text{ROA}_{it-1} + +\beta_4 \text{Q}_{it-1} + \beta_5 \text{E} - \text{index}_{it} + \beta_6 \text{Insider fraction}_{it} + \beta_7 \text{CEO ownership}_{it} + \beta_8 \text{Efficient boardsize}_{it} + v_i + \omega_t + \varepsilon_{it}$$

For my second regression (12), I will be regressing $\beta_1 \text{Holder67}_{it}$ on M&A deal completion. As I have discussed previously, extensive empirical literature has shown that overconfident CEOs are confident in their ability to succeed the M&A, despite having the knowledge that the majority of M&A deals fail to generate positive returns. Therefore I expect that overconfident CEOs will complete more M&A deals than their non-overconfident counterparts, which is translated into a positive sign for β_1.

(13) $$ACAR[-1,+1] = \beta_0 + \beta_1 \mathrm{CPS}_{it} + \beta_2 \mathrm{LN(AT)}_{it-1} + \beta_3 \mathrm{ROA}_{it-1} + \beta_4 \mathrm{Q}_{it-1} + \beta_5 \mathrm{Leverage}_{it-1} + \beta_6 \mathrm{E-index}_{it} + \beta_7 \mathrm{Efficient\ boardsize}_{it} + \beta_8 \mathrm{CEO\ ownership}_{it} + \beta_9 \mathrm{Insider\ fraction}_{it} + \beta_{10} \mathrm{CEO\ age}_{it} + \beta_{11} \mathrm{Gender}_{it} + \beta_{12} \mathrm{Relative\ dealsize}_{it} + \beta_{13} \mathrm{Cash\ payment}_{it} + \beta_{14} \mathrm{Stock\ payment}_{it} + \beta_{15} \mathrm{Diversifying}_{it} + v_i + \omega_t + \varepsilon_{it}$$

Regarding the third hypothesis (13), I will be performing the same regression as in hypothesis 1a. Instead of regressing for CEO overconfidence, I will examine CEO dominance. Therefore the variable of interest in my second regression is $\beta_1 \mathrm{CPS}_{it}$, which I use as a proxy for CEO dominance. Empirical research on CEO dominance is quite scarce, I assume that if the structural power of the CEO (i.e. dominance) increases within a firm, he/she will have more power to force his/her will in the decision making process of the enterprise. Combining my assumption with the knowledge that approximately 80% of M&A deals fail and prior studies having shown that the stock market reacts negatively or at best neutral to the biding firm, I predict that the sign for β_1, which represents the coefficient of CEO dominance, will be negative.

(14) $$M\&A\ deal\ completion = \beta_0 + \beta_1 \mathrm{CPS}_{it} + \beta_2 \mathrm{LN(AT)}_{it-1} + \beta_3 \mathrm{ROA}_{it-1} + \beta_4 \mathrm{Q}_{it-1} + \beta_5 \mathrm{E-index}_{it} + \beta_6 \mathrm{Insider\ fraction}_{it} + \beta_7 \mathrm{CEO\ ownership}_{it} + \beta_8 \mathrm{Efficient\ boardsize}_{it} + v_i + \omega_t + \varepsilon_{it}$$

For the last regression of this research (14), the variable of interest is $\beta_1 \mathrm{CPS}_{it}$. There is no empirical evidence whatsoever on the impact of CPS on M&A deal completion. I assume that CEO dominance does impact M&A decision making. A more dominant CEOs can pressure the enterprise to complete the M&A deal for their own profit such as increased compensation as a result of empire building. Therefore for my final β_1 I expect that more dominant CEOs will complete more M&A deals which translates itself into a positive sign for β_1.

4.4 Considerations and Sample selection

During this research, I aim to fully explore the effects of CEO overconfidence and CEO dominance on M&A deals during the period 1996-2016 in the United States. In order to achieve this, I will be using several databases. In this part I will present and discuss the relevant parameters of this research and the databases I used to construct my sample.

Considerations

The first consideration I made during the construction of the testing sample was to determine the research country. Managerial overconfidence and other behavioural biases are to a certain extent shaped by culture, therefore I expect that the nature, the extent of overconfidence and dominance differ across countries. Prior empirical studies ((Czerwonka, 2017; Stulz, Doidge, & Kralyi, 2007) focusing on cultural finance determined that natural culture, which comprises of several dimensions such as language, origin, and many other aspects, influence the decision-making behaviour of executives. These cultural finance researches emphasized on the importance of the role of natural culture in the extent of behavioural biases. Heine, Takata and Lehman (2000) found that individuals in East Asia exhibit less overconfident behavioural characteristics than Western people. Li and Nair (2009) also confirmed this by emphasizing that given the unique historical and religious backgrounds of Asian countries, key concepts and relationships of corporate governance in Asia are considerably different from what have been established in existing theories. Using the research of Heine et al. (2000), and Li and Nair (2009) I decide that I will perform my research on a population of firms and CEOs who operate under the same assumptions as the existing corporate governance theories.

Secondly, I examined the internal corporate governance structure of several countries which fit my primary search criteria (as discussed above). A majority of European countries operate under the Continental European governance model, while the U.S., Canada, the U.K and several other countries operate under the Anglo-American model. The Continental European model is also known as the two-tier model. An enterprise operating under the two-tier model consists of two separate BODs that work together to govern the enterprise, where the first board is known as the management board and the second is known as the supervisory board. While the management board handles the everyday business, the supervisory board members are elected by the shareholders and handle the long term decision making and the strategic route of the enterprise. Another key task of the supervisory board is to keep an oversight

of the management board, through the dismissal and the designation of the management board.

The Anglo-American model however is known as a one-tier model. Enterprises operating under the one-tier board have a regular BOD where in many cases the CEO has the dual role of being the chairman of the BOD. Within a one-tier model, the chairman of the BOD is also the one who elects the other members of the board. Therefore under a two-tier model the decision making within a firm happens more independent and a two-tier BOD also operates as a mechanism to block the propagation of CEO overconfidence and power within the enterprise. For the scope of this research I determined that firms operating under the Continental European model are not fit for my research, since I will not be able to directly measure the impact of overconfidence and dominance on M&A decisions making. Therefore I decide to focus my research on firms operating under a one-tier governance model. The U.S. matches the requirements of my criteria.

Furthermore, to mitigate any form of selection bias in my sample I chose to create a dataset which contains only publicly traded firms, since every publicly traded U.S. company is required to disclose their annual reports every year, while private U.S. companies are not required to do so. Therefore, I assume that private companies will only disclosure their annual reports if they performed well during a fiscal year, and by doing so proper randomization is not achieved, creating a sample which is not representative for my population to be analysed.

Another aspect of this research is to examine M&A deals. I selected M&A deals in the U.S. between 1996 and 2016. Grinstein and Hribar (2004) proposed that only M&A deals of $ 1 billion, or larger are interesting to examine, because only large transaction represent economically significant events. For the scope of this research I argue that CEOs of the bidding firms involved in relatively smaller deals are inclined to impose their overconfident and dominant views. Therefore I choose M&As with the value of transaction of $ 1 million or larger. Furthermore, since cross-border M&A deals are, prone many regulations and are reviewed by the Committee on Foreign investment in the United States (CFIUS), and have had plenty political interventions. I argue that in cross-border M&A deals the decision making power does not lie in the hands of the CEOs, but in the hands of the CFIUS and in some cases even in the politics. Therefore I decide to exclude cross-boarders M&A deals. I select domestic M&A deals where the bidding firm is a publicly traded firm and the target firm is either private or publicly traded.

Sample selection

In order to construct my variables I have used several databases. To construct my dependent variables M&A deal completion and my deal specific control variables, I derived M&A related information from Thomson One Banker which is a financial database containing information regarding annual reports, as well as data about M&A and IPO's. For the constructed proxies of CEO overconfidence and CEO dominance I used the database Execucomp, which contained CEO specific information. Thereafter, I used Compustat – Capital IQ to derive company specific information to construct my firm related control variables. By combining the data I derived from Thomson One Banker with the firm specific data that I derived from Compustat (through WRDS) I conducted an event study by using Eventus to compute the ACAR[-1,+1].

Thereafter, I used the Institutional Shareholder Services (ISS) where I derived data on classic takeover defences and other corporate governance provisions and directors related information. I then proceeded to merge all these databases. Following Deshmukh, Goel, and Howe (2009) and Fama and French (1992) I eliminated firm-year observations of financial firms (SIC 6000-6999), utilities (SIC 4000-4999) and regulated telephone companies (SIC 4813). The reason as to why these specific industries are excluded is due to their special capital structure and investment characteristics. I also excluded financial firms because the income statement and balance sheet data of financial firms are interpreted different than for non-financial firms. For example, high leverage for financial firms is normal, while high leverage for non-financial firms indicates that these firms are in distress. Finally, I excluded the utility industry and regulated phone companies due to the many regulations that these industries are prone to. After having excluded the above industries, my final sample consists of 1,286 unique firm observations, 1,754 CEOs and 9,786 firm-year observations.

5 Empirical results and analysis

Firstly, in this part I will present and discuss my descriptive statistics. Secondly, I will present my regression analysis, and discuss them. Combined with my regression analysis, I will discuss the presented hypotheses in section 2. Finally, I will end this section with additional robustness checks to confirm the structural validity of the empirical analysis.

5.1 Descriptive statistics

Table 1 contains the number of observations, the means, the standard deviations, the minimum and maximum. The descriptive statistics are based on a dataset consisting of 9,786 firm-year observations containing 1,268 different firms and representing 1,754 different CEOs between 1996 and 2016. To control for the presence of extreme outliers, I examined the normal distribution of each of the variables of importance for my regression analysis. I found that several variables contained extreme outliers, which could result in portraying a distorted view of the research. Therefore, it is necessary to reduce the effect of possibly outliers, by winsorizing ROA, Leverage, and Tobin's Q at 1% and 99%.

Panel A of Table 1 provides descriptive statistics related to firm characteristics. The average firm size as measured through total assets is $ 8,178 mln and a market equity capitalization of $8,935 mln indicating that my sample consist of relative large firms. My sample firms do not appear to be profitable, with a mean of return on assets of 4.6 % . Furthermore the sample firms are not highly leveraged, with a debt-to-asset ratio of 19.6%, which is relatively small. And with a Tobin's Q of 1.99 the firms appear to have growth opportunities. The entrenchment index (E-index) consists of 6 shareholder rights provisions in a firm's ranging between 0 and 6 which can also be found in the minimum or maximum. The higher value of E-index indicates weaker shareholder rights, or more entrenched management which also impacts firm valuation negatively (Bebchuk et al. 2009). I found that on average firms implement 3 shareholder rights provisions, which is consistent with the average E-index findings of Bebchuk et al. (2011) and Morellec, Nikolov, and Schurhoff (2012). Board Size indicates the number of directors which are members of the Board of Directors. On average the Board of directors consists of 10 members. Coles et al. (2008) found a similar average of 10 members. Furthermore, they argue that increased number of members of the BOD does not evidently mean that this corresponds with increased governance of the firm. While Malmendier and Tate found that in their research roughly 50% of the firms in their sample employed an efficient board,

I on the other hand have an average of 0.933 implying that roughly 93% of my dataset employs an efficient board, which is quite high.

Table 1. Descriptive statistics.

Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Board size is the number of board members in the firms Board of directors (BOD). Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Total compensation as derived from Execucomp, comprised of the following: salary, bonus, other annual, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive pay-outs and all other total. CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. CEO overconfidence is a dummy variable equal to one if the CEO holds the stock options that are more than 67% in the money at least twice during the sample period. CEO ownership ≥ 20 % is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Deal Size is the total value of the M&A deal in $ mln. Relative deal size is the deal size normalized by market value of equity. The Average Cumulative Return (ACAR) is the average impact on the bidder's stock from the day before the announcement through the day after. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Finally Deal completion is a dummy variable equal to one if the firm made at least one merger bid that was eventually successful in a given year Furthermore I present the number of observations, the mean of each variable, the standard deviations, the minimum and the maximum.

Variable	*Number of observations*	*Mean*	*Standard deviation*	*Minimum*	*Maximum*
Panel A. Summary statistics of firm data					
Firm Size ($ mln)	9,786	8178.93	31837.65	31.849	797769
Market value equity ($ mln)	9,779	8935.68	24839.96	2.186	476115.50
Return On Asset (ROA)	9.782	0.046	0.092	-0.414	0.255
leverage	9,744	0.196	0.163	0	0.674
Tobin's Q	9,779	1.994	1.140	0.751	7.024
E-index	9,786	2.986	1.303	0	6
Board Size	9,786	9.030	2.239	3	25
Efficient board size	9,786	0.933	0.249	0	1
Insider fraction Board of Directors	9,786	0.178	0.097	0	0.688
Panel B. Summary statistics of CEO data					
CEO age	9,126	53.167	7.110	32	87
Gender	9,786	0.965	0.183	0	1
CEO dominance (CPS)	9,763	0.354	0.141	0.002	0.987
CEO overconfidence (Holder67)	9,786	0,630	0.483	0	1
CEO ownership ≥ 20 %	9,786	0.0276	0.163	0	1
Panel C. Summary statistics of M&A bid					
Deal Size ($ mln)	1,192	833.93	3430.93	2	53717.29
Relative deal size	984	0.098	0.198	0.000	3.328
ACAR [-1,+1]	1,192	0.003	0.019	-0.181	0.166
Cash payment	1,192	0.643	0.479	0	1
Stock payment	1,192	0.040	0.197	0	1
Deal Completion	1,192	0.639	0.480	0	1

Finally, insider fraction indicates the insider representation in the board of directors. The mean of insider fraction is 0.178. This number is similar to those in other studies. Coles et al. (2008) found an insider fraction of 0.20. Bhagat and Black (2001) report a mean of 11 board members and an insider fraction which is slight higher (0.26) and Huson, Parrino, and Starks (2001) found a mean board size of 12 member corresponding with and insider fraction of 0.21. Insider fraction is similar with past empirical research. Furthermore this implies that despite the regulatory changes in the past decade, the insider fraction continued to fluctuate around 0.20, and has been quite consistent.

Panel B of Table 1 provides CEO related characteristics. In this sample, the average age of the CEOs is 54 years. Furthermore, approximately 97% of the sample consists of males, which is in line with the debate these days that top management jobs is a highly male dominated job industry. The average CPS is 36% corresponding with a standard deviation of 14%. This univariate statistic is in line with the findings of Bebchuk et al. (2011). They reported an average CPS of 35% corresponding with a standard deviation equalling 14%. This indicates that the CEOs of this research are quite powerful, since they earn approximately 40% of the total top director's wages within a firm. Campbell et al. (2011) reported that 57% is classified as overconfident, while Hirshleifer et al. (2012) using the same option based method as Campbell et al. (2011) reported 61% of the CEOs is classified as overconfident. Ferris et al. (2018) also found that 62% of their sample consist of overconfident CEOs. Therefore In line with past empirical research of Campbell et al (2011), and Hirshleifer et al. (2012), and Ferris et al. (2013) I report that 63% of the CEOs in my sample is classified as overconfident. On average CEOs own 2.3 % of the firms where they are employed, which is portrayed through the variable CEO ownership. Although this seems a small percentage, the sample firms as discussed at the beginning of this chapter have on average a firm value of $8.9 billion. CEOs hold on average 2.3% of the firm which translates itself in $ 195[4] mln. The presented percentage of CEO ownership is in line with Coles et al. (2008) and Malmendier and Tate (2008) who presented similar percentage of CEO ownership of 1.85% and respectively 2%.

[4] 0.0238 *$ 8,1 bln.

Finally, Panel C of Table 1 presents M&A deal characteristics. As presented the average deal Size is around $0.8 bln, which evidently corresponds with an average deals size of approximately 10%. Next is the ACAR [-1,+1], which represents the short-run markets reaction to domestic M&A announcements by publicly traded firms. With an ACAR of 0.003 there seems to be a slightly positive effect of M&A announcements for the acquiring firms. This is in line with past empirical findings, Jensen and Ruback (1983) cited that they found no positive announcements return for acquiring firms in merger deals. Malmendier and Tate (2008) recorded a slightly negative return on M&A announcement of the acquiring firms, while Moeller, Schlingemann, and Stulz (2003) reported significant negative return for acquiring firms. They emphasized that this is especially for M&A announcements post 1997. Myers and Majluf (1984) early theorized that in a world of information asymmetry, the method of payment in takeover deals signals valuable information to the market. They found that that CEOs will prefer cash offer if they believed that their firms are undervalued, while they will prefer a stock offer if they believed that their companies are overvalued. Therefore one would expect that the majority of M&A deals will be cash financed. I found that on average 64% of the M&A deals are fully cash financed, while only 0,4% is stock financed. This is consistent with Myers and Majluf's (1984) signalling theory. Finally, I observe that 64% of the M&A deal announcements are actually completed. Which is interesting since M&A deals are known for their value destroying characteristics and negative returns, yet I observe that more than half of the sample firms decide to complete the announced M&A transaction.

5.2 Empirical results

5.2.1 Correlations

In the process of fitting in regression models, if one independent variable is nearly the combination of other independent variables, this will affect parameters estimates (Lin, Solving multicollinearity in the pricess of fitting regression model , 2008). The simplest and most obvious method of identifying collinearity is an examination of the correlation matrix for the independent variables (Hair & Black, Multivariate Data Analysis, 2013). Table 2 in the appendix presents the correlation matrix, which I used to examine the correlation between my independent variables and the corresponding control variables of importance during my regression analysis. The reason for examining the correlation matrix is to examine if the relationship between my independent variables and dependent variables is distorted due to a very strong relation between the independent variables, leading to the likelihood of misinterpretation of my results. Hair and Black (2013) noted that in case of high correlation, correlations exceeding 0.7 may lead to potential multicollinearity issues. As can be viewed in the correlation matrix (referring to the appendix), the presented correlation matrix does not contain any correlation exceeding or nearing a correlation of 0.7. So it is highly unlikely that my regressions suffer from any collinearity issues.

5.2.2 Empirical analysis

Table 3 represents the OLS analysis of the CEO's personal portfolio decisions to their corporate M&A decisions as presented in hypotheses 1a. As discussed in section 3, I expect that M&A announcements by overconfident CEOs will result in a more negative announcement return than their counterparts. The dependent variable in all the models is the short-run average cumulative abnormal return (ACAR) of the bidding firm. The corresponding event window of the first set of regression is three days [-1,+1]. The explanatory power of my models after including all the control measures, as portrayed by the adjusted R-squared is approximately 13%.

The regression coefficient of the Holder67 variable fluctuates around 0 across all the regression models in Table 3 In column 5, which represents the full model, I observe a coefficient of -0.0005. This negative sign indicates that overconfident CEOs have a negative influence on the announcement returns. This negative sign is in line with past empirical studies (Malmendier & Tate, 2008; Campbell, Gallmeyer, Johnson, Rutherford, & Brook, 2011; Hirsheifer, Low, & Teoh, 2012), however the lack of statistical significance is not. Malmendier and Tate (2008) emphasized on the importance of overconfidence, since overconfidence destroys shareholder value. While the sign of my coefficient is in line with past empirical studies, I do not attain any statistical significance. This suggests that announcement returns do not differ significantly between an overconfident CEO and their non-overconfident counterparts.

The majority of the control variables that I used for my first set of regressions are not statistically significant, and have relatively low T-values. However, there are several control variables which are statistically significant. I obtain a statistically significant impact of the gender of the CEO (coefficient = -0.0073, significant at 5%) on the announcement return of the bidding firm. This indicates that M&A announcements done by male CEO's on average result in 0.07% less announcement returns than female CEOs announcing M&A deals. This is in line with Levi, Li, and Zhang (2014) who reported a similar negative effect of gender on announcements return. This effect is explained as female decision makers are more risk averse than males, and hence appear to be less likely to destroy shareholder value. This risk averse behaviour is projected by the stock market through the positive announcement returns.

Secondly, Insider ratio has a positive and statistically significant effect (coefficient= 0.0123, significant at 10%) on the M&A announcements returns. Raheja (2005) argued that the members of the BOD, of who are employed by the firm (i.e. insiders) are an important source of firm-specific knowledge, and specifically are more informed about the firm's constraints and opportunities. I argue that having this firm-specific knowledge can help the enterprise in their takeover strategy and in good M&A opportunities.

This is projected through a positive impact on the announcement returns.

The effect CEO ownership is negative and significant on M&A announcement returns (coefficient = -0.0172, significant at 1%). This statistical significant impact is not in line with the literature, since CEOs with a stake in the firm are expected to approach corporate investments with the appropriate diligence, after all their own wealth is at stake. This argument can also be reversed, since CEOs with increasing ownership in the enterprise will be eager to produce positive returns on their wealth investments. By increasing this through engaging in risky takeovers, they might hope to produce even greater returns. This phenomena is also known as the risk/return trade-off, which states that higher risk corresponds with higher return.

The last focus of the first regression analysis concerns M&A deal related control variables. Burner (2004) once wrote: '*Paying with stock is costly, while paying with cash is neutral*,' which reflects the results regarding M&A deal related control variables. For stock based M&A announcements I observe a negative effect (coefficient= -0.0021), indicating that stock announcements are costly for the bidding firm. However I do not obtain any statistical significance, therefore the impact should be interpreted with caution. For cash based M&A announcements I observe a positive and significant effect (coefficient 0.0040, significant at 1 %). This statistical effect is in line with past empirical research of Yook (2000) who reported that the method of payment is important, since it operates as a signalling mechanism to the stock market.

In conclusion, with the first regression I analysed and discussed the effect of the CEO's personal portfolio decisions on the announcement returns. The coefficient of the Holder67 variable is in line with past empirical studies, verifying the negative effect of overconfidence on announcement returns. However, I did not observe any statistical significance indicating that there is no significant difference on the announcement returns between an overconfident and a non-overconfident CEO announcing M&A deals. Based on my regression results, I do not find the supportive evidence for hypotheses 1a which states that the short-term market reaction to M&A announcement will be more negative if the acquiring firm has an overconfident CEO. Based on the first regression analysis, I reject hypothesis 1a.

Table 3. market reaction to M&A announcement of overconfident CEOs

This table represents the OLS regression results of the market response to M&A announcement of overconfident CEOs. The event window is from the day before the M&A announcement through the day after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO overconfidence is a dummy variable equal to one all the CEO-years if the CEO holds the stock options that are more than 67% in the money at least twice during the sample period. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Cash flow to sales is the ratio of operating income before depreciation divide by sales. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1, denote the statistical significance.

	Average Cumulative Abnormal Return [-1,+1]				
	Column				
	(1)	(2)	(3)	(4)	(5)
CEO Overconfidence	-0.0005	0.0000	-0.0009	0.0006	-0.0003
	(-0.05)	(0.06)	(-0.68)	(0.47)	(-0.21)
CEO Age		-0.0001	-0.0001	-0.0001	-0.0001
		(-0.55)	(-0.91)	(-1.11)	(-1.34)
CEO gender		-0.0066**	-0.0074**	-0.0068**	-0.0073**
		(-2.13)	(-2.32)	(-2.18)	(-2.28)
$Firm\ Size_{t-1}$		-0.0002	-0.0007	-0.0003	-0.0009
		(-0.39)	(-1.36)	(-0.64)	(-1.70)
ROA_{t-1}		0.0081	0.0054	0.0019	0.0020
		(0.36)	(0.25)	(0.09)	(0.09)
$Tobins\ Q\ _{t-1}$		0.0001	0.0006	0.0001	0.0001
		(0.12)	(0.08)	(0.16)	(0.15)
$Leverage_{t-1}$		-0.0024	-0.0068	-0.0018	-0.0062
		(-0.60)	(-1.46)	(-0.42)	(-1.32)
E-index		-0.0003	-0.0001	-0.0018	-0.0004
		(-0.07)	(-0.19)	(-0.30)	(-0.67)
Efficient board size		-0.0009	-0.0010	-0.0014	-0.0015
		(-0.39)	(-0.40)	(-0.61)	(-0.64)
Insider fraction		0.0157**	0.0122*	0.0157**	0.0123*
		(2.29)	(1.76)	(2.24)	(1.67)
CEO ownership		-0.0140***	-0.0035***	-0.0134***	-0.0172***
		(-3.17)	(-3.88)	(-2.94)	(-3.58)
Relative deal size		0.0120***	0.0122***	0.0124***	0.0127***
		(3.22)	(3.23)	(3.30)	(3.37)
Cash Deal		0.0038***	0.0040***	0.0039***	0.0040***
		(2.76)	(2.74)	(2.83)	(2.81)
Stock Deal		-0.0025	-0.0019	-0.0033	-0.0021
		(-0.67)	(-0.50)	(-0.86)	(-0.54)
Diversifying Acquisition		-0.0007	-0.0007	-0.0002	-0.0003
		(-0.44)	(-0.46)	(-0.15)	(-0.21)
Constant	0.0032***	0.0110	0.023	0.0206	0.0333*
	(3.35)	(0.85)	(1.12)	(1.50)	(1.89)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,192	928	928	928	1,753
R-squared	0.000	0.042	0.108	0.068	0.1352
Adjusted R-squared	0.000	0.025	0.039	0.031	0.047

Table 4 reports the odds ratio estimates from my logistic regressions where M&A deal completion is the dependent variable. I hypothesized that I expect that firms with overconfident CEOs will significantly complete more M&A deals.

Column (1) in Table 4 represents the base-line model, which examines the effect of overconfidence on M&A deal completion without taking any control variables into consideration. From Column (2) and onwards I proceed to include all the control variables of importance. Since Table 4 represents logistics regression estimates, the coefficients estimates are presented as odds ratios. To test for a positive effect as I presented in Hypothesis 1b, I compare my reported coefficient with 1. Coefficients >1 indicate positive likelihood of impact, while coefficients<1 indicate negative likelihood of impact. explanatory power of my models after including all my control measures, as portrayed by the adjusted R-squared is approximately 8%.

Among the control variables, I observe that bidding firms with a higher insider fraction ratio in the (BOD) are more likely to complete an M&A offer (odds ratio= 4.244, significant at 10%). Shivdasani (1993) emphasized on the importance of board structure on the likelihood of a takeover completion. This is also confirmed by Hermalin and Weisbach (1991) and Harford (2003) whom examined takeovers and found that firms with more insider directors in the BOD appeared to be effective in increasing the likelihood of a takeover completion. Furthermore, I find that higher percentage of CEO ownership leads to a decrease in the likelihood of the bidding firm completing an M&A deal (odds ratio= 0.316, significance at 5%). A possible explanation for this is that CEOs who increase their wealth investment in the enterprise become more cautious since not only the enterprises' wealth is at stake, their own capital is also at stake.
I observe that E-index is only significant in columns (2), and (3), where I do not control for year fixed effects. The coefficients for Firm size, ROA, and Tobin's Q at the beginning of the year are typically insignificant or, weakly significant in one of the four columns, therefore I did not obtain sufficient evidence to discuss the likelihood impact of these variables.

Now turning to the coefficient of interest for my second research hypothesis. As reported in Table 4 I find that that the likelihood of overconfident CEOs completing an M&A offer is consistently positive and significant at 5% level. Even after controlling for firm and year fixed effects (column 5) I report that the likelihood impact of CEO overconfidence on M&A completion is positive, and significant. This is in line with past empirical studies (Malmendier & Tate, 2008; Cain & McKeon, 2016; Campbell, Gallmeyer, Johnson, Rutherford, & Brook, 2011) who emphasized on the importance of behavioural characteristics of decision makers during corporate investment decisions.

In conclusion, as reported in *Table 4*. I verify that CEOs who are characterized as overconfident are more likely to complete M&A transactions (odds ratio=1.41, significant at 5%), compared to their non-overconfident counterparts. Therefore based on my regression analysis I find sufficient support for hypothesis 1b, which states that overconfident CEOs complete significantly more M&A deals than their non-overconfident counterparts.

Table 4. **M&A deal completing behaviour of overconfident CEOs.**

This table represents the logistic regression results of overconfident CEOs completing M&A deals. The dependent variable is a binary variable equal to one if a CEO has completed an M&A deal in a particular firm-year. CEO overconfidence is a dummy variable equal to one all the CEO-years if the CEO holds the stock options that are more than 67% in the money at least twice during the sample period Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Z-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1. All coefficients are presented as odd ratios.

	M&A deal completion				
	Column				
	(1)	(2)	(3)	(4)	(5)
CEO Overconfidence	1.128	1.267*	1.358**	1.315**	1.41**
	(0.96)	(1.79)	(2.14)	(2.00)	(1.67)
$Firm\ Size_{t-1}$		1.023*	1.014	1.067	1.06
		(0.54)	(0.29)	(1.43)	(1.47)
ROA_{t-1}		0.165*	0.203	0.291	0.349
		(-1.82)	(-1,51)	(-1.20)	(-1.95)
$Tobins\ Q\ _{t-1}$		0.947	0.912	0.952	0.911
		(-0.85)	(-1.30)	(-0.75)	(-0.49)
E-index		0.890**	0.847***	0.971	0.928
		(-2.31)	(-3.02)	(-0.48)	(-0.20)
Insider fraction		6.169**	6.008**	4.344*	4.244*
		(2.47)	(2.23)	(1.92)	(1.96)
CEO ownership		0.412**	0.415*	0.340**	0.316**
		(-2.03)	(-1.83)	(-2.33)	(-1.98)
Efficient Board Size		1.085	1.001	1.245	1.158
		(0.34)	(0.01)	(0.98)	(0.93)
Constant	1.639***	1.093	5.234	0.331	1.194
	(26.40)	(0.08)	(0.97)	(-0.93)	(0.10)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,192	1,150	1,121	1,150	1,121
LR chi2 (9)	0.91	27.90	81.60	64.51	117.59
Prob > chi2	0.339	0.001	0.014	0.000	0.000
Pseudo R-squared	0.001	0.022	0.055	0.043	0.080

Table 5 Reports the estimates from the OLS regression examining the relation between CEO dominance and ACAR[-1,+1]. The dependent variable is ACAR [-1,+1]. Column (1) represents the base-line model, and from column (2) and onwards, I add the control variables of interest, resulting in column (5) which displays the full model. The explanatory power of my models, as portrayed by the adjusted R-squared, is approximately 5%.

Across all of the models, the coefficient of CPS is negative and significant at 10 % level, but the statistical significance is only visible after controlling for other determinants. This suggests that CEOs with increasing structural power (i.e. dominance) within the enterprise destroys shareholder value. This result is consistent with the views of Roll (1986), Hayward and Hambrick (1997) and Bebchuk et al. (2011). They confirmed that CEO power is significantly higher for acquiring firms, compared to non-acquiring firms. The statistical significance can also be translated to the economic impact of M&A announcement of CEOs with increasing structural power. In this sample, an increase of one standard deviation of CPS which corresponds to a value of 0.141 (section 4.1, descriptive statistics). While the coefficient of CPS is -0.0080. Therefore an increase of one standard deviation of CPS is associated with an announcement return of -0.0080*0.0141= -0.0012%. As presented in section 4.2, the average firm size of the bidding firm is approximately $ 8,178.93 mln. Using the assumption that the shares outstanding equal firm value, one standard deviation increase in CPS results in shareholder value loss of -0.0012 % * $ 8,178.93 mln =- $ 9.22 mln. This suggests that increasing the structural power of the CEO leads to increased agency problems, which implicates agency costs. In this research, agency costs are manifested through shareholder value loss.

I observe that most parameter estimates produced by the control variables are in line with past empirical research. CEO gender has a consistent negative effect (coefficient = -0.0074, significant at 5% level) on the announcements return. Levi et al. (2014) found a similar negative effect of gender on announcements return. This is reasoned as women appearing to be less likely to destroy shareholders value and this is also reflected by the stock market through the announcement returns. Moeller, Schlingemann and Stulz (2004) reported that large firms (approximately $4,600 million) experienced significant wealth loss when they announce the acquisition of publicly traded firms. In line with their research I found a similar effect for my sample firms on the announcement returns. In column (5) where I present the full model with all my control variables, I find that firm size has a weakly negative significant (at 10%) effect on ACAR[-1,+1]. The implication of the remainder of my control variables are in line with Table 3, therefore I refer to the regression analyses of Table 3, where I discussed the effects of the control

variables extensively.

To summarize, the regression analysis of Table 5. focuses on the structural power of the CEO within the enterprise, and how the increase in structural of the CEO is portrayed through the announcement returns. The regression analysis of hypothesis 2a has proven that there is a quantifiable announcement effect of a CEO with increasing dominance within the enterprise announcing an M&A deal. I verified that increased CEO dominance translates itself into increased agency problems. As result of increased agency problems, the agency costs are also manifested. I found that on average, one standard deviation increase in CPS which implicates in agency costs as measured through shareholder value loss of approximately -$9,2 million per M&A announcement. Based on my findings with regards to CEO dominance I reject hypothesis 2a stating that there is no significant difference in the short-term market reaction to M&A announcement between firms employing dominant and a less dominant CEO.

Table 5. market reaction to M&A announcement of dominant CEOs

This table represents the OLS regression results of the market response to M&A announcement of dominant CEOs. The event window is from the day before the M&A announcement through the day after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO dominance, is computed through the CEO Pay Slice (CPS). CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-1,+1]				
	Column				
	(1)	(2)	(3)	(4)	(5)
CEO Dominance	-0.0035	-0.0077*	-0.0088*	-0.0072*	-0.0080*
	(-0.84)	(-1.59)	(-1.78)	(-1.47)	(-1.65)
CEO Age		-0.0001	-0.0004	-0.0000	-0.0001
		(-0.23)	(-0.52)	(-0.82)	(-1.03)
CEO Gender		-0.0032**	-0.0076**	-0.0068**	-0.0074**
		(-2.16)	(-2.38)	(-2.20)	(-2.32)
$Firm\ Size_{t-1}$		-0.0003	-0.0008	-0.0004	-0.0010*
		(-0.55)	(-1.58)	(-0.79)	(-1.90)
ROA_{t-1}		0.0090	0.0072	0.0040	0.0038
		(0.45)	(0.34)	(0.19)	(0.18)
$Tobins\ Q\ _{t-1}$		0.0001	0..0001	0.0002	0.0001
		(0.22)	(0.04)	(0.28)	(0.15)
$Leverage_{t-1}$		-0.0021	-0.0064	-0.0014	-0.0058
		(-0.51)	(-1.37)	(-0.34)	(-1.23)
E-index		-0.0008	-0.0002	-0.0021	-0.0005
		(-0.15)	(0.31)	(-0.36)	(-0.74)
Efficient board size		-0.0006	-0.0008	-0.0013	-0.0014
		(-0.31)	(-0.32)	(-0.56)	(-0.60)
Insider fraction		0.014**	0.0111	0.0150	0.0112
		(-2.12)	(1.55)	(2.13)	(-1.52)
CEO ownership		-0.0139***	-0.0180***	-0.0134***	-0.0170***
		(-3.17)	(-3.84)	(-2.93)	(-3.53)
Relative deal size		0.0121***	0.0124***	0.0123***	0.0129***
		(3.24)	(3.28)	(3.30)	(3.40)
Cash Deal		0.0037***	0.0039***	0.0039***	0.0040***
		(2.71)	(2.26)	(2.78)	(2.82)
Stock Deal		-0.0026	-0.0019	-0.0034	-0.0021
		(-0.70)	(-0.51)	(-0.86)	(-0.54)
Diversifying Acquisition		-0.0006	-0.0007	-0.0002	0.0003
		(-0.42)	(-0.47)	(-0.10)	(0.18)
Constant	0.0040***	0.0141	0.0278	0.0347*	0.038**
	(2.81)	(1.08)	(1.64)	(2.51)	(2.12)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,191	927	927	927	927
R-squared	0.000	0.044	0.1377	0.070	0.138
Adjusted R-squared	0.000	0.028	0.050	0.033	0.050

The final part of the empirical analyses focuses on examining M&A deal completing behaviour of dominant CEOs. As presented during the analysis of hypothesis 2a, on average one standard deviation increase in CEO dominance, results in a shareholder wealth destruction of approximately $ 9,2 million. Based on the hypotheses development in section 3, I argue that a more dominant CEO will complete significantly more M&A deals than their counterparts.

In table 6, I report the estimates of my logistic regressions where the dependent variable is the probability that the acquiring firm completes the M&A deal. Table 6. represents logistics regression estimates, the coefficients estimates are presented as odds ratios. To test for a positive effect as I presented in Hypothesis 2b, I compare the reported estimates with 1. The explanatory power of the model, as reported through the adjusted R-squared is around 5,2%. I observe that the logistic regression coefficients of CEO dominance are negative across all the models. This indicates that CEOs with increasing structural power within the enterprise are less likely to complete M&A deals. This is in line with the research of Kau, Linck, and Rubin (2008). They emphasize on the notion that reaction of stock prices to various events contains a lot of information, which should be extremely valuable to a firm's manager. Using this information, the manager can observe the markets of their investment decisions to gain a better understanding whether the market views the investment announcement as value-enhancing or value-reducing. Past empirical research has extensively shown that the capital markets are better informed than the firm itself ((Roll, 1986; Dye & Sridhar, 2002) While Roll (1986) early on argued that this signalling by the market is ignored by the manager due to hubris. Kau et al. (2008), on the other hand found that top managers within a firm do listen to the signalling of the market and are more likely to cancel investments when the market reacts unfavourably to the related announcement. if the signalling theory holds, a more dominant CEO who has no hubris would listen to the signalling of the market and complete less M&A deals. While I do observe that the coefficient signs are <1, there is no evidence of any statistical significance. This indicates that there is no significant difference of M&A deal completion when the dominance of the CEO increases. Based on the lack of statistical significance I do not have the supporting evidence for hypothesis 2b. Therefore I do not accept hypothesis 2b stating that dominant CEOs will complete more M&A deals than their less dominant counterparts.

Table 6. M&A deal completing behaviour of dominant CEOs

This table represents the logistic regression results of dominant CEOs completing M&A deals. The dependent variable is a binary variable equal to one if a CEO has completed an M&A deal in a particular firm-year. CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Z-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1. All coefficients are presented as odd ratios.

	M&A deal completion				
	Column				
	(1)	(2)	(3)	(4)	(5)
CEO Dominance	0.531	0.639	0.444*	0.812	0.557
	(-1.45)	(-1.00)	(-1.70)	(-0.44)	(-1.16)
$Firm\ Size_{t-1}$		1.022	1.007	1.066*	1.051
		(0.51)	(0.14)	(1.39)	(0.95)
ROA_{t-1}		0.179*	0.248	0.305**	0.406*
		(-1.74)	(-1.32)	(-1.15)	(-0.82)
$Tobins\ Q\ _{t-1}$		0.966	0.936	0.971	0.937
		(-0.55)	(-0.95)	(-0.45)	(-0.90)
E-index		0.898**	0.860***	0.974	0.935
		(-2.13)	(-2.75)	(-0.43)	(-1.04)
Insider fraction		5.890**	5.179**	4.514**	4.104*
		(2.40)	(2.04)	(1.97)	(1.68)
CEO ownership		0.411**	0.403*	0.339**	0.311**
		(-2.05)	(-1.91)	(-2.35)	(-2.27)
Efficient Board Size		1.087	1.003	1.233	1.142
		(0.35)	(0.01)	(0.85)	(0.51)
Constant	2.194***	1.432	9.484	0.401	2.035
	(4.68)	(0.32)	(1.28)	(-0.75)	(0.38)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,191	1,149	1,120	1,149	1,120
LR chi2	2.10	23.03	80.45	60.39	114.25
Prob > chi2	0.147	0.003	0.0031	0.000	0.000
Adjusted R-squared	0.001	0.015	0.055	0.040	0.078

Thus far, in line with theoretical models and past empirical research, I verified the existence and implications of overconfidence, and dominance of individual decisions makers during M&A activities. My research results relate to either overconfidence or dominance, but not both. To fully explore the domain of overconfidence and dominance , it is imperative to explore the combined effect. Additionally I expand my research by combining both overconfidence and dominance in one decision maker and to examine how this affects the M&A activity of the bidding firm.

As discussed in section 2, overconfidence is a behavioural trait where individuals overestimate their knowledge, underestimate their risks, and exaggerate their ability to control events. If a CEO is labelled as overconfident, centralizing the decision making power is not desirable for the shareholder especially during M&A deals. By combining the agency theory, and the overconfidence theory I expect that increased dominance of an overconfident CEO will only present the CEO with the power to impose his/her overconfident views on the corporate strategy of the enterprise, increasing the agency problems within the firm. Following the agency theory, increased agency problems will evidently result in agency costs which are quantified in this research through shareholder wealth destruction. Therefore I expect that shareholder wealth will be destroyed If an overconfident CEO, with increased structural announces an M&A deal.

In Table 7 I present the estimates of my OLS regressions where the dependent variable is the short-run announcement return as measured through ACAR[-1,+1]. The explanatory power of my model, as reported through the adjusted R-squared, is approximately 4.8%. In order to examine both overconfidence, and dominance simultaneous, I created the interaction variable overconfidence*dominance. In Table 7 the variable of interest is overconfidence*dominance. From the regression coefficients and the lack of statistical significance, several conclusions can be drawn. Firstly, the negative coefficients across all the models indicate that M&A announcement by overconfident CEOs whose dominance increases within the enterprise correspond with less stock returns. However, due to the lack of statistical significance I do not find any statistical evidence of a significant different effect on the stock return if an overconfident CEO with increased dominance announces an M&A deal. Furthermore, I find that the impact of the control variables is similar to the previous OLS regression analyses.

Table 7. market reaction to M&A announcement of overconfident and dominant CEOs

This table represents the OLS regression results of the market response to M&A announcement of overconfident and dominant CEOs. The event window is from the day before the M&A announcement through the day after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO overconfidence is a dummy variable equal to one for all the CEO-years if the CEO holds the stock options that are more than 67% in the money at least twice during the sample period. Overconfidence* dominance is an interaction variable of the combination of overconfidence and dominance. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-1,+1]				
	Column				
	(1)	(2)	(3)	(4)	(5)
CEO Overconfidence	0.0024	0.0015	-0.0016	0.0022	-0.0008
	(0.73)	(0.36)	(-0.38)	(0.54)	(-0.19)
CEO Dominance	0.0013	-0.0050	-0.0101	-0.0041	-0.0091
	(0.19)	(-0.55)	(-1.09)	(-0.45)	(-0.97)
*Overconfidence*dominance*	-.0070	-0.0037	0.0018	-0.0042	-0.0013
	(-0.79)	(-0.35)	(0.17)	(-0.40)	(-0.12)
CEO Age		-0.0001	-0.0001	-0.0001	-9.95e-05
		(-0.23)	(-0.52)	(-0.82)	(-1.01)
CEO gender		-0.0066**	-0.0075**	-0.0068**	-0.00744**
		(-2.16)	(-2.36)	(-2.21)	(-2.32)
$Firm\ Size_{t-1}$		-0.0003	-0.0008	-0.0004	-0.00102*
		(-0.55)	(-1.56)	(-0.80)	(-1.89)
ROA_{t-1}		0.0065	0.0059	0.0070	0.00668
		(0.66)	(0.58)	(0.69)	(0.63)
$Tobins\ Q\ _{t-1}$		0.0001	0.0001	0.0001	0.000149
		(0.19)	(0.16)	(0.20)	(0.20)
$Leverage_{t-1}$		-0.0021	-0.0063	-0.0014	-0.00578
		(-0.52)	(-1.36)	(-0.43)	(-1.32)
E-index		-0.0001	-0.0001	-0.0002	-0.000463
		(-0.16)	(-0.27)	(-0.38)	(-0.74)
Efficient board size		-0.0007	-0.0008	-0.0013	-0.00142
		(-0.31)	(-0.33)	(-0.56)	(-0.59)
Insider fraction		0.0147**	0.0112	0.0149**	0.0112
		(2.13)	(1.56)	(2.12)	(1.52)
CEO ownership		-0.0141***	-0.0179***	-0.0133***	-0.0169***
		(-3.21)	(-3.86)	(-2.93)	(-3.51)
Relative deal size		0.0121***	0.0123***	0.0125***	0.0129***
		(3.25)	(3.25)	(3.33)	(3.39)
Cash Deal		0.0037***	0.0039***	0.0038***	0.00401***
		(2.75)	(2.75)	(2.79)	(2.81)
Stock Deal		-0.0026	-0.0020	-0.0033	-0.00215
		(-0.69)	(-053)	(-0.86)	(-0.54)
Diversifying Acquisition		-0.0006	-0.0007	-0.0002	-0.000279
		(-0.40)	(-0.45)	(-0.10)	(-0.17)
Constant	0.0027	0.0130	0.0281	0.0225	0.0382**
	(0.98)	(0.97)	(0.163)	(1.58)	(2.11)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,191	927	927	927	927
R-squared	0.001	0.045	0.111	0.070	0.138
Adjusted R-squared	0.000	0.027	0.041	0.032	0.048

This research, combined with prior empirical studies have verified that shareholder wealth is destroyed through M&A transaction. Despite having this knowledge, CEOs continue to engage in M&A deals and continue to destroy shareholder value. In this part, I present my final logistic regression analysis, where I analyse the likelihood of overconfident CEOs with increased dominance of completing M&A deals. I argue that structural power of the CEO which represents the concentration of decision making power in the hands of an individual. Combined with the overconfidence effect, I argue that an CEO will use the increased dominance within the enterprise to impose his/her overconfident views in the firm's decision making path.

One of the possibilities is whether or not to complete an M&A deal. Since I found sufficient evidence that overconfident CEOs are more likely to complete an M&A deal than their counterparts I expect to find a similar effect by combining both. I investigate this by creating an interaction variable, which represents the combined effects of overconfidence and dominance (*overconfidence*dominance*)

In Table 8 I report the estimates of my logistic regressions where the dependent variable is the probability that the acquiring firm completing the M&A deal. The explanatory power of my model, as reported through the adjusted R-squared is approximately 7.9%. The independent variable of interest is the overconfidence*dominance. To test for a positive effect, I compare my reported estimates with 1. I observe that the odds ratio of the interaction variable is >1, indicating that overconfident CEOs with increased dominance are more likely to complete an M&A deal. However, I do not find any statistical significance of the interaction variables. This indicates that the likelihood of M&A completion does not differ significantly if an overconfident CEO has increased dominance within the enterprise. Furthermore, I observe that the significant effects of my control variables are similar as my prior regression analysis of the likelihood of M&A deal completion. Therefore, I refer to Table 4, for a discussion of the control variables.

Table 8. M&A deal completing behaviour of overconfident and dominant CEOs

This table represents the OLS regression results of dominant CEOs completing M&A deals. The dependent variable is a binary variable equal to one if a CEO has completed an M&A deal in a particular firm-year. CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. SOX is an indicator variable that equals 1 for the fiscal period between 2004 and 2016 and 0 otherwise. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Z-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1. All coefficients are presented as odd ratios.

	M&A deal completion				
	(1)	(2)	(3)	(4)	(5)
CEO dominance	0.405	0.475	0.361	0.646	0.496
	(-1.17)	(-0.94)	(-1.21)	(-0.53)	(-0.80)
CEO overconfidence	1.013	1.072	1.19	1.161	1.315
	(0.04)	(0.19)	(0.45)	(0.39)	(0.67)
Overconfidence*	1.474	1.444	1.279	1.281	1.084
dominance	(0.41)	(0.39)	(0.24)	(0.25)	(0.08)
$Firm\ Size_{t-1}$		1.027	1.014	1.061	1.049
		(0.65)	(0.29)	(1.38)	(0.96)
ROA_{t-1}		0.054***	0.081**	0.103**	0.151
		(-2.80)	(-2.26)	(-2.11)	(-1.64)
$Tobins\ Q\ _{t-1}$		1.099*	1.066	1.087	1.047
		(1.68)	(1.06)	(1.42)	(0.72)
E-index		0.901**	0.861***	0.977	0.932
		(-2.04)	(-2.70)	(-0.39)	(-1.07)
Insider fraction		5.694**	5.021*	4.144*	3.777
		(2.35)	(2.01)	(1.86)	(1.58)
CEO ownership		0.4713*	0.483	0.400**	0.387*
		(-1.76)	(-1.56)	(-2.03)	(-1.90)
Constant	2.192***	1.121	5.725	0.447	1.734
	(2.67)	(0.11)	(1.04)	(-0.71)	(0.31)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,191	1,150	1,121	1,150	1,120
LR chi2	3.72	27.89	84.24	63.98	117.26
Prob > chi2	0.293	0.001	0.001	0.001	0.000
Adjusted R-squared	0.002	0.018	0.057	0.042	0.079

5.3 Additional robustness checks

Before finalizing this study by concluding on the research findings and answering the research question it is important to perform several robustness checks to verify the structural validity of the empirical analysis. And to provide a short analyses of the changes I observe when altering the assumptions. The first robustness check that I performed during this research is to regress all the models with different control variables which I presented in the different columns per table. Secondly, I will reperform the OLS and logistic regressions I used during this research with different proxies for my independent and dependent variables. I increase the threshold to identify a CEO as overconfidence, while using a different proxy to measure a dominant CEO. Furthermore, I altered the event window frame of my dependent variable ACAR. For the output of my performed robustness checks, I refer to Appendix E.

Throughout this research, I use Holder67 as a proxy to measure CEO overconfidence. In section 4.2.2 I constructed Holder67 as an dummy variable which was 1 if a CEO does not exercise his/her options at least twice during my sample period, despite observing an increase in the executive stock options of at least 67% and otherwise 0. I reperformed my hypotheses by increasing the threshold for overconfidence from 67 % to 150 %. While I found that the sign of the independent variable fluctuated around zero, I did not obtain different statistical evidence. Furthermore, I examined whether the regression analysis concerning CEO dominance are robust. Before Bebchuk et al. (2009) introduced a valid method for quantifying CEO dominance, empirical studies used a different proxy to determine the structural power of a CEO (i.e. dominance). Boyd (1995), Dalton and Rechner (1991) and Cosh et al. (2006) used CEO duality as their proxy for measuring the structural power of the CEO. CEO duality refers to a enterprise's board structure, where the CEO has a dual role. One as the CEO of the enterprise, and the second role as the chairman of the BOD. For my robustness check, I created an dummy variable which takes the value 1 if the CEO of the enterprise also functions as the chairman of the BOD, otherwise 0.

Moreover, I increased the event window from 3 days [-1,+1] to 10 days [-5,+5], and eventually 20 days [-10,+10]. I observed no significant changes compared to a 3 days event window. What I did notice is that increasing the event window resulted in the effect of the independent variable on the dependent variable decreased. This is in line with the results of McKinley (1997) who stated that increasing the days in the event window will result in a lower predictive power, due to the possibility of confounding effects from other market events. Other than the decrease in the predictive power of my regression analyses, I did not observe any significant changes in my OLS regression analyses. For the regression results, I refer to Tables 9 until 14 in the Appendix .

In Table 15, I present my logistic regression of the likelihood of M&A deal completion. Using the highly overconfidence as the independent variable, the significant effect which I observed in Table 4 does not hold. One possible explanation for this is presented by Campbell et al.(2011). They determined that CEOs with a low degree of overconfidence or relative high degree of overconfidence faces a higher probability of forced turnover than moderate overconfident CEOs. This implies that a highly overconfident CEO is less likely to complete an M&A deal, since their job is at stake and they face a higher probability of being fired. The same can be said of a low overconfident CEO. This translates itself in the regression output where there is no significant difference in the likelihood of M&A deal completion between an high overconfident and a non-overconfident CEO. This notion corresponds with the statistical findings of the regression output of Table 15. For the robustness check of CEO dominance and M&A deal completion, I do not observe any changes in the effect after using CEO duality as proxy for dominance.

Evidently, I also performed a robustness check for the combined effects of overconfidence and dominance, which I analysed through my interaction variable. I did not observe a different effect of the interaction variable on the ACAR [-5,+5], and ACAR[-10,+10] after I increased my threshold for overconfidence from 67% to 150%. I refer to Table 16 for the regression output.

Finally, I examined the robustness of the likelihood of M&A deal completion by an overconfident CEO who is also perceived as dominant. I replaced overconfidence with highly overconfidence and reperformed my logistic regression. Table 17. presents the regression analysis with highly overconfidence*dominance as independent variable. Interestingly, I observe that highly overconfident CEOs with increased dominance are several times more likely to complete an M&A deal (odds ratio= 2.579, significant at 10%). One possible explanation can again be found in the research findings of Campbell et al. (2011). If the dominance of the highly overconfident CEO increases, the likelihood of forced turnover decreases. Therefore the highly overconfident CEO is more inclined to complete an M&A deal since there is less pressure of forced turnover. This regression analysis verifies that empirical findings of Campbell et al. (2011) hold when including the dimension of structural power with highly overconfident CEOs. Based on the robustness test performed I did not only verify the structural validity of my research findings, I also provide new statistical evidence verifying the research findings of Campbell et al. (2011) during M&A deals.

6 Conclusion and limitations

This thesis extends prior empirical studies of overconfidence and dominance of CEOs during M&A activities by exploring both at the same time. I did this by examining the following research question: 'Do overconfident and dominant CEOs affect their firm's short-run performance and the M&A deal completing behaviour?'

Based on this study, several conclusions can be drawn. Overall, I find strong evidence that not only shareholder value destruction takes place during M&A activities, but the deal completing behaviour of enterprises changes when taking overconfidence and dominance of the decision makers into consideration. The impact and the magnitude of overconfidence and dominance is studied through OLS and logistic regression models.

Firstly, I found that the likelihood of M&A deal completion is several times higher for firms who employ overconfident CEOs. This impact is quite interesting, since it verifies the overconfidence effect. A key element of the overconfidence effect is that overconfident CEOs feel as if they have superior decision making abilities compared to their peers. In this study I verified this through the completing behaviour of overconfident CEOs. 80% of M&A deals fail, however overconfident CEOs feel as if the M&A deals they complete will be different and hence the likelihood of them completing M&A deals is several times higher. Furthermore, no significant effect is found during M&A deal completing of CEOs with increased dominance (i.e. structural power). One possible argument is that increased dominance does not necessarily mean that the CEO exerts his/her power to finalize the M&A deal. However due to the lack of statistical significance, this should be interpreted with caution.

Secondly, I tested the impact of CEO overconfidence on stock returns during M&A announcement. In accordance with past empirical studies I observe a negative coefficient of CEO overconfidence on stock returns. However, due to the lacking of statistical significance I cannot verify that stock returns of firms employing overconfident CEOs differ significantly than their counterparts during the M&A announcement phase. Since my calibration of overconfidence is not as precisely as the overconfidence measure of Malmendier and Tate (2005), the results should be interpreted with caution, since they noted a significant negative difference. Furthermore, I analysed the impact of dominance on stock returns during M&A announcement. I find a clear answer on the dominance effect. CEOs with increasing dominance within the firm have a statistical significant negative impact on the announcement return, compared to their peers. Centralizing the power of the bidding firm is not viewed as value enhancing for the shareholder. In fact for every standard deviation increase in CEO dominance within the bidding firm, I found that this resulted in

shareholder value destruction of approximately $ 9,2 million, per M&A announcement. I provide sufficient evidence that increasing the dominance of the CEO creates a greater distance between the goals of the CEO and the shareholder. This increased distance translates itself into increased agency problems, which are manifested into agency costs for the shareholders through shareholder value destruction.

The final part of this research focused on the combined impact of overconfidence and dominance during M&A activities. For overconfident CEOs with increased structural power, I did not provide any statistical nor economic relationship with M&A activities. However, during the robustness check of these empirical analyses, I find that highly overconfident CEOs with increased dominance are several times more likely to complete an M&A deal than their counterparts. These research findings complement the study of Campbell et al. (2011) by finding that dominance is an important dimension for highly overconfident CEOs. Campbell et al. (2011) argued that an highly overconfident CEO has more probability to face a forced turnover, than a moderate overconfident CEO. By presenting the highly overconfident CEO with more dominance within the enterprise, I argue that their probability of forced turnover decreases. This translates itself through increased likelihood of M&A deal completion, since the highly overconfident CEOs have less fear of losing their jobs, which corresponds with increased incentives to exert their highly overconfident views.

This study has several limitations. The main limitation of this study is that I was unable to calibrate a similar option-based measure of overconfidence as Malmendier and Tate (2005). While I did use a less precise, but commonly used calibration of overconfidence I argue that using a more precise calibration will lead to more precise results. A second limitation of this study is that during the time frame of this research, a big regulatory change occurred. Since 2004, publicly traded firms in the U.S. are mandatory to operate under the Sarbanes-Oxley (SOX) act, which was implemented to prevent the manifestation of overconfidence and to improve the corporate governance of the firms. Through the implementation of the SOX, possible impact of the legislation on overconfidence and dominance are not controlled for in this research. Furthermore, I note that during the construction of the firm's governance E-index, I assigned equal weight to all of the six anti-takeover provisions a firms employs to counter an M&A. I argue that some anti-takeover provisions deserve more weight than others. Another limitation of this research is there are CEOs who engage several times in M&A deals during a fiscal year. For my research purposes, I only included one M&A deal per CEO in a given year. Ideally every M&A transactions of the CEO should be analysed.

Finally, Zagono and Salganik-Shoshan (2018) stated that while the CPS measure has the virtue of simplicity and applicability and is also used as the primary and often the only proxy for CEO ability and power, it suffers from a fundamental flaw. They found that the CPS makes assumptions regarding the structure of compensation among the top executives within a firm. They demonstrated that the weight of pay difference between the CEO and the next in line executive is important and this difference is also information concerning the dominance of the CEO. Their research highlight the inability of CPS to capture the distributional structure of the compensation among the top executives which is also an indicator for dominance and hence valuable information is neglected. Therefore the dominance proxy is possibly not calibrated precisely enough and exposes researchers to the risk of drawing misleading conclusions.

This research contributes existing literature in several ways. Firstly, the results demonstrate the association of CEO overconfidence, CEO dominance and M&A activities. Not only does this research present statistical evidence, it also presents with economic significance of overconfidence and dominance during M&A activities. Furthermore, this research found sufficient evidence for the agency theory, but no supportive evidence for the stewardship theory indicating that the stewardship theory does not hold during corporate investments events such as M&As. Past empirical studies with regard to CEO overconfidence have always focused on moderate overconfident CEOs (i.e. 67% in the money). In this research I have presented new evidence on the relevance and importance of highly overconfident CEOs. I found that highly overconfident CEOs, with increasing structural power are several times more likely to complete an M&A deal than their non-overconfident counterparts with similar structural power. Furthermore, this research contributes to shareholders who are tormented with value destroying behaviour by their principals. By providing both statistical and economic significant evidence of overconfidence and dominance, this research verifies the flaws of the one tier board structure. Centralizing the decision making power does not have the desired effect on shareholder return during M&A transactions. Shareholders should reconsider their internal governance structure and implement proper policy to mitigate the centralization of decision making power and to mitigate overconfidence top decision makers. Since increased overconfidence and dominance only incites to more agency costs, which this research has shown is quite costly for the shareholders.

This thesis brings forth several interesting future research opportunities. While the post M&A performance of overconfident CEOs has been examined, the impact of external governance changes has not been examined extensively. An interesting topic for future research could be the effect of external governance changes on behavioural characteristics of individual decision makers or top management of

the acquiring firm. A further interesting topic of research is not only to examine the behavioural characteristics of decision makers of the bidding firms, but to also incorporate the behavioural characteristics of the decision makers of the target company. During the process of writing this thesis I found that many empirical researches focused solely on the decision makers of the acquiring firm, and neglected to incorporate the behavioural treat of the target firms. Furthermore, an extension of this research could be achieved by examining the effects of overconfidence and dominance on the long-run firm performance post-M&A. Furthermore, this research solely focused on structural power, as measured by CEO dominance. As Finkelstein (1992) discussed in his paper, there are four pillars of power in which structural power (i.e. dominance) is one of them. For future research the effects of all the pillars of powers could be analysed. It is possible to examine the relationship between CEO ownership/insider fraction, CEO overconfidence and M&A activities. Finally, this research focuses on publicly traded firms with one-tier board structure. Future research could focus on European firms where the majority of the firms operate under a two tier board strucutre. Performing this research with different governance structure might lead to interesting new results.

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Appendix

Figure 2. Libby box

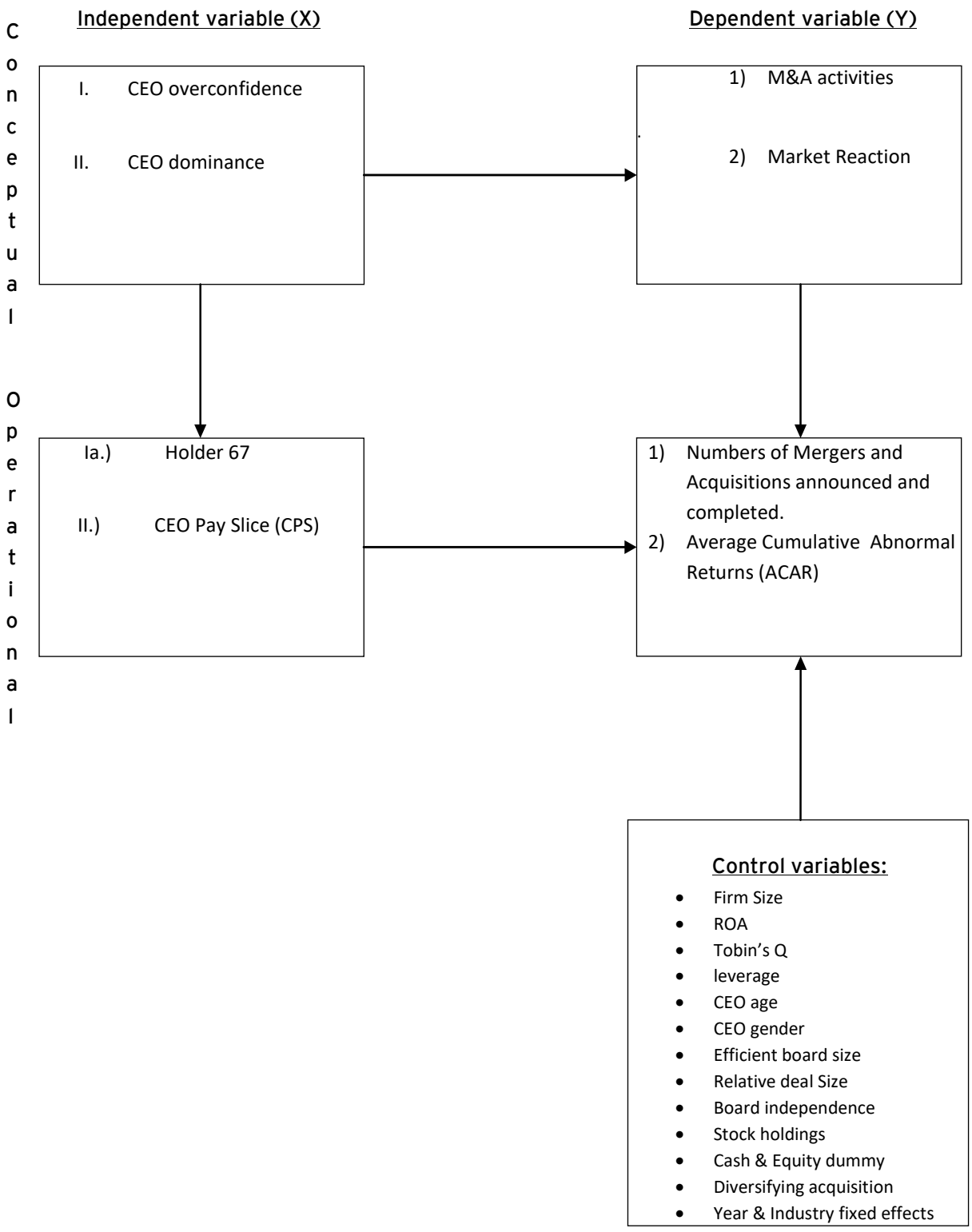

Figure 3. Variable description

Variable	Definition	Derived from
Panel A: Dependent Variables		
Short-run market reaction ACAR[-1,+1], ACAR [-5,+5] & ACAR[-10,+10]	Three-day average cumulative abnormal return calculated by using the market model with CRSP.	Eventus
M&A Deal completion (M&A)	Indicator variable equal to 1 if the firm made at least one merger bid that was eventually successful in a given year	Thomson One Banker
Panel B: measures of CEO overconfidence		
Holder 67 (hol67)	indicator variable equal to 1 if CEO holds stock options >67% in-the-money	Execucomp
High-overconfident CEO	indicator variable equal to 1 if CEO holds stock options >150% in-the-money	Execucomp
Panel C: Measures of CEO dominance		
CEO Pay Slice (CPS)	the fraction of the aggregate compensation of the top-five executive team captured by the CEO	Execucomp
CEO duality	Indicator variable equal to 1 if the CEO was also the chairman of the BOD in a given year	ISS risk metrics
Panel D: Control Variables		
Bidder Firm Size	Natural log of the book value of total assets	Compustat
ROA	The ratio of total net income to total assets	Compustat
Tobin's Q	Market value of assets over book value of assets	Compustat
Leverage	Book value of debt over book value of total assets	Compustat
Relative Deal Size	Deal value derived from Thomson one divided by the market value of equity	Thomson One Banker
CEO age	age of the CEO	Execucomp
CEO gender	Indicator variable equal to 1 if the CEO was male, otherwise 0	Execucomp
efficient Board Size	Indicator variable equal to 1 if the board has between 4 and 12 director, otherwise 0	ISS risk metrics
E-index	Derived from Gompers et al. (2003) Based on 24 antitakeover provisions Bebchuk et al. (2008) put forward an entrenchment index based on six provisions.	ISS risk metrics
cash payment	Indicator variable equal to 1 if M&A deal is fully cash financed, otherwise 0	Thomson One Banker
stock payment	Indicator variable equal to 1 if the M&A deal is fully stock (equity) financed, otherwise 0	Thomson One Banker
diversify	Indicator variable equal to 1 if the Bidder and Target firms are active in the different industries. Based on two digit SIC codes.	Thomson One Banker
Industry fixed effects	Dummy variable created based on 2-digit Standard industrial Classification codes (SIC-codes)	Compustat
Year fixed effects	Dummy variables created based on fiscal years	Compustat

Table 2. Correlation matrix

	Holder67	CPS	Total Assets	ROA	Tobin's Q	Leverage	E-index	Efficient board size	Insider fraction	CEO ownership	Relative deal size	Cash deal	Stock deal	Diversify acquisition
Holder67	1													
CPS	0.011	1												
Total Assets	0.020	-0.088	1											
ROA	0.112	0.051	-0.029	1										
Tobin's Q	0.194	0.039	-0.075	0.420	1									
Leverage	-0.033	0.033	0.311	-0.103	-0.076	1								
E-index	0.037	0.066	0.022	0.001	0.004	0.039	1							
Efficient Board size	-0.005	0.071	-0.339	-0.048	0.019	-0.061	0.030	1						
Insider fraction	0.001	-0.079	-0.251	0.013	-0.008	-0.074	-0.264	0.020	1					
CEO ownership	-0.033	0.009	-0.106	-0.001	-0.057	0.023	-0.071	-0.035	0.141	1				
Relative deal size	-0.047	0.0312	-0.069*	-0.030	-0.131	0.054	0.034	0.013	-0.0132	0.039	1			
Cash Deal	0.021	0.004	0.031	0.106	0.076	-0.020	0.068	0.033	-0.083	-0.006	-0.058	1		
Stock Deal	-0.029	-0.041	-0.027	-0.019	0.045	-0.030	-0.133	-0.027	0.067	0.017	0.052	-0.248	1	
Diversify acquisition	0.021	-0.026	0.030	-0.050	-0.081	-0.044	-0.035	-0.030	0.006	-0.006	-0.046	-0.251	0.026	1

Table 9. market reaction to M&A announcement of High overconfident CEOs

This table represents the OLS regression results of the market response to M&A announcement of high overconfident CEOs. The event window is from the day before the M&A announcement through the day after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. High overconfidence is a dummy variable equal to one all the CEO-years if the CEO holds the stock options that are more than 150% in the money at least twice during the sample period. . CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Cash flow to sales is the ratio of operating income before depreciation divide by sales. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets . E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-1,+1]				
	Column				
	(1)	(2)	(3)	(4)	(5)
High Overconfidence	0.0006	0.0014	0.0004	0.0019	0.0011
	(0.59)	(1.19)	(0.35)	(1.54)	(0.81)
CEO Age		-0.0001	-0.0001	-0.0001	-0.0001
		(-0.58)	(-0.90)	(-1.14)	(-1.35)
CEO gender		-0.0067**	-0.0075**	-0.0071**	-0.0076**
		(-2.19)	(-2.35)	(-2.29)	(-2.35)
$Firm\ Size_{t-1}$		-0.0000	-0.0006	-0.0002	-0.0008
		(-0.22)	(-1.18)	(-0.41)	(-1.47)
ROA_{t-1}		0.0058	0.0040	0.0064	0.0050
		(0.59)	(0.39)	(0.64)	(0.48)
$Tobins\ Q\ _{t-1}$		-0.0000	-0.0001	0.0001	-0.0000
		(-0.04)	(-0.11)	(0.03)	(-0.03)
$Leverage_{t-1}$		-0.0025	-0.0069	-0.0018	-0.0064
		(-0.60)	(-1.50)	(-0.43)	(-1.37)
E-index		-0.0001	-0.0001	-0.0001	-0.0004
		(-0.09)	(-0.24)	(-0.24)	(-0.66)
Efficient board size		-0.0009	-0.0010	-0.0014	-0.0014
		(-0.38)	(-0.35)	(-0.59)	(-0.59)
Insider fraction		0.0164**	0.0131*	0.0163**	0.0128*
		(2.39)	(1.83)	(2.35)	(1.75)
CEO ownership		-0.0139***	-0.0177***	-0.0134***	-0.0170***
		(-3.20)	(-3.84)	(-2.97)	(-3.54)
Relative deal size		0.0119***	0.0121***	0.0124***	0.0126***
		(3.21)	(3.20)	(3.30)	(3.32)
Cash Deal		0.0038***	0.0039***	0.0039***	0.0041***
		(2.79)	(2.76)	(2.85)	(2.84)
Stock Deal		-0.0024	-0.0018	-0.0033	-0.0021
		(-0.62)	(-0.46)	(-0.86)	(-0.54)
Diversifying Acquisition		-0.0007	-0.0008	-0.0002	-0.0004
		(-0.46)	(-0.50)	(-0.18)	(-0.24)
Constant	0.0032***	0.0089	0.020	0.0184	0.0305*
	(3.35)	(0.69)	(1.23)	(1.35)	(1.74)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,192	928	928	928	9,28
R-squared	0.000	0.043	0.108	0.070	0.135
Adjusted R-squared	0.000	0.027	0.039	0.034	0.048

Table 10. market reaction to M&A announcement of dominant CEOs

This table represents the OLS regression results of the market response to M&A announcement of Dominant CEOs. The event window is from the day before the M&A announcement through the day after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO dominance, is computed through CEO duality. CEO duality is a dummy variable which 1 if the CEO is also the chairman of the BOD during that year. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Cash flow to sales is the ratio of operating income before depreciation divide by sales. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrel (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-1,+1]				
	(1)	(2)	(3)	(4)	(5)
CEO Duality	0.0008	0.0016	0.0011	0.0019	0.0015
	(0.70)	(1.28)	(0.81)	(1.51)	(1.12)
CEO Age		-0.0001	-0.0001	-0.0001	-0.0001
		(-0.77)	(-1.01)	(-1.35)	(-1.49)
CEO Gender		-0.0067**	-0.0075**	-0.0068**	-0.0074**
		(-2.17)	(-2.36)	(-2.22)	(-2.32)
$Firm\ Size_{t-1}$		-0.0001	-0.0006	-0.0002	-0.0008*
		(-0.26)	(-1.20)	(-0.56)	(-1.56)
ROA_{t-1}		0.0052	0.0040	0.0053	0.0048
		(0.53)	(0.39)	(0.52)	(0.46)
$Tobins\ Q\ _{t-1}$		0.0001	-0.0003	0.0002	0.0001
		(0.15)	(-0.05)	(0.25)	(0.12)
$Leverage_{t-1}$		-0.0031	-0.0071	-0.0024	-0.0065
		(-0.75)	(-1.52)	(-0.58)	(-1.39)
E-index		0.0000	-0.0001	-0.0018	-0.0004
		(0.01)	(0.19)	(-0.31)	(-0.71)
Efficient board size		-0.0007	-0.0008	-0.0013	-0.0014
		(-0.31)	(-0.33)	(-0.56)	(-0.59)
Insider fraction		0.0165**	0.0134*	0.0172**	0.0134
		(2.44)	(1.86)	(2.46)	(-1.82)
CEO ownership		-0.0141***	-0.0179***	-0.0134***	-0.0171***
		(-3.22)	(-3.87)	(-2.95)	(-3.56)
Relative deal size		0.0121***	0.0122***	0.0123***	0.0127***
		(3.24)	(3.22)	(3.29)	(3.34)
Cash Deal		0.0039***	0.0040***	0.0040***	0.0041***
		(2.86)	(2.80)	(2.91)	(2.88)
Stock Deal		-0.0024	-0.0018	-0.0031	-0.0020
		(-0.65)	(-0.47)	(-0.80)	(-0.50)
Diversifying Acquisition		-0.0007	-0.0009	-0.0003	-0.0004
		(-0.49)	(-0.55)	(-0.21)	(-0.29)
Constant	0.0027***	0.0095	0.0204	0.0197	0.0310*
	(3.18)	(0.74)	(1.23)	(1.44)	(1.76)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,192	928	928	928	928
R-squared	0.000	0.043	0.1077	0.069	0.136
Adjusted R-squared	0.000	0.028	0.039	0.034	0.048

Table 11. market reaction to M&A announcement of (High) overconfident CEOs, ACAR [-5,+5]

This table represents the OLS regression results of the market response to M&A announcement of overconfident (High overconfident) CEOs. The event window is 5 days before the M&A announcement until 5 days after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO overconfidence (high overconfidence) is a dummy variable equal to one all the CEO-years if the CEO holds the stock options that are more than 67% (150%) in the money at least twice during the sample period. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-5,+5]									
	Column									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CEO Overconfidence	0.0002		-0.0001		-0.0001		0.0001		0.0001	
	(0.42)		(-0.11)		(-0.16)		(0.22)		(0;.22)	
High Overconfidence		0.0001		0.0001		-0.0001		0.0002		0.0001
		(0.22)		(0.31)		(-0.19)		(0.57)		(0.17)
CEO Age			0.0000	0.0002	0.0000	0.0002	0.0001	0.0000	0.0000	0.0000
			(0.518)	(0.63)	(0.53)	(0.53)	(0.33)	(0.31)	(0.22)	(0.22)
CEO gender			-0.0022*	-0.0023*	-0.0024*	-0.0024	-0.0023*	-0.0023**	-0.0023*	-0.0023*
			(-1.94)	(-1.95)	(-1.95)	(-1.93)	(-1.95)	(-1.98)	(-1.85)	(-1.86)
$Firm\ Size_{t-1}$			0.0001	0.0001	0.0001	0.0000	0.0000	0.0000	-0.0001	-0.0001
			(0.55)	(0.53)	(0.19)	(0.19)	(0.19)	(0.18)	(-0.36)	(-0.35)
ROA_{t-1}			-0.0074	-0.0075	-0.0102	-0.0101	-0.0083	-0.0084	-0.0100	-0.0100
			(-0.99)	(-1.00)	(-1.26)	(-1.25)	(-1.09)	(-1.11)	(-1.23)	(-1.23)
$Tobins\ Q\ _{t-1}$			0.0005**	0.0005**	0.0006**	-0.0010	0.0005**	0.0005**	0.0001*	0.0001**
			(2.08)	(2.01)	(2.01)	(2.02)	(2.13)	(2.08)	(2.00)	(1.99)
$Leverage_{t-1}$			0.0001	0.0001	-0.0013	-0.0013	0.0043	0.0004	-0.0010	-0.0010
			(0.04)	(0.06)	(-0.74)	(-0.75)	(0.27)	(0.30)	(-0.54)	(-0.53)
E-index			0.0002	0.0002	0.0002	0.0002	0.0000	0.0000	-0.0000	-0.0001
			(0.99)	(0.98)	(0.90)	(0.90)	(0.11)	(0.12)	(-0.17)	(-0.18)
Efficient board size			-0.0002	-0.0002	-0.0002	-0.0002	-0.0004	-0.0005	-0.0006	-0.0005
			(-0.26)	(-0.28)	(-0.29)	(-0.28)	(-0.48)	(-0.51)	(-0.57)	(-0.58)
Insider fraction			0.0155***	0.0116***	0.0110***	0.0110	0.0118***	0.0119***	0.0114***	0.0115***
			(4.44)	(4.45)	(4.04)	(4.02)	(4.48)	(4.51)	(4.10)	(4.11)
CEO ownership			-0.0044***	-0.0044***	-0.0057***	-0.0057	-0.0041**	-0.00041**	-0.0051***	-0.005***
			(-2.63)	(-2.64)	(-3.24)	(-3.24)	(-2.35)	(-2.37)	(-2.80)	(-2.81)
Relative deal size			0.0035**	0.0035**	0.0035**	0.0035	0.0037***	0.0037***	0.0038***	0.0038***
			(2.45)	(2.45)	(2.44)	(2.45)	(2.62)	(2.62)	(2.65)	(2.64)
Cash Deal			0.0013**	0.0013**	0.0012**	0.0012	0.0014***	0.0014***	0.0013**	0.0014**
			(2.52)	(2.53)	(2.27)	(2.27)	(2.71)	(2.72)	(2.47)	(2.47)
Stock Deal			-0.0038***	-0,0037***	-0.0034**	-0.0033	-0.0040***	-0.0040***	-0.0034**	-0.0034**
			(-2.63)	(-2.63)	(-2.31)	(-2.31)	(-2.71)	(-2.71)	(-2.26)	(-2.26)
Diversifying Acquisition			0.0006	0.0005	0.0002	0.0001	0.0006	0.0006	0.0003	0.0003
			(0.92)	(0.92)	(0.31)	(0.31)	(1.11)	(1.11)	(0.52)	(0.52)
Constant	0.0061*	0.0006**	-0.0042	-0.0042	0.0008	0.0008	-0.0011	-0.0001	0.0052	0.0052
	(1.69)	(2.32)	(-0.86)	(-0.85)	(0.12)	(0.12)	(-0.21)	(-0.19)	(0.77)	(0.77)
Industry FE	NO	NO	NO	NO	YES	YES	NO	NO	YES	YES
Year FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Observations	1,192	1,192	928	928	928	928	928	928	928	928
R-squared	0.000	0.000	0.055	0.055	0.113	0.113	0.087	0.087	0.144	0.144
Adjusted R-squared	0.000	0.000	0.038	0.038	0.044	0.043	0.051	0.051	0.057	0.057

Table 12. market reaction to M&A announcement of (High) overconfident CEOs, ACAR [-10,+10]

This table represents the OLS regression results of the market response to M&A announcement of overconfident (High overconfident) CEOs. The event window is 10 days before the M&A announcement until 10 days after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO overconfidence (high overconfidence) is a dummy variable equal to one all the CEO-years if the CEO holds the stock options that are more than 67% (150%) in the money at least twice during the sample period. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-10,+10]									
	Column									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CEO Overconfidence	0.0000		-0.0000		-0.0001		0.0000		-0.0001	
	(0.31)		(-0.21)		(-0.34)		(0.02)		(-0.10)	
High Overconfidence		0.0001		0.0001		-0.0001		0.0002		-0.0001
		(0.59)		(0.42)		(-0.22)		(0.57)		(-0.01)
CEO Age			0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
			(0.01)	(-0.01)	(-0.17)	(-0.17)	(-0.04)	(-0.07)	(-0.28)	(-0.28)
CEO gender			-0.0010	-0.0010	-0.0011	-0.0010	-0.0009	-0.0009	-0.0009	-0.0009
			(-1.26)	(-1.29)	(-1.36)	(-1.36)	(-1.26)	(-1.30)	(-1.22)	(-1.22)
$Firm\ Size_{t-1}$			-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0001	-0.0001
			(-0.02)	(-0.05)	(-0.28)	(-0.29)	(-0.31)	(-0.33)	(-0.85)	(-0.86)
ROA_{t-1}			-0.0016	-0.0017	-0.0053	-0.0053	-0.0023	-0.0023	-0.0052	-0.0052
			(-0.32)	(-0.34)	(-1.00)	(-1.00)	(-0.47)	(-0.49)	(-0.98)	(-0.98)
$Tobins\ Q_{t-1}$			0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002
			(1.15)	(1.05)	(1.15)	(1.13)	(1.26)	(1.17)	(1.23)	(1.21)
$Leverage_{t-1}$			-0.0002	-0.0001	-0.0011	-0.0011	-0.0010	-0.0010	-0.0008	-0.0008
			(-0.20)	(-0.18)	(-0.96)	(-0.97)	(0.09)	(0.12)	(-0.74)	(-0.74)
E-index			0.0000	0.0000	0.0000	0.0000	-0.0001	-0.0001	-0.0001	-0.0001
			(0.53)	(0.51)	(0.65)	(0.65)	(-0.61)	(-0.60)	(-0.75)	(-0.75)
Efficient board size			-0.0001	-0.0001	-0.0003	-0.0003	-0.0002	-0.0002	-0.0004	-0.0004
			(-0.21)	(-0.23)	(-0.55)	-0.54)	(-0.39)	(-0.42)	(-0.82)	(-0.82)
Insider fraction			0.0039**	0.0038**	0.0032*	0.0031*	0.0037**	0.0037**	0.0032*	0.0032*
			(2.18)	(2.19)	(1.77)	(1.74)	(2.12)	(2.14)	(1.75)	(1.75)
CEO ownership			-0.0032***	-0.0033***	-0.0039***	-0.0039***	-0.0034***	-0.0034***	-0.0039***	-0.0039***
			(-2.95)	(-2.96)	(-3.37)	(-3.36)	(-3.03)	(-3.04)	(-3.23)	(-3.22)
Relative deal size			0.0021**	0.0021**	0.0020**	0.0020**	0.0021**	0.0021**	0.0021**	0.0021**
			(2.24)	(2.24)	(2.16)	(2.17)	(2.30)	(2.31)	(2.25)	(2.25)
Cash Deal			0.0007**	0.0007**	0.0007**	0.0007*	0.0007**	0.0007**	0.0007**	0.0007**
			(2.00)	(2.00)	(1.97)	(1.96)	(2.09)	(2.11)	(2.06)	(2.06)
Stock Deal			-0.0018*	-0.0018*	-0.0016*	-0.0015*	-0.0020**	-0.0020**	-0.0016	-0.0016
			(-1.92)	(-1.89)	(-1.65)	(-1.65)	(-2.06)	(-2.06)	(-1.63)	(-1.62)
Diversifying Acquisition			0.0003	0.0004	0.0002	0.0002	0.0004	0.0004	0.0003	0.0003
			(0.99)	(0.98)	(0.60)	(0.59)	(1.11)	(1.10)	(0.75)	(0.75)
Constant	0.0002	0.0002	-0.0003	-0.0002	0.0022	0.0022	0.0019	0.0020	0.0052	0.0052
	(1.18)	(1.05)	(-0.08)	(-0.07)	(0.52)	(0.52)	(0.55)	(0.57)	(1.17)	(1.17)
Industry FE	NO	NO	NO	NO	YES	YES	NO	NO	YES	YES
Year FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Observations	1,192	1,192	928	928	928	928	928	928	928	928
R-squared	0.000	0.000	0.030	0.86	0.098	0.098	0.70	0.070	0.135	0.136
Adjusted R-squared	0.000	0.000	0.013	0.051	0.028	0.028	0.033	0.034	0.047	0.047

Table 13. market reaction to M&A announcement of dominant CEOs, ACAR [-5,+5]

This table represents the OLS regression results of the market response to M&A announcement of dominant CEOs. The event window is 5 days before the M&A announcement until 5 days after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. Second proxy for CEO dominance, is computed through CEO duality. CEO duality is a dummy variable which 1 if the CEO is also the chairman of the BOD during that year. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-5,+5]									
	Column									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CEO Pay Slice (CPS)	-0.0020		-0.0027*		-0.0026*		-0.0022*		-0.0023*	
	(-1.29)		(1.46)		(-1.40)		(-1.32)		(-1.20)	
CEO duality		-0.0003		-0.0044		-0.0004		-0.0002		-0.0002
		(-0.71)		(-0.49)		0.77		(-0.23)		(-0.48)
CEO Age			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
			(0.92)	(0.72)	(0.81)	(0.64)	(0.55)	(0.41)	(0.45)	(0.32)
CEO gender			-0.0023**	-0.0022*	-0.0021**	-0.0023*	-0.0023*	-0.0022*	-0.0022*	-0.0022*
			(-1.96)	(-1.91)	(-1.99)	(-1.92)	(-1.96)	(-1.93)	(-1.87)	(-1.83)
$Firm\ Size_{t-1}$			0.0001	0.0001	0.0000	0.0003	0.0001	0.0004	-0.0001	-0.0001
			(0.39)	(0.58)	(0.02)	(0.20)	(0.06)	(0.24)	(-0.50)	(-0.30)
ROA_{t-1}			-0.0068	-0.0075	-0.0095	-0.0106	-0.0076	-0.0083	-0.0093	-0.0101
			(-0.90)	(-1.00)	(-1.18)	(-1.31)	(-1.02)	(-1.10)	(-1.15)	(-1.25)
$Tobins\ Q\ _{t-1}$			0.0005**	0.0005**	0.0005**	0.0005**	0.0005**	0.0005**	0.0005**	0.0005**
			(2.16)	(2.08)	(2.08)	(2.01)	(2.23)	(2.19)	(2.10)	(2.07)
$Leverage_{t-1}$			0.0001	0.0001	-0.0011	-0.0013	0.0005	0.0004	-0.0008	-0.0009
			(0.12)	(0.07)	(-0.67)	(-0.74)	(0.34)	(0.29)	(-0.46)	(-0.53)
E-index			0.0001	0.0001	0.0001	0.0001	0.0001	0.0003	-0.0005	-0.0003
			(0.92)	(0.96)	(0.81)	(0.87)	(0.07)	(0.12)	(-0.22)	(-0.15)
Efficient board size			-0.0001	-0.00022	-0.0002	-0.00025	-0.0003	-0.0004	-0.0004	-0.000504
			(-0.19)	(-0.26)	(-0.23)	(-0.29)	(-0.44)	(-0.46)	(-0.53)	(-0.55)
Insider fraction			0.0112***	0.0115***	0.0106***	0.0109***	0.0116***	0.0118***	0.0112***	0.0113***
			(4.27)	(4.39)	(3.86)	(3.98)	(4.38)	(4.43)	(3.98)	(4.03)
CEO ownership			-0.0043***	-0.0043***	-0.0057***	-0.0056***	-0.0040**	-0.0040**	-0.0050***	-0.0051***
			(-2.63)	(-2.62)	(-3.22)	(-3.21)	(-2.33)	(-2.35)	(-2.77)	(-2.81)
Relative deal size			0.0034**	0.0034**	0.0035**	0.0034**	0.0037***	0.0037***	0.0038***	0.0039***
			(2.47)	(2.44)	(2.47)	(2.43)	(2.63)	(2.61)	(2.65)	(2.63)
Cash Deal			0.0012**	0.0013**	0.0012**	0.0012**	0.0014***	0.0014***	0.0013**	0.0013**
			(2.48)	(2.48)	(2.28)	(2.22)	(2.67)	(2.68)	(2.48)	(2.44)
Stock Deal			-0.0037***	-0.0037***	-0.0033**	-0.0033**	-0.0039***	-0.0039***	-0.0034**	-0.0032**
			(-2.66)	(-2.64)	(-2.33)	(-2.30)	(-2.71)	(-2.72)	(-2.26)	(-2.28)
Diversifying Acquisition			0.0005	0.0005	0.0001	0.0002	0.0006	0.0006	0.0003	0.0003
			(0.94)	(0.94)	(0.32)	(0.35)	(1.14)	(1.13)	(0.55)	(0.55)
Constant			-0.0031	-0.0044	0.0021	0.0007	-0.0002	-0.0013	0.0063	0.0049
			(-0.63)	(-0.89	(0.33)	(0.12)	(-0.03)	(-0.25)	(0.94)	(0.74)
Industry FE	NO	NO	NO	NO	YES	YES	NO	NO	YES	YES
Year FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Observations	1,191	1,191	928	928	927	928	928	928	927	928
R-squared	0.000	0.001	0.057	0.055	0.115	0.113	0.088	0.087	0.145	0.1443
Adjusted R-squared	0.000	0.000	0.040	0.038	0.046	0.044	0.052	0.051	0.058	0.057

Table 14. market reaction to M&A announcement of dominant CEOs, ACAR [-10,+10]

This table represents the OLS regression results of the market response to M&A announcement of dominant CEOs. The event window is 10 days before the M&A announcement until 10 days after the M&A announcement. The dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. Second proxy for CEO dominance, is computed through CEO duality. CEO duality is a dummy variable which 1 if the CEO is also the chairman of the BOD during that year. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009)*. Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1.

	Average Cumulative Abnormal Return [-10,+10]									
	Column									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CEO Pay Slice (CPS)	-0.0012		-0.0021*		-0.0021*		-0.0016		-0.0017	
	(-1.20)		(-1.75)		(-1.73)		(-1.31)		(-1.38)	
CEO duality		-0.000		-0.0003		-0.0004		-0.0003		-0.0004
		(-1.51)		(-0.97)		(-1.39)		-0.91		(-2.24)
CEO Age			0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	-0.0000	-0.0000
			(0.35)	(0.18)	(0.20)	(0.05)	(0.19)	0.15	-0.03	-0.07
CEO gender			-0.0010	-0.0009	-0.0011	-0.0010	-0.0010	-0.0009	-0.0010	-0.0009
			(-1.30)	(-1.22)	(-1.41)	(-1.32)	(-1.28)	-1.24	-1.25	-1.19
$Firm\ Size_{t-1}$			-0.0002	0.0000	-0.0000	-0.0003	-0.0005	-0.0002	-0.0001	-0.0001
			(-0.21)	(0.03)	(-0.49)	(-0.26)	(-0.46)	-0.19	-1.03	-0.75
ROA_{t-1}			-0.0011	-0.0018	-0.0048	-0.0058	-0.0020	-0.0024	-0.0048	-0.0056
			(-0.24)	(-0.36)	(-0.90)	(-1.09)	(-0.40)	-0.49	-0.90	1.04
$Tobins\ Q\ _{t-1}$			0.0002	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002
			(1.24)	(1.13)	(1.19)	(1.10)	(1.33)	1.28	1.26	1.23
$Leverage_{t-1}$			-0.0001	-0.0001	-0.0010	-0.0011	0.0001	0.0001	-0.0007	-0.0008
			(-0.11)	(-0.14)	(-0.87)	(-0.95)	(0.16)	0.14	-0.66	-0.74
E-index			0.0000	0.0000	0.0007	0.0008	-0.0009	-0.0008	-0.0001	-0.0001
			(0.46)	(0.47)	(0.55)	(0.59)	(-0.64)	-0.58	-0.80	-0.69
Efficient board size			-0.0000	-0.0001	-0.0002	-0.0003	-0.0002	-0.0002	-0.0004	-0.0004
			(-0.13)	(-0.14)	(-0.48)	(-0.55)	-0.35	-0.36	-0.78	-0.78
Insider fraction			0.0034**	0.0036**	0.0028	0.0030*	0.0035**	0.0035**	0.0030	0.0030
			(1.98)	(2.09)	(1.56)	(1.67)	2.00	2.01	1.62	1.62
CEO ownership			-0.0037***	-0.0032***	-0.0039***	-0.0039***	-0.0034***	-0.0034***	-0.0038***	-0.0039***
			(-2.94)	(-2.91)	(-3.35)	(-3.32)	-3.00	-3.01	-3.18	-3.23
Relative deal size			0.0021**	0.0021**	0.0020**	0.0020**	0.0021**	0.0021**	0.0021**	0.0021**
			(2.26)	(2.23)	(2.19)	(2.13)	2.32	2.30	2.27	2.24
Cash Deal			0.0006*	0.0006*	0.0007**	0.0006*	0.0007**	0.00071**	0.0007**	0.0007**
			(1.96)	(1.93)	(1.98)	(1.88)	2.07	2.04	2.07	1.99
Stock Deal			-0.0018*	-0.0018*	-0.0016*	-0.0015	-0.0020**	-0.0020**	-0.0016	-0.0016*
			(-1.93)	(-1.92)	(-1.68)	(-1.64)	-2.06	-2.10	-1.63	-1.66
Diversifying Acquisition			0.0003	0.0003	0.0002	0.0002	0.0004	0.0004	0.0003	0.0003
			(0.98)	(1.02)	(0.62)	(0.68)	1.12	1.14	0.78	0.82
Constant	0.0008**	0.0005**	0.0005	-0.0005	0.0033	0.0021	0.0026	0.0016	0.0061	0.0049
	(1.91)	(2.60)	(0.18)	(-0.15)	(0.77)	(0.51)	0.74	0.46	2.37	1.11
Industry FE	NO	NO	NO	NO	YES	YES	NO	NO	YES	YES
Year FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Observations	1,191	1,191	927	928	927	928	928	928	927	928
R-squared	0.001	0.001	0.033	0.031	0.102	0.100	0.072	0.071	0.138	0.137
Adjusted R-squared	0.000	0.000	0.016	0.014	0.031	0.030	0.035	0.034	0.049	0.049

Table 15. likelihood of overconfident and dominant CEO completing M&A deal

This table represents the logistic regression results of overconfident and dominant CEOs completing M&A deals. The dependent variable is a binary variable equal to one if a CEO has completed an M&A deal in a particular firm-year. CEO overconfidence is a dummy variable equal to one for all the CEO-years if the CEO holds the stock options that are more than 67% in the money at least twice during the sample period. CEO duality is a proxy for CEO dominance. CEO duality is a dummy variable which 1 if the CEO is also the chairman of the BOD during that year. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009)*. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Z-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1. All coefficients are presented as odd ratios.

	M&A deal completion									
	Column									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
High overconfidence	0.951		1.012		1.143		1.028		1.158	
	(-0.42)		(0.10)		(0.97)		(0.22)		(1.04)	
CEO duality		1.081		1.094		1.180		1.002		1.069
		(0.64)		(0.72)		(1.21)		(0.02)		(0.47)
$Firm\ Size_{t-1}$			1.027	1.025	1.017	1.017	1.069	1.068	1.060	1.059
			(0.61)	(0.57)	(0.34)	(0.34)	(1.46)	(1.45)	(1.13)	(1.10)
ROA_{t-1}			0.181*	0.178*	0.233*	0.244*	0.311	0.311	0.396	0.407
			(-1.73)	(-1.75)	(-1.38)	(-1.35)	(-1.14)	(-1.13)	(-0.84)	(-0.82)
$Tobins\ Q_{t-1}$			0.962	0.963	0.923	0.935	0.967	0.969	0.924	0.937
			(-0.61)	(-0.58)	(-1.14)	(-0.96)	(-0.50)	(-0.48)	(-1.08)	(-0.91)
E-index			0.895**	0.897**	0.851***	0.858**	0.973	0.973	0.929	0.931
			(-2.20)	(-2.16)	(-2.94)	(-2.80)	(-0.46)	(-0.46)	(-1.13)	(-1.11)
Insider fraction			6.408**	6.668**	6.353**	6.579**	4.673**	4.668**	4.643*	4.707
			(2.52)	(2.57)	(2.30)	(2.34)	(2.02)	(2.00)	(1.83)	(1.83)
CEO ownership			0.408**	0.403**	0.401*	0.392**	0.336**	0.335**	0.303**	0.301**
			(-2.06)	(-2.09)	(-1.91)	(-1.97)	(-2.37)	(-2.37)	(-2.32)	(-2.34)
Effective Board Size			1.081	1.082	0.986	0.994	1.231	1.233	1.134	1.138
			(0.33)	(0.33)	(-0.05)	(-0.02)	(0.84)	(0.85)	(0.48)	(0.49)
Constant	1.796	1.678	1.122	1.098	5.218	4.611	0.352	0.353	1.248	1.233
	(6.98)	(5.74)	(0.10)	(0.08)	(0.96)	(0.89)	(-0.88)	(-0.88)	(0.12)	(0.12)
Industry FE	NO	NO	NO	NO	YES	YES	NO	NO	YES	YES
Year FE	NO	NO	NO	NO	NO	NO	YES	YES	YES	YES
Observations	1,192	1,192	1,150	1,150	1,121	1,121	1,150	1,150	1,121	1,121
LR chi2	0.18	0.41	22.26	22.77	77.99	78.52	60.57	60.52	113.33	112.47
Prob> chi2	0.674	0.521	0.005	0.004	0.005	0.005	0.000	0.000	0.000	0.001
Pseudo R-squared	0.000	0.000	0.015	0.015	0.053	0.053	0.040	0.039	0.077	0.076

Table 16. market reaction to M&A announcement of overconfident and dominant CEOs

This table represents the OLS regression results of the market response to M&A announcement of high overconfident & dominant CEOs. dependent variable is the Average Cumulative Abnormal Return of the bidder's firm stock price. CEO high overconfidence is a dummy variable equal to one for all the CEO-years if the CEO holds the stock options that are more than 150% in the money at least twice during the sample period CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. CEO age is the age of the CEO as derived from Execucomp. Gender is a dummy variable equal to one if the gender of the CEO is male. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009)*. Efficient board size is a dummy variable equal to one if the BOD consists between 4 and 12 members. Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Relative Deal Size is the ratio of M&A deal value by the Market value of Equity of the bidding firm. Relative deal size is the deal size normalized by market value of equity. Cash (stock) payment is a dummy variable equal to one if the M&A deal is fully (100%) financed with cash (stock). Diversifying acquisitions is a dummy variable equal to one, if the bidder firm operates in a different industry than the target firm (Based on 2-digit SIC codes). T-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.0

	Average Cumulative Abnormal Return [-5,+5]					Average Cumulative Abnormal Return [-10,+10]				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CEO high overconfidence	-0.0023	0.0005	0.0001	0.0005	0.0001	0.0003	0.00042	0.0001	0.0004	0.0001
	(-1.32)	(0.82)	(0.008)	(0.90)	(0.27)	(0.87)	(1.05)	(0.23)	(1.06)	(0.34)
CEO dominance	-0.0001	-0.0019	-0.0026	-0.0017	-0.0025	-0.0007	-0.0014	-0.0021	-0.0012	-0.0019
	(-0.03)	(-0.84)	(-1.15)	(-0.79)	(-1.13)	(-0.60)	(-1.02)	(-1.42)	(-0.82)	(-1.26)
*High overconfidence * dominance*	0.0004	-0.0008	0.0001	-0.0005	0.0004	-0.0006	-0.0006	-0.0003	-0.0005	0.0002
	(0.31)	(-0.54)	(0.06)	(-0.34)	(0.24)	(-0.64)	(-0.63)	(-0.03)	(-0.43)	(0.14)
CEO Age		-0.0024**	-0.0025**	-0.0024**	-0.0024*		-0.0011	-0.0012	-0.0011	-0.0011
		(-2.10)	(-2.06)	(-2.09)	(-1.96)		(-1.43)	(-1.51)	(-1.40)	(-1.35)
CEO gender		0.0001	0.0002	0.0001	0.0001		0.0001	0.0000	0.0000	-0.0000
		(0.83)	(0.80)	(0.44)	(0.50)		(0.25)	(0.22)	(0.06)	(-0.04)
$Firm\ Size_{t-1}$		0.0001	0.0003	0.0002	0.0001		-0.0001	-0.0001	-0.0001	-0.0002
		(0.55)	(0.18)	(0.16)	(-0.40)		(-0.51)	(-0.77)	(-0.87)	(-1.42)
ROA_{t-1}		-0.0053	-0.0087**	-0.0044	-0.0075*		0.0022	-0.0000	0.0024	0.0001
		(-1.39)	(-2.17)	(-1.15)	(-1.85)		(0.89)	(-0.00)	(0.94)	(0.05)
$Tobins\ Q\ _{t-1}$		0.0001	0.0001	0.0001	0.0001		-0.0003**	-0.00027*	-0.0003**	-0.0003**
		(0.54)	(0.81)	(0.41)	(0.54)		(-2.05)	(-1.72)	(-2.20)	(-2.01)
$Leverage_{t-1}$		0.0001	-0.0011	0.0006	-0.0007		-0.0001	-0.00091	0.0002	-0.0007
		(0.13)	(-0.65)	(0.38)	(-0.43)		(-0.07)	(-0.78)	(0.23)	(-0.59)
E-index		0.0002	0.0001	0.0001	-0.0001		0.0001	0.0006	-0.0001	-0.0001
		(1.02)	(0.86)	(0.17)	(-0.19)		(0.48)	(0.45)	(-0.62)	(-0.90)
Efficient board size		-0.0001	-0.0002	-0.0003	-0.0004		-0.0001	-0.0002	-0.0002	-0.0005
		(-0.14)	(-0.18)	(-0.41)	(-0.51)		(-0.41)	(-0.46)	(-0.38)	(-0.79)
Insider fraction		0.0113***	0.0105***	0.0118***	0.0112***		0.0036**	0.0029	0.0038**	0.0032*
		(4.30)	(3.80)	(4.42)	(3.98)		(2.10)	(1.63)	(2.13)	(1.74)
CEO ownership		-0.0043***	-0.0054***	-0.0038**	-0.0045***		-0.0033***	-0.0038***	-0.0034***	-0.0036***
		(-2.67)	(-3.12)	(-2.28)	(-2.58)		(-3.12)	(-3.34)	(-3.07)	(-3.10)
Relative deal size		0.0032**	0.0033**	0.0034**	0.0034**		0.0017*	0.0017*	0.0017*	0.00172*
		(2.26)	(2.29)	(2.39)	(2.41)		(1.82)	(1.80)	(1.83)	(1.80)
Cash Deal		0.0013**	0.0012**	0.0014***	0.0013**		0.0007**	0.0007**	0.0008**	0.0076**
		(2.52)	(2.23)	(2.70)	(2.45)		(2.06)	(1.99)	(2.17)	(2.13)
Stock Deal		-0.0037***	-0.0034**	-0.0039***	-0.0034**		-0.0018*	-0.0017*	-0.0019*	-0.0017*
		(-2.64)	(-2.34)	(-2.67)	(-2.26)		(-1.94)	(-1.76)	(-2.03)	(-1.67)
Diversifying Acquisition		0.0004	0.0001	0.0005	0.0002		0.0003	0.0002	0.0004	0.0003
		(0.81)	(0.21)	(1.02)	(0.45)		(0.88)	(0.59)	(1.01)	(0.77)
Constant	0.0014**	-0.0032	0.0023	0.0002	0.0071	0.0005	0.0021	0.0052	0.0044	0.0086*
	(2.22)	(-0.65)	(0.37)	(0.04)	(1.06)	(1.33)	(0.64)	(1.24)	(1.28)	(1.94)
Industry FE	NO	NO	NO	YES	YES	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES	NO	NO	YES	NO	YES
Observations	1,191	928	928	928	928	1.191	928	928	928	928
R-squared	0.002	0.053	0.101	0.083	0.138	0.002	0.037	0.101	0.075	0.138
Adjusted R-squared	0.000	0.035	0.039	0.046	0.051	0.000	0.018	0.031	0.038	0.046

Table 17.likelihood of high overconfident and dominant CEO completing M&A deal.

This table represents the OLS regression results of dominant CEOs completing M&A deals. The dependent variable is a binary variable equal to one if a CEO has completed an M&A deal in a particular firm-year. CEO dominance, is computed through the CEO Pay Slice (CPS). The CPS is computed as the fraction of total compensation to the group of top five executives that is received by the CEO. SOX is an indicator variable that equals 1 for the fiscal period between 2004 and 2016 and 0 otherwise. Firm size is the book value of total assets. ROA is the return on assets, which is computed as the net income divided by the book value of total assets. Tobin's Q is the ratio of market value of total assets to the book value of total assets. Leverage is computed as the ratio of long-term debt to assets. E-index is the entrenchment index as composed by *Bebchuk, Cohen, and Ferrell (2009).* Insider fraction BOD is the faction of which the BOD members are employed or affiliated with the company. CEO ownership is a dummy variable equal to one if the CEO holds at least 20% of the outstanding shares of the company (options not included). Z-statistics in parenthesis. ***p<0.01, **P<0.05, *p<0.1. All coefficients are presented as odd ratios.

	M&A deal completion				
	(1)	(2)	(3)	(4)	(5)
CEO Dominance	0.279***	0.309	0.231	0.368*	0.277**
	(-2.39)	(-2.51)	(-2.48)	(-1.72)	(-2.09)
High CEO overconfidence	0.754*	0.774	0.881	0.783	0.892
	(-1.71)	(-1.51	(-0.69)	(-1.42)	(-0.61)
High Overconfidence* dominance	2.547**	2.727	2.469	2.871**	2.579*
	(2.09)	(2.17)	(1.82)	(2.22)	(1.86)
$Firm\ Size_{t-1}$		1.024	1.011	1.059	1.047
		(0.59)	(0.24)	(1.34)	(0.91)
ROA_{t-1}		0.053	0.081**	0.098**	0.145*
		(-2.82)	(-2.28)	(-2.15)	(-1.68)
$Tobins\ Q\ _{t-1}$		1.104*	1.071	1.093	1.053
		(1.75)	(1.14)	(1.52)	(0.82)
E-index		0.903**	0.863***	0.979	0.932
		(-2.00)	(-2.64)	(-0.35)	(-1.02)
Insider fraction		5.290**	4.795*	3.843*	3.605
		(2.24)	(1.94)	(1.75)	(1.52)
CEO ownership		0.484*	0.496	0.412**	0.399*
		(-1.70)	(-1.51)	(-1.96)	(-1.84)
Constant	2.557***	1.141	5.725	0.447	2.348
	(4.96)	(0.34)	(1.04)	(-0.71)	(0.49)
Industry FE	NO	NO	YES	NO	YES
Year FE	NO	NO	NO	YES	YES
Observations	1,121	1,150	1,121	1,150	1,121
LR chi2	3.72	30.19	84.24	65.86	117.19
Prob > chi2	0.293	0.001	0.001	0.001	0.000
Adjusted R-squared	0.002	0.019	0.057	0.043	0.080