Does Size Matter? The Impact of Managerial Incentives and Firm Size on Acquisition Announcement Returns

Master Thesis

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Using 3,042 acquiring firm observations for the period 1993 – 2007, I find that managers of small companies make value increasing acquisition decisions whereas managers of large companies destroy firm value, known as the size effect. By examining the interaction effect of executive compensation and corporate governance with the size of the firm, I find that the managerial hubris is the underlying reason for the acquisition underperformance of large US based companies. Managers of larger companies unintentionally destroy value in their acquisition behavior. Furthermore, I find that the relation between acquiring-firm size and cumulative abnormal announcement returns is U-shaped – the middle sized companies perform the worst.

Keywords: Acquisitions; Bidder; Size effect; Corporate Governance

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1. Introduction

One of the main discussions in the finance literature on mergers and acquisitions, is whether shareholders of acquiring companies on average benefit from takeover behavior (e.g. Andrade et al., 2001; Shleifer and Vishny, 2003; Moeller et al., 2005). Roll (1986) and Jensen (1986) are the first to extend this field of research by examining how managerial behavior relates to acquisition announcement returns. They state that managers make sub-optimal acquisition decisions and destroy shareholder value. In this paper, I address also the managerial behavioral component in takeover activity. Specifically, I build further on the research of Moeller et al. (2004) who find that shareholders of small firms have significantly better cumulative abnormal returns around acquisition announcements than large firms; known as the size effect. They describe that managerial hubris plays a large role in executive decision-making and that managers unintentionally overpay for their acquisition targets.

I extend previous research about the size effect by (1) examining how managerial incentives through equity-based compensation (EBC) and corporate governance structures relate to the size effect and (2) finding the optimal relation between abnormal returns around acquisition announcements and the size of the company. This paper shows that managers of large firms relate to the wealth destruction of acquiring-firm shareholders is a result of managerial hubris. The main finding is that the interaction effect of EBC reinforces the size effect whereas corporate governance diminishes the size effect. As well, I show the relation between size and announcement returns is U-shaped.

First, I consider the overall effect of acquisitions on the firm value of the acquirer. In my sample, I find that the equally weighted announcement returns are 0.24% for acquiring companies. This indicates that on average a takeover is beneficial for an acquiring company. Secondly, to determine the underlying reason for the size effect, I have to examine whether the size effect is present in my dataset. I find that the size effect holds (1) in my univariate model, (2) in my model for three different proxies for size controlling for a variety of deal- and acquirer characteristics and (3) in the years before and after January 2000. The size effect is robust. The means of my univariate analysis between size and CAR find that small companies have equally weighed returns of 1.22% while the large firm subsample has equally weighted returns of -0.11%. Moreover, my cross-sectional analysis shows that large firms have 1.25 percentage

point lower announcement returns. The acquiring book value of assets and market capitalization relates respectively 4.7 and 5.2 basis points negatively to the announcement returns per 1% increase in size. These results are in line with the results of Moeller et al. (2004); the size effect exists for acquiring companies.

Third, I research if the relation between size and announcement returns is linear. I find that a second degree polynomial of size fits the size effect better than a simple linear model. The polynomial models with my proxies for size, book value of assets and the market equity value, have increased R-squared adjusted and the independent variables remain highly significant. The relation between size and announcement returns seems U-shaped. Since the relation between announcement returns and size is positive for higher values of size, the original linear size effect model seems incorrect, the size effect holds only if the size is limited to a certain range. These findings are opposing the results of Moeller et al. (2004) who state the size effect is linear.

Fourth, to determine whether managerial incentives determine the size effect, I have to examine how the effects of EBC, equity ownership and firm governance relate to the announcement returns separately. In my univariate analysis, I find results contrasting the findings of Datta et al. (2001), who state that EBC affects announcement returns positively. In my dataset the equally weighted announcement returns state that the acquisitions of the high EBC group has announcement returns of 0.00% while the low EBC group has positive announcement returns of 0.48%. Moreover, in my cross-sectional analysis, I find that the negative relation between EBC and announcement returns does exist. The intercepts of the high and low EBC subsample shows a slight difference. My continuous variable for EBC shows negative relation between EBC and announcement returns. In addition, the companies that compensate their managers with more than 75% of the salary in new stock option grants the year preceding the acquisition have lower announcement returns. My proxy for firm governance shows that a one step increase in stronger corporate governance structure increases the announcement returns with 0.15 percentage point. This is in line with the results of Gompers, Ishii and Metrick (2003) who describe that weaker shareholders' rights give managers more space of pursuing their personal interests. This behavior increases the agency costs and therefore has lower announcement returns.

After I determine the effect of my independent variables on the announcement returns, I focus on the interrelation between corporate governance or EBC and the size of the company. The interaction coefficients of EBC show that EBC reinforces the size effect. The second models state that size effect more than doubles if the company compensates its managers above the threshold with new stock options grants the year preceding the acquisition announcement. Though some models are insignificant, this result is in line with my previous findings; higher EBC reinforces the size effect. Since managers do not deliberately decrease their own compensation, this can indicate that size effect has a behavioral component; managers destroy value in acquisitions without noticing it.

Finally, the interaction effect between corporate governance and size shows that corporate governance substantially affects the size effect. The interaction coefficient of my corporate governance proxy shows that the slope between size and announcement returns decreases for all my proxies for size. The subsample with stronger corporate governance structure even shows that the size effect completely disappears. This indicates that corporate governance weakens the size effect. Moreover, for a stronger corporate governance structure threshold the results are even stronger. In my first model, the large firms have 0.91% lower announcement returns but large firms with a below threshold firm governance have positive announcement returns of 0.17%. The interaction coefficients in my next two models show that the continuous variable for size is substantially less steep if companies have a below threshold firm governance. The sample split shows that the size effect completely disappears in the group with below threshold firm governance. These findings also extend the results of Moeller et al. (2004). Since the size effect diminishes if a company has a stronger corporate governance structure and EBC increases the size effect I can argue that size effect has behavioral component; the managers are destroying value without being aware of it. Companies benefit from reevaluating the compensation scheme and the firm governance in relation with the size of the company.

It is necessary to extend this behavioral field of finance literature to improve the decision-making of top executives. Optimizing the corporate governance structure and executive compensation scheme improves the acquisition decision-making behavior of managers. Firms and shareholders benefit from mutual confidence, raising future stock prices,

decreasing the cost of capital of the company. In result, companies have easier access to capital and execute more valuable investment opportunities, increasing the economic growth.

The paper proceeds as follows. In section 2, I discuss previous literature that relates to behavioral and rational decision-making in takeover activity. In section 3, I develop my hypotheses and present the methodology and data. In section 4, I discuss the results and implications of my main independent variables on the announcement returns. In section 5, I examine the interaction effect of the size of the company with EBC and firm governance. Section 6 contains a brief summary, conclusions and recommendations to extend this field of research.

2. Theoretical Framework

Next section analyzes and revises the most important articles that relate to managerial acquisition behavior. Especially, I discuss the articles that relate managerial compensation, corporate governance and the size of a company to managerial investment decision-making.

2.1. Previous findings on managerial acquisition decision-making

This paper builds further on the paper of Moeller et al. (2004) who describe the difference of abnormal returns around acquisition announcements between small and large firms, the size effect. Smaller firms have higher abnormal announcement returns. As well, Moeller et al. (2004) state that the announcement returns are a linear function of the size of a company. I broaden this field of research by examining whether the size effect is a non-linear function and by determining whether the size effect is driven by managerial incentives. I assume that the managers of smaller firms are closer to the product or services of the company and therefore make decisions more in line with the goals of the company. On the other hand, Datta et al. (2001) find that executive compensation determines acquisition decisions. As well, a stronger corporate governance structure has a beneficial effect on the acquisition behavior of managers (Singh and Davidon, 2003). Therefore, I assume that the very largest firms are better informed and have more resources to exploit the benefits of corporate governance and EBC on the alignment of the goals of the managers with the goals of the company. Combining both theories, I estimate that the announcement returns is a U-shaped function of company size; the middle size companies underperform relatively to the large and small firms.

Next, the research of Moeller et al. (2004) does not relate corporate governance and EBC to the size effect. Since EBC and firm governance limits value-destroying acquisition behavior, if the size effect is driven by managerial incentives, I expect that the size effect disappears if I incorporate these variables. All together, this research focuses on whether managerial incentives can explain the size effect and therefore is driving factor behind this phenomenon. If small firms already have managers that are better aligned with the goals of the company, small firms can neglect compensating their (top) executives with stock options grant and large firms should adjust their corporate governance structure to align the incentives of the managers with the goals of the company.

Whereas organic growth and other internal investment decisions are relatively unobservable, corporate acquisitions are major and provide perfect observable post-announcement effect. Therefore, corporate acquisitions give an ideal opportunity to explore the relation between managerial motivations, such as compensation, and investment decisions. Especially since, mergers and acquisitions are important for the wealth creation of shareholders, and those investment decisions are not always made in best interest of the shareholders and based on fundamentals. A broad variety of acquiring-firm and deal characteristics, driven by managerial incentives, affects the post-announcement acquisition returns. If larger firms do have worse announcement returns, I have to determine what characteristics explains this effect.

First, larger acquisition premiums decrease the announcement returns. Overpayment of acquisition premiums are strongly related to and can be a result of managerial hubris. Managers who suffer from hubris try to maximize shareholder value but fail to do so because of an overvaluation of the acquisition target (Roll, 1986). The degree of managers' overconfidence significantly impacts the premium paid during takeovers (Malmendier and Tate, 2008). Overconfident managers of the bidding firm pay too much for their takeover target. This behavior causes the combined value of the target and the bidder to fall slightly in combination with a decrease in value of the bidding firm and increase in the value of the acquired firm. This value-destroying behavior implies that managers do not act in the best behavior of there shareholders. Shleifer and Vishny (1988) extend this theory by stating that managers do not make valuation flaws but deliberately overpay to gain personal benefits from acquisitions; the way managers run the company mirrors their personal goals.

In addition, previous literature finds results for the negative relation between method of payment and announcement stock returns during acquisitions as a result of managerial hubris. Travlos (1987) and Loughran and Vijh (1997) exposes a divergent post-announcement return relationship for different methods of payments for the bidding firm during takeovers. Cash financed takeovers show consistent neutral abnormal returns at the announcement period, while equity exchange offers provide negative abnormal post-announcement returns for the bidding firm. The overvaluation of the acquiring firm explains this phenomenon. The acquiring firm exploits an overpriced stock price by incorporating equity in the acquisition. After the acquisition, the firm returns to its efficient price causing the negative excess returns. These results are in line with the equity signaling hypothesis (Myers and Majluf, 1984). Firms that have overpriced equity will issue stock while underpricing may cause managers to forgo of valuable investment opportunities. Dong et al. (2002) find that overvalued companies have worse announcement returns. The bidding firm takes advantage of periods of high dispersion between stock prices by acquiring firms with equity, as the prices of the stock will be corrected in the long-run. Especially in times of major stock dispersion, the payment will be in stock and partially cash take-overs are limited. In addition, Rhodes-Kropf and Viswanathan (2004) develop a similar model based on managerial misvaluation. This model states that firms are more likely to accept bids from overvalued bidders because they overvalue potential synergies. Consistent with these theories, merger activity increases during periods of overpricing (Rhodes-Kropf et al., 2003). Finally, Mitchell et al. (2004) state that the negative post-announcement abnormal returns in equity-financed takeovers is strengthen by price pressure of short-selling merger arbitrageurs.

Fuller et al. (2002) show that shareholders of firms that acquire five of more companies gain when buying a private or subsidiary firm while public acquisitions is value-destroying. Highly leveraged acquirers have higher abnormal returns (Maloney et al., 1993). This is a result of reduced agency costs. Debt covenants disciplines management, reducing acquisition premiums. Hostile takeovers are required to pay a higher acquisition premium that lowers the abnormal returns (Schwert, 2000). Singh and Montgomery (2006) state that diversifying acquisitions have substantially lower gains than related acquisitions and are even value-destroying (Berger and Ofek, 1995). Morck et al. (1990) find similar diversifying value-

destroying results for acquirers of public firms. Pressure for growth can lead to overpayment as well. As organic growth falters, managers feel the pressure of keeping growth equal to its peers and historic growth numbers. Therefore, managers seek growth in add-on acquisitions. This desperate for growth leads to risk taking behavior causing overpayment of acquisition premiums (Kim et al., 2011).

Moeller et al. (2004) state that there is a difference of a size effect in announcement returns for acquiring-firm shareholders. They describe this phenomenon as the size effect, the difference between the abnormal returns of small acquirers and large acquirers. The existence of a size effect in acquiring-firm abnormal returns can be established by dividing the sample into small and large acquiring firms. The announcement return for acquiring-firm shareholders is roughly two percentage points higher for small acquirers irrespective of the form of financing and whether the acquired firm is public or private. Large listed companies are regularly characterized by having ownership structures that separate ownership of the firm from the management taking the corporate decisions. The differences in agency costs (Jensen and Meckling, 1976) can be a result of small firms' managers tending to have a better alignment with the shareholders compared with large firms (Demsetz and Lehn, 1985). In the large firm scenario, managers may act more in the interest of themselves and try to maximize their personal utility and may just as in Travlos (1987) use the possibility of the overvaluation of their company by acquiring another firm. As well, larger firms can be further down their lifecycles and can have exhausted its growth opportunities. In line with the desperate growth theory (Kim et al., 2011), managers can have the tendency to overinvest while the feasible growth opportunities are limited. As well, since analysts and the general public more closely monitor the announcements of larger firms, Bajaj and Vijh (1995) state that firm size impacts the strength of the announcements effects as well. In line, short-selling arbitrageurs are expected to put less pressure on a stock when the acquirer is a small firm because of the relatively high transaction costs. The higher transaction cost results in relatively less price arbitrageurs. Therefore, the swings in stock price are smaller for small firms.

Directly contrasting the size effect theory, it works the other way around as well. Weaker corporate governance structures have greater agency problems which causes firms to perform worse (Core et al., 1999). Large (smaller) companies have stronger (weaker) and more

(less) advanced corporate governance structures which reduces (increases) agency costs. This is a result of smaller firms having less financial resources and feeling less the need of improving their corporate governance structure.

Closely related to corporate governance is managerial compensation. Managers can be affected by compensation structures which impacts the (their) investment horizons. Specially, managers whose compensation is mainly based on short-term gains can be motivated to take on acquisitions that increase short-term profits regardless of their (long-term) net present value. This individual utility maximization can be driven by different compensation methods (Tehranian, 1987). Mehran (1995) finds that rather the form than the amount matters in the decision-making of increasing firm value. Datta et al. (2001) state that executive compensation structure determines corporate acquisition decisions. Managers with a high EBC are positively related to stock price performance post-acquisition announcements. High EBC managers tend to pay lower acquisition premiums and make acquisitions with larger growth potential. These findings are in line with the recommendations of Shleifer and Vishny (1988). Managers consciously overpay for acquisition target to gain on personal level but this behavior can be limited if their money through stock or option ownership is on the line as well.

So, if firms' size has a significant negative effect on the long- and short-term performance of corporate acquisitions and high EBC managers reduce their value-destroying acquisition behavior, can it be that the size effect is mainly driven by poor governance structure and inappropriate managerial compensation? This research builds further on the papers of Moeller et al. (2004) and Datta et al. (2001) who both describe the effect of managerial engagement on the post-acquisition company performance. Either because the compensation through options of the executive is at stake during an acquisition or because the goals of executives are less diverged to the company goals through corporate governance. If managers of small firms perform better because they are closer to the product of services, small firms will naturally outperform. Though larger firms who introduce EBC and corporate governance structure will be able to diminish their underperformance. Taking into account results of both research, their interaction predicts a flat relation between size a post-acquisition performance. This paper contributes to the academic literature by examining the interrelationship between EBC, firm governance and size effect. I want to broaden the literature of Moeller et al. (2004)

by examining whether (1) the size effect results are robust when I incorporate managerial compensation and firm governance and (2) whether the announcement returns are a negative linear function of size. Will there still be a difference between small and large firms in announcement returns if the managers of the larger firms are high equity-based compensated or if the corporate governance structure is sufficient? If so, can this be the underlying reason of the larger announcement returns for small firms?

3. Methodology

In the next sections I develop the hypotheses and describe the reasoning behind the research question. Afterwards, I introduce the sample distribution, my event study model and the assumptions I use in this research. In subsection 3.4., I present the announcement returns for my sample and different subsamples. In the final subsection I describe the deal- and acquirer characteristics of my dataset, the summary statistics.

3.1. Hypotheses

The main goal of this paper is to broaden the field of research on the size effect. To dig deeper into the size effect, I have to examine the interaction effect of managerial compensation and firm governance on the size effect. To do so, I first have to determine whether the effect of size on the announcement returns (H1a) is equal to the existing literature. Afterwards, I focus on the effect of (H2a) high EBC managers and (H3a) companies with strong corporate governance structures on post-acquisition performance. I incorporate the effect of stock ownership on announcement returns as robustness check on the results of H2a and H3a. Next, I want to examine (H1d) the interrelationship between (H1a) the size effect and the effect of managerial incentives (H2a and H3a). Do smaller firms indeed have better announcement returns if they have poor EBC? Do large firms with managers driven by corporate governance or other personal remuneration incentives outperform show no sign of the size effect? As well, (H1c) I research whether the relation between size and abnormal returns is convex; I expect that small firms outperform because of better alignment with the company, and large firms have higher announcement returns since large firms align managers' incentives through remuneration and corporate governance. The middle-sized companies underperform. Finally,

since higher acquisition premiums decrease the announcement returns, I consider the effects of hypotheses H1a to H3a on takeover premium (H1b to H3b). In summary, all H1 hypotheses relate to the size effect, all H2 hypotheses to EBC and H3 hypotheses to corporate governance.

To test these implications, it is important to analyze the abnormal returns before, during and after an acquisition announcement. I test this relationship through an event study and estimate the announcement returns with the market model. To investigate the relationship between announcement returns and EBC, I need data on executive remuneration and the distribution of stock ownership. The corporate governance index of Gompers, Ishii, and Metrick (2003) provides a testable independent variable for the corporate governance structure, hereafter the GIndex.

3.1.1 Main Hypotheses

Firstly, I separately analyze the relationship between large and small firms. I assume that small firms are better aligned with the company; a positive function between agency costs and size of the company exists. Perhaps, managers of larger firms are more overconfident because of their past successful acquisition performance that brought them at the position they are in right now. Since overconfidence managers have lower abnormal returns (Malmendier and Tate, 2002), large firms make worse acquisition decisions. Also, large firms can have managers who act more in the interest of their personal benefits instead of that of the goals of the company (e.g. empire-building). Lastly, since larger firms have more resources, managers of these companies can face fewer obstacles in making takeovers. These three theories assume that larger firms underperform relatively to smaller firms. This brings me to the first hypothesis.

H1a (Size effect): *Small firms do significantly better acquisitions than large firms.*

EBC and corporate governance aligns the personal goals of managers with the goals of the company (Gompers, Ishii and Metrick 2001; McConnell and Servaes, 1990). Therefore, managers will be more eager to make decent acquisitions if their personal remuneration (through equity grants) is at stake. As well, a corporate governance structure forces managers

to act in the interest of the company. The goal of executive compensation is to motivate executives to make acquisitions that create long-run shareholder value.

These two implications relate closely but since they are separately testable assumptions and can show different interaction effect with the size effect, I analyze them both. Though not represented in a hypothesis, I include an independent variable proxying for stock ownership to check for the robustness of the results of hypotheses H2a and H3a. This brings me to the hypotheses:

H2a (EBC theory): *Companies with high EBC managers do significantly better acquisitions than companies with low EBC managers.*

H3a (Corporate Governance): *Companies with stronger corporate governance structures do significantly better acquisitions than companies with weaker corporate governance structures.*

After these introductory hypotheses, I come the core of this research. I want to examine the interrelationship between the size effect and EBC or corporate governance mechanism. I research whether H1a is overlapping with H2a and H3a. I check whether H2a and H3a can capture the effect of managerial incentives on acquisition decisions. I use stock ownership data to give complementary insights and act as robustness check. During acquisition announcements, I expect that either small firms have outperforming announcement returns as that large firms with high EBC managers or stronger firm governance scores have higher announcement returns. I analyze whether managerial incentives are the driving factor of the size effect.

H1d (Size effect explained by managerial incentives): *The size effect is mainly driven by managerial incentives (or) The underlying reason of the size effect are managerial incentives.*

3.1.2. Additional Evidence

Next to my main hypotheses, I want to examine an additional assumption related to the size effect and the theories related to managerial incentives. Hypotheses H1b, H2b and H3b

analyze how the findings of H1a, H2a and H3a relate to the acquisition premiums. H1c examines whether the size effect is non-linear.

The size effect assumes that a manager of a large firm pursues different goals than the company. This can lead to managers approaching the acquisition process differently. I argue that managers of larger firms feel less constrained acquiring other firms for the exact price and therefore overpay for the takeover price; in line with the findings of Moeller et al. (2004). As well, I expect that large firms have managers that are more overconfident and therefore overpay.

H1b (Size effect on premium): *Managers of large firms pay higher acquisition premiums than small firms.*

Moeller et al. (2004), show that the size effect is linear and downward sloping. I want to examine whether a 2nd degree polynomial fits the model as well, (maybe even better), and check if the relation between size and abnormal returns is linear. On the one hand, I expect that small firms outperform because managers have naturally a better alignment with the company. On the other hand, I reckon larger firms eventually become aware of the size effect and therefore produce stronger managerial alignment through EBC and/or corporate governance structures. This results in lower agency costs leading to better acquisition behavior increasing the announcement returns. In conclusion, I expect that middle-ranged size company underperform relatively.

H1c (Non-linear size effect): *The size effect is a non-linear function between size and cumulative abnormal returns around acquisition announcements.*

Two contrasting theories can explain the relationship between EBC and acquisition premium. (1) Low EBC managers are less obliged to underpay for an acquisition target, since personal compensation is not harmed, leading to higher premiums. (2) High EBC managers are more overconfident. Weinstein (1980) states that managers overestimate their performance more often if the result links closer to the individual performance. In this case the managers have a lot of skin in the game that makes the overconfident. This overconfidence results in high takeover premiums. I formulate the hypothesis in light of (1) but I test both theory (1)

and (2). In addition, I expect that if the announcement returns relate to firm governance. Since stronger shareholder rights limit managers in pursuing their personal goals, firms with stronger corporate governance structures pay less for their acquisitions. These theories bring me to hypotheses H2b and H3b.

H2b (EBC effect on premium): *Low EBC managers pay higher acquisition premiums than high EBC managers.*

H3b (Corporate Governance on premium): *Companies with a stronger corporate governance pay lower acquisition premiums.*

3.2. Sample

The primary sample consists of all acquisitions involving public US acquirers and US public, subsidiary or private targets listed in the Thomson Reuters SDC database announced between January 1, 1980 and January 1, 2011. To measure the gains for the shareholders, I only consider acquisition announcements that result in a completed transaction. I eliminate all takeovers that have more than 1,000 days between announcement and completion date. I consider only acquisitions in which the acquiring firm ends up with all the shares of the target and I only include acquirers which hold less than 50% of the shares of the target firm 6 months prior to the acquisition announcement. This allows me to capture the immediate effect of an acquisition. Further, (1) I require the deal value to be greater than $1 million, (2) I delete all the takeovers of which the deal value is less than 1% of the acquirers' market value, (3) drop all observations of which the deal value is higher than 10 times the acquirer's equity market value one year prior to the announcement of the acquisition and (4) require that the acquiring firm is public listed with data on Center for Research in Security Prices (CRSP). Again, requirements (1) and (2) ensure that the effect of an acquisition is substantially noted by the stock market. SDC describes deal value as the total value of consideration paid by the acquirer, excluding fees and expense. The market value is the sum of the market value of equity, long-term debt, debt in current liabilities and the liquidating value of preferred stock. As well, I only include takeovers with executive compensation data on Standard and Poor's Execucomp database prior to the announcement year. The Execucomp database contains quantitative executive compensation information about firms in the S&P 500, S&P Midcap 400, S&P 600,

and other firms that were listed earlier on one of those indexes from 1992 onwards. Therefore, to include one year before the acquisition, the initial time window narrows down to the announcements between 1 January, 1993 and December 31, 2007.

Table 1: Sample distribution by announcement year, acquirer size, EBC group and corporate governance index score (GIndex). The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The high (low) EBC group are the firms with above or equal (below) median EBC. The high (low) GIndex group are firms with an above or equal (below) median corporate governance score.

	Acquirer Size		EBC Group		GIndex Score	
Announcement Year	Large	Small	High EBC	Low EBC	High GIndex	Low GIndex
1993	14	8	9	13	6	6
1994	32	8	14	26	16	8
1995	99	44	54	89	41	19
1996	164	54	67	151	67	25
1997	180	79	119	140	48	19
1998	217	66	164	119	74	65
1999	247	53	159	141	88	61
2000	232	43	160	115	99	51
2001	193	45	136	102	72	62
2002	189	69	179	79	102	78
2003	150	71	128	93	92	55
2004	183	93	122	154	132	70
2005	161	79	124	116	124	66
2006	124	112	79	157	128	66
2007	24	9	7	26	23	8
Total	2,209	833	1,521	1,521	1,112	659

After applying the limitations, I yield a sample of 3,042 successful acquisitions. To observe the amount of acquisitions made by small firms, I divide the sample into two groups. I define a small (large) firm as a firm with a market capitalization equal or below (above) the market capitalization median of New York Stock Exchange firms in the year the acquisition is made public. This yields 833 acquisitions done by small firms and 2,209 by large firms. The high (low) EBC group are the firms with above or equal (below) median EBC. Companies with a high (low) GIndex score are above and equal to (below) the median of the corporate

governance index. Only 1,771 observations contain a corporate governance index score. Notable is the amount of takeovers in the years 1993, 1994 and 2007 which were all below 50 while nearly every other year easily reaches an amount of 200. The year 1999 has the most takeovers, 300.

This research tests the relationship between size effect and managerial incentives. Since, the composition of the remuneration is a virtue part of managers' incentives, I analyze the different parts of executive compensation. In my dataset, the total top executives of a company can vary between 3 and 8 executives. I take the average of the compensation of all the top executives of each company to capture the relative amount of compensation to other companies. Total compensation is 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 payouts, and all other total.

Throughout the rest of the paper, I follow the main EBC measure of Datta et al. (2001). EBC is derived with the value of new options granted using the Black-Scholes formula preceding the acquisition year divided by the total remuneration. I categorize firms with a EBC above (or equal) median as the high EBC group and the group below as the low EBC group. Next to this main independent variable, I use stock ownership measures to check for the robustness of my results. The total compensation paid to the top executives has a mean of $2.98 million while the median is more than half, $1.40 million. The fixed salary, with a mean of $384 thousand and a median of $321 thousand, is just a small part of the total executive remuneration. 22.7% of my observations do not receive any remuneration through new stock grants.

I use the corporate governance index as described in Gompers, Ishii, and Metrick (2003) (hereafter GIndex) to test the relation between size and the corporate governance structure of the company. The GIndex is a proxy for the level of shareholders right. A low (high) GIndex score means a stronger (weaker) corporate governance structure. Since, Gompers, Ishii and Metrick (2003) only measure the GIndex in the years 1993, 1995, 1998, 2000, 2002, 2004, 2006 and 2008, I assume that the GIndex of company is equal to the last determined GIndex. So a company has in 2003 the same GIndex as in 2002. The GIndex has a theoretical range between 1 and 24. The median is 9 and only 10% of the observations has a GIndex below 6.

3.3.1. Event Study

To compare the different bidder returns around the announcement date of the acquisition, I estimate the abnormal returns with an event study (following Brown and Warner, 1985). The main objective of an event study is to compare the returns of the estimation window (-200 to -6) with the returns of the event window (-2 to +2). MacKinlay (1997) states that a more than one-day event window is customary. Therefore, I use a five-day event window to capture the full (possible) information leakage effect two days before the announcement of the acquisition. I use the benchmark of the S&P500 as the benchmark index, since the bidding firms I examine are located in the US.

In general, there are two ways to calculate the abnormal returns; either the constant mean return model or the market model. The constant mean return model assumes that expected returns can differ by company, but are constant over time. The market model, a one-factor model, is based on the assumption that individual asset returns have a constant and linear relation with the return of the market index. So, the individual asset returns can differ between companies but has a stable relation with the benchmark index. Brown and Warner (1980, 1985) state that results based on the constant mean model provide reliable results analyzing short-term event studies. However, the market model removes the variation in index returns from the individual asset returns. Therefore, the market model provides in general more reliable results since the variation of the abnormal returns decreases (MacKinlay, 1997). The market model is stated as follows:

(1) $$R_{i,\tau} = \alpha_i + \beta_i R_{M,\tau} + \epsilon_{i,\tau}$$

(2) $$E\left[\epsilon_{i,\tau}\right] = 0$$ *(3)* $$VAR\left[\epsilon_{i,\tau}\right] = \sigma_{\epsilon i}^2$$

Following the market model, I derive the abnormal returns as follows:

(4) $$AR_{i,\tau} = R_{i,\tau} + E\left(R_{i,\tau}\middle|R_M\right) = R_{i,\tau} - (\alpha_i + \beta_i * R_{M,\tau})$$

I sum the abnormal returns in the five-day event window to come to the cumulative abnormal returns (CAR).

3.3.2. Assumptions

Fama (1970) describes in the market efficiency hypothesis the degree of information that is captured in the price of an asset. A strong efficient market assumes that all publicly and privately known information is reflected in the price. So, managers have the same information as stock holders. The asset price adapts every time management comes closer to a final acquisition decision. This is not a realistic reflection of the information distribution and makes an event study around the announcement date of an acquisition unnecessary. An event study can only be applied if it captures the prompt response and magnitude of new publicly made information. This makes a weak market efficiency redundant (which only incorporates historical information). Therefore, I assume a semi-strong market, that suggests that the price of an asset captures all publicly available information.

Next to the efficient market hypothesis, I assume that event windows of different observations are not overlapping each other, or at least (in case they do) this has no significant effect on the results of my research. This assumption excludes the research from the obligation of taking the covariance among securities into consideration. This implies that all observations and derived cumulative abnormal returns are independent.

In my event study potential problems can arise because of the use of daily data. Daily stock returns can have increased non-normality, high chances of extreme outcomes (kurtosis), compared to monthly returns (Fama, 1976). Scholes and Williams (1977) state that the computation of parameters from daily stock returns is less solid because of non-synchronous trading. As well, OLS model variance computation used for hypothesis testing may be unreliable. Nonetheless, Brown & Warner (1984) state that (1) in a cross-section study the non-normality disappears for large samples, (2) estimating the parameters for the market model different than the OLS model is hardly beneficial, and that, (3) while variance estimator might be of concern, adjustments only leads to minor improvements. This provides evidence for the reliability of the market model in my research.

Lastly, it can be argued that larger firms tend to have less information asymmetry causing smaller post-announcement fluctuations. Thus, in general, the announcement returns for large firms are closer to zero. Since, large firms, in table 2 of the next section, have negative announcement returns, the size effect should be even larger.

3.4. Does size and equity based compensation affect acquisition announcement returns?

The equally weighted CAR for my sample is, given in the first row of panel A in table 2, 0.24% and significant at a 10% level. The median abnormal return is 0.20%, but is insignificant. Thus, since the mean is significant and positive, I can state that shareholders of acquiring companies gain from takeover activity. This result is controversial because the academic literature is not clear whether shareholders benefit from acquisitions (Moeller et al., 2005). The authors state that in the 1990s acquiring firms lost billion dollars of value during takeovers.

The equally weighted abnormal returns give the same weight to a small company as to a company with a market capitalization which is hundred times larger. This measure omits the relevance of size to the economic impact. The economic effect for the shareholders of a larger company is larger compared to a shareholder of a smaller company. Therefore, I introduce the value weighted cumulative abnormal returns (VWCAR). The CARs are calculated in relation with the market capitalization of the firms. I multiply the CARs of all observations with their market capitalization four weeks prior to the announcement and divide this by the total market capitalization of all acquirers. This gives the value weighted CAR of -1.01%. This is expected to be lower than the equally weighted CAR since more weight is placed on larger firms and the market capitalization of larger firms had a negative abnormal returns in the equally weighted approach.

The second column of panel A and B states the abnormal change in market capitalization in million dollars (ANPV). Since this measure considers the market capitalization mean of the samples, per definition more weight is placed on larger companies. In line with the findings of the cumulative abnormal returns, larger companies destroy more market value. On average large companies have -73.70 million dollars abnormal change in market capitalization whereas small companies only destroy -3.92 million dollars in market value.

Lastly, I introduce a dependent variable that examines the deal value dollar weighted acquisition returns, to capture the abnormal dollar returns earned by the company per dollar invested (ANPV/TV). This amount states the abnormal earnings per dollar incorporated in an acquisition. The deal value dollar weighted acquisitions returns are calculated by the product of the market capitalization and the CAR of each observation divided by the

Table 2: Abnormal announcement returns and dollar abnormal returns; sorted by size and EBC.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The high (low) EBC group are the firms with above or equal (below) median EBC. $CAR_{(-2,+2)}$ is the five-day cumulative abnormal return computed by the market model. ANPV is the abnormal change in market capitalization in millions of dollars. $VWCAR_{(-2,+2)}$ denotes the sum of dollar abnormal return of all acquirers divided by the aggregate market capitalization of acquirers. ANPV/ TV is the abnormal dollar return divided by the total deal value and denotes the dollar return per dollar invested in acquisitions. The difference column denotes the difference based on t-tests for equality in means and a Wilcoxon-test for equality of medians. Below the means are the median values in brackets.

Panel A: sorted by size

	Sample			
	All	Large	Small	Difference
	(1a)	(2a)	(3a)	(2a) - (3a)
$CAR_{(-2,+2)}$	0.24[c]	-0.11	1.22[a]	-1.33[a]
	[0.20]	[0.03]	[0.71]	[-0.68][a]
ANPV	-55.10[a]	-73.70[a]	-3.92	-69.78[c]
	[1.63]	[0.58]	[2.18]	[-1.60]
$VWCAR_{(-2,+2)}$	-1.01	-1.06	-0.31	
ANPV/TV	2.73	-3.60	20.13[b]	-23.73[b]
	[1.69]	[0.23]	[4.34]	[-4.11][b]
n	3,042	2,231	811	

Panel B: sorted by EBC

	Sample		
	High EBC	Low EBC	Difference
	(2b)	(3b)	(2b) - (3b)
$CAR_{(-2,+2)}$	0.00	0.49[a]	-0.49[c]
	[-0.11]	[0.48]	[-0.59[b]]
ANPV	-87.24[a]	-22.96[c]	-64.28[c]
	[-1.50]	[3.58]	[-5.08[b]]
$VWCAR_{(-2,+2)}$	-1.24	-0.60	
ANPV/TV	1.21	4.26	3.05
	[-1.66]	[3.58]	[-5.24[c]]
n	1,521	1,521	

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

transaction value. On average does each firm gain 2.73 dollar per dollar invested in acquisitions.

I make a subsample of large and small firms to reveal the size effect in the abnormal returns of acquiring companies. The small firms have a significant (at a 1% level) positive equally weighted CAR of 1.22% and a value weighted CAR of -0.31% while the CAR of the large group states that in general the effect of acquisition activity in not beneficial for shareholders. The equally weighted CAR is -0.11% and the value weighted CAR is -1.06% for the large group. The value weighted CAR of -0.31% can be a result of the relatively high market capitalization threshold I apply to my small subsample. The deal value dollar weighted acquisition returns are for the small firm subsample significant and adds $20.13 dollar per dollar invested in acquisitions while the larger firms seem to destroy $3.60 per dollar. This simplified model gives first notice of a presence of a certain size effect during acquisitions; smaller firms do better takeovers than larger firms.

Next to the difference in size, I want to highlight the difference in cumulative abnormal returns between firms which remunerate their top executives through equity grants. In panel B of table 2, I report the cumulative abnormal returns around the acquisition announcement for the high EBC group and the low EBC group. The results of panel B state that the executives with a high (low) EBC have lower (higher) announcement returns. The CAR for the high group is 0.00% and for the low group is significant and has a positive coefficient of 0.48%. The differences of the means as the medians between both groups are significant. The ANPV value for high EBC is significantly lower than for the below EBC median group. The deal value dollar weighted acquisition returns show positive coefficients for both subsamples. The difference between the EBC groups is 3.05.

In addition, if I compare the top quartile of EBC with the lowest EBC which comes to a similar result; 0.56% CAR for the top quartile and -0.25% for the fourth quartile. These results contradict that EBC links positively to the performance of an acquisition. The value weighted and deal value dollar weighted acquisition return are in line with previous (contradicting my expectation) findings. Then again, I have to state that I do not use any control variables, in this simplistic model, and the presence of an omitted variable bias is substantial. The size effect can be a driving factor behind these result; the combined market capitalization between of the high EBC is nearly twice as high.

3.5. Summary Statistics

The empirical model is set up to test the size effect and how EBC and GIndex relates to the abnormal returns during an acquisition announcement. Table 3 shows the characteristics of the deal and acquiring firm. The subsamples of small and large firms display the differences in deal- and firm characteristics. The transaction value for larger firms is nearly ten times larger. The academic literature does not state a clear relation between transaction value and post-acquisition performance. Though, Asquith et al. (1983) find a positive relation between the acquiring firms' excess returns and the relative magnitude of the target's size. I calculate the relative size of the acquisition by dividing the deal value by the equity market capitalization of the acquirer four weeks prior to the takeover. The ratio for large firms is significantly lower. This result in combination with the assumption by Asquity et al. (1983) can provide a source to explain the size effect. The ratio shows no significant differences between different subsamples of GIndex or EBC.

Porter (1980) finds that if multiple bidders bid for the same target the bargaining power of the seller increases, since the seller can play the buyers against each other, which in return increases the premium paid for the target. In general, this leads to lower announcement returns. Therefore, I include a dummy variable if more than one firm is trying to take over the target. High EBC managers are significantly more often involved in an acquisition with more than one bidder which can be a result of overconfidence.

Schwert (2000) states that hostile acquisitions differ from friendly takeovers. In general, do hostile acquisitions gain from replacing the current management which makes the executives reluctant for a takeover. To control for this effect, I apply the definition of hostile provided by SDC Reuters to the deal characteristics. Since, all observations are stated as friendly acquisitions, I leave this variable out my regression analyses.

As well, I control for tender offers for two reasons. First, tender offers can bias the results as tender offers on private firms or subsidiaries are not possible (Fuller et al., 2002). Second, tender offers tend to have more positive market returns after an announcement, which can a result of the prevalence of cash payments (Martin, 1996). Cash payments during acquisitions outperform equity acquisitions (Linn and Switzer, 2001). In line, stock offers of public firms have lower abnormal returns (Travlos, 1987). However, stock offers outperform

during takeovers of private firms (Chang, 1998). Therefore, I use a continuous and a pure equity and cash dummy variable to control for the effect of sort of payment. Firms with high EBC managers and large firms are significantly more often involved in tender offers. As well, those firms pay more often in stock. Small firms have a preference of paying for an acquisition with cash. This can be a result of large firms exploiting their overvalued stock. As well, the equity of large firms is more credible. High GIndex companies make significantly more often tender offers. I include the Pastor-Stambaugh traded liquidity factor to control for (il)liquidity in the market (Pastor & Stambaugh, 2003).

The benefits of a conglomerate takeover links to agency costs (Morck et al., 1990) and managerial overconfidence (Malmendier & Tate, 2005). Therefore, value-destroying behavior may be more likely in a diversifying takeover. Bhagat et al. (2004) find that the excess returns during a diversifying acquisition are less than for a non-diversifying acquisition. I categorize an acquisition as diversifying if the SIC code between the target and the acquirer is different. The output shows that high EBC firms are more likely to do diversifying takeovers. As well, conglomerate acquirers have less shareholder rights measured through the GIndex.

I include the organizational form to the deal characteristics following Draper et al. (2006) who state three (contrasting) theories why organizational form can affect the abnormal returns of an acquisition. (1) The liquidity theory: the information availability for public firms is larger which causes more companies to foresee to opportunity to takeover a private firm. As well, the market for private companies is illiquid. Both increase the bargaining power of the target company causing them to underpay. (2) The bargaining power theory: privately held companies are often held by families or a small group of owners. Therefore, the executives are less limited by corporate governance restrictions. This gives the private company more bargaining power. (3) The managerial motive theory: managers are more likely to overpay for a more known are respected firm. This is more often a public firm. About 43% of the acquisitions in my sample is private. Large firms make relatively more public acquisitions and less private acquisitions. My results state that high EBC managers more often make public and subsidiary acquisitions. Though I do not report this information in this table, the premium paid between public or private firms is not significantly different, contrary to the managerial motive theory.

Table 3: Summary Statistics: sorted by size.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. Panel A includes the deal characteristics. Transaction value is the value paid in millions dollar paid by the acquirer, fees and expenses excluded. Relative size denotes transaction value divided by the market capitalization of the acquirer at the fiscal year of the acquisition announcement. Bidders represents at least two bidders for the same target. The market liquidity is measured by the Pastor-Stambaugh traded liquidity factor. Equity (cash) in payment is the amount of equity (cash) in percentage paid. Pure equity (cash) deals are completely paid in equity (cash). Tender, conglomerate, public, private and subsidiary are dummy variables reported by SDC. Panel B denotes the acquirer characteristics. Tobin's q is defined as in Tobin (1969). The F&F book-to-market ratio is defined as by Fama and French (1993). Median values are below the means in brackets.

Panel A: Deal Characteristics	Large	Small	Total
Transaction value	748.35	147.60[a]	583.84
	[149.22]	[37.87][a]	[103.98]
TV/ Assets	0.2666	0.2148[b]	0.2524
	[0.0864]	[10.41][a]	[0.9280]
Relative Size	0.1505	0.2299[a]	0.1722
	[0.0541]	[0.0968][a]	[0.0640]
Bidders	0.0154	0.0156	0.0155
Market Liquidity	0.0093	0.0091	0.0092
	[0.0042]	[0.0072]	[0.0052]
Cash in payment (%)	41.32	47.88[a]	43.12
Equity in payment (%)	29.11	18.44[a]	26.20
Pure cash deals (%)	31.01	34.81[b]	32.05
Pure equity deals (%)	20.55	11.64[a]	18.11
Tender offers (%)	6.29	2.88[a]	5.36
Conglomerate deals (%)	62.29	64.95	63.02
Public (%)	28.93	12.85[a]	24.52
Private (%)	38.30	53.90[a]	42.57
Subsidiary (%)	32.78	33.25	32.91
Panel B: Acquirer Characteristics	**Large**	**Small**	**Total**
Assets (Book)	6,978.58	1,747.61[a]	5,546.16
	[1,698.11]	[354.18][a]	[1,040.91]
Assets (Market)	12,071.26	2,410.34[a]	9,425.78
	[34,78.05]	[535.31][a]	[2,074.59]
Equity (Market)	7,002.09	1,320.77[a]	5,446.36
	[2,226.74]	[361.88][a]	[1,374.24]
Debt/ Assets (Market)	0.3016	0.3189[c]	0.3063
	[0.2639]	[0.2914][c]	[0.2698]

Tobin's Q	2.5369	1.4260[a]	2.2327
	[1.4078]	[1.0368][a]	[1.2965]
F&F Book-to-market	0.5323	0.6986[a]	0.5778
	[1040.91]	[0.6733][a]	[0.5602]

Statistical significance between large and small is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

Part B of Table 3 states the acquiring firm characteristics. Grossman and Hart (1980) state that managers with higher debt levels work harder. As well, Maloney et al. (1993) show that companies with higher debt levels outperform lower leveraged companies in their acquisition activities. I add the Tobin's *q (q)* because this ratio signals profitable merger opportunities (Chappell and Cheng, 1984).

Lastly, following the three-factor-model of Fama and French (1993), I include the book-to-market (BM) ratio. Dong et al. (2002) find that companies with low BM ratios make worse acquisition decisions. Companies with higher BM ratios are more likely to have good investment opportunities. Therefore, the literature assumes that a high BM ratio is related to higher announcement returns. The small firms contain a significantly higher BM ratio which may point at investment opportunities. The high EBC group has a significantly higher BM ratio as well. Since a high BM ratio is a proxy for overvaluation, this may indicate possible overvaluation which can be expropriated by managerial incentives. The high GIndex subsample has a significantly higher BM ratio.

4.1. Empirical Model

In this section I describe the relation between size, EBC and corporate governance separately on the abnormal returns around acquisition announcements of the acquiring company. I relate these findings to the economic theories by examining the differences of the models in robustness, control variables and acquisition premium.

4.1.1. Do small firms make better acquisitions than larger firms?

The previous findings in table 3 point in a certain direction but do not control for other dimensions which affect the announcement returns as well. In this section I want to test H1a and determine the existence (and possible robustness) of the size effect. I link different theories to the results. As well, I argue whether the size effect is linear.

Table 4 shows the multivariate regression analysis and presents the acquiring firm and deal characteristics control variables. I use different independent variables to capture the size effect to check for the robustness of the model. Model (1a) uses a dummy for size of the company as independent variable, either above and equal to (below) the median of the New York Stock Exchange market capitalization in the year the acquisition was announced. It is equal to one if it is above or equal to the median. In model (2a) I use the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement as independent variable. In the last model containing all observations (3a), I use the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. I use the logarithm for model (2a) and (3a) to control for non-normality and to make the results more interpretable. β_1 in equation (5) describes the relative effect of my size proxies on the cumulative announcement returns. The first three models take into account all observations and model (4a) and (5a) splits the model into two subsamples, based on the dummy variable of size in model (1a). The equation is as follows:

$$(5) \quad CAR = \alpha + \beta_1 Size + \beta_2 Private + \beta_3 Public + \beta_4 Conglomerate + \beta_5 Tender + \beta_6 Competed + \beta_7 All\ Equity + \beta_8 All\ Cash + \beta_9 Relative\ Size + \beta_{10} Tobin's\ q + \beta_{11} Debt/Assets_{mkt} + \beta_{12} Liquidity + \varepsilon$$

In model (1a), the dummy variable for size has a coefficient of -0.0125 and is significant at a 1% level. This indicates that larger companies have 0.0125 lower announcement returns compared to smaller companies. Next to this result, the model states that companies acquiring a private (at a 10% level) or public target (at an 1% percent level) perform worse than companies acquiring a subsidiary, ceteris paribus. As well, the coefficient for tender and pure cash offers are positive and significant.

Model (2a) and (3a) further reinforce the results of model (1a). I find that the abnormal returns of an acquisition decrease 0.0047 per one percent point increase in market capitalization, significant at 1% level. Model (3a) shows that the cumulative abnormal returns decrease by 5.2 basis points if you increase the book value of assets by one percent point. This result is significant at 1% as well. Just as model (1a), model (2a) and (3a) are in line with the findings of Moeller et al. (2004). The dummy variables for public, private, pure cash and tender offers show in these regressions similar behavior as in model (1a).

Table 4: Multivariate regressions explaining the five-day cumulative abnormal returns (-2, +2) around acquisition announcements by different proxies of size.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The first proxy for size is a dummy variable. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The second proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement. The third proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. Private, public, tender, conglomerate and competed are dummy variables that take a value of one if the acquisition target is private, public, reported as tender offer by the SDC, firms with a different two-digit SIC code than the acquirer and if the bidding contains more than one bidder according to the SDC. Pure equity (cash) deals are completely paid in equity (cash). Relative size denotes transaction value divided by the market capitalization of the acquirer in the fiscal year of the acquisition announcement. Tobin's q is defined as in Tobin (1969). The F&F book-to-market ratio is defined as by Fama and French (1993). The market liquidity is measured by the Pastor-Stambaugh traded liquidity factor. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

	Sample				
	Model (1a)	Model (2a)	Model (3a)	Large (4a)	Small (5a)
Intercept	0.0217[a]	0.0455[a]	0.0427[a]	0.0065	0.0187
	0.000	*0.000*	*0.000*	*0.210*	*0.307*
Big	-0.0125[a]				
	0.000				
ln equity (market)		-0.0047[a]			
		0.000			
ln assets (book)			-0.0052[a]		
			0.000		
Private	-0.0057[c]	-0.0063[c]	-0.0062[c]	-0.0057	-0.0063
	0.080	*0.057*	*0.057*	*0.132*	*0.318*
Public	-0.0299[a]	-0.0268[a]	-0.0266[a]	-0.0266[a]	-0.0374[a]
	0.000	*0.000*	*0.000*	*0.000*	*0.000*
Conglomerate	-0.0042	-0.0038	-0.0038	-0.0015	-0.0129
	0.156	*0.194*	*0.200*	*0.649*	*0.033*
Tender	0.0187[a]	0.0168[a]	0.0166[b]	0.0162[b]	0.0182
	0.004	*0.010*	*0.011*	*0.024*	*0.244*
Competed	-0.0178[c]	-0.0163[c]	-0.0164[c]	-0.0137	-0.0235[c]
	0.066	*0.088*	*0.084*	*0.252*	*0.070*
All equity	-0.0020	-0.0030	-0.0037	-0.0070	0.0149
	0.697	*0.550*	*0.462*	*0.207*	*0.182*
All cash	0.0064[b]	0.0073[b]	0.0076[a]	0.0065[b]	0.0052

	0.025	*0.011*	*0.008*	*0.049*	*0.380*
Relative size	-0.0107[b]	-0.0123[a]	-0.0117[a]	-0.0172[b]	-0.0011
	0.012	*0.005*	*0.008*	*0.032*	*0.814*
Tobin's q	-0.0001	0.0001	-0.0003	-0.0001	0.0052
	0.835	*0.919*	*0.648*	*0.929*	*0.419*
Debt/assets (mkt)	0.0071	0.0091[a]	0.0269[a]	0.0134[c]	0.0040
	0.310	*0.005*	*0.001*	*0.095*	*0.864*
Liquidity Index	-0.0246	-0.0220	-0.0229	-0.0191	-0.0603
	0.550	*0.592*	*0.577*	*0.685*	*0.486*
n	3,042	3,042	3,042	2,209	833
R-squared adj.	0.0349	0.0363	0.0369	0.0365	0.0194

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

Model (4a) and (5a) splits the dataset in two different subsamples. The intercepts of the dependent variable CAR clarify the differences between the subsamples. The intercept of the model for the small group is 0.0187 while the average of the large firm subsample has an intercept coefficient of 0.0065. This result is in line with the previous models. Large companies have lower announcement returns. Though not shown in table 4, the difference between the intercept means of both subsamples is significant at a 1% level.

Altogether, I can conclude that there is a significant probability of the existence of the size effect. The main independent variable indicates that small (large) firms have about 1.25 percentage point higher (lower) announcement returns, keeping all else equal. The other regressions observe the same correlation. Table 12 in the appendix states the correlation between size and CAR in two timespans and underlines this finding. The size effect is robust for two different time periods, before and after December 31, 1999. Since, the size effect is present in my univariate analysis (table 2), in my multivariate regression analysis controlling for a wide variety of deal- and acquirer characteristics (table 3) and in two different timespans (table 12), I confirm hypothesis H1a; the size effect exists.

Next to the confirmation of H1a, the cross-sectional analysis presents valuable insights about the control variables as well. First, the organizational form of the target company affects the announcement returns. The acquisition of either a public or a private company is worse than the acquisition of a subsidiary firm. The results of the private targets are in line with the

bargaining power hypothesis described by Draper and Paudyal (2006). Private targets are often owned and managed by a small group of managers. This reduces possible principal-agent problems; the managerial goals are closer to that of the company. This strengthens the bargaining position. Since they don't have to take interests of possible shareholders into account, they only sell for a reasonable price. The rise in premium results in lower announcement returns. Though, I want to highlight that the coefficient of public targets is larger and more significant than the control variable for private acquisitions. The negative coefficient is in line with managerial motive hypothesis. Managers who strive for status and want to run an as large company as possible are prepared to pay a higher price for more respected target. This is more often a public firm.

The dummy variable for conglomerate has a negative coefficient but fails to become significant in model (1a), (2a) and (3a). In model (5a) the coefficient is negative and significant at a 5% level. The negative coefficient is in line with the results of Bhagat et al. (2004) and Malmendier & Tate (2005). Apparently, only diversifying acquisitions correlate negatively to the announcement returns of smaller companies. Jensen's free cash flow theory (1986) states that excessive cash flows are a key driver of conglomerate acquisition activity leading to higher associated agency costs. Especially, managers that are desperate for growth pursue non-value maximizing acquisitions. The underlying reason for the difference between model (4a) and (5a) can be that the corporate governance structures for larger companies is substantial to withhold managers of value-destroying diversifying acquisition behavior. In case, those managers do make a conglomerate acquisition, it is firmly reconsidered and discussed, leading to a less severe response in announcement returns. I discuss the interference of corporate governance later in this article.

Tender offers correlate positively to the dependent variable as well. This is consistent with the article of Dodd and Ruback (1977), who find that stockholders benefit from successful tender offers. The general explanation for the outperformance of tender offers is based on information asymmetry. In a tender offer, a company can acquire a firm without the interference of the directors; the bid is directly to shareholders. The bidding firm is trying to exploit some superior information related to the potential value of the target firm. Therefore, a successful tender offer is perceived as preferable by bidding shareholders.

The significant negative coefficient of deal value to market value is contrary to the findings of Asquity et al. (1983) but similar to the findings of Travlos (1987). The difference in significance of this variable between model (4a) and (5a) is striking. The coefficient for relative size is only significant in the large model. This may point at managerial overconfidence. Managers of large firms may be more eager to acquire a larger target and therefore overpay in the acquisition process. The market responds negatively to this managerial hubris. As well, this negative stock reaction can be a result of arbitrageurs that short positions in bidder stock and acquire long positions in the target stock. This behavior puts downward pressure on the acquirers' stock price (Mitchell et al. 2004). This result should be larger if the relative size of the target's market capitalization increase relatively to the acquirer's stock price and if the acquisition is financed with a higher degree of stock.

In this cross-sectional regression analysis, I use a dummy variable for payments that are pure in cash. Whether I use this dummy variable or I replace the dummy variable with a continuous cash variable, I find a positive and significant at 1% level result for in all my models. The continuous variable indicates that every percentage increase in cash paid during an acquisition increases the post-acquisition returns. The benefit of debt theory (Yook, 2003) explains this phenomenon. The main difference between a stock and cash acquisition is that cash acquisitions are mostly financed by the issue of debt. Stulz (1990) and Jensen (1988) describe a model which states the benefits of debt. The default probability of debt disciplines managers and reduces agency costs. In return, shareholders respond favorable to the more efficient behavior of managers. Maloney et al. (1993) find results confirming this theory on improved managerial decision making caused by higher debt levels, higher preexisting levels of leverage increase the announcement returns.

4.1.2. Why do small firm acquisitions outperform?

In this section I want to explain the underlying reason of the size effect. I touch upon the equity signaling and overvaluation theory. As well, I check whether hypothesis H1b, large firms pay higher premiums than small firms, describes the underlying reason of the size effect. The equity signal hypothesis states that firms issue equity when the market overvalues the assets in place (Myers and Majluf, 1984). This theory is mainly based on the information

asymmetry between managers and shareholders. Closely related is the overvaluation theory, which builds on market inefficiencies, firms with more overvalued assets takeover firms with undervalued assets. Since these theories insinuate the same implications, I test them side-by-side.

Following Dong et al. (2002), the Tobin's q (*q)* and the book-to-market (BM) ratio are proxies for the degree of overvaluation of a company. The summary statistics, table 3, state that larger firms have a higher *q* and a lower BM ratio than small firms. Larger firms can signal private information to the market, especially when an acquisition involves equity. This can indicate that either the overvaluation or the signaling theory is the underlying reason for the size effect. To check these theories, the equity market value of a company should have a stronger explanatory value than the book value of assets. Therefore, I compare model (2a) and (3a). Since, these results are almost identical, both highly significant, a nearly equal R^{2-}adjusted and similar negative coefficients, I can reject these theories for explaining the size effect I have to note that next to proxy of overvaluation, the BM ratio suits as risk indicator as well (Peterkort and Nielsen, 2005). The authors argue that BM ratio affects the relation between financial risk and capital structure. Financial leverage is positively correlated to the BM ratio increasing the firm's risk as a result higher risk associated with higher debt levels. Therefore, the lower BM ratio of large firms associates to a lower risk level.

The market capitalization of a large firm is by definition larger. An overvaluation is therefore more attractive for a large firm but can only be exploited if the acquisition is paid (mostly) in stock. The summary statistics in table 3 show that larger firms have a higher coefficient for equity acquisitions. The difference in means is significant at a one percent level. While this simplistic model does not contain controlling variables, since larger firms involve more equity in their acquisitions, it does point at a confirmation of the overvaluation or equity signaling theory.

Also, if the theories only apply for large firms, then should the estimate regression of model (1a) subdivided into two subsamples, either a (4a) large and a (5a) small subsample, have different results. Regressions (4a) and (5a) contain three main differences; for the small the group is the conglomerate dummy variable significant negative and *q* has a positive coefficient; the large group has a significant negative coefficient for relative size. These results

imply that some of the explanatory values only apply to different subsamples while it accounts in regression (1a) as a whole. As stated earlier, conglomerate offers may only affect small firms because of the corporate governance structure. This is not in line with the overvaluation and equity signaling theory. Diversifying acquisitions should have a negative impact for large firms as well, especially when it is acquired with overvalued stock. In addition, these firms should diversify less since the shareholders base is in general already dispersed.

The theories do not predict any difference in impact of relative size. Nonetheless, if (relatively) larger acquisitions correlate negatively with the announcement returns, the managerial hubris may explain the size effect. Another difference in line with managerial hubris theory is the positive effect of q indicating small firms have a positive correlation between investment opportunities and announcement returns.

Another way to test the managerial hubris theory is to analyze the difference in premium paid between large and small firms. To test this, I use a simplistic model. Unfortunately, not all observations contain information about the premium paid. Therefore, the model is limited to 585 observations. I calculate the premium by taking the difference between the deal value and the share outstanding times the average of the bid-ask price, in the month prior to the acquisition announcement, divided by the deal value. This gives an indication of the difference between the estimated market value and the deal value. I omit all premiums below 0 and above 3. I use the same independent variables of model (1a), (2a) and (3a), the dummy variable for size, the logarithm of the acquirer's market value and book value of assets. As in model (4a) and (5a), I compare the coefficients of both subsamples as in model (4b) and (5b) split by the dummy variable for size. In this regression analysis, I control for stock acquisitions with a continuous variable, ranging between 0 and 100 percent stock paid in the acquisition. Stock acquisitions relate to overvalued acquisitions that increase the acquisition premiums. Since private firms have a stronger bargaining position, I control for private firms. As well, I include a dummy variable for conglomerate acquisitions. I expect that conglomerate acquisitions are largely driven by managerial empire-building behavior, in line with the free cash flow theory of Jensen (1986). Finally, I incorporate a dummy variable for more than bidder, since more bidders may cause a bidding war raising the premium. Table 5 presents the results. The acquisition premium is estimated as follows with β_1 as my main regressor:

(6) $$Premium = \alpha + \beta_1 Size + \beta_2 Stock + \beta_3 Private + \beta_4 Conglomerate + \beta_5 Competed + \varepsilon$$

Table 5: Multivariate regressions on acquisition premiums.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The dependent variable is the premium calculated by taking the difference between the deal value and the share outstanding times the average of the bid-ask price, in the month prior to the acquisition announcement, divided by the deal value. The first proxy for size is a dummy variable. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The second proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement. The third proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. Private, conglomerate and competed are dummy variables that take a value of one if the acquisition target is private, firms with a different two-digit SIC code than the acquirer and if the bidding contains more than one bidder according to the SDC. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

	Sample				
	All (1b)	All (2b)	All (3b)	Large (4b)	Small (5b)
Intercept	0.3982[a]	0.5949[a]	0.6195[a]	0.4733[a]	0.3680[a]
	0.000	*0.000*	*0.000*	*0.000*	*0.000*
Big	0.0650				
	0.118				
ln Equity (market)		-0.0176[b]			
		0.045			
ln Assets (book)			-0.0208[a]		
			0.005		
Stock	0.0001	0.0001	0.0001	-0.0001	0.0016[c]
	0.681	*0.517*	*0.672*	*0.776*	*0.067*
Private	-0.1602[c]	-0.1704[a]	-0.1769[a]	-0.2430	0.0571
	0.099	*0.003*	*0.003*	*0.446*	*0.286*
Conglomerate	0.0411	0.0433	0.0419	0.0471	-0.0190
	0.136	*0.115*	*0.126*	*0.112*	*0.814*
Competed	0.0284	0.0196	0.0209	-0.0157	0.1973
	0.634	*0.738*	*0.719*	*0.821*	*0.300*
n	585	585	585	508	77
R-squared adj.	0.002	0.006	0.010	0.000	0.017

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

The first model (1b) shows a positive though insignificant result. The coefficient indicates that larger firms seem to pay 6.5 percent point higher acquisition premiums. The

second model (2b) shows a surprisingly result, contrasting the managerial hubris theory. The size of a firm correlates negatively to the premium paid during an acquisition. If the size of a firm increases by 1% the premium paid decreases by 1.76 percentage point. If larger firms suffer from managerial hubris, I expect a different result. Model (3b) finds a result in line with model (2b). The acquirer's book value of assets relates negatively to the premium paid. An 1% increase in book value of assets of the acquirer leads to a 2.08 percentage point lower acquisition premium.

Model (4b) and (5b) show that the intercept coefficients between both groups differ substantially. The large group has a significant intercept of 0.47 whereas the small group has an intercept of 0.37. This indicates that large firms pay on average a 10 percentage point higher acquisition premiums than small firms. These results should be approached with caution since the small group is limited to 77 observations.

Altogether, the results in the regressions are ambiguous. The intercepts between both subsample find a result in line with the dummy variable in model (1b). Larger firms pay larger acquisition premiums than small firms. Nonetheless, I cannot ignore the result of model (2b) and (3b). Both models indicate that the acquisition premiums decrease with every percentage increase in firm size. Since, these findings are contrasting each other, it is not enough to confirm H1b, stating that managers of larger firms pay higher acquisition premiums. Then again, it is not enough to state that firms larger pay lower acquisition premiums either. Therefore, my data on acquisition premium cannot resolve whether the managerial hubris theory is the underlying reason for the size effect. Unfortunately, I have to note that I lost many observations because not all deal values are made public.

The past section, I dug deeper into the size effect and the possible explanation for this phenomenon. The results regarding the existence of the size effect are substantial. The main indicators point in the same direction. The possible explanation is nonetheless much harder to determine. There does not seem enough proof for the equity signaling and overvaluation theory. The difference in payment of equity between both groups is not enough to confirm either theory. As well, the similarity between model (2a) and (3a) in R-squared adjusted, coefficients and significance do not stress the usage of overvalued stock by managers. As well, the premium results do not resolve underlying reason of the size effect. Therefore, I should explore the

managerial hubris theory differently whether this explains the size effect. Luckily, this paper investigates the influence of corporate governance and EBC also. I hope to explore the dynamics around the size effect further if I incorporate these variables.

4.1.3. Is size a linear function of announcement returns?

In the previous sections, the cross-sectional analyses assume that the correlation between announcement returns and size is negative and linear. This is consistent with the results of Moeller et al. (2004). In this section, the main focus is to check for the robustness of the size effect and to determine what shape the announcement returns hold in relation with the size of a company. I want to broaden the existing literature by testing whether a non-linear function fits the size effect better. To do this, first, I examine whether the intercepts of different subsamples ordered by size show valuable insights. As well, I model the relation between the independent variable CAR and the dependent variable size as a 2nd degree polynomial. Since, a 2nd degree polynomial dummy variable is not possible, I consider my other two main dependent variables for size, the logarithm of the market value of the firm (model 1c) and the logarithm of the total firm's book assets (model 2c). In all models in this section, I incorporate the same control variables as in section 4.1.1. I test whether size, measured through β_1 and β_2, explains the CAR as follows, keeping all else equal:

(7) $$CAR = \alpha + \beta_1 Size + \beta_2 Size^2 + Control\,Variables + \varepsilon$$

First, in order to determine the differences in announcement returns between the degrees of size, I rearrange the data in size quintiles per year the acquisition was announced. Next, I regress each observation with the control variables and check the difference in intercepts per quintile. Each subsample has observations ranging between 603 and 614. Table 6 presents the output of each subsample. At first sight the results are in line with previous findings; the first two quintiles have a positive coefficient and the coefficients are declining afterwards. Though, the first and last quintile show a remarkable result. The first quintile contains a positive coefficient of 0.0175 but the second quintile is higher with 0.0261. And, while the coefficients decrease for the third and fourth quintile, the fifth quintile returns above zero with a coefficient of 0.0052. Of course, I have to approach these results with caution since all

intercepts are insignificant, but, it may indicate that larger firms do not necessarily always underperform compared to the companies smaller in size and a non-linear function between the CAR and size may suit the existing model better. Also, the differences in R-squared adjusted between the different subsamples are notable. The incorporated control variables seem to predict the model in the largest quintiles substantially more than the lower quintiles.

Table 6: Cumulative abnormal announcement return intercept quintiles based on firm size.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The table shows the different intercepts of the cumulative abnormal returns in different size quintiles. The lowest (highest) quintile contains the lowest (highest) equity market capitalization.

	Quintile 1 (Smallest)	Quintile 2	Quintile 3	Quintile 4	Quintile 5 (Highest)
Intercept	0.0175	0.0261	-0.0001	-0.0028	0.0052
	0.267	*0.112*	*0.991*	*0.784*	*0.471*
n	614	610	606	609	603
R-squared adj.	0.0171	0.0116	0.0444	0.0711	0.0739

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

To test if the second degree polynomial model suits the relation between size and announcement returns best, I incorporate a 2nd degree size polynomial and run the cross-sectional regression. Table 7 presents my original linear models (1a) and (2a) next to my polynomial models (1c) and (2c). I use the same control variables as in section 4.1.1. First, I consider size as the logarithm of the market equity value of the company. A second degree polynomial slightly increases the R-squared adjusted compared to model (2a) but both the size as the squared size coefficient are insignificant. Though, if I exclude the lowest 5% in size of my observations, the 2nd degree polynomial and the 1st degree polynomial for size are both significant at a 1% level. Since the coefficient are highly significant and the R-squared adjusted of model (1c) increases relatively to model (1a) a second degree polynomial can suit the model best, in case I exclude the lowest 5% in size. The main point the 2nd degree polynomial model states is that the size of the company declines the CAR but eventually makes the slope become positive. The size effect seems U-shaped.

Secondly to check for the robustness of my model (1c), I produce a model (2c) with a second degree polynomial with the logarithm of the firm's assets book value as the dependent

variable, proxying for size. This model shows the same pattern as model (1c). The coefficients are highly significant and has a larger R-squared adjusted than the linear model.

The functions of model (1c) and (2c) explaining the CAR, ceteris paribus, are as follows:

(8) Model (1c): $CAR = 0.1570 - 0.0322 * Size + 0.0017 * Size^2 + \varepsilon$

(9) Model (2c): $CAR = 0.0893 - 0.0180 * Size + 0.0009 * Size^2 + \varepsilon$

Table 7: Multivariate regressions explaining five-day acquisition announcement CARs: segmented by different two different size proxies and different degrees' polynomial.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The dependent variable is the five-day cumulative abnormal returns around the acquisition announcement. The first proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement. The second proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. Model (1c) contains the observations with 95% highest market capitalization. This table does not display the controlling variables, but the regressions do contain the controlling variables similar as in table 4. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

	Sample			
	Model (1a)	Model (1c)	Model (2a)	Model (2c)
Intercept	0.0455[a]	0.1570[a]	0.0427[a]	0.0893[a]
	0.000	*0.000*	*0.000*	*0.000*
ln Equity (market)	-0.0047[a]	-0.0322[a]		
	0.000	*0.000*		
ln Equity^2 (market)		0.0017[a]		
		0.001		
ln Assets (book)			-0.0052[a]	-0.0180[a]
			0.000	*0.004*
ln Assets^2 (book)				0.0009[b]
				0.037
n	3,042	2,890	3,042	3,042
R-squared adj.	0.0363	0.0407	0.0369	0.0379

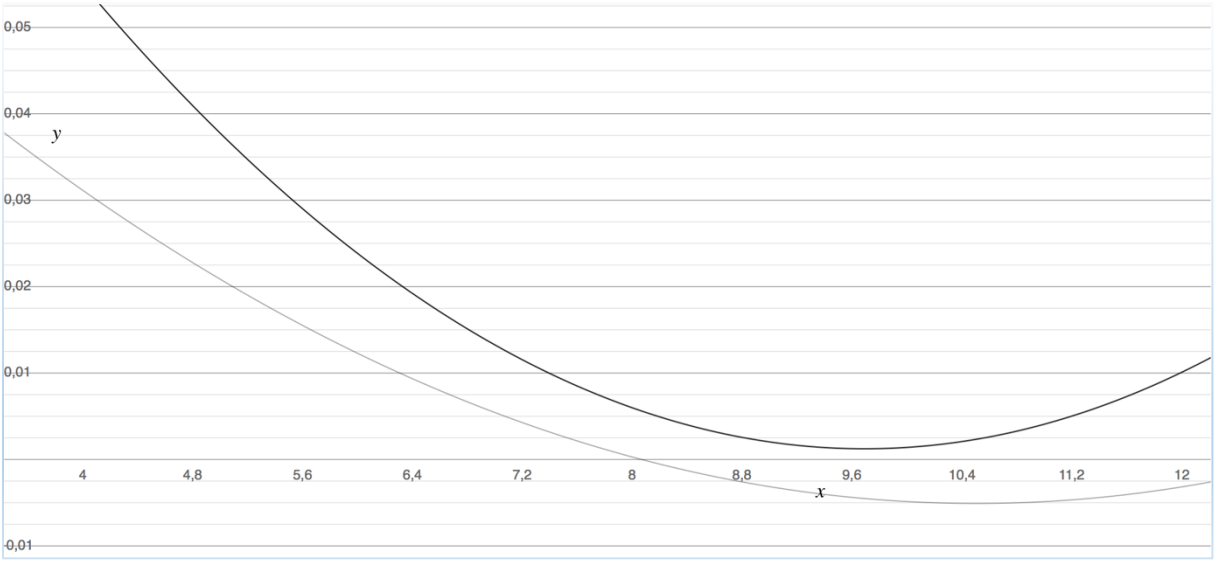
Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

Figure 1 shows the relation between size and acquisition announcement returns. Model (1c) presents the dark line and model (2c) is the grey line. The y-axis states the cumulative

abnormal returns around acquisition announcements in percentages and the x-axis is the logarithm function of size either as the equity market value or as the book value of assets.

Taking into consideration the coefficients and that both model (1c) and (2c) have a higher R-squared adjusted than their linear counterpart, I can state that the function between size and announcement returns is likely a second degree polynomial function. As well, since both model (1c) and (2c) are highly significant, I assume that the linear-log function between announcement returns and size is U-shaped as indicated in figure 1. This implies that the size effect only holds if I limit the data to a certain size; the largest firms outperform middle sized firms if the size becomes large enough; eventually the slope becomes positive.

Figure 1: the plotted relation between size and five-day (-2, +2) cumulative acquisition announcement returns: segmented by different two different size proxies and second degrees' polynomial.
The first proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement, the dark line. The second proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement, the grey line. Model (1c) contains only the observations with 95% highest market capitalization. The x-axis is the size of the company and the y-axis is the cumulative abnormal returns around acquisition announcements.



The results of model (1c) and (2c) indicate that the size effect flattens out if the size of the company exceeds a certain range. When the size reaches the stationary point the announcement returns are increasing again, in line with the results of the intercept of the fifth quintile of table 6. This indicates that either the smallest firms have the highest announcement

returns but the largest firms manage to obtain higher announcement returns than middle ranged size firms. The result of model (2c) reinforces the findings of model (1c). In model (2c) the size effect flattens out and suggests that beyond a certain size the slope becomes positive as well.

This section further reinforces existence of the size effect. However, the most important implication of this section is that the model presented in section 4.1.1. is most likely not simply linear as suggested in previous literature. The findings of both model (1c) and (2c) imply that the size effect does exist for a certain range of size values but that it smoothens out and the slope eventually becomes positive. Therefore, I accept hypothesis H1c and state that the function between size and cumulative abnormal returns around acquisition announcement is non-linear. Though not shown, in this regression analysis, this result is robust for the years 1992-1999 and 2000-2007. The largest companies are able to correct their abnormal returns. I expect that this phenomenon is a result of the largest companies becoming aware of the worse acquisition performance when the firm increases in size. I assume that if companies become large enough, companies have more resources and knowledge to induce stronger corporate governance structures limiting the agency costs of managers exploiting their own interests and incentive based compensation structures aligning the interests of the manager with that of the company. In case larger companies indeed apply these mechanisms to make top executives perform better, acquisition announcement returns can likely have a managerial behavioral component. For this reason, next section further explores the effect of EBC and corporate governance structures on the announcement returns and the interrelation with the size of a company.

4.2.1. Do high equity-based compensated managers make better acquisitions?

In this section, I examine whether the effects of EBC, equity ownership and corporate governance relate to bidder stock returns around acquisition announcements. The size effect described by Moeller et al. (2004) states that larger firms have worse acquisition announcement returns. Though, the previous section describes a function between size and CAR that is upward sloping after a certain range of size. I wonder whether large firms that increase their incentive based compensation and strengthen their corporate governance structure have

beneficial announcement returns. To test whether large firms can increase the managerial alignment, I first have to determine whether EBC or corporate governance affects the announcements returns.

In the cross-sectional analysis in table 8, following the methodology of Datta et al. (2001), I use a more simplistic model than in the previous sections. However, I extend their methodology with adding two dependent variables and replace their continuous control variable for size with a dummy variable, as in my previous multivariate regressions. To obtain as many observations as possible, I take the executive compensation data of the top executives of each company, ranging from 3 to 8 executives per firm. The size dummy is equal to one if the market capitalization is above the market capitalization median of New York Stock Exchange the year preceding the acquisition announcement. I control for sort of payment by introducing the continuous variable for cash payment, ranging between 0 and 100 percent. Again, I use the cumulative abnormal returns as the dependent variable to measure the impact of corporate governance and managerial compensation. I analyze six different models in which I introduce six variables. *EBC* is the logarithm of 1 + the value of new stock options grants (calculated with the Black-Scholes Method) as percentage of total compensation paid the top executives in the year preceding the acquisition announcement. *TopEBC* is a dummy variable that indicates whether a company compensates the executives with 75 to 100 per cent of EBC to their total compensation. The *GIndex* is the corporate governance index of Gompers, Ishii, and Metrick (2003). This variable is a proxy for the level of shareholder rights, the lowest score having the strongest corporate governance index. In my dataset the *GIndex* ranges between 1 and 17. The corporate governance index contains the components as decribed by Metrick, Gompers and Ishii (2003). Unfortunately, not all observations have a *GIndex.* Still, this sample consists of 1771 observations which makes it valuable addition to my research. *PrevOptions* is defined as the logarithm of 1 + the sum of shares underlying all previous options granted to the top executives as proportion of total shares outstanding. I use this variable as these options give the managers different incentives than new grants. *Ownership* is as the logarithm of 1 + the sum of previously granted acquired common stock and restricted stock owned by the top executives as proportion of total shares outstanding. I use *PrevOptions* and *Ownership* mainly to control, to give the *EBC* variables the most reliable results. *EBCD* is the dummy variable

for EBC. It has a value of 1 (0) if an observation is above or equal (below) to the EBC median of the total sample. β_1 captures the relative effect of my main regressors (EBC, TopEBC and GIndex) to the CAR. In the final models, I compare the intercepts of both above and below EBC median. This brings me to the following multivariate regression equation:

(10)
$$CAR = \alpha + \beta_1 \begin{cases} EBC \\ TopEBC \\ GIndex \end{cases} + \beta_2 Size + \beta_3 Cash + \varepsilon$$

The main hypotheses that I test in this section is the effect of EBC and corporate governance on acquisition announcements, H2a and H3a. I use the results of equity ownership as robustness check on my findings for firm governance and EBC. I expect that high EBC managers have better alignment with the company and therefore outperform low EBC managers. Following the results of Datta et al. (2001), I expect the same results for stock ownership, high ownership leads to better alignment with the company and thus to higher announcement returns. Lastly, since corporate governance give managers less room to pursue their own interests, I expect that a lower corporate governance index, thus stronger shareholder rights, leads to higher abnormal announcement returns.

In the first model (1), the independent variable *EBC* is negative with a coefficient of -0.0115 but fails to become significant. This first measure indicates that EBC is not significantly related to the acquisition announcement returns. In line with the size effect, the dummy variable for size is highly significant and has a negative coefficient. The continuous variable of cash shows a similar result as the previously used dummy variable for pure cash acquisitions, positive and highly significant.

The second cross-sectional regression shows a surprising result. The independent variable *TopEBC* is significant with a p-value of 0.056 has a negative coefficient of 0.0120. This indicates that the companies with highest EBC do the worst acquisitions. In case a company pays the top executives between 75 and 100 of their salary in new stock options grant the year preceding the takeover the acquisition announcement returns reduce with 1.24 percentage point. This is directly contrasting the theory that high EBC managers are better aligned with the company and therefore make better acquisitions. The control variables for cash payment and size show similar results.

Table 8: Multivariate regressions explaining the five-day cumulative abnormal returns (-2, +2) around acquisition announcements by proxies of EBC, corporate governance and ownership.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. EBC is the logarithm of 1 + the value of new stock options grants (calculated with the Black-Scholes Method) as percentage of total compensation paid the top executives in the year preceding the acquisition announcement. TopEBC is a dummy variable that indicates whether a company compensates the executives with 75 to 100 per cent of EBC to their total compensation. The GIndex is the corporate governance index of Gompers, Ishii, and Metrick (2003). *Ownership* is as the logarithm of 1 + the sum of previously granted acquired common stock and restricted stock owned by the top executives as proportion of total shares outstanding. *PrevOptions* is defined as the logarithm of 1 + the sum of shares underlying all previous options granted to the top executives as proportion of total shares outstanding. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. Cash represents the percentage cash in the acquisition premium. Time and industry dummy variables control for any time trends and industry effects. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

	Sample					
	Model (1)	Model (2)	Model (3)	Model (4)	High EBC (5)	Low EBC (6)
Intercept	0.0093[b]	0.0071[c]	0.0204[a]	0.0070	-0.0004	0.0115[b]
	0.033	*0.075*	*0.007*	*0.137*	*0.951*	*0.013*
Big	-0.0141[a]	-0.0142[a]	-0.0101[a]	-0.0126[a]	-0.0126[b]	-0.0154[a]
	0.000	*0.000*	*0.010*	*0.000*	*0.018*	*0.000*
Cash	0.0001[a]	0.0001[a]	0.0002[c]	0.0001[a]	0.0002[a]	0.0001[a]
	0.000	*0.000*	*0.000*	*0.000*	*0.001*	*0.002*
EBC	-0.0115			-0.0152[c]		
	0.155			*0.075*		
TopEBC		-0.0120[c]				
		0.056				
GIndex			-0.0015[b]			
			0.011			
Ownership				0.0095		
				0.908		
PrevOptions				0.3837		
				0.144		
n	3,042	3,042	1,771	3,042	1,521	1,521
R-squared adj.	0.0152	0.0152	0.0183	0.0155	0.0103	0.0223

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

The third model contains the corporate governance index as independent variable. Every increase in corporate governance index indicates worse shareholder rights. The *GIndex* is significant at a 5% level and has a negative coefficient of 0.0015. This indicates that for every step in weaker corporate governance structure the cumulative abnormal returns decrease with 0.15 percentage point. This result is striking, since the *GIndex* shows a result contrary to the *EBC* proxy. Ex-ante, I expect similar behavior between those variables.

The fourth model incorporates *PrevOptions, EBC* and *Ownership*. *Ownership* is insignificant. Nonetheless, *EBC* is in this regression significant at a 10% and shows the same relation between the announcement returns as *TopEBC* does in model (2). Again, *EBC* states that high EBC executives make worse acquisitions. The result of *PrevOptions* is surprising; the stock underlying the previously granted options is positively correlated to the abnormal returns. However, the coefficient is insignificant and therefore should be approached with caution.

Model (5) and (6) compares the intercept of the different subsamples, above and below EBC median. These results are in line with model (2) and (4), the intercept of the below median is -0.0004 and above (and equal to) median has coefficient of 0.0115. This assumes that the high EBC group has lower announcement returns.

This section analyzes the relation between EBC and cumulative abnormal returns around acquisition announcement. Whereas model (1) does not show a clear correlation between EBC and CAR, the models (2), (3), (5) and (6) certainly indicate that a relation between EBC and announcement returns exists. However, this relation is directly contrasting the results of Datta et al. (2001) and my hypothesis stating that EBC is positively related to the cumulative announcement returns. This is result is line with the findings of my univariate model of table 2. The difference between the high and low EBC subsample was -0.49. Therefore, I reject hypothesis H2a and state that, apparently the opposite is true, companies with high EBC managers do worse acquisitions than companies with low EBC managers. In my cross-sectional analysis there seems no sign of correlation between equity ownership and CAR either. Even if I run a separate regression which excludes *PrevOptions* and *EBC*, *Ownership* is insignificant. So, I that no relation exists between equity ownership and announcement returns.

Clearly, the corporate governance structure of a company has a different effect on managerial decision-making than EBC. Model (4) states that stronger corporate governance

structures discipline managers and make them do better acquisitions. This is in line with H3a stating that companies with stronger corporate governance structures do better acquisitions than companies with weaker corporate governance structures. Thus, I confirm H3a.

The findings of my cross-section analysis slightly alters my research. This research builds on three corner stones. The size effect and the interrelation with the EBC and corporate governance. Since, the EBC correlates negatively to the announcement returns, EBC probably does not correct the negative behavior of the size effect. I expect to enforce it. However, the *GIndex* still can diminish the size effect. Small companies can still outperform while I assume that (large) companies with stronger corporate governance structures outperform as well. Therefore, I should analyze H1d in light of the *GIndex.* Managerial incentives can still play an important role in the size effect. Still, EBC functions as additional evidence if the size effect is stronger for high EBC managers and can help to explain the size effect. If higher EBC and *GIndex* scores decrease the CAR, managerial incentives explain the size effect.

4.2.2. Why do high EBC firm acquisitions underperform?

The results in the previous section indicate that high EBC managers underperform. In this section, I analyze the theories that explain the underperformance of high EBC managers.

The results from model (2), (3) and the difference between model (5) and (6) are directly contrasting the theory of Shleifer and Vishny (1988). They state that EBC limits the behavior of bidding managers to engage in non-value-maximizing preferences in corporate takeovers. The results state EBC has a negative effect on the post-acquisition performance. This result is striking since the managers themselves have much skin in the game. Managers are even overly exposed to stock price fluctuations since CEOs are limited in trading their options or hedge possible risks by short-selling; CEOs have a strong firm's idiosyncratic risk. Their monetary risk can indicate that managers do not on purpose make value-destroying but instead believe that they are acting in the interests of their shareholders. The Lake Wobegon (described by Alicke, 1985) effect can explain this phenomenon. The effect is one the cognitive biases that feeds the self-attribution bias; managers overestimate their own capabilities and therefore link positive acquisition outcomes to their skills and negative takeovers to bad luck (Gervaes and Odean, 2001). A continuing attribution of positive decision while neglecting the worse ones

leads to an individual overconfidence. This theory describes that the incentives of the managers are perfectly aligned with that of the company. However, the executives still make acquisitions with a negative result. The overconfidence makes the managers imagine that he is acting in the best interests of the shareholders.

Roll (1986) describes that controlling executives suffering from managerial hubris often overpay for acquisition targets. Malmendier and Tate (2008) reinforce these results by stating that if a manager is classified as overconfidence the market responds significantly more negative during a merger announcement than non-overconfident CEOs. The effects are the strongest if the manager has access to internal funds. Therefore, taking into account both the overpayment as result of managerial hubris and the negative announcement returns for overconfidence managers, I expect that overconfidence can be the motive for the negative abnormal returns.

Weinstein (1980) states that overconfidence is more likely to occur for two reasons. First, individuals are more overconfident if the result links to the individual performance. Secondly, agents are more overconfident if the results directly affect their personal wealth or reputation. The first reason has some explanatory power in line with my results. Since the managers are the highest controlling power within the organization, the acquisition performance links closely to their behavior. This is probably stating the obvious. Nonetheless, the second reason further enforces the overconfidence theory and indicates why high EBC managers are underperforming. Following this reasoning, the managerial EBC structure positively correlates to the amount of overconfidence. Not only the wealth risk heightens the degree of overconfidence, but the reputational value of a manager links to the acquisition performance as well.

In case the overconfidence theory is true, refined corporate governance structures can induce managers to make less sub-optimal decisions. Especially, since this research indicates that a stronger corporate governance structure is positively correlated to the firm acquisition performance; managerial hubris can be limited.

To check for the existence of overconfidence I construct five similar overconfidence measures as Malmendier & Tate (2002) do. The measures relate to the exercise period of the options, overexposure to the managed company or the ratio of not exercised unvested and vested options, either on CEO or on total board level. All the variables measure an

inappropriate risk behavior and therefore can indicate overconfidence. Unfortunately, the variables do not show any clear result. All the variables seem completely unrelated with each other; the highest correlation is 0.04. Since, I doubt whether my overconfidence measures have any explanatory power in this sample, I drop the variables and omit this cross-sectional analysis from my article. This result limits me to state that overconfidence is the underlying reason for the underperformance over high EBC managers. Future research benefits from incorporating additional overconfidence measures.

4.2.3. Do high EBC managers over pay for their acquisition targets?

In line with the managerial hubris theory (1986) managers overpay for their acquisition target if they overestimate their own capabilities. This can result in overvaluing the target company or possible synergies. To test whether managers overpay I analyze the acquisition premiums between high EBC and low EBC managers. I use the same methodology as in section 4.1.2. I use *EBC, TopEBC* and *GIndex* as independent variables. I incorporate a continuous variable for stock acquisitions. I control for private and conglomerate acquisitions. If the acquisition involves more than one bidder the takeover is considered being competed. Again, since not all acquisitions produce data about the acquisition premium, I am limited to 585 observations. I use the same independent variables as in the previous section. The cross-section analysis contains the continuous variables *EBC* and *GIndex.* The dummy variables I include are *TopEBC* and *EBCD.* Also, I split the subsample in half with *EBCD.* I examine the incept of both subsamples. β_1 describes the effect of *EBC, TopEBC* or *GIndex* independently on the acquisition premium. This brings me to the follow equation:

$$(11) \qquad Premium = \alpha + \beta_1 \begin{matrix} EBC \\ TopEBC \\ GIndex \end{matrix} + \beta_2 Stock + \beta_3 Private + \beta_4 Conglomerate + \beta_6 Competed + \varepsilon$$

The first model (1), *EBC* has a positive coefficient of 0.1032 but is insignificant. *TopEBC* is positive indicating that higher EBC managers overpay but fails to become significant. *TopEBC* has coefficient of 0.0260. The corporate governance index, *GIndex,* is slightly positive, stating that every step in a stronger corporate structure the premium paid increases with 0.01, though is just as the previous variables insignificant. The intercept for the high EBC group is 0.4595 while the low EBC group is 0.4479. I can not deny that the positive

coefficients among all the variables proxying for EBC indicate that EBC has a positive effect on the acquisition premium. Nonetheless, unfortunately the insignificance of the coefficients limits me to state that high EBC managers overpay for their acquisition targets.

Table 9: Multivariate regressions on acquisition premium.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The dependent variable is the premium calculated by taking the difference between the deal value and the share outstanding times the average of the bid-ask price, in the month prior to the acquisition announcement, divided by the deal value. EBC is the logarithm of 1 + the value of new stock options grants (calculated with the Black-Scholes Method) as percentage of total compensation paid the top executives in the year preceding the acquisition announcement. TopEBC is a dummy variable that indicates whether a company compensates the executives with 75 to 100 per cent of EBC to their total compensation. The GIndex is the corporate governance index of Gompers, Ishii, and Metrick (2003). Private, conglomerate and competed are dummy variables that take a value of one if the acquisition target is private, firms with a different two-digit SIC code than the acquirer and if the bidding contains more than one bidder according to the SDC. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

	Sample				
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
Intercept	0.4228[a]	0.4519[a]	0.4460[a]	0.4595[a]	0.4479[a]
	0.000	*0.000*	*0.000*	*0.000*	*0.000*
EBC	0.1032				
	0.174				
TopEBC		0.0260			
		0.609			
GIndex			0.0012		
			0.845		
Stock	0.0001	0.0002	0.0003	0.0001	0.0002
	0.632	*0.585*	*0.402*	*0.754*	*0.636*
Private	-0.1996	-0.1794	-0.2513	-0.1744	
	0.394	*0.444*	*0.440*	*0.474*	
Conglomerate	0.0404	0.0394	0.0151	0.0603	0.0125
	0.146	*0.157*	*0.657*	*0.113*	*0.761*
Competed	0.0222	0.0243	-0.0069	-0.0201	0.0938
	0.716	*0.691*	*0.925*	*0.801*	*0.331*
n	585	585	373	335	250
R-squared adj.	0.0000	0.0000	0.0000	0.0000	0.0000

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

First, unfortunately my observations shrunk to less than a quarter of my original dataset. This definitely does not clarify the findings. Next, while, all the variables are insignificant, the results of table 9 point in a certain direction. Since, all the independent variables in table 8 confirm a negative relation with the announcement returns and in table 9 state a positive correlation with the acquisition premium, I expect a relation between premium and the announcement returns. In this case, premium can be a driver of lower CARs. The intercept of both subsamples state a certain correlation as well. Nonetheless, I think that the results are not enough to confirm my first proxy for managerial hubris as underlying factor for overpayment by high EBC managers. Therefore, I reject H2b.

4.2.4. Why do companies with stronger corporate governance structures outperform?

The fourth cross-sectional regression in table 8 shows that the corporate governance structure, proxied by the corporate governance index of Gompers, Ishii and Metrick (2003), correlates positively to the announcement returns. In finance literature, the most described underlying reason for this phenomenon is that, weaker shareholders' rights give managers more space pursuing their personal interests, increasing the agency costs. The agency costs can be subdivided in (1) empire-building, (2) staying at the job too long and (3) managerial entrenchment. The corporate governance structure limits managers in engaging in empire-building behavior. Managers consider that their reputation is better if they run a larger company, therefore make more (value-destroying) acquisitions, especially managers with sufficient internal funds. Stronger corporate governance structure disciplines managers. Secondly, corporate governance ensures that managers do not stay at the job too long. The larger probability of involuntary redundancy makes top executives perform better. As well, managerial expropriation links to corporate governance. Managers who fear less controlling measures have the tendency to use the company's finance, assets, facilities or service for their own benefit, often personal financial gain, or in such way as to them some form of unfair advantage at the expense of the company – think of voting themselves large bonuses or large benefits. This is not always illegal but the stock market considers this as deviating from the tasks the top executives is assigned for.

Model (3) of table 9 states that stronger firm governance increases the acquisition premium. However, the coefficient is insignificant. Therefore, I cannot state that lower cumulative announcement returns are a result of higher acquisition premium. I reject hypothesis H3b. However, since throughout my whole research the acquisition premium data is limited, future research benefits from more observations.

After the confirmation of the size effect, the past three subsections highlight the effect of EBC and corporate governance on the announcement returns. The article by Malmendier and Tate (2008) confirms my findings and points at the influence of overconfidence in acquisitions. This managerial hubris seems to be of less effect for companies with stronger corporate governance structures. Therefore, these variables give the opportunity to test whether the size effect can be explained by managerial incentives.

5. Empirical Model: Interaction Effects

Till this far, my research examines the effect of EBC, corporate governance and size independently on the abnormal returns around acquisition announcements. The main contribution of this research is that I examine how the size effect interrelates with EBC and corporate governance. My research shows a negative correlation between size and CAR. In my second degree polynomial model, I confirm an upward sloping CAR if the company becomes large enough. Also, I confirm a negative function between (top) EBC managers and announcement returns and describe that stronger shareholder rights have a positive effect on the CAR. In the next sections, I come to the core of my research and look into the interaction effect between size and EBC or corporate governance. I examine this interrelation to find the underlying reason of the size effect. Since I show that the proxies for EBC correlate negatively to the CAR, I expect that the interaction effect reinforces the negative announcement returns of size. Also, I expect that corporate governance prevents managers from larger firms of falling into value-destroying behavior. Therefore, these managers produce higher announcement returns. As well, I predict that the size effect does not exist if the corporate governance structure is sufficient; the size effect disappears for stronger firm governance. In the next sections I use the same model and control variables as in section 4.1.1. following the methodology of Moeller et al. (2004). The dependent variable is the cumulative abnormal returns two days before to two days after the acquisition announcement.

5.1. Do high EBC managers reinforce the size effect?

My proxies for EBC indicate that EBC affects the announcement returns negatively. I expect that the underlying reason for this phenomenon is the temptation of managers becoming overconfident. Since EBC affects managerial incentives, in this section, I want to assess the EBC effect on the size effect and check whether EBC intensifies the size effect. I test this by using my main three independent variables proxying for the size of a company. Table 10 states the independent and control variables I incorporate in my analysis. To capture the relative effect of EBC, I use my two dummy variables for EBC, I introduce in section 4.2.1., *TopEBC* and *EBCD. EBCD* splits the total dataset in half while the *TopEBC* represents the top 5% EBC companies. The dummy variables are equal to one (zero) if the values are above or equal (below) the threshold. The first three models explain the interaction effect between size and EBC. Model (4) and (5), in both panel A and B, measure the differences in size effect between both subsamples, split by either *EBCD* or *TopEBC.* Panel A of table 10 describes the interaction effect with *EBCD* and panel B *TopEBC.* I incorporate the continuous variable for market value of equity as size proxy to check for existence of the size effect in the different subsamples. β_1 presents the size effect and β_2 states the interaction effect of size with *EBCD* or *TopEBC.* This gives the following regression equation:

$$(12) \quad CAR = \alpha + \beta_1 Size + \beta_2 * \begin{matrix} EBCD \\ TopEBC \end{matrix} * Size + \beta_3 Private + \beta_4 Public + \beta_5 Conglomerate + \beta_6 Tender + \beta_7 Competed + \beta_8 All\ Equity + \beta_9 All\ Cash + \beta_{10} Relative\ Size + \beta_{11} Tobin's\ q + \beta_{12} Debt/Assets_{mkt} + \beta_{13} Liquidity + \varepsilon$$

Panel A states that the interaction effect of *EBCD* and all the proxies for size are negative. This finding suggests that companies that compensate their managers through EBC strengthen the size effect. Nonetheless are all interaction terms insignificant. The sample split finds a result in line with the negative interaction coefficients. The size effect is present in both subsamples. The proxy for size in model (4a) is -0.0051 and model (5a) is -0.0039, both significant at a 1% level. The intercept of model (4a) and (5a) is respectively 0.0417 and 0.0478. Hence, the intercept of the high EBC group is lower and the size effect coefficient is steeper. Therefore, I argue that the size effect is more severe in model (4a). Thus, in general, the size affect has a stronger negative effect in the above median EBC group. Though the coefficients

are insignificant, the negative coefficients of model (1a), (2a) and (3a) state that EBC reinforces the size effect.

In panel B, model (1b), (2b) and (3b) find a negative coefficient interaction effect between *TopEBC* and size. For model (1b), the interaction coefficient is -0.0171 and significant at a 5% level. So, model (1b) states that the announcement returns decline with 1.16 percent point if a company is considered big. In addition, companies that belong to the *TopEBC* group reinforce the size effect with 1.71 percent point. This means if a firm compensates its managers between 75 and 100 per cent of the salary with new stock options grant the year preceding the acquisition announcement the size effect more than doubles.

Model (4b) and (5b) find that size effect is for the *TopEBC* group is nearly four times higher, the coefficients are respectively -0.0160 and -0.0041. If a company in the *TopEBC* group increases with 1% in market equity the announcement returns decline with 1.60 percentage point compared to a decline of 0.41 percentage point for the group below the *TopEBC* threshold. This result is in line with the results of model (1b), the size effect is more severe for companies that compensate their managers through higher levels of EBC.

Though, the results of panel B are stronger, the findings of panel A and panel B are in line with my expectations; EBC reinforces the size effect. All the interaction coefficients are negative meaning that EBC makes large companies perform worse. The interaction coefficients of model (1a) and (1b) state that EBC captures are large part of the size effect. The subsamples in panel A and B further underline this finding. The size effect is stronger for high EBC firms. Since managers never intentionally destroy the value of their stock options, the results point at the confirmation of H1d; the size effect is driven by managerial incentives. The next section examines whether managers of large firms still make sub-optimal acquisitions if firm governance is stronger.

Table 10: Multivariate regressions explaining the five-day cumulative abnormal returns (-2, +2) around acquisition announcements by the interaction effect of size and EBC.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The first proxy for size is dummy variable. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The second proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement. The third proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. *EBC* and *TopEBC* measure the interaction effect. High (low) *EBCD* acquirers compensate their managers above (below or equal) the median of EBC prior to the acquisition announcement. *TopEBC* represents the companies with top 5% EBC the year prior to the acquisition announcement. Panel A considers *EBCD* and Panel B *TopEBC*. Private, public, tender, conglomerate and competed are dummy variables that take a value of one if the acquisition target is private, public, reported as tender offer by the SDC, firms with a different two-digit SIC code that acquirer and if the bidding contains more than one bidder according to the SDC. Equity (cash) in payment is the amount of equity (cash) in percentage paid. Pure equity (cash) deals are completely paid in equity (cash). Relative size denotes transaction value divided by the market capitalization of the acquirer at the fiscal year of the acquisition announcement. Tobin's q is defined as in Tobin (1969). The F&F book-to market ratio is defined as by Fama and French (1993). The market liquidity is measured by the Pastor-Stambaugh traded liquidity factor. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

Panel A: EBCD	Sample					*Panel B: TopEBC*	Sample				
	Model (1a)	Model (2a)	Model (3a)	High EBC (4a)	Low EBC (5a)		Model (1b)	Model (2b)	Model (3b)	TopEBC (4b)	Other (5b)
Intercept	*0.0219*[a]	*0.0453*[a]	*0.0453*[a]	*0.0417*[a]	*0.0478*[a]	Intercept	*0.0223*[a]	*0.0445*[a]	*0.0421*[a]	*0.1040*[b]	*0.0426*[a]
	0.000	0.000	0.000	0.002	0.000		0.000	0.000	0.000	0.045	0.000
Big	-0.0118[a]					Big	-0.0116[a]				
	0.001						*0.001*				
ln equity (market)		-0.0045[a]		-0.0051[a]	-0.0039[a]	ln equity (market)		-0.0044[a]		-0.0160[b]	-0.0041[a]
		0.000		*0.002*	*0.005*			*0.000*		*0.016*	*0.000*
ln assets (book)			-0.0049[a]			ln assets (book)			-0.0049[a]		
			0.000						*0.000*		
EBCD * Size	-0.0015	-0.0002	-0.0003			*TopEBC* * Size	-0.0171[b]	-0.0014	-0.0014		
	0.633	*0.617*	*0.453*				*0.031*	*0.143*	*0.163*		
Private	-0.0057[c]	-0.0063[c]	-0.0063[c]	-0.0055	-0.0055	Private	-0.0056[c]	-0.0062[c]	-0.0062[c]	-0.0006	-0.0066[c]
	0.081	*0.056*	*0.056*	*0.302*	*0.302*		*0.084*	*0.059*	*0.059*	*0.977*	*0.052*
Public	-0.0299[a]	-0.0268[a]	-0.0268[a]	-0.0264[a]	-0.0278[a]	Public	-0.0295[a]	-0.0266[a]	-0.0265[a]	-0.0254	-0.0253[a]
	0.000	*0.000*	*0.000*	*0.000*	*0.000*		*0.000*	*0.000*	*0.000*	*0.336*	*0.000*
Conglomerate	-0.0043	-0.0039	-0.0039	-0.0015	-0.0071[c]	Conglomerate	-0.0044	-0.0040	-0.0039	0.0204	-0.0049[c]
	0.148	*0.186*	*0.188*	*0.734*	*0.055*		*0.132*	*0.177*	*0.184*	*0.178*	*0.096*
Tender	0.0187[a]	0.0168[a]	0.0167[a]	0.0127	0.0187[b]	Tender	0.0188[a]	0.0169[a]	0.0168[a]	-0.0042	0.0173[b]
	0.004	*0.010*	*0.010*	*0.232*	*0.044*		*0.004*	*0.009*	*0.010*	*0.899*	*0.017*
Competed	-0.0177[c]	-0.0161[c]	-0.0162[c]	-0.0041	-0.0398[b]	Competed	-0.0184[c]	-0.0168[c]	-0.0169[c]	0.1143	-0.0202[b]
	0.068	*0.092*	*0.090*	*0.801*	*0.022*		*0.059*	*0.079*	*0.077*	*0.253*	*0.022*
All equity	-0.0019	-0.0029	-0.0036	-0.0121	0.0093[c]	All equity	-0.0013	-0.0025	-0.0032	-0.0069	-0.0017
	0.707	*0.559*	*0.475*	*0.059*	*0.094*		*0.805*	*0.617*	*0.520*	*0.725*	*0.690*
All cash	0.0065[b]	0.0073[b]	0.0076[a]	0.0067	0.0084[b]	All cash	0.0066[b]	0.0074[a]	0.0077[a]	0.0390[b]	0.0057[c]
	0.025	*0.011*	*0.008*	*0.190*	*0.034*		*0.023*	*0.010*	*0.008*	*0.047*	*0.076*
Relative size	-0.0106[b]	-0.0113[a]	-0.0116[a]	-0.0194[a]	-0.0041	Relative size	-0.0107[b]	-0.0122[a]	-0.0116[a]	-0.0818[b]	-0.0113[a]
	0.012	*0.005*	*0.008*	*0.001*	*0.388*		*0.011*	*0.006*	*0.008*	*0.033*	*0.002*
Tobin's q	-0.0001	0.001	-0.0003	0.0019[a]	-0.0021[a]	Tobin's q	-0.0001	0.001	-0.0003	0.0017	0.0001
	0.834	*0.924*	*0.647*	*0.001*	*0.000*		*0.869*	*0.900*	*0.669*	*0.333*	*0.867*
Debt/assets (mkt)	0.0066	0.0084	0.0257[a]	0.0212[c]	-0.0031	Debt/assets (mkt)	0.0050	0.0074	0.0246[a]	0.0377	0.0070
	0.351	*0.236*	*0.002*	*0.079*	*0.725*		*0.480*	*0.295*	*0.004*	*0.525*	*0.337*
Liquidity Index	-0.0242	-0.0217	-0.0225	-0.0341	-0.0088	Liquidity Index	-0.0267	-0.0235	-0.0243	-0.2006	-0.0029
	0.556	*0.596*	*0.583*	*0.557*	*0.856*		*0.517*	*0.567*	*0.553*	*0.294*	*0.940*
n	3042	3042	3042	1521	1521	*n*	3042	3042	3042	163	2879
R-squared adj.	0.0347	0.0360	0.0367	0.0418	0.0453	R-squared adj.	0.0367	0.0374	0.0374	0.1332	0.0294

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

5.2. Does corporate governance diminish the size effect?

In section 4.2.1., I find that the proxy for corporate governance index by Gompers, Ishii and Metrick (2003) relates negatively to the abnormal returns around acquisition announcements. This indicates that a decrease in shareholders' rights decrease the cumulative abnormal returns. Previous literature states that this is a result of stronger corporate governance structure decreasing the agency costs (Singh and Davidson, 2003). In this section, I want to analyze the interrelation between corporate governance and the size effect. The combined function helps to explore the underlying reason of the size effect. Since not all companies have a corporate governance index, I am limited to 1,771 observations.

Table 11 shows the cross-sectional regressions and contains the acquiring firm and deal characteristics control variables. Again, I use the three different proxies for size. Model (1a) uses a dummy variable for companies above median market capitalization, model (2a) the market equity value and model (3a) the book value of assets for size. The strongest corporate governance structures have the lowest corporate governance scores. To test the interaction effect of corporate governance with size, I create two dummies for corporate governance. *GMedian* is equal to 1 if the company has below median *GIndex. GMedian* contains 37% of the observations. *GTop* is equal to 1 if the company belongs to the strongest 15% corporate governance structures. Panel A shows the interaction effect with *GMedian* and Panel B contains the results of *GTop.* Model (4) and (5) of panel A and B subdivides the sample with *GMedian* and *GTop.* To capture the differences in size effect between both subsamples, I use the market value of equity as proxy for size in model (4) and (5). β_1 describes the relative size effect and β_2 presents the interaction effect of size with *GMedian* or *GTop* to the dependent variable CAR. This gives the following multivariate regression equation:

(13) $$CAR = \alpha + \beta_1 Size + \beta_2 * \begin{matrix} GMedian \\ GTop \end{matrix} * Size + \beta_3 Private + \beta_4 Public + \beta_5 Conglomerate + \beta_6 Tender + \beta_7 Competed + \beta_8 All\ Equity + \beta_9 All\ Cash + \beta_{10} Relative\ Size + \beta_{11} Tobin's\ q + \beta_{12} Debt/Assets_{mkt} + \beta_{13} Liquidity + \varepsilon$$

First I focus on panel A of table 11. In model (1a) the size coefficient is -0.0098 and the interaction coefficient is significant at a 10% level with a coefficient of 0.0062. This indicates that the size effect still exists in case a company has corporate governance structure that is stronger than the median. Still, a large company with a below median corporate governance

index reduces his announcement returns with 0.0062; size effect weakens. The control variables for public, private and tender offers are significant at a 5% level. Public and private offers have a negative impact on the announcement returns while tender offers correlates positively.

Model (2a) and (3a) both find results in line with model (1a). The interaction coefficient of model (2a) states that a below median *GIndex* is equal to 0.0008. This indicates that the size effect slope diminishes with 0.08 percent point for a stronger corporate governance score. The continuous size coefficient is -0.0038. The interaction coefficient of model (3a) is significant at a 5% level and is 0.0009 and the size coefficient is -0.0042. Both these findings indicate that corporate governance has a substantial effect on the size effect. The control variables have results in line with model (1a). In model (3a) however, the debt to market assets variable is significant at a 10% level.

Finally, model (4a) and (5a) splits the dataset in a below (above or equal) median corporate structure subsample. The intercept of model (4a) is 0.0422 and the intercept of model (5a) is 0.0409, both significant at a 5% level. Model (4a) and (5a) both incorporate the continuous variable for size of model (2a), the market value of equity. This size variable for model (4a) increases to -0.0030. In addition, the coefficient becomes insignificant whereas the size coefficient of model (5a) is significant and reinforces the size effect. The coefficient is -0.0042. These findings indicate that firm governance affects the size effect. First, the size effect disappears if the corporate governance structure becomes high enough. Second, the proxy for size in model (4a) becomes closer to zero and is insignificant. Finally, model (5a) highlights the size effect for companies with poor corporate governance structures. The size variable is significant and has a steeper slope than model (2a).

The control variables for public and private have the same effect for both subsamples; they affect the CAR negatively. Notable is the variable for multiple bidders and relative size. These variables are only significant in model (5a). The difference of both indicate the effect of managerial hubris in companies with poor firm governance. If a bidding involves multiple bidders and has weak corporate governance structure, managers can fall into the winner's curse; the buyer overvaluing the acquisition target the most wins the auction and therefore decreases the announcement returns. This effect is not present in model (4a). In line, the coefficients indicate that companies with weaker firm governance suffer from managers pursuing a relative

Table 11: Multivariate regressions explaining the five-day cumulative abnormal returns (-2, +2) around acquisition announcements by the interaction effect of size and corporate governance.

The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The first proxy for size is dummy variable. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The second proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement. The third proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. *GMedian* and *GTop* measure the interaction effect. *GMedian* acquirers have a below median corporate governance structure score measured by the corporate governance proxy of Metrick, Gompers and Ishii (2003). *GTop* represents the companies with 5% strongest firm governance. Panel A considers *GMedian* and Panel B *GTop*. Private, public, tender, conglomerate and competed are dummy variables that take a value of one if the acquisition target is private, public, reported as tender offer by the SDC, firms with a different two-digit SIC code that acquirer and if the bidding contains more than one bidder according to the SDC. Equity (cash) in payment is the amount of equity (cash) in percentage paid. Pure equity (cash) deals are completely paid in equity (cash). Relative size denotes transaction value divided by the market capitalization of the acquirer at the fiscal year of the acquisition announcement. Tobin's q is defined as in Tobin (1969). The F&F book-to-market ratio is defined as by Fama and French (1993). The market liquidity is measured by the Pastor-Stambaugh traded liquidity factor. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

Panel A: GMedian	Sample					*Panel B: GTop*	Sample				
	Model (1a)	Model (2a)	Model (3a)	*GMedian (4a)*	Other (5a)		Model (1b)	Model (2b)	Model (3b)	*GTop* (4b)	Other (5b)
Intercept	0.0225[a]	0.0418[a]	0.0403[a]	0.0422[b]	0.0409[a]	Intercept	0.0228[a]	0.0429[a]	0.0410[a]	0.0561[b]	0.0442[a]
	0.000	*0.000*	*0.000*	*0.014*	*0.003*		*0.000*	*0.000*	*0.000*	*0.031*	*0.000*
Big	-0.0098[b]					Big	-0.0091[b]				
	0.021						*0.028*				
ln equity (market)		-0.0038[a]		-0.0030	-0.0042[a]	ln equity (market)		-0.0038[a]		-0.0039	-0.0034[a]
		0.002		*0.151*	*0.005*			*0.002*		*0.216*	*0.010*
ln assets (book)			-0.0042[a]			ln assets (book)			-0.0041[a]		
			0.001						*0.001*		
GMedian * Size	0.0062[c]	0.0008[c]	0.0009[b]			*GTop* * Size	0.0108[b]	0.0018[a]	0.0018[a]		
	0.100	*0.055*	*0.041*				*0.041*	*0.002*	*0.002*		
Private	-0.0093[b]	-0.0100[a]	-0.0100[a]	-0.0130[c]	-0.0079[c]	Private	-0.0091[b]	-0.0098[a]	-0.0098[a]	-0.009	-0.0093[b]
	0.011	*0.009*	*0.009*	*0.055*	*0.065*		*0.013*	*0.010*	*0.007*	*0.391*	*0.016*
Public	-0.0320[a]	-0.0295[a]	-0.0295[a]	-0.0356[a]	-0.0251[a]	Public	-0.0321[a]	-0.0295[a]	-0.0295[a]	-0.0309[b]	-0.0289[a]
	0.000	*0.000*	*0.009*	*0.000*	*0.000*		*0.000*	*0.000*	*0.000*	*0.024*	*0.000*
Conglomerate	-0.0031	-0.0029	-0.0028	-0.0019	-0.0035	Conglomerate	-0.0031	-0.0031	-0.0030	-0.0048	-0.0048
	0.358	*0.387*	*0.400*	*0.747*	*0.401*		*0.357*	*0.356*	*0.372*	*0.595*	*0.188*
Tender	0.0161[b]	0.0145[c]	0.0145[b]	0.0383[a]	0.0053	Tender	0.0159[b]	0.0142[c]	0.0142[c]	0.0384[c]	0.0114
	0.042	*0.055*	*0.055*	*0.010*	*0.553*		*0.043*	*0.059*	*0.070*	*0.096*	*0.165*
Competed	-0.0164	-0.0157	-0.0158	0.0029	-0.0307[c]	Competed	-0.0155	-0.0139	-0.0139	-0.0139	-0.0307
	0.196	*0.224*	*0.222*	*0.893*	*0.055*		*0.227*	*0.281*	*0.277*	*0.787*	*0.362*
All equity	-0.0069	-0.0074	-0.0076	-0.0130	-0.0019	All equity	-0.0065	-0.0071	-0.0072	-0.0202	-0.0036
	0.258	*0.161*	*0.158*	*0.135*	*0.807*		*0.285*	*0.182*	*0.238*	*0.129*	*0.580*
All cash	0.0045	0.0048	0.0050	0.0060	0.0038	All cash	0.0047	0.0051	0.0053	0.0082	0.0046
	0.181	*0.171*	*0.155*	*0.350*	*0.330*		*0.161*	*0.145*	*0.115*	*0.430*	*0.191*
Relative size	-0.0036	-0.0049	-0.0044	0.0031	-0.0109[b]	Relative size	-0.0038	-0.0051	-0.0047	-0.0011	-0.0074
	0.350	*0.201*	*0.251*	*0.631*	*0.030*		*0.328*	*0.184*	*0.218*	*0.882*	*0.164*
Tobin's q	-0.0008	-0.0004	-0.0007	-0.0003	0.0006	Tobin's q	-0.0009	-0.0007	-0.0009	-0.0002	-0.0020
	0.293	*0.652*	*0.385*	*0.808*	*0.797*		*0.208*	*0.454*	*0.201*	*0.897*	*0.248*
Debt/assets (mkt)	0.0030	0.0056	0.0182	0.0090	0.0118	Debt/assets (mkt)	0.0024	0.0046	0.0178[c]	-0.0042	0.0003
	0.707	*0.540*	*0.081*	*0.544*	*0.350*		*0.764*	*0.613*	*0.057*	*0.871*	*0.974*
Liquidity Index	-0.0239	-0.0250	-0.0260	-0.1310[c]	0.0504	Liquidity Index	-0.0250	-0.0263	-0.0269	-0.2875[b]	0.0231
	0.606	*0.565*	*0.550*	*0.083*	*0.364*		*0.590*	*0.544*	*0.562*	*0.016*	*0.636*
n	1771	1771	1771	659	1112	*n*	1771	1771	1771	270	1501
R-squared adj.	0.0425	0.0459	0.0464	0.0535	0.0442	R-squared adj.	0.0435	0.0490	0.0493	0.0540	0.0442

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.

larger acquisition target. This can be result of empire-building behavior. Since, the variables are not significant in model (4a), corporate governance supposedly decreases managerial hubris. The result of the control variables as the result of the independent variables suggest an interrelation between corporate governance and size effect indicating a behavioral component in acquisitions.

Next, I want to examine the size variables if I move to the firms with 15% strongest corporate governance structures. Panel B displays the results. Model (1b) states that size effect completely disappears. Large companies with a top 15% corporate structure have better announcement returns than small companies. The size coefficient is -0.0091 and the interaction coefficient is 0.0108, both significant at a 5% level.

In line, model (2b) finds that the slope of the size variable becomes less steep if the *GTop* is equal to one. A 1% increase in market equity size decreases the announcement returns for *GTop* companies with 0.18 percent point whereas companies with weaker firm governance decrease the CAR with 0.38 percent point. Model (3b) finds similar results. The slope of the size effect diminishes to -0.0023 per 1% increase in book market value for companies below the *GTop* threshold. The interaction coefficients of model (1), (2) and (3) are in panel B substantially higher than in panel A. This assumes that stronger corporate governance scores diminish the size effect further. In model (1b), corporate governance even lifts the size effect completely. Corporate governance seems to drive the size effect.

As in panel A, I split the subsample with the dummy variable *GTop.* While the coefficient is negative, again, just as in model (4a), the size coefficient for model (4b) is insignificant. The size effect disappears. For the above median subsample, the size effect is significant at a 1% level and has a coefficient of -0.0034. A 1% increase market value of equity decreases the announcement returns with 0.34 percent point. The control variables for public acquisitions and liquidity are significant in model (4b). Model (5b) states that public and private acquisitions correlate negatively to the announcement returns.

The interaction effects and the proxies for size of each model in panel A and B come to the same conclusion, the disappearance of the size effect if the corporate governance structure is substantial. The interaction coefficient in model of panel A and B state that size effect becomes flatter. If a company enhances a stronger firm governance the size effect become less

severe. The intercept of model (5a) and (5b) indicate that the announcement returns decrease if the corporate governance structure becomes weaker. Contrary, model (4a) and (4b) even indicate that the market value equity is not affecting the cumulative abnormal returns at all. In addition, though not included in table 11, my other two independent variable proxying for size are insignificant in either model (4a) or (4b). These result extends the findings of Moeller et al. (2004). The size effect has a completely different impact if the equation incorporates corporate governance or EBC.

In conclusion, since EBC makes the size effect larger and firm governance can make the size effect disappear, I confirm my hypothesis H1d; the size effect is mainly driven by managerial incentives. I conclude that the size effect is driven on a substantial level by managerial behavioral component. Larger companies benefit from inducing stronger corporate governance structures to strengthen the shareholder rights. The negative interaction result of EBC in table 10 reinforce these findings. Managers never deliberately destroy the value of their options. As well, the result of the control variables, multiple bidders and relative size, in models (5a) and (5b) indicate the possible presence of a behavioral component in acquisitions; managerial incentives play a larger role for companies with weaker corporate governance structures.

6. Conclusion

This study shows that the size of the company relates negatively to the cumulative abnormal returns around acquisition announcements for the acquiring company. These findings are in line with Moeller et al. (2004) who describe the existence of this size effect; small acquiring firms outperform large firms. I find that the size effect is present in my univariate analysis, in my model controlling for a variety of deal- and acquirer characteristics and in two different time periods. Moreover, I find that equity-based compensation links negatively whereas corporate governance links positively to the announcement returns of the acquiring company. The interaction effect of firm governance and equity-based compensation on the company size reveals that the size effect is a result of managerial hubris. I broaden the existing literature on the size effect by showing that the relation between size and announcement returns

is U-shaped and describing the underlying reason of the size effect by considering the interrelation of firm governance and equity-based compensation with size.

This paper extends the existing literature on the behavioral component of takeovers. This field of research has much to discover in the future. Firms should interest in future findings about how to refrain top executives from sub-optimal acquisition decision making. Companies can alter the managerial compensation and the corporate governance to align the incentives of the manager with that of the company. I lost observations in my all cross-sectional acquisition premium analysis due to limited information on SDC. Further research can benefit from more acquisition premium observations and provide new insights how interaction effect between size and managerial incentives relates to the acquisition premium. If larger acquisition premiums are paid in combination with lower CARs, equity-based compensated takeovers can have a behavioral component. In addition, research should examine how high equity-based compensated managers relate to overconfidence? I open the door to a polynomial function between size and announcement returns; interesting to discover is this U-shaped relation. Can this be determined by stronger corporate governance structures as well? Also, further work can incorporate more corporate governance proxies and equity-based compensation proxies to check for the robustness of my interaction findings.

7. References

Alicke, M. D. (1985). Global self-evaluation as determined by the desirability and controllability of trait adjectives. *Journal of Personality and Social Psychology*, 49(6), 1621.

Andrade, G., Mitchell, M. L., & Stafford, E. (2001). New evidence and perspectives on mergers.

Asquith, P., Bruner, R. F., and Mullins, D. W. (1983). The gains to bidding firms from merger. *Journal of Financial Economics*, 11(1), 121-139.

Bajaj, M., and Vijh, A. M. (1995). Trading behavior and the unbiasedness of the market reaction to dividend announcements. *The Journal of Finance*, 50(1), 255-279.

Berger, P. G., and Ofek, E. (1995). Diversification's effect on firm value. *Journal of Financial Economics*, 37(1), 39-65.

Bhagat, S., Dong, M., Hirshleifer, D., and Noah, R. (2005). Do tender offers create value? New methods and evidence. *Journal of Financial Economics*, 76(1), 3-60.

Brown, S. J., and Warner, J. B. (1980). Measuring security price performance. *Journal of Financial Economics*, 8(3), 205-258.

Brown, S. J., and Warner, J. B. (1985). Using daily stock returns: The case of event studies. *Journal of Financial Economics*, 14(1), 3-31.

Chang, S. (1998). Takeovers of privately held targets, methods of payment, and bidder returns. *The Journal of Finance*, 53(2), 773-784.

Chappell, H. W., and Cheng, D. C. (1984). Firms' acquisition decisions and Tobin's q ratio. *Journal of Economics and Business*, 36(1), 29-42.

Core, J. E., Holthausen, R. W., and Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51(3), 371-406.

Datta, S., Iskandar-Datta, M., and Raman, K. (2001). Executive compensation and corporate acquisition decisions. *The Journal of Finance*, 56(6), 2299-2336.

Demsetz, H., and Lehn, K. (1985). The structure of corporate ownership: Causes and consequences. *Journal of Political Economy*, 93(6), 1155-1177.

Draper, P., and Paudyal, K. (2006). Acquisitions: private versus public. *European Financial Management*, 12(1), 57-80.

Dodd, P., and Ruback, R. (1977). Tender offers and stockholder returns: An empirical analysis. *Journal of Financial Economics*, 5(3), 351-373.

Dong, M., Hirshleifer, D., Richardson, S., and Teoh, S. H. (2006). Does investor misvaluation drive the takeover market?. *The Journal of Finance*, 61(2), 725-762.

Fama, E. F., and French, K. R. (1993). Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33(1), 3-56.

Fama, E. F. (1970). Multiperiod consumption-investment decisions. *The American Economic Review*, 60(1), 163-174.

Fuller, K., Netter, J., and Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *The Journal of Finance*, 57(4), 1763-1793.

Gervais, S., and Odean, T. (2001). Learning to be overconfident. *Review of Financial studies*, 14(1), 1 27.

Gompers, P. A., Ishii, J. L., and Metrick, A. (2001). *Corporate governance and equity prices* (No.w8449). National bureau of economic research.

Grossman, S. J., and Hart, O. D. (1980). Takeover bids, the free-rider problem, and the theory of the corporation. *The Bell Journal of Economics*, 42-64.

Harford, J. (1999). Corporate cash reserves and acquisitions. *The Journal of Finance*, 54(6), 1969 1997.

Jensen, M. C., and Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

Jensen, M. C. (1986). Agency cost of free cash flow, corporate finance, and takeovers. *Corporate Finance, and Takeovers. American Economic Review*, 76(2).

Kim, J. Y. J., Haleblian, J. J., and Finkelstein, S. (2011). When firms are desperate to grow via acquisition: The effect of growth patterns and acquisition experience on acquisition premiums. *Administrative Science Quarterly*, 56(1), 26-60.

Linn, S. C., and Switzer, J. A. (2001). Are cash acquisitions associated with better postcombination operating performance than stock acquisitions?. *Journal of Banking and Finance*, 25(6), 1113 1138.

Loughran, T., and Vijh, A. M. (1997). Do long-term shareholders benefit from corporate acquisitions?. *The Journal of Finance*, 52(5), 1765-1790.

Malmendier, U., and Tate, G. (2002). *Does CEO overconfidence drive corporate acquisitions?.* Working paper, Harvard University.

Malmendier, U., and Tate, G. (2005). CEO overconfidence and corporate investment. *The Journal of Finance*, 60(6), 2661-2700.

Malmendier, U., and Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89(1), 20-43.

MacKinlay, A. C. (1997). Event studies in economics and finance. *Journal of Economic Literature*, 13-39.

Maloney, M. T., McCormick, R. E., and Mitchell, M. L. (1993). Managerial decision making and capital structure. *Journal of Business*, 189-217.

Martin, K. J. (1996). The method of payment in corporate acquisitions, investment opportunities, and management ownership. *Journal of Finance*, 1227-1246.

Malmendier, U., and Tate, G. (2005). CEO overconfidence and corporate investment. *The Journal of Finance*, 60(6), 2661-2700.

Malmendier, U., and Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89(1), 20-43.

McConnell, J. J., and Servaes, H. (1990). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, 27(2), 595-612.

Mehran, H. (1995). Executive compensation structure, ownership, and firm performance. *Journal o f Financial Economics*, 38(2), 163-184

Moeller, S. B., Schlingemann, F. P., and Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics*, 73(2), 201-228.

Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2005). Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. *The Journal of Finance*, 60(2), 757 782.

Morck, R., Shleifer, A., and Vishny, R. W. (1990). Do managerial objectives drive bad acquisitions?. *The Journal of Finance*, 45(1), 31-48.

Myers, S. C., and Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187-221.

Pastor, L., and Stambaugh, R. F. (2003). Liquidity risk and price discovery. *Journal of Political Economy*, 111(3), 642-685.

Peterkort, R. F., and Nielsen, J. F. (2005). Is the book-to-market ratio a measure of risk?. *Journal of Financial Research*, 28(4), 487-502.

Porter, M. E. (1980). Competitive strategy: Techniques for analyzing industries and competitors.

Rhodes-Kropf, M., and Viswanathan, S. (2004). Market valuation and merger waves. *The Journal of Finance*, 59(6), 2685-2718.

Roll, R. (1986). The hubris hypothesis of corporate takeovers. *Journal of Business*, 197-216.

Scholes, M., and Williams, J. (1977). Estimating betas from nonsynchronous data. *Journal of financial economics*, 5(3), 309-327.

Schwert, G. W. (2000). Hostility in takeovers: in the eyes of the beholder?. *The Journal of Finance*, 55(6), 2599-2640.

Shleifer, A., and Vishny, R. W. (1988). Value maximization and the acquisition process. *The Journal of Economic Perspectives*, 2(1), 7-20.

Singh, H., and Montgomery, C. A. (1987). Corporate acquisition strategies and economic performance. *Strategic Management Journal*, 8(4), 377-386.

Singh, M., and Davidson III, W. N. (2003). Agency costs, ownership structure and corporate governance mechanisms. *Journal of Banking and Finance*, 27(5), 793-816.

Stulz, R. (1990). Managerial discretion and optimal financing policies. *Journal of Financial Economics*, 26(1), 3-27.

Tehranian, H., Travlos, N. G., and Waegelein, J. F. (1987). Management compensation contracts and merger-induced abnormal returns. *Journal of Accounting Research*, 51-76.

Travlos, N. G. (1987). Corporate takeover bids, methods of payment, and bidding firms' stock returns. *The Journal of Finance*, 42(4), 943-963.

Weinstein, N. D. (1980). Unrealistic optimism about future life events. *Journal of Personality and Social psychology*, 39(5), 806.

Weston, G., Mitchell, M. L., and Mulherin, J. H. (2004). The Impact of Industry Shocks on Takeover and Restructuring Activity. *Journal of Financial Economics*,41, 193-229.

Yook, K. C. (2003). Larger return to cash acquisitions: signaling effect or leverage effect?. *The Journal of Business*, 76(3), 477-498.

Appendix

Table 12: Multivariate regressions explaining the five-day cumulative abnormal returns (-2, +2) around acquisition announcements by different proxies of size in the years before and after 31 December, 1999.
The sample consists of all completed acquisitions during the period of January, 1993 to December 31, 2007 listed on SDC where a publicly traded acquiring firm gains control of a public, private of subsidiary acquisition target whose transaction value is at least $1 million and 1% of the acquirer's market value. The first proxy for size is a dummy variable. Small (large) acquirers have a market capitalization equal to or less (greater) than the market capitalization of the median of NYSE companies in the same year. The second proxy for size is the logarithm of market capitalization of the acquiring company four weeks prior to the acquisition announcement. The third proxy for size is the logarithm of the acquiring firm's book value of assets four weeks prior to the acquisition announcement. Private, public, tender, conglomerate and competed are dummy variables that take a value of one if the acquisition target is private, public, reported as tender offer by the SDC, firms with a different two-digit SIC code than the acquirer and if the bidding contains more than one bidder according to the SDC. Pure equity (cash) deals are completely paid in equity (cash). Relative size denotes transaction value divided by the market capitalization of the acquirer in the fiscal year of the acquisition announcement. Tobin's q is defined as in Tobin (1969). The F&F book-to-market ratio is defined as by Fama and French (1993). The market liquidity is measured by the Pastor-Stambaugh traded liquidity factor. The p-values are based on the White-adjusted standard errors, reported below each coefficient in Italic.

	Sample and Time Period					
	1992-1999			2000-2007		
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Intercept	0.0235[a]	0.0455[a]	0.0346[a]	0.0193[a]	0.0428[a]	0.0408[a]
	0.009	*0.000*	*0.007*	*0.003*	*0.000*	*0.000*
Big	-0.0137[b]			-0.0117[a]		
	0.028			*0.003*		
ln equity (market)		-0.0038[b]			-0.0044[a]	
		0.023			*0.001*	
ln assets (book)			-0.0039[b]			-0.0049[a]
			0.028			*0.001*
Private	-0.0040	-0.0041	-0.0040	-0.0069[c]	-0.0076	-0.0077
	0.500	*0.489*	*0.501*	*0.079*	*0.054*	*0.054*
Public	-0.0312[a]	-0.0296[a]	-0.0298[a]	-0.0257[a]	-0.0226[a]	-0.0224[a]
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Conglomerate	-0.0077[c]	0.0072	-0.0072	-0.0022	-0.0019	-0.0018
	0.097	*0.124*	*0.127*	*0.555*	*0.612*	*0.623*
Tender	0.0352[a]	0.0352[a]	0.0353[a]	0.0016	-0.0003	-0.0005
	0.000	*0.000*	*0.000*	*0.870*	*0.973*	*0.959*
Competed	-0.0368[b]	-0.0357[b]	-0.0361[b]	-0.0060	-0.0047	-0.0047
	0.012	*0.013*	*0.013*	*0.638*	*0.713*	*0.709*
All Equity	0.0049	0.0052	0.0048	-0.0268[a]	-0.0277[c]	-0.0281[a]
	0.450	*0.428*	*0.456*	*0.001*	*0.001*	*0.001*
All Cash	0.0054	0.0052	0.0053	0.0072[b]	0.0080[b]	0.0082[b]
	0.299	*0.318*	*0.301*	*0.039*	*0.023*	*0.020*
Relative size	-0.0098	-0.0105	-0.0097	-0.0120[b]	-0.0136[b]	-0.0130[b]
	0.157	*0.134*	*0.156*	*0.021*	*0.013*	*0.016*
Tobin's q	0.0009	0.0009	0.0006	-0.0011	-0.0009	-0.0011
	0.278	*0.248*	*0.415*	*0.197*	*0.309*	*0.183*
Debt/Assets (mkt)	0.0097	0.0116	0.0259	0.0103	0.0121	0.0283[a]
	0.391	*0.303*	*0.045*	*0.258*	*0.186*	*0.010*
Liquidity Index	0.0193	0.0198	0.0186	-0.0336	-0.0368	-0.0390
	0.752	*0.747*	*0.761*	*0.531*	*0.491*	*0.465*
n	1,265	1,265	1,265	1,777	1,777	1,777
R-squared adj.	0.0326	0.0314	0.0312	0.0565	0.0574	0.0578

Statistical significance is denoted by [a] at the 1% level, [b] at the 5% level and [c] at the 10% level.