ERASMUS UNIVERSITEIT ROTTERDAM
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# CEO Compensation and the Gains from Acquisitions

**Master Thesis**

Author: Ragatnia Clara Sirait (475745)

Supervisor: Prof. Dr. I. Dittmann

Co-reader: Dr. V. Volosovych

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# ABSTRACT

This thesis observes the relation between CEO equity-based compensation and mergers and acquisitions performance. Using 2,834 completed domestic mergers in the United States of America from 2010 to 2017, this study provides evidence that in the short-run, high equity-based compensation firms underperform around the merger announcement. In contrast, there is no evidence whether acquirers' long-run performance proxies; such as buy-and-hold average returns, Tobin's Q and ROA, and acquisition premium paid by acquirers are influenced by equity-based compensation. Furthermore, in comparison with low equity-based compensation firms, the results indicate that high equity-based compensation firms significantly engage in more merger transactions.

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# 1. INTRODUCTION

Since the 19ᵗʰ century, mergers and acquisitions have been gaining popularity as part of the firm's growth strategy. The popularity keeps increasing even though the evidence that the acquisition creates synergy for acquirers lacks. A study by Rhodes-Kropf and Viswanathan (2004) analyze valuation does significantly impact mergers, their sample shows that merger waves occur due to misvaluation and influences the method of payment used on the deals.

Another explanation by Andrade *et al.* (2001) why mergers are still the darling in an investment strategy that many firms engage in merger activity as the primary tactical means for successful growth, they are aiming the possibility of cost reduction, synergy, and higher competency in asset management. However, a previous study by Malmendier and Tate (2005) provides us with a scientific fact that corporations are engaging in mergers as a result of CEO overconfidence that they tend to overinvest. In the later paper by Malmendier and Tate (2008), they find evidence that overconfidence inflicts a strong influence on the possibility of firms conducting mergers and potentially (bad) diversifying mergers. Also, a previous research by Moeller *et al.* (2004) supports the theory that acquisitions by larger firms experienced significant negative returns compared to small firms.

Given the previous evidence that mergers seem to destroy the shareholders' value rather than create one, why do managers keep acquiring another firm? According to Fuller *et al.* (2002), acquirers still gain the returns post-acquisition. Their outcomes show that acquirer shareholders earn when they acquire private or subsidiary firms. Concerning the method of payment, the gain is higher in absolute value when the bidder uses stock and when the target is larger.

What makes the merger still attractive? One of the popular reasons is that corporations seek value creation through mergers and acquisitions when organic growth is deemed too slow. Managers are driven to acquire another firm for the sake of maximizing the shareholders' wealth. Generating maximum profit is the main goal of the shareholders. Thus, to ensure that the managers work towards the same purpose is by inducing them with large incentives that related to firm performance, which also reflects corporate acquisition performance.

As stressed by Bebchuk and Fried (2003), firms are trying to reformulate the compensation based on performance. In addition, they are convinced to use equity-based compensation for executives. In the effort to pursue pay for performance, firms have increasingly exercised the usage of annual bonus grants and long-term stock options to

achieving explicit performance goals. Indeed, rewarding managers for the purpose of aligning interests with shareholders has a bright side. An early study by Jensen and Murphy (1990) suggests that to maximize firm value, equity-based compensation creates the correct benefit for executives. This theory is supported by a research by Mehran (1995), his sample shows that firm performance has a positive relationship with the portion of equity held by managers. Moreover, it has a positive correlation between the compensation plan that is equity-based and performance of the company.

Later, this raises another question related to mergers and acquisitions activity, does the use of equity-based compensation impact the acquisitions' returns? If it does, is it positively correlated or rather make a value-destroying acquisition? According to Datta *et al.* (2001), firms use managerial compensation plans to coordinate their motivation with shareholders' effectively, and the possibly impact of executive compensation on acquisition decisions is widely recognized by financial economists. In their research, they find that in the 1990s the appliance of equity-based compensation increased and high equity-based compensation in those periods resulted in more positive significant returns of mergers and acquisitions. Moreover, their results show that high equity-based compensation firms pay significantly lower acquisitions premium.

Little research has been conducted to determine the link between CEO compensation on and mergers and acquisitions performance. Using previous research as a base, it is interesting to see if the influence of equity-based compensation on gains of mergers and acquisitions is persistent even after the global crisis of 2008. Therefore, this study provides another evidence whether executive compensation, especially equity-based compensation, still influences performance from mergers and acquisitions activity with more recent and extended data.

In order to identify the relationship between equity-based compensation and mergers performance, I conduct a study by analyzing domestic merger transactions in the United States from 2010 to 2017. The empirical results indicate that equity-based compensation negatively influences cumulative abnormal returns around merger announcement significantly. These results contradict previous studies which show that when managers own a higher percentage of ownership of a company, it will translate to better firm performance compared to managers who have less.

In opposition to these results, there is no evidence that equity-based compensation affects long-run performance. Using three proxies for long-run performance measures such as buy-and-hold average returns, Tobin's Q, and ROA, I do not find a link between long-run

performance and equity-based compensation. Namely, equity-based compensation has no important impact to affect firm performance in the long-run.

Meanwhile, the results of this study show the number of mergers is positively correlated with equity-based compensation. The higher the equity-based compensation, the more mergers and acquisitions the firms are likely to engage. These findings support the previous studies that show managers from firms with high equity-based compensation seek more merger transactions in order to increase their cash payment benefits.

Furthermore, albeit insignificant, firms whose high equity-based compensation show to pay less acquisition premium compared to those with low equity-based compensation. These results support previous studies which show that high equity-based compensation firms offer a lower acquisition premium.

This study provides additional information for current literature. This can be another evidence that despite the popularity of equity-based compensation to adjust managers' motivation in pursuit of shareholders wealth, it is indeed not significant enough in the long-run. Furthermore, this study uses the different data period and results in different results. Therefore, it may become a reference for firms that prefer mergers and acquisitions as part of their growth strategy.

This study is constructed as follows. Chapter 2 introduces the literature review related to executive compensation and mergers and acquisitions performance. Chapter 3 describes the hypotheses and followed by the data and research methods. Chapter 4 presents the empirical findings and analysis. Conclusion and discussion are drawn in Chapter 5.

# 2. LITERATURE REVIEW

When it comes to what causes problems in firms, it seems that the agency problem is the root cause. Indeed, pieces of evidences from previous studies show that this is the case. Agency problems are the cause of why we need corporate governance to align interests in pursuit of the corporation's growth and profit maximization. According to Jensen and Meckling (1976), agency relationship can be explained as a relationship between the shareholders and manager of a firm, in which appears to be a separation of ownership and control. Further, they stress that the general problem of agency comes from the matters connected to that separation of ownership and control. This chapter discusses the background of executive compensation and its role in mergers and acquisitions activity.

## 2.1. Executive Compensation

A large body of literature captures how executives manipulate reported performance to achieve performance goals as they benefit from it. Graham *et al.* (2005) analyze most of the CEOs admit forgoing the future profit to polish earnings. In line with this finding, Cheng *et al.* (2015) show evidence that to manipulate EPS in an effort to achieve bonus targets, firms repurchase shares. Finally, Bennett *et al.* (2015) confirm that executives are indeed tending reported financial target to obtain compensation objectives. This evidence confirms that in order to achieve their personal gain (especially through compensation), CEOs engage in a value-destroying activity.

Thus, what is the best compensation structure for executives to minimize this short-sighted problem? In early research, Shleifer and Vishny (1997) mention that corporate governance is in charge of how shareholders, bondholders, and debtholders ensure their investments gain returns. Furthermore, they discuss that "Contingent contracts are infeasible when agency problem completes. When contracts are incomplete, and managers own more expertise than shareholders, managers typically end up with the residual rights of control, giving them enormous latitude for self-interested behaviour. In some cases, this results in managers taking highly inefficient actions, which cost investors far more than the personal benefits to the managers. Moreover, the managers' fiduciary duty to shareholders makes it difficult to contract around this inefficiency ex-post. A better solution is to grant a manager a highly contingent, long-term incentive contract ex-ante to align his interests with investors."

As we know, there are various executive compensation models commonly used in corporations, such as fixed compensation as we call salary, annual bonus, stock options, and

long-term incentive plans. According to Murphy (1999), salary is a set compensation. The nominal of salary is not related with executives' achievement. The measure is commonly based on the industry benchmark and the type of CEO in regard to risk-taking.

The second element is the annual bonus. Bonus is granted yearly and depends on the financial goals achievement during that year. Based on Murphy (1999), a bonus is paid when they hit the "bonus cap", means that they achieve the performance standard. This component causes why managers manipulate their performance to meet their financial target. Although this component concerns firm performance in the future, this works in the short-term.

Next element is a stock option. This compensation is a contract for the executives that also serves as retention purpose as the stock has a vesting period, which means that executives need to wait to exercise it and it is non-tradeable (Murphy, 1999). The last component based on Murphy (1999) is long-term incentive plans in the form of restricted stock, long-term incentive, and retirement plans. Usually, this component is just a cherry on top of the cake. The other three component is still the most popular form of compensation, although all components serve the purpose to draw in as well as hold back the best executive at the lowest cost possible, and also to align interest with shareholders.

Both short and long-term incentives are used to ensure manager to do his best job for profit maximization. Core and Larcker (2002) agree that the higher the equity held by managers from suboptimal levels appears to lead the higher company performance. The target ownership plan is used to assign the equity ownership for executives by the board of directors. Hence, any modifications in firm performance are influenced by the shifting in executives' total compensation as equity ownership increases.

In contrast, Bebchuk and Fried (2003) argue that "executive compensation is viewed not only as a potential instrument for addressing the agency problem but also as part of the agency problem itself." They also mention that the arrangements are formed by market power and by executive influence. While the market drives toward value-enhancing goals, executive influence will lead the outcomes in their own favourable direction.

Abowd and Kaplan (1999) note that agency theory continues to be a feasible prospect for the response to how advantageously executive compensation works but the empirical research to date explains very little about the structure of the optimal contract. Hence, it is also hard to answer the outcomes of total compensation and the limit of optimal compensation even though it is obvious that firms can offer too little or even too much.

Last, what are the implications equity-based compensation have on the firm? In his research findings, Mehran (1995) notes three things, first is the number of outside directors

positively leads to higher equity-based compensation. Second, the portion of equity-based compensation is reciprocally correlated with their portion of equity held by executives. Third, firms which outside blockholders own more portion of shares use less equity-based compensation. Using Tobin's Q and return on assets (ROA) as measures, he finds a linear relation between the usage of equity-based compensation and firm performance. This finding is aligned with a study by Bebchuk and Fried (2010) that equity-based compensation in the form of stock options results in greater long-run performance. These findings support the relation between executive compensation and firm performance and suggest that rather than the level, the form of executive compensation plays a significant role to motivate managers to increase firm value.

## 2.2. Mergers and Acquisitions

Before going more in-depth to the reasons why firms keep engaging in mergers and acquisitions, what has actually in stored for the acquirers and targets? What proofs that are available in the market to justify the reason for firms acquire another firm in their investment strategy? A research by Andrade *et al.* (2001) document the negative returns from merger transactions in 1973-1998. According to Loughran and Vijh (1997), firms that conclude merger transaction using stock experience loss compared to firms that conclude in cash deals.

Also noted by Moeller *et al.* (2004), small firms make small but profitable acquisitions for their shareholders while large firms make negative returns, regardless of the deal characteristics. Regarding Tobin's Q, Servaes (1991) argues that the higher the q acquirers, the higher the abnormal returns when the deal is tender offer. Moreover, a study by Maloney *et al.* (1993) mention that high-leveraged acquiring firms gain higher abnormal returns. In relation to target status, Alexandridis *et al.* (2010) provide evidence that acquiring public firms generates gains.

Despite the evidence of mergers and acquisitions performance, what makes the mergers are still appealing? The most popular theory that explains corporate takeover is the hubris hypothesis. Firms often pay too much for the acquisition premium, and the blame goes to managers. This goes without saying since the acquisition takes place because of managers' decision. Roll (1986) states that takeovers reflect individual choices, a manager may believe he has a correct valuation and wrong impression that the market fully represents all circumstances.

CEO overconfidence is often mentioned as to the reason why firms engage in value-destroying mergers and acquisitions. This theory explains that overconfident CEOs

misinterpret their ability and miscalculate the liability they are facing. They are convinced they act in favour of their shareholders (Malmendier and Tate, 2008).

Another explanation of why managers engage in the corporate takeover is self-interest. This self-interest includes diversification of their personal risk. According to Amihud and Lev (1981), "A conglomerate merger generally leads, through the diversification effect, to reduced risk for the combined entity. Specifically, managers, as opposed to investors, are hypothesized to engage in conglomerate mergers to decrease their mostly undiversifiable "employment risk" (i.e., a risk of losing a job, professional reputation, etc.)."

The extended explanation that fits the possible relationship between executive compensation and mergers performance is self-centeredness in the form of additional benefit. Bliss and Rosen (2001) find that mergers positively influence the amount of compensation. This amount mostly increases regardless around announcement date the acquirers' stock price experiences a drop. They also discuss that post-acquisition with stock-deals, executives can exploit their power as monitoring role by shareholders decreases.

The remarkable finding by Datta *et al.* (2001), they investigate to what degree executive compensation drives executives' investment choices. They classify merger transactions into high and low equity-based compensation (EBC) firms and record that high EBC firms significantly have positive impact on share price while low EBC firms experience negative returns. Their results suggest that at merger announcement, the market sees executives from high EBC firms execute better mergers than executives in low EBC firms. Specifically, in mergers they provide evidence that acquirers shareholders' wealth is positively correlated with the portion of equity-based compensation granted. High EBC firms not just outperform low EBC firms both in short-run and long-run, they also pay much lower acquisition premium and acquire high-growth targets.

It is noteworthy to mention that their findings show that EBC motivates managers to commence high-risk investments as the higher EBC managers have, the better incentives they have to maximize shareholders' wealth.

Moreover, as noted by Masulis *et al.* (2007) that equity ownership as well as total compensation plans which are well-arranged are capable to align executives' interest. They identify whether the CEO equity incentives influence the acquirer returns. Surprisingly, their findings suggest that the compensation proxy is not able to justify acquirers returns around announcement.

# 3. RESEARCH DESIGN

Based on the prior literature review that has shown various results when adopting equity-based compensation for the mergers and acquisition performance, I develop each hypothesis to analyze whether the results of previous studies remain.

## 3.1. HYPOTHESES

Following the previous study by Datta *et al.* (2001), the hypotheses of this study are as follows.

*Executive compensation and EBC firms*

In addition to salary and bonus, total compensation also includes the stock options granted (Black-Scholes) as well as the amount of restricted stock awarded during that year. This data contains in the ExecuComp database.

Once an executives' total compensation is established, I classify the compensation to two types of payment; cash and equity. Cash payment consists of the amount of executives' salary, annual bonus, and other compensation. Equity payment is determined merely by total compensation minus cash payment. Equity-based compensation or EBC is described as proportion of equity payment to total compensation. High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC.

*Executive compensation and short-run performance*

Short-run performance can be measured through stock price response to the merger announcement. Commonly, the response is estimated by cumulative abnormal returns. I include two versions of event window CAR, first using three-day CAR $_{(-1, +1)}$ and forty-one-day CAR $_{(-20, +20)}$.

As stressed by Mehran (1995) and Bebchuk and Fried (2003), the equity-based compensation translates a better firm performance. The equity-based compensation induces more corporate investment decisions through acquisitions. Moreover, in accordance with Datta *et al.* (2001), high EBC firms ought to have a well-aligned of interests between managers and shareholders, so it is expected that managers will pursue a risky value-enhancing project, therefore positive returns as a result. Based on these findings, the first hypothesis as follows.

*H- 1: High EBC firms gain higher cumulative abnormal returns around the merger announcement.*

*Executive compensation and long-run performance*

A previous study by Loughran and Vijh (1997) using buy-and-hold returns to compute long-run stock price performance after corporate acquisitions. Same proxy is used by Datta *et al.* (2001). Therefore, in order to examine whether the merger performance persists post-acquisition, I develop a long run performance after acquisition applying buy-and-hold average returns (BHAR) as a method. Not just BHAR, I also include Tobin's Q as a measure.

Concerning BHAR, I follow the same period with Datta *et al.* (2001) to use three-year average returns post-acquisition. The long-run performance for Tobin's Q is defined as the change in one year preceding the announcement date to three years after acquisition. I only include the first acquisition made by each firm to maintain the independence of samples. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets.

Previous research by Mehran (1995) to determine firm performance is to compute the return on assets (ROA). Same treatment as Tobin's Q, I compute the difference of ROA between one year preceding the announcement date and three years after acquisition and only include first acquisition made by each firm. ROA is calculated by dividing net income to the book value of the firm's total assets.

Based on previous findings, I expect the same results in these hypotheses:

*Hypothesis 2a: High EBC firms gain higher buy-and-hold returns three-year post-acquisition.*

*Hypothesis 2b: High EBC firms gain higher Tobin's Q three-year post-acquisition.*

*Hypothesis 2c: High EBC firms gain higher ROA three-year post-acquisition.*

The hypotheses are drawn as the indication that even after three years post-acquisition, managers from high equity-based compensation firms are deemed to make better acquisitions (Datta *et al.,* 2001) since their own performance closely linked to stock performance. Therefore, a positive reaction persists.

*Executive compensation and numbers of a merger*

Intensity merger activity indicates internal control effectiveness. High EBC firms would more likely discipline their managers to involve only in value-enhancing deals since their compensation is linked to it, thus execute fewer albeit better mergers. The previous study by Bliss and Rosen (2001) show that when firm size rises, it leads to an increase in CEO compensation despite the fact that the year after firm performance worsens. This suggests that managers will increase the firm size by doing a merger to raise their own benefits. For low

EBC firms' managers, engaging in mergers is an ideal option to increase their own compensation. Hence, they will conduct more acquisitions.

*Hypothesis 3: High EBC firms execute fewer mergers and acquisitions*

*Executive compensation and acquisition premium paid*

Morck *et al.* (1988) state that the underlying cause of executives overpay is to reap their own personal benefits which are not increasing the shareholders' value. In other words, executives who possess low equity-based compensation are more seemingly to offer more for targets compared to the executives from high equity-based compensation. Datta *et al.* (2001) also provide evidence that high EBC executives indeed pay significantly lower acquisitions premium compared to low EBC managers. Based on this, the same result is expected.

*Hypothesis 4: High EBC firms pay lower acquisitions premium*

## 3.2 DATA & METHODOLOGY

### 3.2.1 Data

The data collection can be retrieved from (1) ExecuComp for the U.S. listed companies for executive compensation from the period of 2010 to 2017, (2) Compustat for financial information of bidder firms, (3) CRSP for daily stock prices, and (4) Securities Data Corporations's (SDC) from ThomsonOne for mergers and acquisitions deal characteristics during the same period. The selected period is to avoid any bias caused from pre and during the global crisis, also to update whether with recent data, the earlier research persists. All database for the data can be accessed from the University Library of Erasmus University Rotterdam.

The data for deal characteristics is retrieved from ThomsonOne during the period. I include transactions based on requirements as follows: (1) completed transactions that take place during the sample period, (2) domestic mergers in the United States over the period of 2010-2017 (3) acquiring firm must have a complete 100% ownership after merger, (4) acquiring firm is a public firm and registered in CRSP and Compustat, (5) deal value should be more than 1 million US dollars, (6) target firm is public, private, or subsidiary.

The data for bidder characteristics is retrieved from Compustat and CRSP includes: (1) Book value of total assets, (2) Shareholders equity, (3) Number of shares outstanding, (4) Long-term debt, (5) Debt in current liabilities, (6) Operating Income before depreciation, (7)

Income taxes, (8) Capital expenditures, (9) Interest paid, and (10) Price close. These financial items are obtained to compute the firm size, Tobin's Q, leverage, and free cash flow.

The data for executive compensation from ExecuComp contains information such as salary, bonus, stock options granted, restricted stock granted, and total compensation.

### 3.2.2 Research Methods

This study is using event study to calculate cumulative abnormal returns (CAR) and buy-and-hold average returns (BHAR) after announcement date and multivariate regressions with the equations defined in *Hypotheses*. The regressions use some control variables, such as the firm size of the bidder, Tobin's Q, leverage and free cash flow (FCF), the target status (public, private, and subsidiary), and method of payment (cash and stock). The regression is estimated with year and industry fixed effects and standard errors adjusted for heteroscedasticity. Also, some tests are conducted for multicollinearity and robustness check.

In order to prove the hypotheses that have been obtained, I perform summary statistics and multivariate regressions. The latter will be translated into equations below:

*Executive compensation and short-run performance*

$$CAR_i = \beta_1 EBC_i + \beta_2 Size_i + \beta_3 Tobin'sQ_i + \beta_4 Leverage_i + \beta_5 FCF_i + \beta_6 Dpublic, cash_i$$
$$+ \beta_7 Dpublic, stock_i + \beta_8 Dprivate, cash_i + \beta_9 Dprivate, stock_i$$
$$+ \beta_{10} Dsubsidiary, cash_i + \beta_{11} Dsubsidiary, stock_i + YearFE + IndustryFE + \epsilon_i$$

*Executive compensation and long-run performance*

$$BHR_i = \beta_1 EBC_i + \beta_2 Size_i + \beta_3 Tobin'sQ_i + \beta_4 Leverage_i + \beta_5 FCF_i + \beta_6 Dpublic, cash_i$$
$$+ \beta_7 Dpublic, stock_i + \beta_8 Dprivate, cash_i + \beta_9 Dprivate, stock_i$$
$$+ \beta_{10} Dsubsidiary, cash_i + \beta_{11} Dsubsidiary, stock_i + YearFE + IndustryFE + \epsilon_i$$

$$\Delta Tobin'sQ_i = \beta_1 EBC_i + \beta_2 Size_i + \beta_3 Leverage_i + \beta_4 FCF_i + \beta_5 Dpublic, cash_i +$$
$$\beta_6 Dpublic, stock_i + \beta_7 Dprivate, cash_i + \beta_8 Dprivate, stock_i +$$
$$\beta_9 Dsubsidiary, cash_i + \beta_{10} Dsubsidiary, stock_i + YearFE + IndustryFE + \epsilon_i$$

$$\Delta ROA_i = \beta_1 EBC_i + \beta_2 Size_i + \beta_3 Tobin'sQ_i + \beta_4 Leverage_i + \beta_5 FCF_i + \beta_6 Dpublic, cash_i$$
$$+ \beta_7 Dpublic, stock_i + \beta_8 Dprivate, cash_i + \beta_9 Dprivate, stock_i$$
$$+ \beta_{10} Dsubsidiary, cash_i + \beta_{11} Dsubsidiary, stock_i + YearFE + IndustryFE + \epsilon_i$$

*Executive compensation and numbers of merger*

$Number\ of\ mergers_i$
$$= \beta_1 EBC_i + \beta_2 Size_i + \beta_3 Tobin'sQ_i + \beta_4 Leverage_i + \beta_5 FCF_i + \text{YearFE} + \text{IndustryFE} + \epsilon_i$$

*Executive compensation and premium paid*

$Acquisition\ premium_i$
$$= \beta_1 EBC_i + \beta_2 Size_i + \beta_3 Tobin'sQ_i + \beta_4 Leverage_i + \beta_5 FCF_i + \beta_6 Dpublic, cash_i$$
$$+ \beta_7 Dpublic, stock_i + \beta_8 Dprivate, cash_i + \beta_9 Dprivate, stock_i$$
$$+ \beta_{10} Dsubsidiary, cash_i + \beta_{11} Dsubsidiary, stock_i + \text{YearFE} + \text{IndustryFE} + \epsilon_i$$

### 3.2.3. Variable Description

*Mergers and acquisitions performance* as a dependent variable. This study includes both short-run and long-run performance. Theoretically, it is determined by cumulative abnormal returns (CAR) during the announcement of mergers. This is a common way to measure whether the mergers are generating value to shareholders, else value-destroying. CAR is constructed with CRSP equally weighted-returns and market model over the 200-day (-205, -6) period as the benchmark. This study is using two version of event window; 1. *Three-day CAR* $_{(-1, +1)}$ and 2. *Forty-one-day CAR* $_{(-20, +20)}$.

This study also includes the buy-and-hold average returns method to determine long-run performance. Following Datta *et al*. (2001), long-run performance is measured in the three-year after effective date, and or the delisting date. In addition, as for other long-run performance proxies, it is also measured by the delta of Tobin's Q and ROA three years after acquisitions took place. Moreover, to maintain the independence of observations, this study only includes the first merger by each firm during the sample period.

*Executive Compensation* as an independent variable. Executive compensation consists of a different structure which I will differentiate as follows:

1. *Fixed compensation* is the amount of the fixed payment in thousands of dollars allocated to managers, as we call salary.

2. *The annual bonus* is the amount of yearly variable payment of the manager assigned to every year.

3. *Stock Options* is measured as the amount of stock options granted in dollar using the valuation model of Black and Scholes (1973).

4. *Total compensation* is the grand total of the fixed compensation, annual bonus and value of stock options granted.

Since this study focuses on equity-based compensation, it is obtained by identifying the cash payment which includes salary, annual bonus, and other compensation. Thus, to measure the equity payment is just merely subtracting total compensation and cash payment. Finally, equity-based compensation or EBC in multivariate regressions is defined as a value between 0 and 1 and is computed as equity payment divided by total compensation.

*Control Variables*

Following previous research by Masulis *et al.* (2007), the control variables in all regressions are defined as bidder characteristics and deal characteristics.

*Bidder characteristics*

Bidder characteristics are control variables that determine the acquirer specific attributes. This study is controlled by firm size bidder, firm value, leverage, and free cash flow (FCF).

Firm size bidder

Several prior studies argue that the size of the bidder firm can affect the gains from acquisitions. According to a study by Moeller *et al.* (2004), small firms gain considerably greater than larger firms during acquisitions. Furthermore, larger firms tend to offer more premium than small firms do.

In addition, a study by Datta *et al.* (2001) using firm size as a control variable for the reason that it influences the response of the market to the corporate announcement. Thus, this study includes firm size bidder as a control variable and defined as the natural logarithm of the market capitalization of bidder firm.

Firm value

Firm value is described as the market value of the firm's assets divided by its book value. Existing evidence (Servaes, 1991) shows that high-*q* firms execute more profitable acquisitions. Contrary to evidence found by Moeller *et al. (*2004), the factor for *q* shows a strong negative relation to abnormal returns. Following Lang *et al.* (1989), Tobin's Q is calculated as the proportion of bidder market value of assets to its book value of assets. The market value of assets is defined as book value of assets subtracts the book value of shareholders' equity plus the market value of shareholders' equity.

Leverage

According to Masulis *et al.* (2007), high debt level drives to a greater short-run mergers and acquisitions performance. High leverage is one of the solutions to discipline managers, by having a high debt level, it means that the free cash flow gets reduced which lessen the

probability of management to do empire building. This is essential to add this proxy as a control variable for bidder firms. This proxy is computed as a portion of total liabilities of the firm to the total assets.

Free cash flow (FCF)

Aligned with leverage theory, firms with high free cash flow would more likely undertake the value-destroying mergers and acquisitions. This proxy is defined, in accordance with Masulis *et al.* (2007), as a firm operating income before depreciation minus interest expense minus income taxes minus capital expenditure divided by the book value of total assets.

*Deal characteristics*

Deal characteristics are control variables that determine the target status and method of payment in the acquisition transactions.

Target status

Target status is an indicator of in case the target is public, private, or subsidiary. A subsidiary is an entity in which the majority of stock (more than 50%) controlled by the parent company (Thomson One, 2018). Moeller *et al.* (2004) argue that firms that acquire private firms and public firms earn significantly lower abnormal returns. Aligned with this finding, Amar *et al.* (2011) also find that acquiring a public firm will lower mergers and acquisitions performance. For this reason, this study will include the target status as a control variable. It is defined as a dummy variable that has a value of 1 if the status is each public, private, or subsidiary, otherwise 0.

Method of payment

An early research by Myers and Majluf (1984) shows that stock issuance will trigger a negative signal from the market as it is deemed that the stock is overpriced. This evidence is aligned with findings from Moeller *et al.* (2004). Using stock as a payment method for acquisitions shows significant negative abnormal returns. This study will include method of payment as a control variable and. It is described as a dummy variable that has a value of 1 if the method of payment is each stock and cash.

Year fixed effect

Year fixed effect is the control variable for the years of the acquisitions occur. This study will include year fixed effect because of the different number of transactions each year occur. The year fixed effect is defined as a dummy variable that has a value of 1 for the year when mergers and acquisitions took place, otherwise 0.

### 3.2.4. Descriptive Statistics

*Corporate acquisitions*

Table I documents the sample descriptive statistics of corporate acquisitions in the United States of America from 2010 to 2017.

As shown in Panel A, it presents the frequency distribution of the sample does not constantly escalate throughout the time: it starts declining in 2013. On the contrary, the average deal value doubles in 2014 to $831.78 million and reaches its peak in 2015 with $1118.74 million.

Panel B shows the distribution of corporate acquisitions based on the form of payment for mergers and tender offers. In contrast to previous studies, most mergers and tender offers are using cash as a form of payment (56% and 83%) while the stock is the least popular.

Finally, Panel C summarizes the target status based on mergers and tender offers. While private firms are the most popular target for mergers, tender offers are only interested in public firms.

**Table I. Sample Distribution by Announcement Year and Acquirer Equity-based Compensation**

The sample consists of 2,834 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database EBC is described as proportion of equity payment to total compensation. High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC. Mergers are transactions that are classified as merger by SDC, while tender offers are classified as tender offer. All Cash refers to acquisitions that are financed with 100% cash, All Stock refers to acquisitions that are financed with equity and Mixed refers to the method of payment that includes both cash and equity and/or other sources.

**Panel A: Distribution of mergers and tender offers by equity-based compensation**

| Announcement | Equity-Based Compensation | | | | | Avg. Deal Value |
|---|---|---|---|---|---|---|
| Year | High EBC | Low EBC | All | First Merger | % of Sample | ($ million) |
| 2010 | 128 | 203 | 331 | 331 | 25.9% | 577.72 |
| 2011 | 195 | 179 | 374 | 254 | 29.3% | 487.22 |
| 2012 | 188 | 231 | 419 | 201 | 32.8% | 382.57 |
| 2013 | 164 | 198 | 362 | 132 | 28.4% | 487.84 |
| 2014 | 187 | 201 | 388 | 132 | 30.4% | 831.78 |
| 2015 | 197 | 179 | 376 | 97 | 29.5% | 1118.74 |
| 2016 | 205 | 153 | 358 | 87 | 28.1% | 988.50 |
| 2017 | 153 | 73 | 226 | 42 | 17.7% | 774.34 |
| **All** | **1,417** | **1,417** | **2,834** | **1,276** | **222%** | **699.58** |

**Panel B: Distribution of method of payment for mergers and tender offers**

| Mode of payment | Mergers | | Tender Offers | |
|---|---|---|---|---|
| | Number of Acquisitions | % of Subsample | Number of Acquisitions | % of Subsample |
| All Cash | 1529 | 55.6% | 69 | 83.1% |
| All Stock | 96 | 3.5% | 0 | 0.0% |
| Mixed | 1126 | 40.9% | 14 | 16.9% |
| **Total** | **2,751** | **100.0%** | **83** | **100.0%** |

**Panel C: Distribution of target status for mergers and tender offers**

| Target Status | Mergers | | Tender Offers | |
|---|---|---|---|---|
| | Number of Acquisitions | % of Subsample | Number of Acquisitions | % of Subsample |
| Public | 363 | 13.2% | 83 | 100.0% |
| Private | 1380 | 50.2% | 0 | 0.0% |
| Subsidiary | 1008 | 36.6% | 0 | 0.0% |
| **Total** | **2,751** | **100.0%** | **83** | **100.0%** |

*Executive compensation*

Table II presents the sample descriptive statistics of CEO compensation in the United States of America from 2010 to 2017. The total compensation is defined as the sum of all compensation types at the fiscal year-end prior to the merger announcement. EBC is described as proportion of equity payment to total compensation. High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC.

Panel B shows the component of total compensation. The result shows significant increase in the usage of equity-based compensation for CEO is average of 70.79% of total compensation. This significantly increases from finding by Datta *et al.* (2001) of average 29.76%.

**Table II. Compensation Characteristics of CEO of Acquiring Firms**

The sample consists of 2,834 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database. All compensation data are recorded at the year-end preceding the acquisition announcement. Total compensation is defined as the sum of salary, annual bonus, other compensation, value of restricted stock granted, value of stock options granted (Black-Scholes formula) and other remuneration. Cash payment consists of the amount of executives' salary, annual bonus, and other compensation. Equity payment is determined merely by total compensation minus cash payment. EBC is described as proportion of equity payment to total compensation. High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC.

**Panel A: Total Compensation**

| | Equity-Based Compensation | | |
| :---: | :---: | :---: | :---: |
| | High EBC | Low EBC | All |
| Mean | 9,177.7 | 3,227.4 | 6,202.6 |
| Median | 7,042.9 | 2,338.9 | 4,184.4 |
| Standard Deviation | 8,503.8 | 3,329.4 | 7,109.2 |
| Minimum | 75.4 | 130.1 | 75.4 |
| Maximum | 137,206.8 | 33,760.5 | 137,206.8 |
| Number of observations | 1,417 | 1,417 | 2,834 |

**Panel B: Component of Total Compensation**

| | All | | | |
| :--- | :---: | :---: | :---: | :---: |
| Compensation ($ 000s) | Mean | Median | Minimum | Maximum |
| Salary | 798.3 | 750.0 | 0.0 | 4,550.0 |
| Bonus | 844.5 | 455.0 | 0.1 | 11,306.3 |
| Other compensation | 226.7 | 54.1 | 0.1 | 15,096.0 |
| Equity-based compensation | 5,018.1 | 3,162.3 | 0.0 | 135,980.0 |
| Total compensation | 6,202.6 | 4,184.4 | 75.4 | 137,206.8 |
| Equity-based compensation (%) | 70.79 | 78.01 | 0.00 | 100.00 |

*Deal and firm characteristics*

Table III describes the variables used in this study. Average 3-day cumulative abnormal returns for the full sample is very small, less than 0.9%. Average 41-day CAR is even smaller at 0.5%. If we look at the subsample, we can see that Low EBC firms have higher CAR-3 day and CAR-41 day. This finding contradicts with Datta *et al.* (2001), in which they provide evidence that High EBC firms have positive and higher cumulative abnormal returns.

On average, Low EBC firms slightly outperform High EBC on the long-run performance. This applies to acquirer ROA $_{(t+3, t-1)}$, acquirer Tobin's Q $_{(t+3, t-1)}$, and buy-and-hold average returns three years post-acquisition. Even so, the difference in the long-run performance between High EBC firms and Low EBC firms is not significant.

As seen in the table, Low EBC firms significantly engage in more mergers than High EBC firms. In addition, even though Low EBC firms tend to pay less acquisition premium, the difference in premium paid between High EBC firms and Low EBC firms is insignificant. These discoveries, again, are not accordant with prior research that state that High EBC firms pay a lower premium during merger activity.

**Table III. Deal Value and Acquire Firm Characteristics**

The sample consists of 2,834 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database. Cumulative Abnormal Returns is computed within a 3-day time $_{(+1, -1)}$ and 41-day $_{(+20, -20)}$ using equally-weighted market model in CRSP over 200 days (-205,6). Acquirer ROA $_{(t+3, t-1)}$ is defined as the change in one year preceding the announcement date to three years after acquisition. ROA is calculated by dividing net income to the book value of the firm's total assets. Acquirer Tobin's Q $_{(t+3, t-1)}$ is defined as the change in one year preceding the announcement date to three years after acquisition. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is computed as the book value of asset minus the book value of common equity plus the market value of common equity. Buy-and-hold Average Return 3-year is computed using long-run event study by WRDS. Acquirer firm size is defined as natural logarithm of acquirer market capitalization. Leverage is computed by dividing the total liabilities of the firm with its total assets. Free cash flow is defined as a firm operating income before depreciation minus interest expense minus income taxes minus capital expenditure divided by the book value of total assets. Number of mergers is the frequency of each firm engage in mergers during the sample period. Acquisition premium is defined as the delta of the highest price paid per share to the offer share price to target four weeks preceding to the merger announcement. This variable is measured using the variable PREM4WK in Thomson One.

| Deal and firm characteristics | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | | | High EBC | | | Low EBC | | | *t-statistics* |
| Characteristics | Obs | Mean | Median | Obs | Mean | Median | Obs | Mean | Median | Diff |
| CAR-3 day (%) | 2,834 | 0.88 | 0.42 | 1,417 | 0.47 | 0.30 | 1,417 | 1.28 | 0.56 | 0.01** |
| CAR-41 day (%) | 2,834 | 0.51 | 0.22 | 1,417 | -0.14 | 0.06 | 1,417 | 1.16 | 0.38 | 0.01*** |
| Acquirer ROA (t+3,t-1) | 944 | -0.01 | 0.00 | 416 | -0.01 | 0.00 | 528 | 0.00 | 0.00 | 0.01 |
| Acquirer Tobin's Q (t+3,t-1 | 944 | 0.08 | 0.08 | 416 | 0.06 | 0.06 | 528 | 0.10 | 0.10 | 0.05 |
| BHAR-3 year (t+3,t0) | 892 | 0.12 | 0.02 | 385 | 0.08 | 0.01 | 507 | 0.15 | 0.03 | 0.07 |
| Acquirer firm size | 2,834 | 8.09 | 7.86 | 1,417 | 8.77 | 8.64 | 1,417 | 7.42 | 7.27 | -1.35*** |
| Acquirer leverage | 2,830 | 0.56 | 0.55 | 1,414 | 0.56 | 0.56 | 1,416 | 0.56 | 0.54 | 0.00 |
| Acquirer free cash flow | 2,834 | 0.04 | 0.04 | 1,417 | 0.05 | 0.05 | 1,417 | 0.03 | 0.03 | -0.02*** |
| Number of mergers | 1,276 | 3.39 | 2.00 | 584 | 2.78 | 2.00 | 692 | 3.91 | 2.00 | 1.13*** |
| Acquisition premium | 414 | 47.82 | 36.17 | 250 | 52.17 | 38.26 | 164 | 41.18 | 34.18 | -11.00 |

Significance level: * 10% ; ** 5%; *** 1%

Table IV shows a correlation for all independent variables which are applied in this study. It can be seen that the association at a significant level of 5% and the value of the correlation is still within -1 and 1. For this reason, I draw a conclusion that there is no multicollinearity problem between independent variables.

To further confirm about multicollinearity, VIF test is conducted. As seen in Table V, the value of VIF is between 1 to 5, which means moderately correlated. But the overall value does not exceed 2 which can be concluded that it is not enough overly concerned about. Furthermore, all the reverse VIF measure is greater than 0.1, that means multicollinearity is not an issue in this study.

**Table IV. Pearson Correlation Matrix**

To test multicollinearity, the Pearson correlation matrix is conducted for independent variables.

| Variable | EBC | size | Leverage | TobinsQ | FCF | Public Cash | Public Stock | Private Cash | Private Stock | Sub Cash | Sub Stock |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EBC | 1 | | | | | | | | | | |
| size | 0.3927* | 1 | | | | | | | | | |
| Leverage | -0.0542* | 0.1703* | 1 | | | | | | | | |
| TobinsQ | 0.1330* | 0.2280* | -0.2023* | 1 | | | | | | | |
| FCF | 0.1203* | 0.1629* | -0.0980* | 0.4043* | 1 | | | | | | |
| PublicCash | 0.1145* | 0.2389* | 0.0403* | 0.0317 | 0.1061* | 1 | | | | | |
| PublicStock | -0.0469* | -0.0145 | 0.1195* | -0.0773* | -0.0830* | -0.0447* | 1 | | | | |
| PrivateCash | 0.0192 | -0.0716* | -0.1698* | 0.1325* | 0.0933* | -0.1747* | -0.0946* | 1 | | | |
| PrivateStock | -0.0923* | -0.0329 | 0.0724* | -0.0240 | 0.0156 | -0.0230 | -0.0124 | -0.0486* | 1 | | |
| SubCash | 0.0470* | 0.0261 | 0.0028 | -0.0065 | 0.0420* | -0.1515* | -0.0821* | -0.3208* | -0.0422* | 1 | 1 |
| SubStock | 0.0009 | -0.0330 | 0.0480* | -0.0003 | -0.0130 | -0.0179 | -0.0097 | 0.0380* | -0.0050 | -0.0329 | 1 |

*significance level at 5%

**Table V. VIF test**

To test multicollinearity, the VIF test is conducted for independent variables.

| Variable | VIF | 1/VIF |
|---|---|---|
| EBC | 1.24 | 0.808 |
| size | 1.39 | 0.717 |
| Leverage | 1.19 | 0.841 |
| TobinsQ | 1.34 | 0.747 |
| FCF | 1.25 | 0.801 |
| PublicCash | 1.19 | 0.840 |
| PublicStock | 1.05 | 0.951 |
| PrivateCash | 1.33 | 0.753 |
| PrivateStock | 1.03 | 0.975 |
| SubCash | 1.27 | 0.789 |
| SubStock | 1.01 | 0.988 |
| Mean VIF | 1.46 | |

# 4. RESULTS AND ANALYSIS

## 4.1. Hypothesis 1: High EBC firms gain higher cumulative abnormal returns around merger announcement

Table VI documents the multivariate regression explaining the 3-day $_{(-1, +1)}$ and 41-day $_{(-20, +20)}$ acquisition announcement period cumulative abnormal returns for the full sample to analyze hypothesis 1, whether high EBC firms have higher cumulative abnormal returns during merger announcement.

As seen in the model (1), there is no confirmation that there is a significant positive relation between CAR and EBC. When a year and industry fixed effects are added into the model (2), the relationship changed from positive to negative, but still not significant. This insignificance persists when I add other variables such as Tobin's Q, Leverage, FCF, and dummy variables for target status combined with a method of payment. I try to generate the winsorized variables to lessen the outliers' effect, but the insignificance remains.

On the other hand, these findings are coherent with Masulis *et al.* (2007), as they argue that equity ownership as well as total compensation plans which are well-arranged are capable to align executives' interest. They also identify whether the CEO equity incentives influence the acquirer returns. As opposed to the finding of Datta *et al.* (2001), their findings suggest that the compensation proxy is not able to justify acquirers returns around announcement.

In model (5), I extend the time window to 41 days, and I find a significant small negative relationship between CAR and EBC. This result implies that incentive compensation for bidding firm CEO has an adverse effect on shareholders' wealth around the corporate acquisition announcement. In other words, the high EBC firms fare less during announcement merger. This result contradicts the finding of Datta *et al.* (2001) as they document a significant positive correlation between EBC and stock price responses following the announcements.

**Table VI. Multivariate Regression Explaining Cumulative Abnormal Returns**

The sample consists of 2,830 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database. Cumulative Abnormal Returns is computed within a 3-day time (+1, -1) and 41-day (+20, -20) using equally-weighted market model in CRSP over 200 days (-205,6). EBC is described as proportion of equity payment to total compensation. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is computed as the book value of asset minus the book value of common equity plus the market value of common equity. Acquirer firm size is defined as natural logarithm of acquirer market capitalization. Leverage is computed by dividing the total liabilities of the firm with its total assets. Free cash flow is defined as a firm operating income before depreciation minus interest expense minus income

taxes minus capital expenditure divided by the book value of total assets. The target status (public, private, subsidiary) and method of payment (All Cash, All Stock) are combined and included as dummy variables. Year and Industry Effect are also included in the regression model.

**Multivariate Regressions Explaining Cumulative Abnormal Returns around Merger Announcement**

| Independent Variables | Dependent Variable: CAR-3 day | | | | CAR-41day |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| EBC | 0.000 | -0.010 | -0.008 | -0.008 | -0.030 |
| | (0.03) | (-1.04) | (-0.90) | (-0.87) | (-2.10)** |
| Size | -0.004 | -0.004 | -0.006 | -0.006 | -0.004 |
| | (2.12)** | (-2.34)** | (-2.22)** | (-2.27)** | (-1.46) |
| Tobin's Q | | | 0.005 | 0.005 | 0.009 |
| | | | (2.60)*** | (2.75)*** | (2.88)*** |
| Leverage | | | 0.054 | 0.052 | 0.044 |
| | | | (1.60) | (1.54) | (1.28) |
| FCF | | | -0.019 | -0.020 | -0.010 |
| | | | (0.89) | (-0.91) | (-0.19) |
| Public target, All Cash deals | | | | -0.002 | -0.009 |
| | | | | (0.46) | (-1.04) |
| Public target, All Stock deals | | | | -0.007 | -0.023 |
| | | | | (0.95) | (-1.42) |
| Private target, All Cash deals | | | | -0.007 | -0.014 |
| | | | | (2.14)** | (-2.40)** |
| Private target, All Stock deals | | | | 0.015 | 0.009 |
| | | | | (1.61) | (0.37) |
| Subsidiary target, All Cash deals | | | | 0.001 | -0.010 |
| | | | | (0.25) | (-1.43) |
| Subsidiary target, All Stock deals | | | | 0.001 | -0.077 |
| | | | | (0.03) | (-1.38) |
| Intercept | 0.042 | 0.041 | 0.018 | 0.020 | 0.037 |
| | (2.18)** | (2.29)** | (2.22)** | (2.30)** | (2.22)** |
| Adjusted-$R^2$ | 0.5% | 2.1% | 3.1% | 3.1% | 1.8% |
| F-statistic | 3.0 | 3.0 | 2.0 | 3.0 | 2.0 |
| Year FE | No | Yes | Yes | Yes | Yes |
| Industry FE | No | Yes | Yes | Yes | Yes |
| Observations | 2,834 | 2,834 | 2,830 | 2,830 | 2,830 |

Significance level: * 10%; ** 5%; *** 1%

### 4.2. Hypothesis 2: High EBC firms gain higher long-run performance measures

The next hypothesis, I examine if EBC influences long-run firm performance measures. As shown in Table VII, there is no evidence that EBC significantly influences the long-run performance.

The BHAR-3 year is computed using long-run event study by WRDS and only considers the first merger by bidders to maintain the independence of the observations. Acquirer Tobin's Q $_{(t+3,\ t-1)}$ is defined as the difference between Tobin's Q 3-year post-acquisition and one year preceding the acquisition announcement. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is computed as the book value of asset minus the book value of common equity plus the market value of common equity. The similar measure is applied for Acquirer ROA to measure the long-run performance. ROA is computed as the proportion of net income to the book value of the firm's total assets. Both Acquirer Tobin's Q and ROA are used in this study only consider first acquisition during the sample period to maintain the independence observations.

*Buy-and-hold average returns $_{(t+3,\ t0)}$*

Of all 890 observations, even though the relation between BHAR and EBC is positive but adding year and industry fixed effects and several independent variables doesn't change its significance. This result is contrary to the finding of Datta *et al.* (2001), who find evidence that firms with High EBC outperform firms with Low EBC in the long-term.

In Model (2), (3), and (4) it shows a significant small adverse relation between long-run performance and the acquirer firm size. This implies that the larger size of acquirer negatively influences the long-run performance of the firm. These results are aligned with a previous study by Moeller *et al.* (2004) that large firms fare less than small firm during acquisitions. In Model (3) and (4), there is evidence that significant positive relation between Tobin's Q and long-run performance and Leverage between long-run performance. The higher bidder Tobin's Q, the higher long-run performance will be acquired by the bidder, which confirms the finding of Servaes (1991). This implies that better performing firms (high Tobin's Q) execute profitable acquisitions. In relation to leverage, the result contradicts a study by Masulis *et al.* (2007) as they find that higher leverage leads to better performance.

I then perform multivariate regression within subsample to further prove whether shareholders' wealth effect in the long-run is indeed not influenced by equity-based compensation. Regression results (see Appendix) show that only in High EBC firms that equity-based compensation does significantly affect the shareholders wealth, the higher the equity-based compensation, the better performance in the long-run. This implies that equity-

based compensation will inflict a sense of ownership to CEOs during acquisitions for firms that have a high level of equity-based compensation. This is aligned with a finding of Datta *et al.* (2001) that High EBC firms outperform significantly compared to Low EBC firms post-acquisition.

*Acquirer Tobin's Q $_{(t+3, t-1)}$*

In model (5), of all 942 observations, there is no significant correlation between Tobin's Q and EBC. The only considerable relation is FCF and when the target status is public using stock payment, which is a negative relationship. This suggests that the firms that possess more free cash flow available do not translate the better long-run performance. It can be associated with the overconfidence of CEO, means that the more cash they have, they only engage in mergers that make value-destroying for shareholders. This finding contradicts the result of Mehran (1995) who finds that there is a positive correlation between firm performance to the proportion of their equity-based compensation. Concerning the target status and method of payment, this result confirms previous studies (Amar *et al.*, 2011 and Moeller *et al.*, 2004) that acquiring public firms using stock will lower the returns.

*Acquirer ROA $_{(t+3, t-1)}$*

Of all 942 observations in the model (6), it can be seen that there is no significant correlation between ROA and EBC. Similar to Tobin's Q, ROA is only significant with FCF and if bidders acquire a private firm with cash. In relation to FCF, there is evidence for a negative correlation between FCF and long-run performance at 1% significance level. As explained before, when firms have more free cash flow available, they engage in value-destroying mergers. This relates to CEO overconfidence. Corresponding to target status and a form of payment, there is significant negative relation when bidders acquire public or private firms using cash as payment. Even though the coefficient is small, this implies that acquiring public or private firms with cash deals is less profitable for bidders in the long-run.

**Table VII. Multivariate Regression Explaining Long-run Performance Measure**
The sample consists of 890 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database. Buy-and-hold Average Return 3-year is computed using long-run event study by WRDS. Acquirer ROA $_{(t+3, t-1)}$ is defined as the change in one year preceding the announcement date to three years after acquisition. ROA is calculated by dividing net income to the book value of the firm's total assets. Acquirer Tobin's Q $_{(t+3, t-1)}$ is defined as the change in one year preceding the announcement date to three years after acquisition. EBC is described as proportion of equity payment to total compensation. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is computed as the book value of asset minus the book value of common equity plus the market value of common equity. Acquirer firm

size is defined as natural logarithm of acquirer market capitalization. Leverage is computed by dividing the total liabilities of the firm with its total assets. Free cash flow is defined as a firm operating income before depreciation minus interest expense minus income taxes minus capital expenditure divided by the book value of total assets. The target status (public, private, subsidiary) and method of payment (All Cash, All Stock) are combined and included as dummy variables. Year and Industry Effect are also included in the regression model.

## Multivariate Regressions Explaining Long-run Performance Measures

| Independent Variables | Dependent Variable: BHAR $_{(t+3,t0)}$ | | | | Acquirer Tobin's Q $_{(t+3,t-1)}$ | Acquirer ROA $_{(t+3,t-1)}$ |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| EBC | 0.158 | 0.091 | 0.103 | 0.097 | -0.011 | 0.002 |
| | (1.22) | (0.66) | (0.80) | (0.76) | (-0.09) | (0.14) |
| Size | -0.076 | -0.097 | -0.146 | -0.142 | -0.003 | 0.001 |
| | (1.61) | (-2.35)** | (-2.89)*** | (-2.81)*** | (-0.13) | (0.44) |
| Tobin's Q | | | 0.167 | 0.161 | | -0.002 |
| | | | (2.95)*** | (2.84)*** | | (-0.34) |
| Leverage | | | 0.780 | 0.787 | 0.070 | 0.016 |
| | | | (2.75)*** | (2.78)*** | (0.37) | (0.79) |
| FCF | | | 0.709 | 0.765 | -0.775 | -0.378 |
| | | | (0.98) | (1.05) | (-2.16)** | (-3.36)*** |
| Public target, All Cash deals | | | | -0.094 | -0.074 | -0.025 |
| | | | | (0.99) | (-0.71) | (-1.86)* |
| Public target, All Stock deals | | | | -0.172 | -0.107 | 0.016 |
| | | | | (1.30) | (-1.74)* | (0.98) |
| Private target, All Cash deals | | | | -0.053 | -0.002 | -0.017 |
| | | | | (0.69) | (-0.03) | (-2.02)** |
| Private target, All Stock deals | | | | -0.014 | -0.245 | 0.022 |
| | | | | (0.06) | (-1.47) | (1.44) |
| Subsidiary target, All Cash deals | | | | -0.130 | -0.018 | -0.003 |
| | | | | (1.52) | (-0.30) | (-0.35) |
| Subsidiary target, All Stock deals | | | | -0.270 | 0.065 | 0.157 |
| | | | | (0.82) | (0.42) | (1.31) |
| Intercept | 0.615 | 0.822 | 0.475 | 0.509 | 0.175 | 0.028 |
| | (1.65)* | (2.25)** | (1.60) | (1.62) | (1.00) | (1.00) |
| Adjusted-$R^2$ | 0.9% | 17.1% | 19.3% | 19.0% | 4.5% | 16.5% |
| F-statistic | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 4.00 |
| Year FE | No | Yes | Yes | Yes | Yes | Yes |
| Industry FE | No | Yes | Yes | Yes | Yes | Yes |
| Observations | 892 | 892 | 890 | 890 | 942 | 942 |

Significance level: * 10%; ** 5%; *** 1%

**4.3. Hypothesis 3: High EBC firms execute fewer mergers and acquisitions**

Table VIII reports the regression results to identify whether the correlation between the number of mergers and EBC exists. The number of mergers is simply the frequency of each firm engages in mergers and acquisition during the sample period. Of all 2,834 mergers in this sample, there are 1,276 unique acquisitions in the sample. On average, each firm engages in 3.39 mergers in the period of 2010 to 2017.

In model (1), I use a simple regression, and it shows that there is an insignificant contradictory relation between the number of mergers and EBC. The relation between them does not change in the model (2) when I add other independent variables. In model (3), the relation changes when I add a year and industry fixed effects, I find evidence that EBC positively influences the merger intensity. Furthermore, the model (4) is tested to see whether there is non-linearity. As shown in the result, there is no non-linear relation as they take a different sign. Later, I regress subsample to distinguish the relationship between the number of mergers and EBC in the model (5) and (6). High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC. As seen in the model (5), it includes the regression only for High EBC firms. The result is significantly positive and more pronounced. This means that High EBC firms are seemingly to execute more mergers. This finding contradicts the hypothesis and finding from Bliss and Rosen (2001). Their results indicate that even though mergers increase compensation, but higher equity-based compensation reduces the probability firms engage in an acquisition. In contrast, my result implies that CEOs whose percentage of equity-based compensation is high are more likely to engage in mergers in the hope that it will translate to higher compensation and probably short and long-term performance, but in this study, the frequency of acquisitions does not translate into a better performance.

In the last model, the regression result for Low EBC firms shows that similar with High EBC firms, the relation between the number of mergers and EBC is positive, only much lower coefficient. Other relations that show significance are bidder size, leverage, and free cash flow. In relation to size, evidence shows a negative relationship with the number of mergers. This suggests that the bigger the firms with low equity-based compensation, the less probability they engage in mergers. This implies since they only possess a small portion of equity of the firm, they are reluctant to execute acquisitions. In regard to leverage, this outcome suggests that the higher the leverage a firm own, they are discouraged to acquire another firm as they probably will end up in financial distress. Same explanation for free cash flow, when firms do not have

free cash available for CEOs to use in merger transactions, they are reluctant to engage in mergers.

These results can further be explained by a study by Harford and Li (2007) as they find evidence that High EBC managers' total pay and overall wealth increases as they undertake more acquisitions. They also present that after an acquisition a CEO compensation turns into unresponsive to performance in the firms which are not well-governed. Thus, even when they make a poor acquisition, the final impact is CEOs' fortune indeed rises. This means the more mergers they engage, the more compensation they will have, despite it is a value-destroying merger for acquirer shareholders.

**Table VIII. Multivariate Regression Explaining Number of Mergers**

The sample consists of 1,274 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database. Number of mergers is the frequency of each firm engage in mergers during the sample period. EBC is described as proportion of equity payment to total compensation. $EBC^2$ is squared-form of EBC included to test for non-linearity. High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is computed as the book value of asset minus the book value of common equity plus the market value of common equity. Acquirer firm size is defined as natural logarithm of acquirer market capitalization. Leverage is computed by dividing the total liabilities of the firm with its total assets. Free cash flow is defined as a firm operating income before depreciation minus interest expense minus income taxes minus capital expenditure divided by the book value of total assets. Year and Industry Effect are also included in the regression model.

## Multivariate Regressions Explaining Number of Mergers

| Independent Variables | Dependent Variable: Number of Mergers | | | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) High EBC | (6) Low EBC |
| EBC | -0.388 | -0.510 | 0.734 | 2.415 | 9.454 | 2.271 |
| | (0.84) | (-1.12) | (1.71)* | (1.70)* | (4.02)*** | (3.70)*** |
| $EBC^2$ | | | | -1.622 | | |
| | | | | (-1.17) | | |
| Size | -0.307 | -0.159 | -0.163 | -0.144 | -0.008 | -0.228 |
| | (3.62)*** | (-1.98)** | (-2.06)** | (-1.77)* | (-0.06) | (-2.24)** |
| Tobin's Q | | -0.266 | -0.027 | -0.025 | -0.181 | 0.093 |
| | | (2.79)*** | (-0.32) | (-0.29) | (-1.49) | (0.86) |
| Leverage | | -2.041 | -1.103 | -1.089 | -0.600 | -1.722 |
| | | (4.42)*** | (-2.40)** | (-2.37)** | (-1.11) | (-2.59)*** |
| FCF | | -5.863 | -3.297 | -3.345 | -0.850 | -4.429 |
| | | (2.76)*** | (-1.75)* | (-1.77)* | (-0.48) | (-1.75)* |
| Intercept | 6.075 | 6.839 | 6.241 | 5.755 | -3.341 | 6.439 |
| | (9.41)*** | (9.97)*** | (10.00)*** | (8.06)*** | (-1.88)* | (7.48)*** |

| | | | | | | |
|---|---|---|---|---|---|---|
| Adjusted-$R^2$ | 1.8% | 5.5% | 30.8% | 30.9% | 20.8% | 42.0% |
| F-statistic | 11.00 | 9.00 | 12.00 | 11.00 | 12.00 | 6.00 |
| Year FE | No | No | Yes | Yes | Yes | Yes |
| Industry FE | No | No | Yes | Yes | Yes | Yes |
| Observations | 1,276 | 1,274 | 1,274 | 1,274 | 583 | 691 |

Significance level: * 10%; ** 5%; *** 1%

## 4.4. Hypothesis 4: High EBC firms pay lower acquisitions premium

The last hypothesis that I present is the correlation between the acquisition premium and EBC in Table IX. Acquisition premium is defined as the delta of the highest price paid per share to the offer share price to target four weeks preceding to the merger announcement. This variable is obtained from Thomson One database and defined as PREM4WK.

As mentioned in Table III descriptive statistics, on average firms pay 47.8 per share, while High EBC firms pay higher at 52.2 per share and Low EBC firms pay 41.2 per share. The primary result of this table is that there is no significant relationship between the acquisition premium and EBC. In model (1), the relation is positive between acquisition premium and EBC, even though it is not significant. When I add a year and industry effects and other independent variables, it changes the relation from positive to negative even the significance does not alter. The only significant correlation is between firm size and acquisition premium. The positive correlation suggests that the bigger the firms, the more acquisition premium they pay. This result is consistent with a study by Moeller *et al.* (2004), they find that larger firms pay higher acquisition premium than small firms. Therefore, this confirms the managerial hubris theory.

In model (4), there is two significant relationship between acquisition premium and the target status, PublicCash and SubStock. The high positive relationship implies that when bidders acquire public with cash deals or subsidiary with stock deals, they tend to pay the higher acquisition premium.

**Table IX. Multivariate Regression Explaining Acquisition Premium**
The sample consists of 412 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least $1 million and have CEO compensation data in Execucomp of Compustat database. Acquisition premium is defined as the delta of the highest price paid per share to the offer share price to target four weeks preceding to the merger announcement. This variable is measured using the variable PREM4WK in Thomson One. EBC is described as proportion of equity payment to total compensation. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is computed as the book value of asset minus the book value of common equity plus the market value of common equity. Acquirer firm size is defined as natural logarithm of acquirer market capitalization.

Leverage is computed by dividing the total liabilities of the firm with its total assets. Free cash flow is defined as a firm operating income before depreciation minus interest expense minus income taxes minus capital expenditure divided by the book value of total assets. The target status (public, private, subsidiary) and method of payment (All Cash, All Stock) are combined and included as dummy variables. Year and Industry Effect are also included in the regression model.

## Multivariate Regressions Explaining Acquisition Premium

| Independent Variables | Dependent Variable: Acquisition Premium | | | |
| --- | --- | --- | --- | --- |
| | (1) | (2) | (3) | (4) |
| EBC | 11.166 | -1.294 | -8.277 | -7.718 |
| | (0.86) | (-0.10) | (-0.65) | (-0.61) |
| Size | 5.130 | 3.947 | 5.618 | 4.145 |
| | (1.76)* | (1.65)* | (1.65)* | (1.36) |
| Tobin's Q | | | -10.299 | -10.561 |
| | | | (0.96) | (-0.96) |
| Leverage | | | -51.599 | -50.768 |
| | | | (1.01) | (-0.99) |
| FCF | | | -104.175 | -94.790 |
| | | | (1.64) | (-1.47) |
| Public target, All Cash deals | | | | 22.059 |
| | | | | (2.36)** |
| Public target, All Stock deals | | | | 1.703 |
| | | | | (0.24) |
| Private target, All Cash deals | | | | 0.081 |
| | | | | (0.00) |
| Subsidiary target, All Stock deals | | | | 35.098 |
| | | | | (2.44)** |
| Intercept | -6.126 | 17.253 | 60.437 | 60.213 |
| | (0.22) | (0.69) | (1.99)** | (1.96)* |
| Adjusted-$R^2$ | 0.9% | -3.6% | -2.6% | -2.6% |
| F-statistic | 2.00 | 2.00 | 2.00 | 2.00 |
| Year FE | No | Yes | Yes | Yes |
| Industry FE | No | Yes | Yes | Yes |
| Observations | 414 | 414 | 412 | 412 |

Significance level: * 10%; ** 5%; *** 1%

# 5. CONCLUSION AND DISCUSSION

## 5.1. Conclusion

Using a sample of 2,834 domestic mergers and acquisitions conducted by U.S. firms from 2010 to 2017, I identify whether the relation between equity-based compensation received by acquiring CEOs and corporate acquisition returns during announcement merger persists. Total compensation is divided by two kinds of payment, cash and equity payment, then later on the percentage of equity payment to total compensation is called equity-based compensation (EBC).

I find a significant negative relation between EBC and 41-day cumulative abnormal returns while I find other evidence that EBC is in no way significant to long-run performance measures when using the full sample and controlling variables. This result changes when using subsample, that only in High EBC firms that percentage of equity ownership owned by CEOs indeed affect the long run performance. This implies that high equity-based compensation guarantee CEOs to execute only good acquisitions.

In terms of the number of mergers, I find a significant relation that High EBC firms are seemingly to execute in more mergers and acquisition activity. This can be explained with a study by Harford and Li (2007), they find evidence that High EBC managers' total compensation rises as they undertake more acquisitions. They also document that after an acquisition a CEO compensation turns into unresponsive to negative stock price performance. This means the more mergers they engage, the more compensation they will have.

Consistent with Datta *et al.* (2001) who argue that Low EBC firms offer higher acquisition premiums, the results of this study document a negative correlation between acquisition premium and equity-based compensation, albeit insignificant. This relation contradicts a study by Morck *et al.* (1988) that find evidence that managers tend to overpay for their own benefits that are not value-enhancing to acquiring shareholders.

The results of this study have no proof to determine whether EBC is sufficient enough to align interests between CEO and acquirer shareholders. The different sample period and methodology might contribute the different results with the previous study. This conclusion implies that CEO compensation scheme does not serve explanatory to long-term firm performance post-acquisition.

**5.2. Discussion**

This study does not entirely support previous studies. The merger characteristics include the method of payment in this sample period significantly changes; it could also affect why the results are not persistent compared to prior studies. In addition, there are possibly other variables; such as relative size and previous options owned by CEOs which are not included in the regressions that might have a significant effect on the results.

A few studies are trying to find out the relation between EBC and mergers and acquisitions performance in the specific industry, such as financial service like banks. It is interesting to find out whether equity-based compensation could also influence a different sector, such as technology. Expanding the study beyond U.S. firms could also serve improvement for future research, given the different legal framework and compensation structure.

# REFERENCES

Abowd, J., & Kaplan, D. (1999). Executive Compensation: Six Questions That Need Answering. *Journal of Economic Perspectives*, 13 (4): 145-168.

Alexandridis, G., Petmezas, D. and Travlos, N. (2010). Gains from Mergers and Acquisitions Around the World: New Evidence. *Financial Management*, 39 (4): 1671-1695.

Amar, W. B., Boujenoui, A., & Francoeur, C. (2011). CEO Attributes, Board Composition, and Acquirer Value Creation: A Canadian Study. *Canadian Journal of Administrative Sciences* 28: 480–492.

Amihud, Y., & Lev, B. (1981). Risk Reduction as a Managerial Motive for Conglomerate Mergers. *The Bell Journal of Economics*, 12 (2), 605-617.

Andrade, G., Mitchell, M., & Stafford, E. (2001). New evidence and perspectives on mergers. *The Journal of Economic Perspectives* 15(2): 103-120.

Bebchuk, L., & Fried, J. (2003). Executive Compensation as an Agency Problem. *Journal of Economic Perspectives* 17(3): 71–92.

Bebchuk, L., & Fried, J. (2010). How to tie equity compensation to long-Term results. *Journal of Applied Corporate Finance*, 22(1), 99-106.

Bennett, B., Bettis, C., Gopalan, R., Milbourn, T. (2015). Compensation goals and firm performance. *Journal of Financial Economics,* 124, 307-330.

Bliss, R., & Rosen, R. (2001). CEO Compensation and Bank Mergers. *Journal of Financial Economics 61*, 107-138.

Cheng, Y., Harford, J., & Zhang, T. (2015). Bonus-Driven Repurchases. *Journal of Financial and Quantitative Analysis, 50*(3), 447-475.

Core, J., and Larcker, D. (2002). Performance Consequences of Mandatory Increases in Executive Stock Ownership. *Journal of Financial Economics* 64, 317-340.

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

Fuller, K., Netter, J., & Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *Journal of Finance* 57, 1763-1794.

Graham, J., Harvey, C., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40(1-3), 3–73.

Harford, J., & Li, K. (2007). Decoupling CEO Wealth and Firm Performance: The Case of Acquiring CEOs. *Journal of Finance*, 917-949.

Jensen, M., & Murphy, K. (1990). CEO incentives - It's not how much you pay, but how. *Harvard Business Review*, 68(3), 138-153.

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

Lang, L. H., Stulz, R. M., & Walkling, R. A. (1989). Managerial Performance, Tobin's Q, and the Gains from Successful Tender Offers. *Journal of Financial Economics* 24: 137-154.

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

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

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

Maloney, M., McCormick, R., & Mitchell, M. (1993). Managerial decision making and capital structure. *The Journal of Business*, 66(2), 189-217.

Masulis, R. W., Wang, C., & Xie, F. (2007). Corporate Governance and Acquirer Returns. *The Journal of Finance* 62(4), 1851-1889.

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

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

Morck, R., Shleifer, A., & Vishny, R. (1988). Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics* 20(2): 293-315.

Murphy, K. (1999). Executive Compensation. *Handbook of Labor Economics* 3(B): 2485–2563.

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

Rhodes-Kropf, M. & 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. *The Journal of Business* 59(2), 197-216.

Servaes, H. (1991). Tobin's q and the gains from takeover. *The Journal of Finance* 46(1), 409–419.

Shleifer, A., & Vishny, R. (1997). A survey of corporate governance. *The Journal of Finance* 52(2), 737- 783.

Thomson One. (2018, August 2). Definitions. Retrieved from http://mergers.thomsonib.com/DealsWeb/help/def.htm

# APPENDIX

**Variable Description**

| Variable Name | Description |
|---|---|
| CAR $_{(-1, +1)}$ | The three-day cumulative abnormal return (in percent) computed using the equally-weighted market model |
| CAR $_{(-20, +20)}$ | The forty-one-day cumulative abnormal return (in percent) computed using the equally-weighted market model |
| Acquirer ROA $_{(+3, -1)}$ | The difference between ROA three-year post-acquisition and one year preceding the merger announcement |
| Acquirer Tobin's Q $_{(+3, -1)}$ | The difference between Tobin's Q three-year post-acquisition and one year preceding the merger announcement |
| BHAR-3 year $_{(+3, 0)}$ | The buy-and-hold average returns three-year post-acquisition |
| EBC | Proportion of total equity compensation to overall compensation |
| High EBC | Dummy variable that takes the value of 1 for EBC above median |
| Low EBC | Dummy variable that takes the value of 1 for EBC equals and below median |
| Acquirer firm size | Natural logarithm of market capitalization (number of shares outstanding multiplied by price per share) |
| Acquirer leverage | Proportion of total liabilities to overall total assets |
| Acquirer free cash flow | Operating income before depreciation minus interest expense minus income taxes minus capital expenditures divided by the book value of total assets |
| Number of Mergers | Frequency of mergers each firm made |
| Acquisition premium | The difference between the highest price paid per share and offer share price to target four weeks prior to the announcement |
| PublicCash | Dummy variable that takes the value of 1 for acquisitions of public firms with cash deals |
| PublicStock | Dummy variable that takes the value of 1 for acquisitions of public firms with stock deals |
| PrivateCash | Dummy variable that takes the value of 1 for acquisitions of private firms with cash deals |
| PrivateStock | Dummy variable that takes the value of 1 for acquisitions of private firms with stock deals |
| SubCash | Dummy variable that takes the value of 1 for acquisitions of subsidiary firms with cash deals |
| SubStock | Dummy variable that takes the value of 1 for acquisitions of subsidiary firms with stock deals |

**Multivariate Regression Explaining Long-run Performance Measure within Subsample**

The sample consists of 890 completed U.S. mergers and acquisitions between 2010 and 2017 registered on SDC where the publicly traded acquiring firm gains control of a public, private, or subsidiary target whose transaction value is at least \$1 million and have CEO compensation data in Execucomp of Compustat database. Buy-and-hold Average Return 3-year is computed using long-run event study by WRDS. Acquirer ROA $_{(+3, t-1)}$ is defined as the change in one year preceding the announcement date to three years after acquisition. ROA is calculated by dividing net income to the book value of the firm's total assets. Acquirer Tobin's Q $_{(+3, t-1)}$ is defined as the change in one year preceding the announcement date to three years after acquisition. EBC is described as proportion of equity payment to total compensation. High EBC is classified as firms whose equity-based compensation is above the median or else the firms are allocated as Low EBC. Tobin's Q is computed as the proportion of an acquirer's market value of assets divided by book value of assets, where the market value of assets is

computed as the book value of asset minus the book value of common equity plus the market value of common equity. Acquirer firm size is defined as natural logarithm of acquirer market capitalization. Leverage is computed by dividing the total liabilities of the firm with its total assets. Free cash flow is defined as a firm operating income before depreciation minus interest expense minus income taxes minus capital expenditure divided by the book value of total assets. The target status (public, private, subsidiary) and method of payment (All Cash, All Stock) are combined and included as dummy variables. Year and Industry Effect are also included in the regression model.

## Multivariate Regressions Explaining Long-run Performance Measures: BHAR-3 year

| Independent Variables | Dependent Variable: BHAR $(t+3, t0)$ | |
|---|---|---|
| | Low EBC | High EBC |
| EBC | 0.156 | 1.471 |
| | (1.04) | (1.78)* |
| Size | -0.127 | -0.020 |
| | (-2.87)*** | (-0.51) |
| Tobin's Q | 0.295 | 0.012 |
| | (3.23)*** | (0.15) |
| Leverage | 0.694 | 0.161 |
| | (1.86)* | (0.68) |
| FCF | 0.445 | -1.072 |
| | (0.63) | (-1.15) |
| Public target, All Cash deals | -0.122 | -0.115 |
| | (-0.78) | (-1.18) |
| Public target, All Stock deals | -0.211 | 0.567 |
| | (-1.65)* | (3.70)*** |
| Private target, All Cash deals | -0.037 | 0.008 |
| | (-0.35) | (0.09) |
| Private target, All Stock deals | 0.087 | |
| | (0.50) | |
| Subsidiary target, All Cash deals | -0.083 | -0.003 |
| | (-0.90) | (-0.04) |
| Subsidiary target, All Stock deals | 0.216 | -0.608 |
| | (0.68) | (-3.43)*** |
| Intercept | 0.188 | -1.048 |
| | (0.74) | (-1.43) |
| Adjusted-$R^2$ | 59.6% | 9.6% |
| F-statistic | 2.00 | 6.00 |
| Year FE | Yes | Yes |
| Industry FE | Yes | Yes |
| Observations | 506 | 384 |

Significance level: * 10%; ** 5%; *** 1%