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The Material Effects of CEO Compensation

An Empirical Study of CEO Compensation-Effects and Their Relation to Company Fundamentals and Turnover

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ABSTRACT

This thesis suggests that CEOs take actions to increase the short-term share price to improve conditions for equity sales and maximize their payout upon vesting. Vesting equity, my measure of short-term incentive, seems to have a positive association to the short-term actions imposed by share repurchases, acquisitions and dividend payments. The thesis also suggests that short-termism does not materialize in cutting long-term investments. CEOs with an educational background from business and economics seem to understand the relationships investigated better and use them more frequently. Additionally, a high personal cost of leaving is negatively correlated with the probability of CEO turnover. Overall, by building on previous research, methodology and findings, this thesis suggests that CEO compensation has material effects on company fundamentals and turnover.

***Key Words**:* CEO Turnover, Managerial Myopia, Short-termism, Incentives, Company Fundamentals, Corporate

Preface

This thesis was written as the closing part of my Master of Science degree in *Economics and Business Administration* at the Norwegian School of Economics (NHH). I have spent the semester researching the material effects of CEO compensation.

There were several reasons for my choice of topic. First, I wanted to do my research on a topic that I found interesting and where I could utilize my knowledge and abilities within *Financial Economics*, *Statistics* and *Econometric Techniques*. Second, I wanted to write a thesis from which readers can gain new insights, and third, to research a highly relevant topic in the academic world today.

CEO compensation is, and has been an important and often debated matter. The high level of CEO compensation has sparked public interest, raised questions about fairness and equality, and been subject to government intervention through regulations. Advocates argue that debates and regulations should rely on empirical evidence, and contracts need to provide aligned incentives between shareholders and CEOs.

Working with the thesis has been a time-consuming and challenging journey, but also a highly rewarding deep dive into the life and behavior of CEOs in the largest North American companies. I have obtained valuable experience in collecting, structuring and analyzing vast amounts of historical data and gained a deep understanding of Stata, R and Excel. These tools have been essential for the completion of the thesis, and are set to be rewarding in my future career.

I will especially like to thank my advisor, Karin S. Thorburn, for her constructive guidance and support. Her insights and feedback has been truly invaluable. Finally, I would like to offer my sincerest gratitude to my parents and grandparents who have always been a tremendous support.

Bergen, June 15, 2018.

Fredrik Vangdal

Content

1 Introduction

Corporate governance, incentives and turnovers are cornerstones of each company, and the impetuses of a Chief Executive Officer (CEO) is undisputedly important for the success and value-creation.

"*Great companies with the way they work, first start with great leaders.*"
Steve Ballmer, Former CEO of Microsoft

Since 1978 CEOs have experienced a 937% increase in compensation, compared to 11,2% for the average employee[1]. This has sparked an intense debate, raising questions to both the fairness and equality of it. There are indeed challenges with CEO compensation and advocates argue that we need a reform based on empirical research to achieve a necessary paradigm shift. This research states that long-term equity incentives have a positive causal effect on company performance and that performance closely relates to CEO wealth. As argued by several researchers the implications of incentives are paramount to the level of compensation in terms of value creation or erosion[2]. Involved shareholders even think CEO compensation is too low, as shown by Cronqvist and Fahlenbrach (2013). Hence, the debate should revolve around the structure of and motivation from compensation, rather than the level of it.

In later years deferred compensation in form of share and option grants have become an increasingly larger part of total CEO compensation. These shares and option grants have been tied to vesting periods, to provide long-term incentives, meant to ensure aligned interests between CEOs and shareholders. However, this compensation structure could have unwanted consequences. When the grants vest, short-termism could lead CEOs to boost the share price in the short-term at the expense of long-term value creation. Additionally, when a CEO leaves a firm he or she lose unvested equity, possibly causing them to take actions to stay or minimize this cost.

"Lots of companies don't succeed over time. What do they fundamentally do wrong? They usually miss the future."
Larry Page, CEO of Alphabet

This thesis investigates CEO compensation effects on company fundamentals and turnovers. I explore new territory within corporate governance by tying incentives from compensation to the educational background of each CEO, utilizing a manually collected dataset of 3,366 unique cases.

[1] Adjusted for inflation. In 2016 the average pay for the CEO of the top 350 firms in the U.S was $15,6 million compared to $58,000 for the average American employee, which equals a ratio of 271:1. Source: CNBC, 2018.
[2] See chapter 2 – Literature review for sources.

2 Literature review

The following section will highlight the most important aspects from previous research related to the different nuances of the implications of CEO compensation. The review includes research on both how a company is affected by incentives from compensation while the CEO is still in office, and how these incentives affects the event of CEO turnover. The implications of CEO compensation has been explored in depth both theoretically and empirically over several decades, and still receives vast attention. The papers included in the literature review are the ones deemed most relevant to the thesis but they only account for a minority of all the papers used as a foundation for the thoughts and discussions made in this thesis. Hence, the included literature review does not provide a holistic picture of all nuances of the topic.

Murphy (2012) provides a historical picture by showing that imposed compensation regulations over the last 80 years in the U.S. regularly backfires. He highlights that a large part of the problem is that regulation often is driven by political rather than shareholder agendas and therefore is misintended. He concludes that:

> "With few exceptions, the regulations have generally been either ineffective or counterproductive, typically increasing (rather than reducing) CEO pay and leading to a host of unintended consequences... . "

In 1990, Jensen and Murphy published an acclaimed study on CEO incentives where they show that incentives from already held equity are paramount to new equity grants (Murphy & Jensen, 1990).

Gabaix and Landier (2008) demonstrates that the increase in compensation in the U.S. between 1980 and 2003 can be fully explained by the increase in firm size. The study is renowned as one of the most influential finance papers of the decade and largely justifies the level of compensation for CEOs, not because they are more talented than before, but because talent is scarcer. This makes it worth paying for top talent as a marginally better CEO could have a great effect on the company.

Edmans, Gabaix, and Landier (2009) provides evidence of the scalability of CEO actions. They argue that CEOs and employees compete in different markets as the former scales with the firm, the latter less so[3]. Hence, the level of pay and the difference between average pay for an employee and the CEO is misleading as a basis for regulations and corporate governance. These three papers provide a context for the level of compensation and how it incentives, creating a foundation for the conducted analyzes in this thesis.

In the paper, "Are CEOs paid for performance?" Morgan Stanley Capital International (MSCI) evaluate the effectiveness of equity incentives (Marshall & Lee, 2016). They found that companies that awarded their CEOs higher equity incentives had below-median returns. The study has been highly influential and was central to a recently proposed pay reform presented in UK Parliament, even if it contradicts much of the previous literature on the topic. As pointed out by Edmans (2016), the paper has some errors. First, when they find a negative correlation between what they say is equity incentives and firm performance, they study total summary pay. Total summary pay is combined of several components, not only equity incentives. In total summary pay they include newly-granted shares and options, which is only a small portion of what is classified as equity incentives as discussed in the literature review of Jensen and Murphy 1990 above. Secondly, they fail to control for factors such as firm size and risk.

Lilienfeld-Toal and Ruenzi (2014) found that a strategy based on public information about managerial ownership delivers annual abnormal returns of 4-10%. They concluded that the market does not correctly price the incentive effects of managerial ownership. In line with the findings of Jensen and Murphy, they include all ownership, not just newly granted shares and options like MSCI. The paper reached the opposite conclusion to the MSCI study, and established that CEO compensation has a real and positive effect on performance. The differences between the two studies demonstrate the complexity of researching CEO incentives. Considering the implications of what Edmans (2016) argue is a faulty paper, it highlights the importance of not implementing regulations based on inadequate research as this could lead to wrong conclusions.

[3] For instance if a CEO improves culture or implement other-firm wide initiatives, this effect increases with the size of the firm. An engineer on the other side has a capacity to service a given number of machines, regardless of firm size Edmans et al. (2009).

Babenki, Bennet, Bizjak and Coles (2017) shows that when the vesting of equity links to meeting performance targets, CEOs act myopically. Importantly, this link has become prevalent when forming contracts (Fields, 2016). These papers provide insight into possible negative aspects arising from equity incentives and an increasing use of them.

Alex Edmans, a professor in finance at the London Business School has been a strong advocate of basing the discussion of executive and CEO pay on empirical research and evidence. He has conducted several studies examining the effects of CEO compensation. Together with Fang and Lewellen he shows how CEO's concern for the current share price leads to changes in company fundamentals. They find that vesting equity is associated with an earnings boost by cutting investment and reducing capital expenditure, possibly destroying long-term shareholder value (Edmans, Fang, & Lewellen, 2016). In a similar paper published in 2018, Edmans, Fang and Lewellen found that CEOs takes initiatives in form of increased level and probability of both acquisitions and share repurchases around vesting in order to increase the short-term share price at the expense of long-term performance (Edmans, Fang, & Lewellen, 2018).

Blackwell, Dudney and Farrell (2007) look at changes in CEO compensation structure and the impact on firm performance following CEO turnovers. Their research, using a sample of between 100 and 121 turnovers from 1981-1992, revealed that incoming CEOs received a significantly greater percentage of their compensation from option grants and new share grants than outgoing CEOs. They further found that post-turnover performance can be related to new share grants as a percentage of total compensation both in cases of forced and voluntary turnovers. However, they found limited evidence that future operating income is positively associated with option grants following forced turnover.

Peters and Wagner (2012) found a robust and significantly positive association between predicted turnover risk and CEO compensation, in line with calibrated theoretical predictions. CEOs of larger firms earn more, as do executives who have recently performed better, older executives, and externally hired CEOs. Also in line with previous results, firms with excess firm-specific risk pay their CEOs less. Higher incentive compensation may cause turnover risk and the level of compensation to be spuriously correlated. The paper provides insight into the relationship between compensation and turnover, suggesting that pay affects the rate of turnovers.

Chang, Dasgupta, and Hilary (2010), Nguyen and Nilsen (2014), and Falato, Li, and Milbourn (2015) all show that CEO turnover and deaths have a negative effect on performance and firm value, and that the magnitude of this effect is higher for well-paid CEOs. They suggest that pay is indeed a reward for talent, and that talent and ability itself is important. Thereby, they provide evidence of the importance of CEOs, by showing that CEOs affect firm value and that turnovers are costly.

Cziraki and Groen-Xu (2017) predict CEO turnovers by utilizing a handpicked dataset of CEO contracts and looking at the time until contract expiration. They show that the length of a contract affects a CEOs risk-taking and that both turnover probability and turnover-performance sensitivity increases as the contract approaches expiration. Gopalan, Huang and Maharjan (2016) examine the role of deferred vesting of stocks and options in reducing executive turnover. They found a causal negative effect between pay duration and turnover probability. They highlight the importance that a contract incentives the CEO to invest in firm-specific knowledge and suggests that compensation policy and management turnover decisions are interlinked.

3 Hypothesis

In this thesis, I focus on different aspects of CEO characteristics, their compensation and the relation it has to their career in a firm. Based on the literature review above, my work will materialize itself in the following two hypotheses.

1. CEOs use their position to influence the share price upon vesting, and educational background affect these choices.
2. A high personal cost of leaving inflicted by the loss of unvested equity impact the probability of a CEO turnover, and educational background influence this.

The first hypothesis assumes that the decisions made by CEOs to maximize their own wealth come from a set of changes made to company fundamentals prone to managerial discretion. I argue that a CEO is inclined to use their position to make certain choices and changes in an attempt to boost the short-term share price and thereby maximize their payout upon vesting. In other words, take action to optimize the conditions for equity sales without having particular focus on long-term shareholder value creation because of short-termism and myopia. I believe that these changes come from both short-term changes, signaling effects and acquisitions, and

from cutting long-term investments to boost earnings. Further, I argue that CEOs with a given set of characteristics based on their educational background are more inclined to make these changes.

The second hypothesis assumes that a CEO will be more reluctant to leave office if he or she has much equity at stake in form of unvested shares and options. I argue that since CEOs forfeit all unvested equity when they leave office, it affects their decision to leave. Additionally, I argue that these incentives affect CEOs differently based on their educational background.

These hypotheses aim to shed light on the overall research question "*How does CEO characteristics and compensation affect the way they run their company and the choices they make*?"

The thesis closely relates to the literature examining the implications of incentives from compensation, and builds on the findings discussed in the literature review. I utilize methodology and evidence from previous research, and attempt to consolidate the findings and tie them together in order to depict a holistic picture of how CEO compensations structure affect both firm fundamentals and CEO turnovers. Most important, this thesis explore new territory within the field of corporate governance by investigating if the educational background of CEOs in relation to incentives matter in the choices they make in terms of company fundamentals and turnovers. To the best of my knowledge, this has not been explored by any previous empirical papers on corporate governance.

4 Data

This section provides a detailed description of the data used for the empirical research conducted in this thesis. First, I present the data gathering process in section 4.1. Second, section 4.2 describes the variables used and the reasoning behind including them.

4.1 Data sources

My initial sample consisted of the 2,586 companies in the S&P 1500 index for which ExecuComp collected compensation data from 2004 to 2016[4,5]. I removed executives not denoted with an annual flag or title indicating them to be the CEO in the current year. The final dataset contains 2,298 unique companies and 3,315 unique CEOs making up a total of 21,969 CEO years. To account for situations where one person has been CEO for multiple firms I utilize a unique identification number for each combination of firm and CEO. As a result, I have 3,366 unique CEO and company combinations[6]. To finalize the dataset, I utilize a set of identifiers to merge information from different databases consisting of both firm and CEO characteristics. I elaborate on this data processing, and methods applied, later in this section.

Table 1: The table describes which general criteria I have restricted the datasets to meet.

Criteria No.:	Criteria description	Source
1	The company has to be registered in the S&P 1500 index once between 2004 and 2016.	CompuStat
2	The company has to be recorded in ExecuComp	ExecuComp
3	The executive is denoted as CEO based on title or flag	ExecuComp
4	The CEO is recorded for more than two years	ExecuComp

ExecuComp take advantage of the Securities and Exchange Commission's (SEC) enhanced disclosure requirements to provide detailed information about executive compensation. In cases where there is missing information in the SEC filings, I assume the CEO received no such compensation in the given year and set it to zero. The data is gathered at a yearly frequency, as this is the highest frequency available. In cases of CEO turnovers, the ExecuComp database

[4] I chose to begin in 2004 as this was the first year companies was required to disclose actual share repurchases in their periodic filings.
[5] The index is made up by the S&P 500 Large Cap index, the S&P 400 Midcap index and the S&P 600 Smallcap index. I have not differentiated by where companies are traded, as I primarily look at changes within an individual CEO.
[6] The unique combinations are denoted with an ID number called execcomp_ID.

records compensation for the CEO that has been in office for the greater part of the fiscal year. By using this convention, I ensured that the data recorded belongs to the CEO assumed to have made the most impact in a given fiscal year.

I used a combination of the BoardEx Individual Profile Education database and the Capital IQ Executive Profile Database in order to implement the educational background of CEOs. These databases collect information such as field of study, type of degree, and university attended. I matched this with the existing compensation dataset by utilizing a combination of full name of CEO, company name and executive IDs from ExecuComp.

After implementing all available information in both databases, I still lacked sufficient information on 1,115 of the 3,315 CEOs in the sample[7]. This information was manually retrieved from sources such as company websites, Bloomberg, LinkedIn and in some cases their obituary. If neither of these provided sufficient information, the CEO in question was denoted "other/unknown" as field of study. Throughout the extensive research, I only retrieved information deemed correct. In cases of contradictory information, I checked multiple sources in order to verify the information. Additionally, if a CEO is recorded in one of the databases but is not registered with a degree or the CEO is not recorded and multiple web searches provided no answers indicating that he holds a degree, I assumed he does not and denoted him with a blank indicating "no education"[8]. However, in both cases, if they hold a PhD or an MBA I assumed they must have an undergraduate degree and conducted further research to retrieve this information[9].

As different databases and people (LinkedIn) operate with different notations on field of study, I divided it into five areas: Law, Arts, Business & Economics, Science and Engineering. The arts category is made up of 58 subcategories, such as *English Literature*, *Journalism* and *Education*. Similarly, the Business & Economics category consists of 34 subcategories, and Science of 55 subcategories.

[7] BoardEx for instance only records obtained degree, and not field of study and therefore did not provide sufficient information regarding the scope of this thesis.
[8] I use "he", as only 118 out of 3315 CEOs or 3,6% of all CEOs are female.
[9] There are instances like Richard D. Parsons, CEO of Time Warner who attended The University of Hawaii but lacked some credits and therefore received no diploma. Nevertheless, since he discovered he could attend law school in New York if he scored well enough on his pre-law exam, he holds a graduate degree without being recorded with an undergraduate degree (Biography.com, 2015).

Furthermore, 178 of the CEOs were not recorded with a starting date. This information was manually retrieved using various online sources. I added the information to the final dataset by matching the information on a combination of CEO name and company name. I also recorded each CEO with a dummy variable indicating whether he attended an Ivy League university or not.

I have removed interim CEOs and CEOs recorded for a limited number of years since panel data analysis require each individual to be recorded over a certain amount of time. Edmans (2018) did not remove interim CEOs. However, I argue that the contract of an interim CEO deviates from traditional contracts as they are likely to have less long-term incentives. I also argue that they have less room and time to undertake the possible actions investigated in this thesis.

In order to investigate the relation between compensation for each CEO and the company they run I retrieved company fundamentals from CompuStat Fundamentals Annual database. I matched this information with the existing dataset by a combination of fiscal year and a unique ID for each firm (GVKEY). Thus, exploiting the fact that fiscal year in the CompuStat database corresponds with the data from ExecuComp. I disregarded the exact time of vesting equity and/or exercising of options. Nevertheless, I acknowledge the possible error sources arising from using fiscal years rather than for example months or quarters, but due to firms' financial reporting and thereby data availability this was an unavoidable consequence. In cases where the information is clearly wrong I have omitted or used last years' data based on what was appropriate in the given situation. For instance, there were 309 cases were a firm was recorded with a market value of zero and clearly not bankrupt. In these cases, I calculated the market value as the average of the end of year market value from the previous and next fiscal year. If several years was recorded as zero the observation was omitted as the information of the observation is deemed incomplete, and in certain instances, the company was bankrupt. Compared to the other company data, I collected quarterly share repurchases from the CompuStat Quarterly Fundamental database and annualized it since CompuStat Annual Fundamentals does not offer information about share repurchases. As before, I used the combination of company identifier and fiscal year to match and implement the data.

I calculated firm performance based on balance sheet information obtained from CompuStat. I retrieved monthly holding period return over a value-weighted CRSP index from CRSP, and annualized it before matching it with the existing dataset using the combination of company identifier and fiscal year[10].

4.2 Variables

In the following section, I discuss and present the variables utilized. Detailed descriptions of, and the calculation for, each variable is attached in appendix part A. Henceforth, the variable names are written in *Italic.*

4.2.1 Response variables

This section contains the different response variables researched. The included variables focus on areas believed to be subject to managerial discretion.

Annual share repurchases (*Repurchase*) is based on the number of common shares repurchased in a given quarter times the average priced paid for the shares divided by market capitalization at the end of the prior quarter. A binary variable (*Repurchase indicator*) indicates whether a company did a share repurchase in the given fiscal year or not.

Acquisitions and *Acquisitions indicator* reflects the level of and if an acquisition took place in a given year, respectively. Capital expenditures (*CapEx)*, research and development (*R&D)*, working capital (*WC)*, property, plant and equipment (*PPE)* and dividends (*Div)* are the other included response variables related to company fundamentals. The average level of each variable is found in table 2 below.

A binary variable, *Turnover,* takes the value one if the CEO left office during the fiscal year, and zero otherwise. I initially received a dataset from Jenter (2015), however the dataset only contained a very limited number of observations compared to the dataset utilized throughout this thesis, and as a supplement I found it necessary to create the *Turnover* variable in order to classify all cases of turnovers in a company. Furthermore, Jenter (2015) denotes a company with a *Turnover* within the year the CEO left office, unrelated of when they left. Since I use annual data, I have utilized a similar convention as the ExecuComp database where I denote

[10] CRSP is the Centre for Research in Security Prices.

the turnover to the CEO having the least influence during a year. Hence, I denote the turnover to happen by year-end in accordance with the other information retrieved.

4.2.2 Explanatory and control variables

This section contains the different explanatory variables used in my thesis. It includes both the variables of interest related to compensation, and a set of control variables meant to isolate the effect of vesting equity on the response variable.

Vesting is the main explanatory variable in hypothesis one, and describes the amount of equity vesting in a given year. In line with previous literature, I use it as a proxy for the incentive a CEO has to perform certain actions in order to maximize his payout upon vesting. Initially, Gopalan et al. (2014) find that most equity have predetermined vesting schedules at the time of grant. Further, Edmans et al. (2016) find this to be a good instrument for equity sold, as the amount vesting is closely related to the amount of equity sold. This is important since vesting equity thereby increases the CEO's equity sales, thus increasing his incentive to increase the short-term share price. I argue that this mechanism can be viewed as a measure to diversify. By selling his equity upon vesting, he reduces the firm specific risk of his wealth since less of his financial capital is invested at the same place as his human capital. Further, two important properties of vesting equity are, as mentioned, its high correlation with equity sales and that they are exogenous. Because the equity grant is given several years prior to vesting, it is analogous to the relevance criterion and exclusion restriction making it a valid instrument as shown by Edmans et al. (2016).

To account for other possible incentives arising from compensation I have included *Vested* equity*, Unvested* equity, *Salary* and *Bonus* as control variables.

Vested account for the incentive from already vested equity. As shown by Jensen and Murphy (1990) already held equity makes out a large part of incentives. Since *Vested* is endogenous, it is uncertain in which direction it affects. On one side, vested equity could negatively affect investment if a CEO plans to sell his equity in the short term. On the other side, if the CEO has private information regarding beneficial future prospects, it may cause him to retain vested equity and perhaps increase investment.

Unvested accounts for the incentive from not yet vested equity. Similarly, to V*ested*, it is uncertain in which direction it affects. On the one side, it could increase myopia if it is to vest shortly after time *t* [11]. On the other side, it may decrease myopia if the equity is set to vest in the long term. Additionally, Laux (2012) theoretically shows that a consequence of unvested equity may be increased short-termism as he takes actions to avoid being fired and thereby forfeiting his unvested equity. I elaborate on this aspect when investigating the second hypothesis. I also add *Salary* and *Bonus* to account for incentives from these parts of the compensation.

The other control variables related to CEO characteristics are *Age* and *Tenure*. First, career concerns for a young CEO could deter myopia if the action itself has negative long-term consequences. Secondly, Pan, Wang, and Weisbach (2016) found that investment increases with tenure. The rest of the controls are at firm level to account for different firm characteristics able to affect CEO decisions.

To account for firm size, I follow several previous research papers within empirical finance and take the natural logarithm of Market Value, *logMV* (Dang & Yang, 2018). Leverage (*LVR*) proxies for the ability to fund new investments. To proxy for accounting performance I utilize return-on-assets (*ROA*). It reflects the potential excess capital available to fund new investments. When calculating *ROA*, I choose to use EBITDA over Total Assets. I argue that by using EBITDA instead of the usual net income my results are less prone to managerial discretion and earnings management, thus being a better measure for finding a firm's underlying operational return. By using EBITDA, finance and depreciation costs are added back to net profit allowing for better comparison between companies with varying capital structures, debt structures, geographical location (which could affect building costs which again affect depreciation), etc.

[11] I use «myopia» as a referral to managerial myopia, which is defined as an action that boosts current earnings at the expense of long-term value.

I calculate holding period return over a value weighted CRSP index (*Return)*[12]. *Return* reflects the stock performance, which affects potential undervaluation – previously shown to affect for instance share repurchase (Dittmar, 2000) and (Guay and Harford, 2000). Tobin Q *(Q)* is added to proxy for possible investment opportunities. Tobin's Q has since first introduced by James Tobin (1969) been a widely used measure of corporate performance and is an important input to a wide range of empirical investigations in financial economics.

CEO Educational information is included as an interaction between *Vesting* and dummy variables indicating the different educational backgrounds of the CEOs. Interaction variables are denoted in the following way: *#Business, #Engineering* etc.

[12] Holding period return expresses the total return for holding the asset during the given fiscal year excluding dividend payments. I omit dividends from the calculation, as this is one of the response variables researched.

4.2.3 Descriptive statistics

This section contains some brief descriptive statistic related to the variables discussed above.

Table 2: Summary statistics

Variable	N	5%	Mean	Median	95%	SD
Repurchase	21897	0	0.005	0	0.0246	0.0143
Repurchase indicator	21897	0	0.482	0	1	0.500
Acquisitions	21969	0	142.211	0	514.731	944.095
Acquisition indicator	21969	0	0.406	0	1	0.491
Dividends	21969	0	137.575	0	546	704.127
PPE	21969	0	2,399.929	246.156	11,477	9,237.824
CapEx	21969	0	353.679	35.799	1,541	1,455.038
R&D	21969	0	126.218	0	446	669.195
WC	21969	-157.285	570.476	134.130	2,507.3	2,506.025
Turnover	21969	0	0.062	0	1	0.241
Vesting	21969	0	2,859.061	1,416.400	10,030.95	4,755.505
Unvested	21969	0	6,173.392	2,239.669	22,995.41	17,123.670
Vested	21969	0	143,270.4	10,597.240	206,944.2	3,827,049
Salary	21969	302.596	791.955	750	1,445.833	415.468
Bonus	21969	0	347.513	0	1,720	1,542.825
Age	21969	45	55.965	56	68	7.268
Tenure	21969	0	7.610	5	23	7.369
LVR	21925	0	0.203	0.166	0.557	0.207
ROA	21925	0	0.105	0.110	0.279	0.287
Return	21969	-0.458	0.064	0.049	0.619	0.373
Q	21925	0.137	1.407	1.097	3.683	1.280
logMV	21028	5.063	7.605	7.500	10.441	1.681

Summary statistics of the main variables used throughout this thesis. Variable definitions can be found in Appendix part A. *Acquisitions, PPE, Dividends, CapEx, R&D* and *WC* are in millions. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA* and *Return* are in percentage.

The average company repurchases 0.005% of its outstanding shares each year and the likelihood of a share repurchase in a given year is 48.2%[13]. Similarly, the average company spends 142 million on acquisitions each year, and the likelihood of conducting an acquisition in a given year is 40.6%. The median for money spent on acquisitions is zero, implying that some large acquisitions affects the mean. The range of the numbers on the other company fundamentals used as response variables in this thesis vary largely between companies. This is implied by the standard deviation and difference between the means and medians for the respective variables as shown in the descriptive statistics above[14].

The probability of a turnover is 6.2% in a given year. Meaning that on average 6.2% of all CEOs leave office each year. The median of *Vested* is $10,597 and the mean is $143,270[15]. Compared to the median and mean of *Vesting* at $1,416 and $2,859 respectively, it implies that the largest part of overall incentives come from already owned equity. Considering this difference, one may argue that it limits the extent of action a rational CEO would take to increase the short-term share price around vesting at the possible cost of long-term value erosion. Similarly, *Unvested* is a valuable source of incentive with a median and mean of $2,240 and $6,173, respectively. Comparing to the level of *Vesting,* a rational CEO thereby need to account for the long-term share price as his total wealth also is influenced by his unvested equity.

Yearly, the average *Salary* for a CEO is $792 and *Bonus* $348; together it only makes up a part of the total yearly compensation for a CEO. Given that the average sum of *Salary* and *Bonus* each year is under half of the *Vesting* equity for a CEO, it gives an indication of the importance of incentives relative to the level of compensation in terms of corporate governance.

The average CEO is a 56-year-old male, who has been in office for 7.6 years. The median *Tenure* of CEOs is slightly lower at 5 years.

[13] See table 2, section 4.2.3 for descriptive numbers and scale.
[14] I have not included descriptives on the other company fundamentals used as response variables since I look at changes within each company, and I therefore argue that little information can be derived from the average R&D, PPE etc. .
[15] *Vested, Unvested*, *Vesting, Salary* and *Bonus* are in thousands.

On average, companies deliver a *ROA* of 10.5% and a *Return* of 6.4%. They have on average a slightly lower replacement cost of its assets relative to the value implied by the firms' market value with a mean and median *Q* of 1.4 and 1.1 respectively[16].

The number of CEOs with educational background within each field is shown below. As mentioned, I operate with five field of studies. The base group in each regression is made out of CEOs with either other/unknown or no education. Most CEOs have a background within business and economics. Additionally, 586 CEOs have obtained degrees in more than one field of study, and 629 CEOs have attended an Ivy League university.

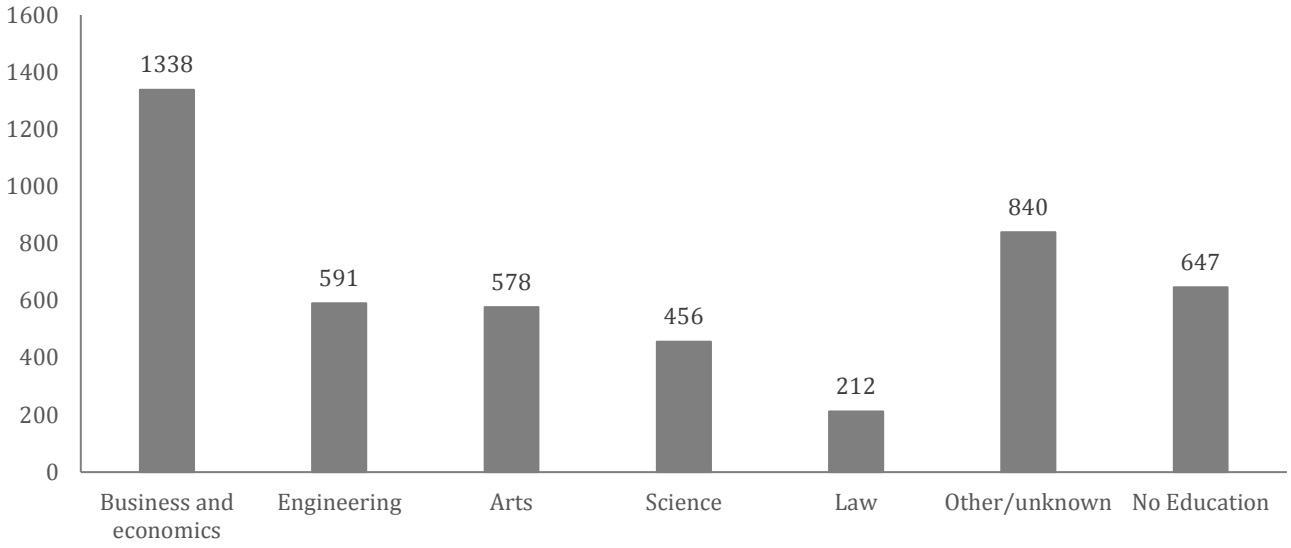

Figure 1 - Distribution between the fields of study in the sample

[16] Bull markets tend to increase the average Q in the market; conversely economic downturns like the financial crisis caused a decrease in the average Q.

5 Methodology and Results

This section presents the methodology and results of the conducted analysis. For each hypothesis, I present the reasoning behind the methodology and the findings before I make initial conclusions and discuss possible implications. I present the summary conclusions in section 6.

5.1 Changes in fundamentals due to CEO compensation structure

The purpose of sections 5.1-5.3 are to answer the first hypothesis: "*CEOs use their position to influence the share price upon vesting, and educational background affect these choices.*" I investigate how a CEO might change company fundamentals because of short-term incentives stemming from the *Vesting* of equity. I aim to shed light on how and if a CEO takes actions to increase the short-term share price through either earnings boosts, signaling effects or long-term investment cuts.

5.2 Methodology

I choose the response variables based on their believed exposure to managerial discretion. They reflect aspects like repurchase of common shares, changes in capital structure, funds invested through acquisitions, dividend payouts, possible efficiency improvements of working capital, investments in property, plant and equipment, capital expenditures, and investments in research and development.

The models use independent and control variables from the different company fundamentals, CEO characteristics and compensation figures. I have controlled for CEO fixed effects and year fixed effects by using a Fixed Effect (FE) estimation with yearly dummies to look at the within CEO effect of compensation. The reasoning behind choosing this approach is elaborated below.

The dataset is organized as panel data, which is best analyzed through controlling for unobserved effects. The panel variable is execcomp_ID, a unique number for each executive and company connection recorded in the dataset and the time variable is years. The panel data is unbalanced as all companies have not existed in the S&P 1500 index for the whole period, and therefore are recorded an uneven number of times. Furthermore, the executive, is neither present in all years. For instance, a CEO may have switched job or retired within the period, resulting in an uneven amount of observations for each CEO. I argue that the reason behind the

panel being unbalanced is not that a CEO, i, is not correlated with the idiosyncratic errors, μ_{it}, and therefore there should be no problems caused by the fact that the panel is unbalanced (Wooldridge, 2016). However, if the reason for missing observations of a company, e.g. it goes bankrupt, is correlated with the idiosyncratic error, it could cause biased estimators. However, the applied fixed effects analysis allows this reason to be correlated with the unobserved fixed effect α_i. Hence, α_i captures this reason and the estimators can be used for analysis. Using a pooled OLS would in this case have invalid standard errors and test statistics as it ignores serial correlation in the composite errors $v_{it} = \alpha_i + \mu_{it}$. In addition, since fixed effects allow arbitrary correlation between α_i and the explanatory variables, while a random effects model does not, FE is considered a more convincing tool for estimating ceteris paribus effects.

By using *execcomp_ID* as an identifier in the panel data, I account for changes within CEO as well as company. Further, by utilizing the FE method, I account for fixed effects of each CEO. Compared to using for instance Company ID as an identifier like some previous papers, I argue that *execcomp_ID* better captures the effect of vesting equity. First, incoming CEOs often have a large proportion of unvested equity as they recently got their contracts. Using company as an identifier does not properly capture this dynamic, as CEO turnover does not affect it. Second, using each individual CEO better captures CEO specific effects such as preferences for equity-based pay, risk taking and overconfidence in order to isolate the factors that changes, i.e. compensation structure and/or performance based pay varying from year to year. It is possible to include these time fixed effects by using dummies in a pooled OLS model, however as there are over 3000 CEOs it would imply losing a high degree of freedom and thereby reducing the reliability of the model.

Based on the importance of including fixed effects, I argue that a within model is better suited. However, a drawback by using this model is that it omits all time invariant variables by time demeaning the included variables when transforming the model. It removes the average, and therefore variables that do not vary over time, like ability and education, cannot be included in the model. Considering the purpose of this thesis, the use of time invariant variables such as education is unavoidable. To work around this drawback, I utilize interaction variables between the chosen independent variable of interest and a dummy for the type of educational background, while still adding fixed effects. This enables me to look at the effect of time invariant variables on *Vesting* captured through the different dummy variables, while still

controlling for unobserved effects like ability. The last part is important, as there arguably are different levels of ability within each group of CEOs from a certain educational background. The interaction variables enables me to investigate if educational background affects CEOs in terms of short-term incentives.

I control for time fixed effects by using yearly dummies. By doing this I account for time-variation such as favorable macroeconomic conditions in terms of repurchase, acquisitions, dividends etc. As this thesis aim to address the impact of compensation, the chosen FE approach better captures the effect of the compensation as it removes the aforementioned fixed effects compared to a random effect (RE) model.

To formally test whether the RE or FE model is preferred I have conducted a Hausman-test (Hausman, 1978). It conclude that FE is the suited approach. Further, tests revealed presence of both heteroscedasticity and autocorrelation. Hence, I have utilized robust standard errors clustered at CEO level to account for this throughout the thesis. Appendix part C contains all tests formally conducted and their corresponding p-values.

I have assessed if the vesting of equity affect CEO decisions related to different dependent variables believed to be prone to managerial discretion by running the following panel regressions. The different dependent variables are denoted with *Fundamental*, the main independent variable is *Vesting* and the control variables are denoted as *Controls***.** Regression (I) is the basic regression. It investigate the first part of hypothesis one. Regression (II) includes an interaction variable between *Vesting* and dummies representing educational background. It investigate the second part of hypothesis one. Alpha captures the firm specific effect, gamma year specific effect and mu is the idiosyncratic error term:

$$(I) \qquad Fundamental_{it} = \alpha_i + \beta Vesting_{it} + \beta Controls_{it} + \gamma_t + \mu_{it}$$

$$(II) \qquad Fundamental_{it} = \alpha_i + \beta Vesting_{it} + \beta Vesting_{it} * EducDummy + \beta Controls_{it} + \gamma_t + \mu_{it}$$

I have utilized both a probit model and a linear probability model (LPM) to analyze cases were the dependent variable is binary[17]. The probit model is often applied in econometric settings where there might be problems with heteroscedasticity, as it can be generalized to account for non-constant error variances. The response probability for the probit model is the standard normal cumulative distribution function evaluated at a linear function of the explanatory variables (Wooldridge, 2016). The LPM model is a multiple linear regression model with a binary dependent variable. The beta measures the change in the probability when x changes, holding other factors fixed. As with the panel models described above, LPM allows us to implement time and individual fixed effects. Nonetheless, the LPM model has its drawbacks. First, the fitted probabilities can be less than zero or greater than one. Second, the partial effect of any explanatory variable appearing in level form is constant. These drawbacks can however be overcome by using the probit model (Wooldridge, 2016). As probit does not allow for adding individual fixed effects I utilize both methods for robustness in my analysis.

[17] Note that alpha and R2 is omitted from the probit models.

5.3 Results

In the following section, I present the various results from the panel regressions related to hypothesis one. The results are divided into two subsections. First, I present the results related to corporate actions focused on the short term. Second, I present the results related to the companies' long-term investments. Hence, the first section includes repurchase of common shares, acquisitions, dividend payout policy and working capital. The second section includes investments in property, plant and equipment, research and development and capital expenditures. I have chosen to use the same independent variables throughout the analysis, regardless of significance level, in order to minimize the risk of omitted variable bias and to increase comparability between the models. I focus on the sign and significance of the variables when conducting my analysis.

5.3.1 Short-term corporate actions

This subcategory contains the changes to corporate fundamentals with implications mainly in the short term. I argue that share repurchases, dividends and working capital are more short-term, compared to investments in the underlying value creation of the company such as R&D and PPE. Similarly, I argue that acquisitions are meant to offer immediate changes. Compared to for instance R&D investments, acquisitions could deliver new growth projects with a proven track record quicker. For each response variable, I first describe why I believe them to be subject to managerial discretion and provide the context, and then I discuss the results from the panel regressions presented in section 5.2. The most important results related to panel regression (I) and (II) are shown below in table 3 and 4, respectively.

Table 3: Short-term changes to corporate actions

	(1) Repurchase annual	(2) Repurchase indicator	(3) Acquisitions annual	(4) Acquisitions indicator	(5) Dividends	(6) Working capital
Vesting	0.000**	0.000***	0.020*	0.000*	0.004***	0.009
	(0.000)	(0.000)	(0.011)	(0.000)	(0.001)	(0.012)
Unvested	-0.000	-0.000	0.003	0.000	-0.001	-0.001
	(0.000)	(0.000)	(0.003)	(0.000)	(0.001)	(0.003)
Vested	-0.000*	-0.000**	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Salary	-0.000	0.000***	0.035	0.000**	0.093***	-0.180
	(0.000)	(0.000)	(0.066)	(0.000)	(0.035)	(0.264)
Bonus	0.000	0.000	-0.017*	-0.000	-0.006**	-0.004
	(0.000)	(0.000)	(0.009)	(0.000)	(0.003)	(0.011)
Age	0.001	0.006	11.908	-0.020***	-10.416	102.155
	(0.001)	(0.004)	(30.522)	(0.005)	(17.587)	(67.941)
Tenure	-0.000	-0.001	-15.538	0.009*	-6.496	8.874
	(0.000)	(0.004)	(15.196)	(0.005)	(5.437)	(12.388)
LVR	0.003*	-0.425***	456.292***	0.377***	79.430***	601.436***
	(0.001)	(0.121)	(107.854)	(0.129)	(21.670)	(107.137)
ROA	0.004***	0.787***	-309.133***	1.325***	1.418	-143.000
	(0.002)	(0.263)	(88.816)	(0.228)	(12.937)	(96.101)
Return	-0.000*	-0.234***	-3.606	-0.279***	-1.676	-30.527
	(0.000)	(0.037)	(14.273)	(0.038)	(4.902)	(27.349)
Q	-0.000	-0.049***	-69.556***	-0.004	0.149	-92.840***
	(0.000)	(0.019)	(13.270)	(0.019)	(2.962)	(34.377)
logMV	-0.000*	0.315***	106.186***	0.160***	8.345	219.130***
	(0.000)	(0.020)	(24.574)	(0.021)	(5.714)	(33.795)
Constant	-0.023	-4.100***	-1,239.230	-0.889***	498.913	-6,233.378*
	(0.028)	(0.243)	(1,556.572)	(0.276)	(890.556)	(3,433.047)
Observations	20,969	20,969	21,020	21,020	21,020	21,020
R-squared	0.038		0.020		0.014	0.021
Number of CEO	3,318	3,318	3,325	3,325	3,325	3,325
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes		Yes	Yes

This table presents the regression results on the relation between the different short-term company fundamentals and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects on share repurchased in a given year as percentage of market capitalization, column (2) estimates a probit model on a binary indicator variable of whether a share repurchase takes place or not in a given year. Column (3) and (4) estimates the same model as (1) and (2), but with acquisitions as response variable. Column (5) and (6) estimates the same model as (1) and (3) but with dividends and working capital as response variables, respectively. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA* and *Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

Table 4: Short-term changes to corporate actions with interactions on educational dummies

	(1) Repurchase annual	(2) Repurchase indicator	(3) Acquisitions annual	(4) Acquisitions indicator	(5) Dividends	(6) Working capital
Vesting	0.000	0.000**	-0.005	-0.000	0.005***	0.040
	(0.000)	(0.000)	(0.010)	(0.000)	(0.002)	(0.028)
#Business	0.000	-0.000	0.062**	0.000***	-0.001	-0.045*
	(0.000)	(0.000)	(0.024)	(0.000)	(0.002)	(0.024)
#Science	-0.000	-0.000	0.016	0.000*	-0.002	-0.012
	(0.000)	(0.000)	(0.015)	(0.000)	(0.002)	(0.022)
#Engineering	-0.000	0.000	0.014	0.000	-0.002	-0.052*
	(0.000)	(0.000)	(0.013)	(0.000)	(0.002)	(0.027)
#Law	-0.000	-0.000	0.001	0.000	-0.005***	-0.041*
	(0.000)	(0.000)	(0.010)	(0.000)	(0.002)	(0.024)
#Arts	0.000	0.000**	0.005	0.000	0.006*	0.001
	(0.000)	(0.000)	(0.013)	(0.000)	(0.004)	(0.041)
Unvested	-0.000	-0.000	0.003	0.000	-0.001	-0.001
	(0.000)	(0.000)	(0.003)	(0.000)	(0.001)	(0.003)
Vested	-0.000*	-0.000**	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Salary	-0.000	0.000***	0.026	0.000*	0.093***	-0.178
	(0.000)	(0.000)	(0.064)	(0.000)	(0.035)	(0.257)
Bonus	0.000	0.000	-0.016*	-0.000	-0.007**	-0.005
	(0.000)	(0.000)	(0.009)	(0.000)	(0.003)	(0.010)
Age	0.001	0.005	6.934	-0.020***	-10.216	103.514
	(0.001)	(0.004)	(30.434)	(0.005)	(17.548)	(67.789)
Tenure	-0.000	-0.000	-15.115	0.009**	-6.327	9.636
	(0.000)	(0.004)	(15.399)	(0.005)	(5.369)	(12.508)
LVR	0.003*	-0.428***	454.838***	0.374***	78.082***	604.807***
	(0.001)	(0.121)	(101.938)	(0.129)	(21.651)	(105.782)
ROA	0.004***	0.785***	-297.923***	1.343***	1.858	-146.540
	(0.002)	(0.263)	(84.654)	(0.229)	(12.965)	(96.081)
Return	-0.000*	-0.233***	-4.199	-0.279***	-1.328	-26.742
	(0.000)	(0.037)	(14.040)	(0.038)	(4.956)	(28.403)
Q	-0.000	-0.049***	-67.079***	-0.004	0.231	-95.819***
	(0.000)	(0.019)	(12.463)	(0.019)	(2.913)	(34.179)
logMV	-0.000**	0.314***	100.735***	0.157***	7.921	219.317***
	(0.000)	(0.020)	(24.349)	(0.021)	(5.687)	(33.498)
#IvyLeauge						
Constant	-0.023	-4.081***	-952.763	-0.878***	492.638	-6,292.784*
	(0.028)	(0.243)	(1,553.116)	(0.276)	(888.823)	(3,424.457)
Observations	20,969	20,969	21,020	21,020	21,020	21,020
R-squared	0.038		0.032		0.015	0.026
Number of CEO	3,318	3,318	3,325	3,325	3,325	3,325
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
CEO fixed effects	Yes		Yes		sYes	Yes

This table presents the regression results on the relation between the different short-term company fundamentals and a CEO's vesting equity in the same year, while controlling for differences between CEOs in terms of educational background. Column (1) estimates a within model with both time and CEO fixed effects on share repurchased in a given year as percentage of market capitalization, column (2) estimates a probit model on a binary indicator variable of whether a share repurchase takes place or not in a given year. Column (3) and (4) estimates the same model as (1) and (2), but with acquisitions as response variable. Column (5) and (6) estimates the same model as (1) and (3) but with dividends and working capital as response variables, respectively. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA* and *Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

5.3.1.1 Repurchases

Corporate financial theory suggest that share repurchases cause an increase in share price because it signals that a share is currently undervalued (Berk & DeMarzo, 2014). A survey made in 2004 revealed that 87% of CFOs agreed that firms should repurchase shares when the share is undervalued (Brav, Graham, Harvey & Michaely, 2005). Since management thereby act in the interest of long-term shareholders, the market responds on a share repurchase in a positive manner by increasing the share price, providing evidence towards the signaling effect (Grullon & Michaely, 2002). Share repurchases have since the 1990s surpassed dividends to become the largest form of corporate payouts for U.S. industrial firms. In economic downturns the use of share repurchases tend to significantly decline, emphasizing the importance of controlling for year fixed effects. During the mid-1980s, SEC gave guidelines providing firms a safe harbor from accusations of share-price manipulation, which caused an increase in the use of share repurchases. This safe harbor could increase the room for CEOs to use share repurchases as a mean of increasing their own wealth around the time of vesting.

Additionally, research has shown that companies manipulate earning targets like earnings per share (EPS) when compensation is tied to meeting them. This could further increase myopic actions in terms of share repurchases, as this is an efficient way to grow EPS without necessarily increasing operational performance (Bennett, Bettis, Gopalan and Milbourn, 2017). Further, Graham, Harvey, and Rajgopal (2005) found that 78% of executives would take measures to meet earning targets, at the cost of long-term value creation.

I argue that CEOs could increase the short-term share price around vesting by using share repurchases based on the arguments and findings above.

Turning to the results, I find a positive relation between the amount of share repurchases and V*esting* at the 5% level and between the probability of conducting a share repurchase and *Vesting* at the 1% level[18,19]. Since the variation is within an individual this result could indicate that CEOs take actions in terms of share repurchases in order to increase the share price or reach EPS targets upon vesting[20]. *Vested* is negative and marginally significant at the 10% level for

[18] The complete tables are found in appendix part B.
[19] The results are robust to replacing CEO fixed effects with firm fixed effects and clustering standard errors at the company level.
[20] The results on *Vesting* are robust for using the LPM approach.

the level of repurchases, and become increasingly significant at the 5% level when investigating the probability of conducting a share repurchase. The sign itself is, as discussed, difficult to interpret since the voluntary holdings of equity are endogenous. The results provide some indication that the vesting of equity, and associated equity sales drives some of the change in repurchases. I argue that if the share was truly undervalued a CEO would likely not sell shares or exercise their options, as it would not maximize the CEO's value.

In accordance with previous literature, I find that less leveraged firms on average are more likely to conduct share repurchases (Nohel & Tarhan, 1998). This could be because less leverage increases the flexibility of their balance sheets to raise money for a leveraged share repurchase. McDonald's executives raised debt to fund buybacks to the extent that the rating fell from A to BBB from 2016 to 2018, addressing the concerns of short-term incentives on corporate actions. These share repurchases efficiently increased their compensation as over 80% where tied to meeting EPS targets (Investopedia, 2018). Further, large firms buy back more shares, and profitability in terms of *ROA* affects the propensity to repurchase in a positive manner. Market laggards are less likely to conduct share repurchases, also in accordance with previous literature on the topic. Companies with a low *Q* have a tendency to do more buybacks. This could be because management has less good investment opportunities and therefore distribute their earning through share repurchases.

Next, I include the interaction variables to investigate if educational background affect CEOs in terms of share repurchase around vesting. Thereby addressing the second part of hypothesis one.

Based on the results and collected data I do not find any substantial effect on the probability to conduct share repurchases based on the differences between CEOs in terms of education. I argue that this could be explained by the substantial knowledge of the implications from share repurchases. Thus, neither the knowledge obtained through education, nor the characteristics of a person leading them to take a certain kind of education alters the effect nor propensity to do share repurchases in relation to vesting equity, as it in almost all cases remains positive and significant.

The results supports the first part of the hypothesis, as the results indicate that CEOs actually make changes to short-term company fundamentals around vesting. However, the results is inconsistent with the second part of the hypothesis, as it appears educational background have no effect.

5.3.1.2 Acquisitions

In this subsection I examine the relationship between *Vesting* and both the level and probability of performing an acquisition in a given year. Edmans et al. (2018) find that some acquisitions in relation to incentives from vesting equity increase short-term returns at the cost of long-term returns. Similarly, previous research has found a significant and negative relation between long-term returns and acquisitions (Agrawal, Jaffe & Mandelker, 1992). This implies that some acquisitions are undertaken to boost short-term performance at the cost of long-term shareholder value creation.

The results are somewhat significant at the 10% level and show a positive relation between the level and probability of conducting acquisitions around vesting. The coefficient on *LVR* indicate that more leveraged firms use more money on acquisitions. Firm size is significantly positive, indicating that when firms get larger they do more acquisitions[21]. *ROA* and *Q* is significantly negative which could seem puzzling. Nonetheless, this could possibly be explained by the normally associated premiums on acquisitions.

Next, I control for the variation between CEOs in terms of education by running the second panel regression.

The results indicate that CEOs with a background within business or economics tend to increase both the level of acquisitions and the probability of doing one. The significance is stronger for both the level and probability, at the 5% and 1% level, respectively, and present in all models compared to before controlling for educational background. One reason could be because CEOs with this background have more knowledge on M&A's. This enable them to better understand how acquisitions work and identify targets causing the aspired short-term changes as opposed to CEOs without the same kind of educational background and thereby knowledge.

[21] Both the coefficients on *LVR* and *logMV* could be issues of reversed causality. First, companies use acquisitions to increase firm value. Second, they raise debt on their balance sheet, increasing leverage, to finance acquisitions.

By choosing better targets, they manage to drive up short-term share prices, and increase the value of vesting shares and options as proposed by Edmans et al. (2018). Nonetheless, since acquisition tend to deliver negative long-term performance it could also indicate that these CEOs are more cynical in terms of exploiting corporate decisions in order to maximize their payout upon vesting. Leverage, accounting performance, and firm size is unaffected by controlling for education.

The results on acquisitions could imply that CEOs use acquisitions to boost the short-term share price around vesting in accordance with previous research. Importantly, when controlling for differences between CEOs I see suggestions that this effect is driven by the choices of CEOs with an educational background within business and economics. Thus, the results on acquisitions is consistent with the hypothesis.

5.3.1.3 Dividends

Dividends is another corporate fundamental believed to be prone to managerial discretion. Firms generally tend to set the dividend payouts to a level they expect to be able to maintain based on future earnings prospects (Berk & DeMarzo, 2014). Based on the dividend-signaling hypothesis, I argue that a CEO is inclined to coincide dividend changes with vesting equity in order to boost short-term share prices, thus increasing his payout upon vesting (Black, 1976). Additionally, previous research show that firms raising dividends experience increasing share prices, thus providing foundation for my argument. By increasing dividends or the growth rate of dividends it signals that the firm expects strong future earnings which could increase the attractiveness of a firm. Conversely, lowering the dividend growth or even reducing dividends could signal that the firm has experienced hard times; hence, they cannot pay a similar dividend as before. Nonetheless, reducing the dividend payout ratio could even be beneficial to shareholders even though the market tends to react negatively. If the cash usually used to pay dividends is withheld in order to invest in high yield projects, exceeding their required rate of return, it could cause long-term shareholder value creation, conversely to what the market tend to believe.

All this makes the relationship between *Vesting* and dividend payments difficult to interpret. Nonetheless, my hypothesis evolves around the findings that firms raising dividends experience an increase in share price.

Looking to the results, I see a positive relationship between dividend payment levels and *Vesting*. This could imply that CEOs indeed use the market reaction to dividend signaling as explained by the dividend-signaling hypothesis to maximize the value of their vesting equity. Leverage is significantly positive which could seem puzzling. One reason could be that firms finance dividends with debt to keep cash on hand because of favorable debt conditions. Another reason could be that the signaling effect of increasing leverage coincides with increasing dividends. Increased leverage could be a signal of good future prospects due to the ability to pay higher debt costs, thus both the increased dividend and increased leverage stems from actual good prospects.

When controlling for education I see no particular effect other than that CEOs with a background within law tend to reduce dividends. However, when removing observations with education classified as other/unknown, the coefficient becomes insignificant[22]. A reason that might explain the lacking difference between CEOs, could be that all CEOs have a fair understanding of the implications of dividend payout policy similar to the knowledge about implications of share repurchases; hence, educational background does not matter.

As with share repurchase, I see results partially supporting the hypothesis. First, the results indicates some evidence of CEOs using signaling from increasing dividends to boost the share price around vesting. However, the second part contradicts my hypothesis, as I do not find any clear effects on dividends from educational background.

5.3.1.4 Working capital

Working capital (*WC*) is meant to capture short-term investments and operational efficiency. Companies could increase their short-term cash flow by improving operating efficiency, optimizing their inventory and reducing the safety margins in operations. However, keeping a high working capital could be better in terms of increased robustness and reduced risk.
From the coefficients on *Vesting*, I see no evidence indicating that CEOs use working capital in order to boost earnings. Better investment opportunities could make CEOs reduce working capital in order to invest in long-term value creation explaining the negative relation between *Q* and working capital.

[22] Robustness is found in appendix part B, section 10.7.

When controlling for education the coefficient for business and economic graduates, law and engineering turns negative and is significant at the 10% level. By filtering out the base group with unknown fields of studies, the sign is consistent, but only business graduates remain somewhat significant and negative at the 10% level[23]. This could imply that these CEOs increase risk by reducing working capital and possibly increase operating efficiency when they have a large amount of equity vesting[24]. This give a positive cash flow effect, and could improve the conditions for equity sales.

The analysis on working capital provide some weak support of the hypothesis. I see some evidence that CEOs with a background within business and economics increase risk and lower working capital in order to boost earnings. In other words, that CEOs act differently based on their educational background.

5.3.1.5 Summary of results - short-term corporate actions

The results from investigating the relationship between what I argue is company fundamentals prone to short-term changes and *Vesting* indicate some evidence supporting the hypothesis. First, I see evidence suggesting that CEOs use signaling in the form of repurchase and dividends, and acquisitions to increase the short-terms share price around vesting. Second, I see some evidence that CEOs with an educational background within business and economics understand and use these actions better or more than other CEOs.

5.3.2 Long-term corporate actions

The following subcategory contains the changes to corporate fundamentals with implications mainly in the long term. I argue that investments in property, plant and equipment, research and development and capital expenditures better reflect actions meant to create long-term value. As argued by Edmans et al. (2016) cutting these investments could have a negative effect on long-term value creation, but since they are immediately expensed it could create an earnings boost causing a short-term share price increase and thereby improve conditions for equity sales.

[23] Robustness found in appendix part B, section 10.8.
[24] Lower working capital is associated with higher risk (Sushma & Shah, 2007).

Table 5: Long-term changes to company fundamentals controlling for educational background

	(1) PPE	(2) PPE Education	(3) CapEx	(4) CapEx Education	(5) R&D	(6) R&D Education
Vesting	0.049***	0.035***	0.010***	0.005**	0.004***	0.005
	(0.014)	(0.012)	(0.002)	(0.002)	(0.002)	(0.004)
#Business		0.040		0.010**		-0.003
		(0.028)		(0.005)		(0.003)
#Science		-0.026		-0.004		0.001
		(0.025)		(0.004)		(0.004)
#Engineering		0.050		0.010		0.000
		(0.057)		(0.008)		(0.004)
#Law		-0.041***		-0.006**		-0.006**
		(0.013)		(0.002)		(0.003)
#Arts		0.007		0.007		0.002
		(0.025)		(0.006)		(0.004)
Unvested	0.004	0.004	-0.000	-0.000	-0.000	-0.000
	(0.011)	(0.011)	(0.001)	(0.001)	(0.001)	(0.001)
Vested	-0.000***	-0.000***	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.878	0.880	0.109*	0.109*	0.000	0.001
	(0.707)	(0.712)	(0.058)	(0.058)	(0.035)	(0.035)
Bonus	-0.018	-0.015	0.020	0.020	-0.001	-0.001
	(0.027)	(0.026)	(0.016)	(0.016)	(0.001)	(0.001)
Age	-68.934	-71.156	-12.751	-13.047	8.676	8.584
	(151.924)	(151.286)	(21.475)	(21.333)	(11.083)	(11.093)
Tenure	14.094	14.237	2.258	2.369	2.380	2.399
	(39.105)	(38.788)	(5.067)	(5.013)	(2.524)	(2.522)
LVR	222.144	200.673	-4.064	-8.698	43.677**	42.364**
	(182.732)	(186.337)	(30.024)	(30.305)	(18.530)	(18.274)
ROA	-596.953*	-592.098*	-28.287	-26.702	-37.101*	-37.402*
	(315.802)	(317.417)	(36.181)	(36.207)	(20.232)	(20.114)
Return	- 127.845***	-131.640***	-64.696***	-65.242***	-6.881*	-6.579
	(35.635)	(35.156)	(9.601)	(9.600)	(4.052)	(4.017)
Q	-152.509***	-146.605***	-21.382***	-20.192***	-16.865**	-17.104***
	(37.271)	(35.719)	(5.683)	(5.554)	(6.667)	(6.600)
logMV	230.325**	226.146**	77.383***	76.315***	37.420**	37.208**
	(99.072)	(97.808)	(13.436)	(13.408)	(15.834)	(15.845)
Constant	3,083.433	3,215.794	235.280	256.196	-619.452	-612.497
	(7,727.686)	(7,691.150)	(1,087.154)	(1,079.512)	(527.258)	(527.604)
Observations	21,020	21,020	21,020	21,020	21,020	21,020
R-squared	0.079	0.081	0.037	0.040	0.034	0.036
Number of CEO	3,325	3,325	3,325	3,325	3,325	3,325
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the different long-term company fundamentals and a CEO's vesting equity in the same year, both with and without controlling for educational effects. Column (1) estimates a within model with both time and CEO fixed effects on plant, property and equipment in a given year, column (2) estimates a similar model, but controls for educational effects through interaction variables. Column (3) & (5) and (4) & (6) estimates similar models as (1) and (2) but with CapEx and R&D as response variables, respectively. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA* and *Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

5.3.2.1 Property, plant and equipment

In this subsection, I investigate the relationship between *Vesting* and investments in property, plant and equipment (*PPE*). On average, the companies in the sample has a growth in *PPE* each year, possibly reflecting the need to invest in order to grow or reflecting the balance sheet valuation in terms of inflation.

Turning to the results, I find a positive relation between *Vesting* and *PPE*, which contradicts my initial hypothesis. Since *PPE* is supposed to capture investments creating value over a period of time, I argue that this could be explained by the rationality of CEOs. By upholding, or even increasing investments they increase the possible long-term performance of the company. I argue that this happens because a CEO only has a limited amount of his total wealth vesting each year compared to his already vested equity. Therefore, it would be irrational to chase short-term investment cuts in order to boost the short-term share price on account of possible negative long run value implications. *Vested* is significant and negative. However, since the holding of *Vested* is endogenous, the coefficients is, as discussed, difficult to interpret.

Accounting performance is negatively correlated with *PPE*. This could be explained by investments such as *PPE* generally is expensed right away, but do not yield an immediate return. Similarly, I see that market performance has a negative relation to *PPE* investments.

The negative coefficient on *Q* could be a result of reversed causality. As *PPE* increases there are less good investment opportunities left if I assume that rational CEOs invest in the best project first, hence I see a negative correlation between *Q* and *PPE*. Firm size is further associated with an increase in *PPE*, possibly explained by increased investments in revenue generating assets increasing with firm value.

By controlling for education, I am unable to say anything conclusive about the effect of educational background in terms of vesting equity and its relation to investments in *PPE*. However, previous law students have a negative coefficient. Nonetheless, it turns insignificant when filtering out the noise caused by the base group with unknown field of studies, and once again, it is difficult to find evidence about the effect of certain educational backgrounds[25].

[25] Filtered results can be found in appendix part B, section 10.9.

The long-term investments in *PPE* is inconsistent with my hypothesis. I believed CEOs would cut investments in order to get a short-terms earnings boost because of short-termism. However, the results could indicate that CEOs are more rational than initially believed, possibly explained by the ratio between *Vesting* and *Vested* and they therefore do not chase positive short-term effects at the expense of long-term growth.

5.3.2.2 Capital expenditures

Capital expenditures (*CapEx*) is similarly to *PPE* a balance sheet number reflecting long-term investments. As before, my initial hypothesis is that CEOs may be prone to cut these expenditures in order to experience a short-term increase in the share price caused by an earnings boost.

Turning to the results, I witness a positive correlation between *CapEx* and *Vesting* equity, once again contradicting my hypothesis in terms of short-termism. Following the argumentation and results from the previous section, I argue that this could be explained by the fact that rational investors might pursue other actions to increase their payout from vesting rather than pursuing investment cuts from long-term value propositions. Turning to the control variables, I witness similar relations as with *PPE*.

Lastly, when controlling for education I see that especially CEOs with an educational background within business and economics and engineering increase *CapEx* in times of vesting. I argue that a possible explanation for this could be that business and economic and engineering students better understands the long-term value implications by cutting investments today. Additionally, they may also have more knowledge on how to increase the short-term share price more efficiently, thus seeking short-term actions as suggested in section 5.3.1. Previous law students once again have a negative correlation, which proves insignificant when filtering out the noise caused by the base group, and this makes it difficult to conclude unambiguously about holding a law degree[26].

The results between *CapEx* and *Vesting* is in line with the argument about the rationality of CEOs and results from PPE. Nonetheless, it is inconsistent with my initial hypothesis about CEOs cutting investment because of short-termism.

[26] Filtered results can be found in appendix part B, section 10.10.

5.3.2.3 Research and development

Research and Development (*R&D*) costs are similarly to *PPE* a part of long-term value propositions. As with *CapEx* and *PPE* my initial hypothesis was that CEOs would be inclined to cut investments because of short-termism.

Turning to the results, I see a positive and significant relation between *R&D* and *Vesting*. The controls indicate similar relationships as discussed above. Similar to *PPE* and *CapEx*, reducing *R&D* is not necessarily the optimal solution for CEOs who potentially seek to maximize their value of vesting equity. However, the results are in contrast to the findings of Edmans (2017). Contrary, Eberhart, Maxwell & Siddique (2004) have established a positive long-term relationship between performance and R&D spending backing the rationale behind my explanation. I argue that increasing R&D expenditures might also signal a commitment to future performance by continuously innovating in order to keep, or gain, a strong competitive positon. *LVR* is positive and significant at the 5% level. This could once again be an issue of reverse causality stemming from increasing *R&D* expenditures and financing them by increasing debt levels.

Looking to the education controls, the only noticeable difference is the significantly negative correlation on the interaction variable for CEOs with an educational background from Law. As they are the only group consistently having a negative relation, it could imply that they reduce R&D around vesting in order to boost earnings. However and as previously discussed this action is not necessarily the optimal solution. This correlation could for instance be because CEOs holding a law degree do not have the proper knowledge of how to best increase earnings without reducing long-term value creation compared to CEOs holding for instance a degree within engineering or business and economics.

Once again, the results are inconsistent with my hypothesis in regards to short-termism. Nonetheless, as with *PPE* and *CapEx* this could be because already vested equity makes out the largest part of incentives as shown by Jensen and Murphy (1990), and *Unvested* on average is larger than *Vesting*. Hence, a CEO might seek other means to increase the short-term share price without doing it at the expense of long-term value creation by cutting investments.

5.3.2.4 Summary of results - long-term corporate actions

The results from investigating the relationship between what I argue are company fundamentals prone to long-term changes and *Vesting* is inconsistent with the hypothesis.

The results indicate that CEOs tend to increase rather than decrease investment around *Vesting*, thus contradicting the results of Edmans (2016) and my hypothesis regarding short-termism[27]. Further, controlling for educational background does not provide any other insight than the consistent and significant negative interaction between *Vesting* and having a Law-degree. Nonetheless, this is not necessarily the optimal solution and the coefficient becomes insignificant when filtering the sample. This makes it difficult to conclude on the effect of educational background on long-term corporate actions.

5.3.3 Concluding remarks on changes in company fundamentals

The hypothesis investigated in this section was "*CEOs use their position to influence the share price upon vesting, and educational background affect these choices.*" The results provided is both consistent and inconsistent with the hypothesis.

First, the results on short-term corporate actions provides evidence consistent with the hypothesis about both differences between CEOs in terms of educational background and that CEOs take actions meant to maximize their payout upon vesting. The evidence suggest that CEOs use signaling through for instance dividends and repurchases to increase the short-term share price. Further, CEOs with an educational background within business and economics tend to use these actions to a greater extent or they simply understand the relationships better, highlighted by the effect on acquisitions.

Second, the results tied to long-term corporate actions are inconsistent with the hypothesis. There is no evidence of CEOs cutting investments in order to boost earnings and increase the share-price because of short-termism as initially believed. Further, I find no evidence of significant differences between CEOs[28].

[27] One reason for this could that Edmans (2016) use quarterly data, and thereby better captures short-term changes or allocation of resources, not reflected in the annual data in this thesis.
[28] To further investigate the impact of educational background, I ran a regression with an interaction between *Vesting* and a dummy for having attended an Ivy League university on all short-and long term response variables. However, I was unable to find any significant results.

The suggested evidence is that CEOs use signaling, and short-term changes, to increase the share price around vesting rather than cutting investments and create long-term value erosion. The results also suggest that CEOs with a background within business and economics are more inclined to take these actions.

5.4 The effect of CEO compensation on turnover

The purpose of sections 5.4-5.6 are to answer the second hypothesis: "*A high personal cost of leaving inflicted by the loss of unvested equity impact the probability of a CEO turnover, and educational background influence this.*" I combine *Vested* and *Unvested to* make up a new variable called *Incentive*. The purpose is to analyze if this *Incentive* affects the probability of a turnover. I investigate why a CEO might leave the company or why he stays. Thereby I aim to provide a broader picture on the implications of compensation on a CEOs career as an addition to the first hypothesis, which investigated how CEOs ran their company based on incentives.

5.5 Methodology

In this section, I provide the methodology and reasoning behind the results investigating the relation between turnovers and *Incentive*. I argue that a CEO would be more reluctant to leave office in either way (involuntary/voluntary) if the amount of unvested equity makes up a large part of their total fortune as it thereby imposes a high cost of leaving.

To account for this incentive, I have created a new variable called *Incentive*:

$$\frac{Vested}{Vested + Unvested}$$

The intuition behind this is that if *Unvested* gets large i.e.

$$Unvested \to \infty \gg \frac{Vested}{Vested + Unvested} \to 0,$$

and if *Unvested* gets small i.e.

$$Unvested \to 0 \gg \frac{Vested}{Vested + Unvested} \to 1,$$

it proxies for the incentive a CEO has to leave office in terms of compensation and cost of leaving. I use *Incentive* when answering the second hypothesis instead of the variables *Unvested* and *Vested* as before.

The dependent variable in this section is the binary variable, *Turnover*, which takes the value of zero if there is no turnover happening in a given year, and the value of one if a turnover happens.

First, I include independent variables reflecting different aspects of the overall compensation structure and characteristics for each CEO. Thus, the variables are *Salary*, *Bonus* and *Vesting* for a given year, *Incentive* to reflect cost of leaving, as well as *Age* and *Tenure.* Second, I add different firm variables believed to affect turnover, *logMV*, *ROA, Tobin Q* and *Return*, reflecting firm size, accounting performance, investment opportunities and stock performance, respectively. By including them, I aim to address different aspects possibly causing CEO turnovers, thus reducing problems with omitted variable bias.

By including the same interaction variables as before, I am able to look at the variation between CEOs in terms of educational background and investigate if some CEOs are more influenced by a high personal cost of leaving.

I assess if the vesting of equity affects CEO turnover by running the following panel regressions[29]. The dependent variable is *Turnover*, the main independent variable is *Incentive,* and the control variables are denoted as *Controls***.** Regression (III) is the basic regression. It investigate the first part of hypothesis two. Regression (IV) includes an interaction variable between *Inventive* and dummies representing educational background. It investigate the second part of hypothesis two. Alpha captures the firm specific effect, gamma the year specific effect, and mu is the idiosyncratic error term.

$$(III) \qquad Turnover_{it} = \alpha_i + \beta Incentive_{it} + \beta Controls_{it} + \gamma_t + \mu_{it}$$

$$(IV) \qquad Turnover_{it} = \alpha_i + \beta Incentive_{it} + \beta Incentive_{it} * EducDummy + \beta Controls_{it} + \gamma_t + \mu_{it}$$

[29] Note that alpha and R2 is omitted for the probit models

Table 6: Probability for turnover controlling for educational background

Turnover	(1) Probit	(2) Probit Education	(3) LPM FE Education	(4) LPM FE IvyLeauge
Vesting	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Incentive	0.319***	0.026***	0.062**	0.068***
	(0.085)	(0.008)	(0.028)	(0.016)
#Business		0.011**	-0.033	
		(0.005)	(0.031)	
#Science		0.006	-0.033	
		(0.007)	(0.047)	
#Engineering		0.021***	0.038	
		(0.006)	(0.040)	
#Law		-0.007	0.014	
		(0.009)	(0.064)	
#Arts		0.012*	0.022	
		(0.006)	(0.036)	
Salary	-0.000	-0.000	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Bonus	-0.000**	-0.000***	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.040***	0.005***	-0.015	-0.015
	(0.004)	(0.000)	(0.010)	(0.010)
Tenure	-0.006*	-0.000	0.015***	0.015***
	(0.003)	(0.000)	(0.004)	(0.004)
LVR	0.094	0.012	-0.001	-0.001
	(0.073)	(0.008)	(0.021)	(0.021)
ROA	0.273*	0.019**	0.009	0.009
	(0.160)	(0.009)	(0.016)	(0.016)
Return	-0.218***	-0.021***	-0.006	-0.005
	(0.048)	(0.005)	(0.005)	(0.005)
Q	-0.036**	-0.003**	-0.002	-0.002
	(0.017)	(0.001)	(0.003)	(0.003)
logMV	0.041***	0.004***	-0.020***	-0.020***
	(0.013)	(0.001)	(0.005)	(0.005)
#IvyLeauge				-0.059*
				(0.036)
Constant	-5.388***	-0.309***	0.774	0.763
	(0.483)	(0.018)	(0.518)	(0.517)
Observations	19,366	20,572	20,572	20,572
R-squared			0.097	0.097
Number of CEO	3,298	3,298	3,300	3,300
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects			Yes	Yes

This table presents the regression results on the relation between a binary indicator variable of whether a turnover takes place or not in a given year and a CEO's vesting equity and incentive to leave in the same year. Column (1) estimates a probit model controlling for the effect of different CEO characteristics varying between CEO's. Column (2) and (3) estimates a linear probability model (LPM) without and with CEO fixed effects, respectively. Column (4) estimates a model similar to (3) but now controls for place of study in order to look if university attended affects the relation between vesting equity and acquisitions. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA* and *Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

5.6 Results

Turnovers are costly for a firm as argued by several researchers. First, a firm loses a CEO with firm specific knowledge. Second, a high turnover rate may reduce the CEOs incentive to obtain the knowledge in the first place. Hence, rapid turnovers could result in a reduction of long-term shareholder value-creation.

When a CEO leaves a firm, either voluntary of involuntary, he forfeits all unvested equity. This should however have no real effect on the probability of a turnover if either a signing bonus from a new job or a contractual hedge in terms of a single payout in case of involuntary turnover is in place. The purpose of analyzing how compensation affects turnover is that boards can make better contracts by aligning the incentives between agent (CEO) and principals (board/shareholders) and increase the retention rate.

Turning to the results, I see a positive relation between *Incentive* i.e. the incentive to leave and the probability for a T*urnover* to happen[30]. This is line with the hypothesis and argument above. In other words, when the cost of leaving is high, the likelihood for a firm to experience a CEO turnover decreases. Salary has a negative relation to *Turnover*. I argue that when a CEO experiences an increase in base salary, the relative proportion of deferred pay decreases ceteris paribus. Hence an opposite signs to *Incentive* is not unexpected. When *Tenure* increases, I see an increased probability of a turnover. This could be because CEOs who have been in the company for a longer time want to explore other opportunities or retire, thus explaining the positive relation.

Market laggards also have a positive relation with turnovers. I argue that this could be a result of CEOs who underperform experiences a higher probability of either being forced out, or voluntarily leave office in order to minimize the long-term effect of underperforming. One consequence of underperforming could be that the probability for them being forced out is higher, or that the next job is harder to get. *Q* proxies for investment opportunities and is negative in the probit model at the 5% level. This could be because when the amount of investment opportunities increases, the value of staying behind in a company and utilize these opportunities to increase the value of both the already vested equity, yet unvested equity and the possible new equity grants increases. Conversely, when there are less good investment

[30] The results are robust to using *Unvested* as before, with *Vested* as a control. I also tried using *Unvested/Total Compensation* but was unable to get any results from that.

opportunities the value of staying behind decreases and the CEO could be better off by leaving office.

The coefficient on firm size offers an interesting relation as it changes sign, but stays significant on the 1% level when controlling for CEO and company fixed effects. In both the probit and LPM model without fixed effects, I see indications that if a firm is large, the probability of a turnover increases. Larger firms having more interested parties and higher demands could result in more pressure on a CEO causing a higher turnover rate. When controlling for fixed effect, the sign changes, but the effect is still significant. I argue that this could be seen as a result of good performance. The relationship between increased firm value and the probability of a turnover is negative. If a CEO performs well and manages to increase the market value of a firm, there is no point for the board to fire him, or for the CEO to leave.

Next, I add interaction variables between *Incentive* and different educational backgrounds as it allows me to investigate if the variation between CEOs affect the importance of *Incentive* in relation to the probability of leaving office. Both the probit model and LPM without CEO fixed effects show a significant and positive relation between *Incentive* and CEOs with a background within *Business, Engineering* and *Arts.* This could indicate that CEOs with these backgrounds are more inclined to be affected by the cost of leaving if deciding to leave. However, the interactions become insignificant in the FE LPM model. This makes it difficult to conclude that CEOs with different backgrounds are influenced differently. One explanation for this could be that CEOs consider the cost of leaving independent from their educational background. The coefficients on *Age*, *Tenure, Return, Q* and *logMV* remains unchanged.

A noteworthy finding is that in the FE LPM model estimating the effect of having attended an Ivy League school is somewhat significant and negative. In other words, if you attend an Ivy League school it could look like you are inversely incentivized to leave office in terms of deferred compensation. One possible explanation could be that Ivy League graduates are better CEOs, thus the chance that they are forced out is reduced. Another explanation could be that they simply care less about the compensation if they already receive higher pay or that they simply enjoy their position as CEO to a higher extent. This could further be explained by the reputation of Ivy League schools, which may help graduates to land optimal positions earlier, thus making them less prone to switching jobs as a career move.

5.6.1 Concluding remarks on CEO turnover

The evidence is consistent with the second hypothesis of this thesis. As witnessed, there is a significant relationship between incentives from compensation and the probability of a turnover. I see some indications of varying importance of incentives between CEOs with different backgrounds, and a somewhat interesting relationship on Ivy League graduates. The witnessed results could indicate that the cost of leaving and incentive from contractual compensation aspects indeed affects CEO and *Turnover* probability, consistent with my hypothesis.

With CEO turnover, reaching an all-time high in 2018 it should be of undisputable interest to make better contracts aligning incentives between principal and agent in order to retain management and their firm specific knowledge, and possibly reduce the cost to shareholders from a too high turnover rate. Nonetheless, corporate governance, CEO compensation and CEO turnovers are complex, and caused by several varying factors. This could cause endogeneity problems, and it is difficult to establish causal relationships. However, the results provided could give some valuable insights. First, it could imply that boards do not put enough long-term incentives as part of the contract, or do not include enough new ones. Second, the cost of leaving when facing a possible turnover does actually affect the CEO such that they time the turnover to minimize the personal cost of leaving.

6 Summary, Conclusion and Interpretation

In this thesis, I have studied the material effects of CEO compensation. I have explored its relation to both company fundamentals believed to be subject to managerial discretions and CEO turnover.

Through investigating two hypotheses, I have aimed to shed light on the overall research question "*How does CEO compensation affect the way they run their company and the choices they make*?" In order to do this, I have utilized a dataset of 3,366 unique combinations of individual CEOs and companies from the S&P 1500 index in the time span between 2004 and 2016. I show evidence suggesting managers coincide changes in company fundamentals with their vesting schedule, and how a high personal cost of leaving affect turnover. The results on short-term corporate actions provide support for hypothesis one, but the results on long-term corporate actions are inconsistent with the hypothesis. The results from investigating CEO turnover is consistent with my second hypothesis.

First, I find that CEOs tend to take actions focused on short-term changes to company fundamentals, rather than cutting long-term investments. I argue that this can be explained by incentives from already owned equity and unvested equity puts a cap on the amount of value erosion a rational CEO will undertake in order to boost the short-term share price. Based on my results, I suggest that the CEO is more prone to take actions in terms of signaling, and acquisitions rather than by cutting long-term investments. Second, I find evidence suggesting that CEOs with an educational background within business and economics are more inclined to take these kinds of actions. This could be because this education is a proxy for either a more cynical approach in terms of own value creation and/or a better understanding of the relationships investigated.

Third, I find that a high personal cost of leaving in terms of deferred compensation has a significant and negative relation to the probability of a turnover. Fourth, CEOs having attended Ivy League schools seems somewhat less affected by incentives in terms of probability to leave. CEO turnovers reached an all-time high in 2018, and this thesis sheds light on the importance of incentives to decrease the probability of a turnover. A higher than optimal turnover rate is expensive and better-aligned incentives could help reduce this, and thereby the long-term cost for shareholders.

To summarize, CEO compensation appears to have a real and material effect on both company fundamentals and turnover. It also appears that educational background matter, thus I argue this thesis contributes some new insights into the world of corporate governance. CEO compensation has been an ongoing debate for several decades and politicians proposing to restrict it have met criticism from scholars arguing that better incentives are more important. I suggest that incentives indeed have an effect on how a CEO runs his firm. However, in some cases these incentives may induce myopic decisions.

"*Money motivates neither the best people, nor the best in people.”*
Dee Hock, Former CEO of Visa

Overall, incentives from compensation are significant and important. Decisions about how contracts should be made and how they are intended to work is of utmost importance in order to avoid principal-agent problems. In addition, these decisions ought to be based on empirical research rather than common beliefs, and take into account the background and personality of each CEO.

7 Limitations and Further Research

Throughout the thesis, I have tried to utilize the optimal approach in terms of econometrics to analyze the data. Nonetheless, I recognize the problems with endogeneity and causality in estimating the effects from the conducted regressions.

CEO contracts are endogenous and designed by executives, directors and consultants making an effort to incorporate unobservable effects from either the CEO, firm or industry. As a result these contracts are inevitably correlated with these effects, which again affect both behavior, value and performance. Thereby, identifying causal effects of compensation on any response variable of interest is extraordinarily difficult. I have tried to reduce these problems through different approaches and choices and tried to be careful in being too bombastic in my conclusions. Nonetheless, with the measures taken I argue that some insights can be gained from the results.

Through the process of writing this thesis, I have reflected upon research that could be interesting to investigate in the future. By using a different type of measure for incentives the results could change, or become clearer. Nonetheless, Geoplan (2016) for instance found that the amount vesting is more important than the duration of vesting which substantiates my choice of proxy. Another possibility is to use a similar measure as in this thesis, but collected on a higher frequency like monthly or quarterly. This higher frequency could change the results as it better captures short-term changes like postponing investment. Due to data availability, this however was not possible in this thesis[31]. Further, a possible problem is that a poor CEO could result in more volatility, thus increasing the value of his options as calculated through Black-Scholes.

It could also be interesting to control for different types of performance-based equity such as compensation tied to EPS, share returns or similar. Does for instance the proportion of relative measures compared to absolute measures change how CEOs behave. I have not focused on this as Gopalan et al. (2014) found that most equity have predetermined vesting schedules at the time of grant. Additionally, because of limited data availability this could prove difficult or extremely time consuming if the data needs to be handpicked.

[31] NHH for instance do not have access to Equilar, a database recording detailed executive compensation data.

Further, with better data availability, it could be interesting to differentiate between debt based and equity based compensation and investigate if those affect differently. Several researchers and scholars like Edmans (2018) have been advocates for using debt-based compensation to better align incentives between CEOs and board/shareholders. If for instance a company is close to bankruptcy, the value of equity is worth close to zero. This could make CEOs prone to excessive risk taking in order to salvage his equity position, as there is no downside. Scholars argues that tying compensation to debt could reduce this risk.

Yet another possibility is to do similar research on non-U.S. firms in order to investigate if similar relationships exists in for instance Norway or Sweden. I initially considered this option but was limited due to scarce data availability. Similarly, it could be interesting to look at other executives than CEOs or compare other executives to the CEO. Alternatively, it could be interesting to investigate if different accounting standards matter.

This thesis has provided some evidence for a relation between acquisitions and repurchases to vesting. Combined with the results of Edmans (2018) who show short-term stock gains on the account of long-term negative consequences from repurchases and acquisitions, it might be possible to use this short-termism of CEOs to create a trading strategy.

Conclusively, even though this thesis does not provide a holistic picture of different aspects of CEO contracts, it offers some insight into an important aspect of corporate governance where decisions have to be made based on empirical evidence in order to avoid situations with government interventions based on wrong assumptions.

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9 Appendix Part A

9.1 Definition of variables

This part of the appendix describes how the variables have been calculated and where they originates.

Variable name	Description	Metric	Data source
CEO			
Vesting	Sum of value of share-releated awards that do not have options-like features and value of options vesting during the. Both is valuated based on income statement and company balance sheet.	Thousands	Execucomp
Unvested	Sum of the aggregate market value of restricted shares and the estimated aggregate value of in-the-money vested options held by the CEO at year-end.	Thousands	Execucomp
Vested	Sum of shares owned options excluded times close price of share and the estimated value of in-the-money exercisable options as of year-end.	Thousands	Execucomp
Salary	The dollar value of the base salary earned during the year.	Thousands	Execucomp
Bonus	The dollar value of the base bonus earned during the year.	Thousands	Execucomp
Age	Age of CEO in given year.	Hundreds	Execucomp
Tenure	Tenure as CEO in company. Caluculated as full years based on time between *datebecomeceo* and *datelefteeo* in accordance with Wagner (2014). *Datebecomeceo and datelefceo are variables in the ExecuComp database.*	Hundreds	Execucomp
#Business	Interaction variable between Vesting and dummy for Business or Economics degree. Dummy takes value of one if CEO have the given degree, and zero else.		Various resources
#Science	Interaction variable between Vesting and dummy for Science degree. Dummy takes value of one if CEO have the given degree, and zero else.		Various resources
#Engineering	Interaction variable between Vesting and dummy for Engineering degree. Dummy takes value of one if CEO have the given degree, and zero else.		Various resources
#Law	Interaction variable between Vesting and dummy for Law degree. Dummy takes value of one if CEO have the given degree, and zero else.		Various resources
#Arts	Interaction variable between Vesting and dummy for Arts degree. Dummy takes value of one if CEO have the given degree, and zero else.		Various resources

#IvyLeague	Interaction variable between Vesting and dummy for Ivy League. Dummy takes value of one if CEO have attended an Ivy League school during his studies, and zero else.		Various resources
Company			
Return	Holding period return over the CRSP value-weighted index. Annualized based on monthly returns retrieved from CRSP for the given company.	Percentage	CRSP
ROA	EBITDA / Total Assets. I use end-of-year for the denominator values in line with what is recorded in the CompuStat database. I recognize that the best way in theory is to use a weighted average throughout the year. Comparing between entry and exit values of a given year I argue that using exit (end-of-year values) is just as appropriate as entry values, as you cannot say at exactly what time of year the value is created.	Percentage	CompuStat
Q	Market value divided by book value of debt and equity.		CompuStat
LVR	Long-term debt-to-total-assets ratio	Percentage	CompuStat
logMV	Natural logarithm of Market value.		CompuStat
Repurchase	Annualized value of shares repurchased in a given quarter as a percentage of total market capitalization.	Percentage	CompuStat
Repurchase indicator	Indicator variable equaling one if a firm did a share repurchase in a given year, and zero else.	Binary	
Acquisitions	Money spent on acquisitions in a given year or effect of acquisitions in a prior year.	Millions	CompuStat
Acquisition indicator	Indicator variable equaling one if a firm did an acquisition in a given year, and zero else.	Binary	CompuStat
Dividends	Cash dividends.	Millions	CompuStat
PPE	Cost, minus accumulated depreciation of a company's property, plant and equipment.	Millions	CompuStat
CapEx	Capital expenditures excluding amounts arising from acquisitions.	Millions	CompuStat
R&D	Costs stemming from research and development in a given year.	Millions	CompuStat
Working Capital	Total current assets minus total current liabilities as reported.	Millions	CompuStat

10 Appendix Part B

10.1Table 7: Repurchase and vesting equity

Repurchase	(1) Repurchase	(2) Education full sample	(3) Education sample	(4) Education IvyLeauge
Vesting	0.000**	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)
#Business		0.000	0.000**	
		(0.000)	(0.000)	
#Science		-0.000	-0.000	
		(0.000)	(0.000)	
#Engineering		-0.000	-0.000	
		(0.000)	(0.000)	
#Law		-0.000	-0.000	
		(0.000)	(0.000)	
#Arts		0.000	0.000	
		(0.000)	(0.000)	
Unvested	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Vested	-0.000*	-0.000*	0.000**	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Bonus	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.001	0.001	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Tenure	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
LVR	0.003*	0.003*	0.003	0.003*
	(0.001)	(0.001)	(0.002)	(0.001)
ROA	0.004***	0.004***	0.004**	0.004***
	(0.002)	(0.002)	(0.002)	(0.002)
Return	-0.000*	-0.000*	-0.001**	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Q	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
logMV	-0.000*	-0.000**	-0.000	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
#IvyLeauge				-0.000
				(0.000)
Constant	-0.023	-0.023	-0.004	-0.023
	(0.028)	(0.028)	(0.033)	(0.028)
Observations	20,969	20,969	15,462	20,969
R-squared	0.038	0.038	0.035	0.038
Number of CEO	3,318	3,318	2,473	3,318
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the share repurchased in a given year as percentage of market capitalization and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, columns (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample where CEOs with unknown field of study are removed, in order to reduce noise as these CEOs can have different field of studies reflected in the other dummies. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and share repurchases. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.2 Table 8: Share repurchase indicator

Repurchase indicator	(1) Probit	(2) LPM	(3) LPM FE
Vesting	0.000***	0.000***	0.000**
	(0.000)	(0.000)	(0.000)
Unvested	-0.000	-0.000*	-0.000**
	(0.000)	(0.000)	(0.000)
Vested	-0.000**	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)
Salary	0.000***	0.000***	0.000
	(0.000)	(0.000)	(0.000)
Bonus	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Age	0.006	0.002*	-0.012
	(0.004)	(0.001)	(0.018)
Tenure	-0.001	-0.000	-0.011**
	(0.004)	(0.001)	(0.005)
LVR	-0.425***	-0.094***	-0.039
	(0.121)	(0.026)	(0.038)
ROA	0.787***	0.079**	0.059*
	(0.263)	(0.039)	(0.033)
Return	-0.234***	-0.054***	-0.043***
	(0.037)	(0.008)	(0.008)
Q	-0.049***	-0.008**	-0.004
	(0.019)	(0.004)	(0.005)
logMV	0.315***	0.070***	0.037***
	(0.020)	(0.004)	(0.008)
Constant	-4.100***	-0.430***	0.509
	(0.243)	(0.051)	(0.889)
Observations	20,969	20,969	20,969
R-squared		0.069	0.072
Number of CEO	3,318	3,318	3,318
Year fixed effects	Yes	Yes	Yes
CEO fixed effects			Yes

This table presents the regression results on the relation between a binary indicator variable of whether a share repurchase takes place or not in a given year and a CEO's vesting equity in the same year. Column (1) estimates a probit model and column (2) and (3) estimates a linear probability model (LPM). *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.3 Table 9: Share repurchase indicator with education

	(1)	(3)	(4)	(5)	(6)
Repurchase indicator	**Probit**	**LPM**	**LPM FE**	**LPM FE Sample**	**LPM FE IvyLeauge**
Vesting	0.000**	0.000**	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
#Business	-0.000	-0.000	-0.000	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Science	-0.000	-0.000	-0.000	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Engineering	0.000	0.000	0.000	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Law	-0.000	-0.000	-0.000	-0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Arts	0.000**	0.000**	0.000**	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
Unvested	-0.000	-0.000*	-0.000**	-0.000**	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Vested	-0.000**	-0.000*	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.000***	0.000***	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bonus	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.005	0.002*	-0.011	-0.013	-0.012
	(0.004)	(0.001)	(0.018)	(0.020)	(0.018)
Tenure	-0.000	-0.000	-0.011**	-0.014**	-0.011**
	(0.004)	(0.001)	(0.005)	(0.006)	(0.005)
LVR	-0.428***	-0.095***	-0.041	-0.045	-0.039
	(0.121)	(0.027)	(0.038)	(0.045)	(0.038)
ROA	0.785***	0.079**	0.059*	0.036	0.059*
	(0.263)	(0.039)	(0.033)	(0.031)	(0.033)
Return	-0.233***	-0.054***	-0.043***	-0.048***	-0.043***
	(0.037)	(0.008)	(0.008)	(0.009)	(0.008)
Q	-0.049***	-0.008**	-0.004	-0.005	-0.004
	(0.019)	(0.004)	(0.005)	(0.005)	(0.005)
logMV	0.314***	0.070***	0.037***	0.046***	0.037***
	(0.020)	(0.004)	(0.008)	(0.009)	(0.008)
#IvyLeauge					-0.000
					(0.000)
Constant	-4.081***	-0.427***	0.491	0.542	0.509
	(0.243)	(0.052)	(0.890)	(1.029)	(0.889)
Observations	20,969	20,969	20,969	15,462	20,969
R-squared		0.069	0.072	0.071	0.072
Number of CEO	3,318	3,318	3,318	2,473	3,318
Year fixed effects	Yes	Yes	Yes	Yes	Yes
CEO fixed effects			Yes	Yes	Yes

This table presents the regression results on the relation between a binary indicator variable of whether a share repurchase takes place or not in a given year and a CEO's vesting equity in the same year. Column (1) estimates a probit model controlling for the effect of different CEO characteristics varying between CEO's. Column (2) and (3) estimates a linear probability model (LPM) without and with CEO fixed effects, respectively. Column (4) estimates the same model as column (3) but removes noisy observations caused by insufficient information of field of study in the original sample. Column (5) estimates a model similar to (3) but now controls for place of study in order to look if university attended affects the relation between vesting equity and share repurchases. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.4 Table 10: Acquisitions annually

Acquisitions	(1) Acquisitions	(2) Education	(3) Education sample	(4) Education IvyLeauge
Vesting	0.020*	-0.005	-0.004	0.022*
	(0.011)	(0.010)	(0.011)	(0.013)
#Business		0.062**	0.069***	
		(0.024)	(0.027)	
#Science		0.016	0.018	
		(0.015)	(0.017)	
#Engineering		0.014	0.012	
		(0.013)	(0.014)	
#Law		0.001	-0.008	
		(0.010)	(0.015)	
#Arts		0.005	-0.002	
		(0.013)	(0.024)	
Unvested	0.003	0.003	0.007	0.003
	(0.003)	(0.003)	(0.005)	(0.003)
Vested	-0.000	-0.000	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.035	0.026	-0.017	0.036
	(0.066)	(0.064)	(0.084)	(0.067)
Bonus	-0.017*	-0.016*	-0.020	-0.017*
	(0.009)	(0.009)	(0.013)	(0.009)
Age	11.908	6.934	-3.324	11.291
	(30.522)	(30.434)	(36.215)	(30.377)
Tenure	-15.538	-15.115	-8.821	-15.618
	(15.196)	(15.399)	(16.842)	(15.165)
LVR	456.292***	454.838***	452.486***	455.923***
	(107.854)	(101.938)	(123.547)	(107.704)
ROA	-309.133***	-297.923***	-257.042***	-308.011***
	(88.816)	(84.654)	(79.368)	(88.623)
Return	-3.606	-4.199	3.992	-3.312
	(14.273)	(14.040)	(14.636)	(14.330)
Q	-69.556***	-67.079***	-67.843***	-69.025***
	(13.270)	(12.463)	(15.031)	(13.083)
logMV	106.186***	100.735***	89.235***	104.793***
	(24.574)	(24.349)	(29.830)	(24.455)
#IvyLeauge				-0.012
				(0.015)
Constant	-1,239.230	-952.763	-334.732	-1,199.543
	(1,556.572)	(1,553.116)	(1,840.001)	(1,548.469)
Observations	21,020	21,020	15,491	21,020
R-squared	0.020	0.032	0.048	0.020
Number of CEO	3,325	3,325	2,478	3,325
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the money spent on acquisitions in a given year and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, column (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample supposed to filter away noise caused by insufficient information. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and acquisitions. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.5 Table 11: Acquisition indicator

	(1)	(3)	(4)
Acquisition indicator	**Probit**	**LPM**	**LPM FE**
Vesting	0.000*	0.000	0.000
	(0.000)	(0.000)	(0.000)
Unvested	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Vested	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Salary	0.000**	0.000**	0.000
	(0.000)	(0.000)	(0.000)
Bonus	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
Age	-0.020***	-0.004***	0.009
	(0.005)	(0.001)	(0.014)
Tenure	0.009*	0.002*	0.007
	(0.005)	(0.001)	(0.005)
LVR	0.377***	0.073***	0.105***
	(0.129)	(0.026)	(0.034)
ROA	1.325***	0.108**	-0.069***
	(0.228)	(0.042)	(0.022)
Return	-0.279***	-0.058***	-0.062***
	(0.038)	(0.008)	(0.008)
Q	-0.004	0.003	-0.018***
	(0.019)	(0.004)	(0.005)
logMV	0.160***	0.035***	0.071***
	(0.021)	(0.004)	(0.008)
Constant	-0.889***	0.309***	-0.547
	(0.276)	(0.057)	(0.682)
Observations	21,020	21,020	21,020
R-squared		0.011	0.015
Number of CEO	3,325	3,325	3,325
Year fixed effects	Yes	Yes	Yes
CEO fixed effects			Yes

This table presents the regression results on the relation between a binary indicator variable of whether money was spent on acquisitions or not in a given year, i.e. an acquisition took place and a CEO's vesting equity in the same year. Column (1) estimates a probit model and column (2) and (3) estimates a linear probability model (LPM). *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.6 Table 12: Acquisition indicator with education

Acquisition indicator	(1) Probit	(2) LPM	(3) LPM FE	(4) LPM FE Sample	(5) LPM FE IvyLeauge
Vesting	-0.000	-0.000	-0.000**	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
#Business	0.000***	0.000***	0.000***	0.000***	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Science	0.000*	0.000	0.000*	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Engineering	0.000	0.000	0.000	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Law	0.000	0.000	0.000**	0.000*	
	(0.000)	(0.000)	(0.000)	(0.000)	
#Arts	0.000	0.000	0.000*	0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	
Unvested	0.000	0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Vested	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.000*	0.000**	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bonus	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Age	-0.020***	-0.004***	0.008	0.011	0.009
	(0.005)	(0.001)	(0.014)	(0.015)	(0.014)
Tenure	0.009**	0.002*	0.007	-0.001	0.007
	(0.005)	(0.001)	(0.005)	(0.006)	(0.005)
LVR	0.374***	0.072***	0.106***	0.076*	0.105***
	(0.129)	(0.026)	(0.034)	(0.039)	(0.034)
ROA	1.343***	0.109**	-0.068***	-0.062***	-0.070***
	(0.229)	(0.042)	(0.022)	(0.022)	(0.022)
Return	-0.279***	-0.058***	-0.062***	-0.063***	-0.062***
	(0.038)	(0.008)	(0.008)	(0.009)	(0.008)
Q	-0.004	0.003	-0.018***	-0.018***	-0.018***
	(0.019)	(0.004)	(0.005)	(0.005)	(0.005)
logMV	0.157***	0.034***	0.071***	0.066***	0.072***
	(0.021)	(0.004)	(0.008)	(0.008)	(0.008)
#IvyLeauge					0.000
					(0.000)
Constant	-0.878***	0.310***	-0.531	-0.586	-0.552
	(0.276)	(0.057)	(0.682)	(0.775)	(0.682)
Observations	21,020	21,020	21,020	15,491	21,020
R-squared		0.012	0.016	0.017	0.015
Number of CEO	3,325	3,325	3,325	2,478	3,325
Year fixed effects	Yes	Yes	Yes	Yes	Yes
CEO fixed effects			Yes	Yes	Yes

This table presents the regression results on the relation between a binary indicator variable of whether an acquisition takes place or not in a given year and a CEO's vesting equity in the same year. Column (1) estimates a probit model controlling for the effect of different CEO characteristics varying between CEO's. Column (2) and (3) estimates a linear probability model (LPM) without and with CEO fixed effects, respectively. Column (4) estimates the same model as column (3) but filters out noise caused by insufficient information of field of study in the original sample. Column (5) estimates a model similar to (3) but now controls for place of study in order to look if university attended affects the relation between vesting equity and acquisitions. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.7 Table 13: Dividend payments

Dividends	(1) Div	(2) Div	(3) Div Sample	(4) Div IvyLeauge
Vesting	0.004***	0.005***	0.002**	0.004***
	(0.001)	(0.002)	(0.001)	(0.001)
#Business		-0.001	0.001	
		(0.002)	(0.001)	
#Science		-0.002	-0.000	
		(0.002)	(0.002)	
#Engineering		-0.002	0.000	
		(0.002)	(0.002)	
#Law		-0.005***	0.002	
		(0.002)	(0.002)	
#Arts		0.006*	0.008	
		(0.004)	(0.006)	
Unvested	-0.001	-0.001	-0.002	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)
Vested	-0.000	-0.000	0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.093***	0.093***	0.087**	0.093***
	(0.035)	(0.035)	(0.041)	(0.035)
Bonus	-0.006**	-0.007**	-0.003	-0.006**
	(0.003)	(0.003)	(0.002)	(0.003)
Age	-10.416	-10.216	5.616	-10.401
	(17.587)	(17.548)	(8.166)	(17.584)
Tenure	-6.496	-6.327	-4.791	-6.494
	(5.437)	(5.369)	(6.674)	(5.432)
LVR	79.430***	78.082***	62.633***	79.439***
	(21.670)	(21.651)	(24.121)	(21.673)
ROA	1.418	1.858	2.146	1.391
	(12.937)	(12.965)	(11.145)	(12.921)
Return	-1.676	-1.328	-3.237	-1.683
	(4.902)	(4.956)	(5.884)	(4.897)
Q	0.149	0.231	0.160	0.136
	(2.962)	(2.913)	(3.057)	(2.947)
logMV	8.345	7.921	6.355	8.379
	(5.714)	(5.687)	(7.363)	(5.745)
#IvyLeauge				0.000
				(0.002)
Constant	498.913	492.638	-289.225	497.963
	(890.556)	(888.823)	(416.538)	(890.375)
Observations	21,020	21,020	15,491	21,020
R-squared	0.014	0.015	0.039	0.014
Number of CEO	3,325	3,325	2,478	3,325
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the money spent on dividend payments (Div) in a given year and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, columns (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample supposed to filter away noise caused by insufficient information. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and dividends. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.8 Table 14: Working capital

Working capital	(1) WC	(2) WC	(3) WC Sample	(4) WC IvyLeauge
Vesting	0.009	0.040	0.010	0.011
	(0.012)	(0.028)	(0.013)	(0.015)
#Business		-0.045*	-0.023*	
		(0.024)	(0.013)	
#Science		-0.012	0.003	
		(0.022)	(0.015)	
#Engineering		-0.052*	-0.024	
		(0.027)	(0.017)	
#Law		-0.041*	-0.012	
		(0.024)	(0.015)	
#Arts		0.001	-0.020	
		(0.041)	(0.025)	
Unvested	-0.001	-0.001	-0.005	-0.001
	(0.003)	(0.003)	(0.005)	(0.003)
Vested	0.000	0.000	0.001***	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	-0.180	-0.178	-0.182	-0.180
	(0.264)	(0.257)	(0.237)	(0.264)
Bonus	-0.004	-0.005	0.005	-0.003
	(0.011)	(0.010)	(0.007)	(0.011)
Age	102.155	103.514	13.519	101.731
	(67.941)	(67.789)	(37.864)	(67.518)
Tenure	8.874	9.636	-16.747	8.819
	(12.388)	(12.508)	(14.886)	(12.370)
LVR	601.436***	604.807***	534.302***	601.182***
	(107.137)	(105.782)	(105.438)	(107.146)
ROA	-143.000	-146.540	-24.163	-142.228
	(96.101)	(96.081)	(84.169)	(95.954)
Return	-30.527	-26.742	-51.940***	-30.325
	(27.349)	(28.403)	(19.035)	(27.392)
Q	-92.840***	-95.819***	-72.933**	-92.475***
	(34.377)	(34.179)	(29.394)	(34.071)
logMV	219.130***	219.317***	204.311***	218.173***
	(33.795)	(33.498)	(42.402)	(34.329)
#IvyLeauge				-0.008
				(0.017)
Constant	-6,233.378*	-6,292.784*	-1,637.121	-6,206.108*
	(3,433.047)	(3,424.457)	(1,956.034)	(3,408.677)
Observations	21,020	21,020	15,491	21,020
R-squared	0.021	0.026	0.120	0.021
Number of CEO	3,325	3,325	2,478	3,325
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between working capital (WC) in a given year and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, columns (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample supposed to filter away noise caused by insufficient information. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and WC. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.9 Table 15: Property, plant and equipment

	(1)	(2)	(3)	(4)
PPE	**PPE**	**PPE**	**PPE Sample**	**PPE IvyLeauge**
Vesting	0.049***	0.035***	0.021	0.000
	(0.014)	(0.012)	(0.019)	(0.000)
#Business		0.040	0.045	
		(0.028)	(0.033)	
#Science		-0.026	-0.013	
		(0.025)	(0.030)	
#Engineering		0.050	0.063	
		(0.057)	(0.058)	
#Law		-0.041***	-0.007	
		(0.013)	(0.030)	
#Arts		0.007	0.001	
		(0.025)	(0.025)	
Unvested	0.004	0.004	0.014	0.000
	(0.011)	(0.011)	(0.019)	(0.000)
Vested	-0.000***	-0.000***	0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.878	0.880	1.413	0.000
	(0.707)	(0.712)	(0.896)	(0.000)
Bonus	-0.018	-0.015	-0.018	0.000
	(0.027)	(0.026)	(0.030)	(0.000)
Age	-68.934	-71.156	-232.854**	-0.050**
	(151.924)	(151.286)	(105.152)	(0.025)
Tenure	14.094	14.237	8.096	0.006
	(39.105)	(38.788)	(30.749)	(0.005)
LVR	222.144	200.673	101.068	1.192
	(182.732)	(186.337)	(224.271)	(1.033)
ROA	-596.953*	-592.098*	-559.577	0.223
	(315.802)	(317.417)	(341.402)	(0.184)
Return	-127.845***	-131.640***	-131.941***	0.013
	(35.635)	(35.156)	(35.113)	(0.044)
Q	-152.509***	-146.605***	-150.973***	-0.007
	(37.271)	(35.719)	(47.891)	(0.013)
logMV	230.325**	226.146**	122.104	0.076*
	(99.072)	(97.808)	(126.529)	(0.046)
#IvyLeauge				-0.000
				(0.000)
Constant	3,083.433	3,215.794	11,804.810**	1.711
	(7,727.686)	(7,691.150)	(5,326.532)	(1.241)
Observations	21,020	21,020	15,491	20,372
R-squared	0.079	0.081	0.046	0.001
Number of CEO	3,325	3,325	2,478	3,324
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the money spent on property, plants and equipment (PPE) in a given year and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, columns (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample supposed to filter away noise caused by insufficient information. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and PPE. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.10 Table 16: Capital expenditure

CapEx	(1) CapEx	(2) CapEx	(3) CapEx Sample	(4) CapEx IvyLeauge
Vesting	0.010***	0.005**	0.002	0.011***
	(0.002)	(0.002)	(0.004)	(0.003)
#Business		0.010**	0.012**	
		(0.005)	(0.006)	
#Science		-0.004	-0.001	
		(0.004)	(0.005)	
#Engineering		0.010	0.014*	
		(0.008)	(0.008)	
#Law		-0.006**	-0.001	
		(0.002)	(0.006)	
#Arts		0.007	0.004	
		(0.006)	(0.005)	
Unvested	-0.000	-0.000	-0.000	-0.000
	(0.001)	(0.001)	(0.002)	(0.001)
Vested	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.109*	0.109*	0.142*	0.109*
	(0.058)	(0.058)	(0.074)	(0.058)
Bonus	0.020	0.020	0.005	0.020
	(0.016)	(0.016)	(0.006)	(0.016)
Age	-12.751	-13.047	-22.908	-13.078
	(21.475)	(21.333)	(25.008)	(21.537)
Tenure	2.258	2.369	-0.335	2.215
	(5.067)	(5.013)	(4.822)	(5.071)
LVR	-4.064	-8.698	0.956	-4.260
	(30.024)	(30.305)	(36.141)	(29.997)
ROA	-28.287	-26.702	-32.501	-27.693
	(36.181)	(36.207)	(38.568)	(36.100)
Return	-64.696***	-65.242***	-61.330***	-64.540***
	(9.601)	(9.600)	(10.890)	(9.600)
Q	-21.382***	-20.192***	-20.885***	-21.101***
	(5.683)	(5.554)	(6.178)	(5.658)
logMV	77.383***	76.315***	69.520***	76.645***
	(13.436)	(13.408)	(14.594)	(13.494)
#IvyLeauge				-0.006
				(0.004)
Constant	235.280	256.196	821.101	256.310
	(1,087.154)	(1,079.512)	(1,267.750)	(1,090.522)
Observations	21,020	21,020	15,491	21,020
R-squared	0.037	0.040	0.031	0.037
Number of CEO	3,325	3,325	2,478	3,325
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the money spent on capital expenditures (CapEx) in a given year and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, columns (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample supposed to filter away noise caused by insufficient information. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and CapEx. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.11 Table 17: Research and development

Research and developement	(1) R&D	(2) R&D	(3) R&D Sample	(4) R&D IvyLeauge
Vesting	0.004***	0.005	0.001	0.004**
	(0.002)	(0.004)	(0.003)	(0.002)
#Business		-0.003	0.001	
		(0.003)	(0.003)	
#Science		0.001	0.005	
		(0.004)	(0.004)	
#Engineering		0.000	0.004	
		(0.004)	(0.004)	
#Law		-0.006**	-0.008**	
		(0.003)	(0.003)	
#Arts		0.002	0.006	
		(0.004)	(0.005)	
Unvested	-0.000	-0.000	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Vested	0.000	0.000	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Salary	0.000	0.001	0.056*	0.000
	(0.035)	(0.035)	(0.029)	(0.035)
Bonus	-0.001	-0.001	0.001	-0.001
	(0.001)	(0.001)	(0.002)	(0.001)
Age	8.676	8.584	-2.324	8.662
	(11.083)	(11.093)	(9.490)	(11.049)
Tenure	2.380	2.399	-2.342	2.378
	(2.524)	(2.522)	(3.515)	(2.524)
LVR	43.677**	42.364**	50.171***	43.669**
	(18.530)	(18.274)	(17.762)	(18.538)
ROA	-37.101*	-37.402*	-10.529	-37.074*
	(20.232)	(20.114)	(8.804)	(20.251)
Return	-6.881*	-6.579	-6.218	-6.874*
	(4.052)	(4.017)	(3.907)	(4.040)
Q	-16.865**	-17.104***	-12.194**	-16.852**
	(6.667)	(6.600)	(4.797)	(6.665)
logMV	37.420**	37.208**	21.300***	37.387**
	(15.834)	(15.845)	(6.000)	(15.844)
#IvyLeauge				-0.000
				(0.003)
Constant	-619.452	-612.497	18.126	-618.526
	(527.258)	(527.604)	(483.769)	(525.060)
Observations	21,020	21,020	15,491	21,020
R-squared	0.034	0.036	0.105	0.034
Number of CEO	3,325	3,325	2,478	3,325
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects	Yes	Yes	Yes	Yes

This table presents the regression results on the relation between the money spent on research and development (R&D) in a given year and a CEO's vesting equity in the same year. Column (1) estimates a within model with both time and CEO fixed effects, column (2) estimates the same model but controls for the effect of different CEO characteristics varying between CEO's. Column (3) estimates the same model as (2), but on a smaller sample supposed to filter away noise caused by insufficient information. Column (4) estimates a model similar to (1) and (2) but now controls for place of study in order to look if university attended affects the relation between vesting equity and R&D. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.12 Table 18: Turnover and incentive

	(1)	(2)	(3)
Turnover	**Probit**	**LPM**	**LPM FE**
Vesting	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Incentive	0.319***	0.035***	0.056***
	(0.085)	(0.008)	(0.015)
Salary	-0.000	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)
Bonus	-0.000**	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)
Age	0.040***	0.005***	-0.015
	(0.004)	(0.000)	(0.010)
Tenure	-0.006*	-0.000	0.015***
	(0.003)	(0.000)	(0.004)
LVR	0.094	0.011	-0.001
	(0.073)	(0.008)	(0.021)
ROA	0.273*	0.018**	0.009
	(0.160)	(0.009)	(0.016)
Return	-0.218***	-0.021***	-0.005
	(0.048)	(0.005)	(0.005)
Q	-0.036**	-0.003**	-0.002
	(0.017)	(0.001)	(0.003)
logMV	0.041***	0.004***	-0.020***
	(0.013)	(0.001)	(0.005)
Constant	-5.388***	-0.305***	0.786
	(0.483)	(0.018)	(0.517)
Observations	19,366	20,572	20,572
R-squared		0.055	0.096
Number of CEO	3,298	3,300	3,300
Year fixed effects	Yes	Yes	Yes
CEO fixed effects			Yes

This table presents the regression results on the relation between a binary indicator variable of whether a turnover happened or not in a given year and a CEO's vesting equity and incentive to leave in the same year. Column (1) estimates a probit model and column (2) and (3) estimates a linear probability model (LPM). *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

10.13 Table 19: Turnover and incentive with education

Turnover	(1) Probit	(2) LPM	(3) LPM FE	(4) LPM FE IvyLeauge
Vesting	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Incentive	0.250***	0.026***	0.062**	0.068***
	(0.086)	(0.008)	(0.028)	(0.016)
#Business	0.093**	0.011**	-0.033	
	(0.041)	(0.005)	(0.031)	
#Science	0.056	0.006	-0.033	
	(0.055)	(0.007)	(0.047)	
#Engineering	0.164***	0.021***	0.038	
	(0.050)	(0.006)	(0.040)	
#Law	-0.071	-0.007	0.014	
	(0.082)	(0.009)	(0.064)	
#Arts	0.099**	0.012*	0.022	
	(0.050)	(0.006)	(0.036)	
Salary	-0.000	-0.000	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Bonus	-0.000*	-0.000***	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Age	0.041***	0.005***	-0.015	-0.015
	(0.005)	(0.000)	(0.010)	(0.010)
Tenure	-0.006	-0.000	0.015***	0.015***
	(0.004)	(0.000)	(0.004)	(0.004)
LVR	0.101	0.012	-0.001	-0.001
	(0.074)	(0.008)	(0.021)	(0.021)
ROA	0.290*	0.019**	0.009	0.009
	(0.162)	(0.009)	(0.016)	(0.016)
Return	-0.218***	-0.021***	-0.006	-0.005
	(0.048)	(0.005)	(0.005)	(0.005)
Q	-0.034**	-0.003**	-0.002	-0.002
	(0.017)	(0.001)	(0.003)	(0.003)
logMV	0.039***	0.004***	-0.020***	-0.020***
	(0.013)	(0.001)	(0.005)	(0.005)
#IvyLeauge				-0.059*
				(0.036)
Constant	-5.427***	-0.309***	0.774	0.763
	(0.519)	(0.018)	(0.518)	(0.517)
Observations	19,366	20,572	20,572	20,572
R-squared		0.055	0.097	0.097
Number of CEO	3,298	3,300	3,300	3,300
Year fixed effects	Yes	Yes	Yes	Yes
CEO fixed effects			Yes	Yes

This table presents the regression results on the relation between a binary indicator variable of whether a turnover takes place or not in a given year and a CEO's vesting equity and incentive to leave in the same year. Column (1) estimates a probit model controlling for the effect of different CEO characteristics varying between CEO's. Column (2) and (3) estimates a linear probability model (LPM) without and with CEO fixed effects, respectively. Column (4) estimates a model similar to (3) but now controls for place of study in order to look if university attended affects the relation between vesting equity and acquisitions. *Vesting, Unvested, Vested, Salary* and *Bonus* are in thousands. *Age* and *Tenure* are in hundreds. *LVR, ROA, Return* are in percentage. Standard errors are in parenthesis, clustered by CEO and robust to heteroscedasticity and autocorrelation. *** (**) (*) indicates significance at the 1%, (5%) (10%) two-tailed level, respectively.

11 Statistical Robustness Tests

11.1 Hausman test for fixed or random effects

	Repurchase	Acquisitions	Dividends	PPE	CapEx	R&D	WC
Chi2(3)	91.34	86.28	349.01	434.80	238.82	247.39	200.41
Prob>chi2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Appropriate effects	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed

H_0: difference in coefficients not systematic

Hausman test for fixed or random effects shows that all models predicting vesting equity and control variables' effect on corporate fundamentals are appropriate using fixed effects, since the difference in coefficients between the RE and FE models are statistically significant. As discussed in the thesis it is fair to assume that the unobserved individual effects are arbitrarily correlated with the explanatory variables. Hence, and as the test shows the models benefit from using fixed effects.

11.2 F – test for the inclusion of time fixed effects

	Repurchase	Acquisitions	Dividends	PPE	CapEx	R&D	WC
F	38.88	2.51	2.01	1.05	9.75	1.30	7.75
Prob > F	0.00	0.00	0.02	0.40	0.00	0.21	0.00
Appropriate effects	Time	Time	Time		Time		Time

H_0: Time dummies are jointly equal to null.

Joint F-test for the inclusion of time fixed effects shows that almost all models predicting vesting equity and control variables' effect on corporate fundamentals are appropriate using time fixed effects, since the time dummies in these instances are jointly significant different from zero. However, both PPE and R&D do not need to include time-fixed effects, nonetheless I have included it considering the general advise about including time-fixed effects in panel models and to increase comparability between models.

11.3 Modified Wald test for group wise heteroscedasticity in FE-models

	Repurchase	Acquisitions	Dividends	PPE	CapEx	R&D	WC
Chi2	1.4e+38	5.2e+35	3.5e+37	2.0e+37	7.1e+40	6.4e+36	1.1e+36
Prob>chi2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Appropriate effects	Hetero	Hetero	Hetero	Hetero	Hetero	Hetero	Hetero

H_0: constant variance of error term (Homoscedasticity)

Modified Wald statistic for group wise heteroscedasticity in the residuals of a fixed-effect regression model. The modified Wald test is still viable if the standard assumption of normality is violated, at least in asymptotic terms (Baum, 2001). Since all models have presence of heteroscedasticity, I use robust standard errors.

11.4 Woolridge test for autocorrelation in panel data

	Repurchase	Acquisitions	Dividends	PPE	CapEx	R&D	WC
F	3.78	5.86	1.47	200.10	26.07	12.60	16.32
Prob > F	0.05	0.02	0.23	0.00	0.00	0.00	0.00
Appropriate effects		Auto		Auto	Auto	Auto	Auto

H_0: no first order autocorrelation

Woolridge test for autocorrelation to determine if appropriate to model firm fundamentals with robust standard errors. Almost all models have presence of autocorrelation. In order to improve comparability and to follow similar previous research I use standard errors clustered at CEO, robust to autocorrelation.