The relationship between CEO ownership and firm performance after the CEO resignation examined

Roman du Pree, 386155

Abstract:

The standard agency theory dictates that CEO ownership incentivises the CEO to increase firm performance in order to maximise the value of his shares. This paper investigates whether CEO ownership leads to an increased firm performance after the CEO has left the firm, because he is still a shareholder after his resignation. This might mean that the interests of the CEO are aligned with those of the firm beyond his tenure. This paper researches this on a large sample of North American companies. The results of the main regressions show that firm performance after the CEO resignation is unrelated to CEO ownership before the CEO resignation. This is the case when performance is measured as a firm's Tobin's q, MVA, EVA, ROA, ROE and ROS. The conclusion of this study is therefore that CEO ownership does not lead to an improvement of firm performance for the period after the CEO has resigned.

Assignment: master thesis

Block 5 2016-2017

Supervisor: dr. Sander Renes

1: Introduction

In today's world quite a number of firms are run by those that are not the (majority of the) owners of the firm, namely the managers, the most important of which is the CEO. Given that the shareholders may not always have complete access to the information that tells whether the CEO is maximising shareholder wealth, agency problems can occur if the CEO has other goals in mind than the creation of shareholder value (Eisenhardt, 1989). It is therefore important to align the interests of the CEO with those of the shareholders, because company performance may suffer if this is not the case through, for example, poor corporate governance (Core, Holthausen, & Larcker, 1999). CEO compensation becomes relevant here, since it can be used as a tool to achieve this alignment. For instance financial bonuses and long term income can be part of the CEO compensation package (Boyd, 1994). In addition to this, certain CEO's also receive stock related compensation (Zajac, 1990). Making the CEO one of the shareholders might be beneficial to organisational performance, given that numerous studies found results that indicated this (Griffith, 1999; Kim & Lu, 2011).

There are however problems that can erode the incentives placed on the CEO by the CEO compensation, such as the problem of the contract horizons. Xu (2011) found that firms with CEOs that have shorter contract horizons have lower firm values and invest less. This can of course harm a firm's long term prospects. But, these long term prospects may be of no interest to the CEO if he is not the CEO anymore when certain long term investments start to pay off. CEO's that are near retirement (or dismissal) have such a short horizon in front of them. They are therefore not necessarily motivated to act in the best interest of the firm in the long term. CEO ownership may bring such a motivation. After a CEO has resigned and left the company, he will of course no longer receive that base salary and the financial bonuses. However, if he was also compensated with, for instance, common shares, he will still be a shareholder after his time with the firm in question. As one of the shareholders, it is in his own interest if the company performs well after his resignation, because of the dividends and increases in value of this stock. CEO ownership, that will stay with the CEO after the CEO change, may therefore incentivise the CEO to improve firm performance, not just for the remainder of this tenure, but also for the period after his resignation. This thesis investigates the relationship between CEO ownership and firm performance after the CEO resignation.

Shareholders and board members can benefit from insights into this relation. Therein lies the relevance of this thesis. Shareholders obviously do not wish to lose value if the CEO is not properly incentivised during the last year(s) of his tenure as a result of the problem of the contracting horizons. Also, the board is one of the most important controlling factors when it comes to the CEO compensation (Boyd B. , 1994). If CEO ownership, for example, turns out to be positively related to

firm performance after the CEO change, the shareholders (or the board members on the shareholders' behalf) would want to increase the level of CEO ownership through CEO compensation. In the light of the problem of the contract horizons and the possibility that CEO ownership may improve the CEO incentive to improve firm performance, the following research question is formulated:

Does CEO ownership lead to an improvement of firm performance after the CEO has resigned?

As stated in the research question, this thesis aims to investigate whether CEO ownership enhances firm performance for the period after the CEO change. In addition, this thesis tries to gain insights into whether performance measures that are more related to stock performance are affected differently by CEO ownership than other measures. This is because the CEO is still a shareholder after his departure and his wealth may therefore depend more on stock performance than accounting performance for instance.

The rest of the paper is organised as follows: Section 2 provides a theoretical framework and the development of the hypotheses that are going to be investigated. Section 3 concerns the methodology where the data retrieval and manipulation are described together with the operationalisation of the constructs of interest and the identification of control variables. It also explains the various regressions and the methodological choices that are made in that respect. Section 4 shows and interprets the results of those regressions. Section 5 contains the additional tests that are run in order to make the research methods more well-rounded. Section 6 discusses the limitations of this paper together with a number of suggestions for further research. Section 7 is the conclusion section where the most important findings are summarized and discussed.

2: Literature review and hypotheses development

2.1 Prior research on CEO ownership and firm performance

There are numerous papers that investigate the relation between CEO ownership and firm performance. For instance the earlier mentioned paper from Griffith (1999) that found that CEO ownership has a big influence on firm performance. The earlier mentioned study from Kim and Lu (2011) studies this relation too and underlined the importance of external governance when this relation is investigated. Cui and Mak (2002) investigate the relation between firm performance and CEO ownership for high R&D firms and find that the relation can be both positive and negative, depending on the level of CEO ownership. In contrast to the findings of these three studies, Coles, McWilliams and Sen (2001) do not find a significant relation between CEO ownership and firm

performance. Another difference is that the paper from Coles, McWilliams and Sen (2001) measures firm performance in terms of economic value added (EVA) and market value added (MVA), whereas the other papers that are mentioned before use Tobin's q to measure firm performance. This difference in measuring performance may have contributed to the difference in conclusions of the different papers. Krivogorski (2006) also concluded that no strong relation exists between managerial (including CEO) ownership and firm performance and she used ROE and ROA to measure performance.

In addition, a number of papers have researched the relation between CEO turnover and firm performance. This is relevant for this thesis, because it may show whether a certain level of performance can be expected before or after the CEO change, regardless of the ownership of the CEO that is leaving. For instance, if firm performance improves as the result of a CEO turnover, this positive effect is to be attributed to the turnover itself and not the ownership of the previous CEO per se. Huson, Malatesta and Parrino (2004) have found that the accounting performance of a firm declines prior to a CEO change and both accounting performance and abnormal stock returns improve after that change. However, Suchard, Signh and Barr (2001) found a negative market response after a CEO change. They offered the explanation that this could be due to the CEO turnover being a CEO retiring (instead of being sent away). The type of turnover (forced or not) is also shown to be relevant in the relation between CEO turnover and performance by Khurana and Nohria (2000) as well as the fact whether the new CEO is an insider or an outsider. There are even more factors that shape the relation between CEO turnover and performance. Bhagat, Bolton and Subramanian (2010) found that the type of education that the new CEO enjoyed affects performance after the CEO change. Allgood and Farrell (2000) found that the likelihood of a forced CEO change varies during a CEO tenure, colouring the relation between CEO turnover and firm performance. This likelihood and the effect of performance, in turn also depends on whether the CEO is an insider or an outsider according to their results. Lastly Kato and Long (2006) found in their Chinese sample that the relation between CEO turnover and performance is weaker when the largest shareholder owns fewer shares and when firms are controlled by the state.

A part from all those factors that influence the relation between CEO turnover and firm performance, the relation between these constructs may also not be that strong. This is because Brickley (2003), based on the results of previous papers, concludes that performance variables, despite being significant, explain very little of the variation in the CEO turnover variables. This is the case for both stock price and accounting measures. This is underlined by the findings of Kato and Long (2006) who also found that both stock price measures (such as stock returns) and accounting measures (such as the return on assets/ROA) are related to CEO turnover, be it in a relation that is only modestly

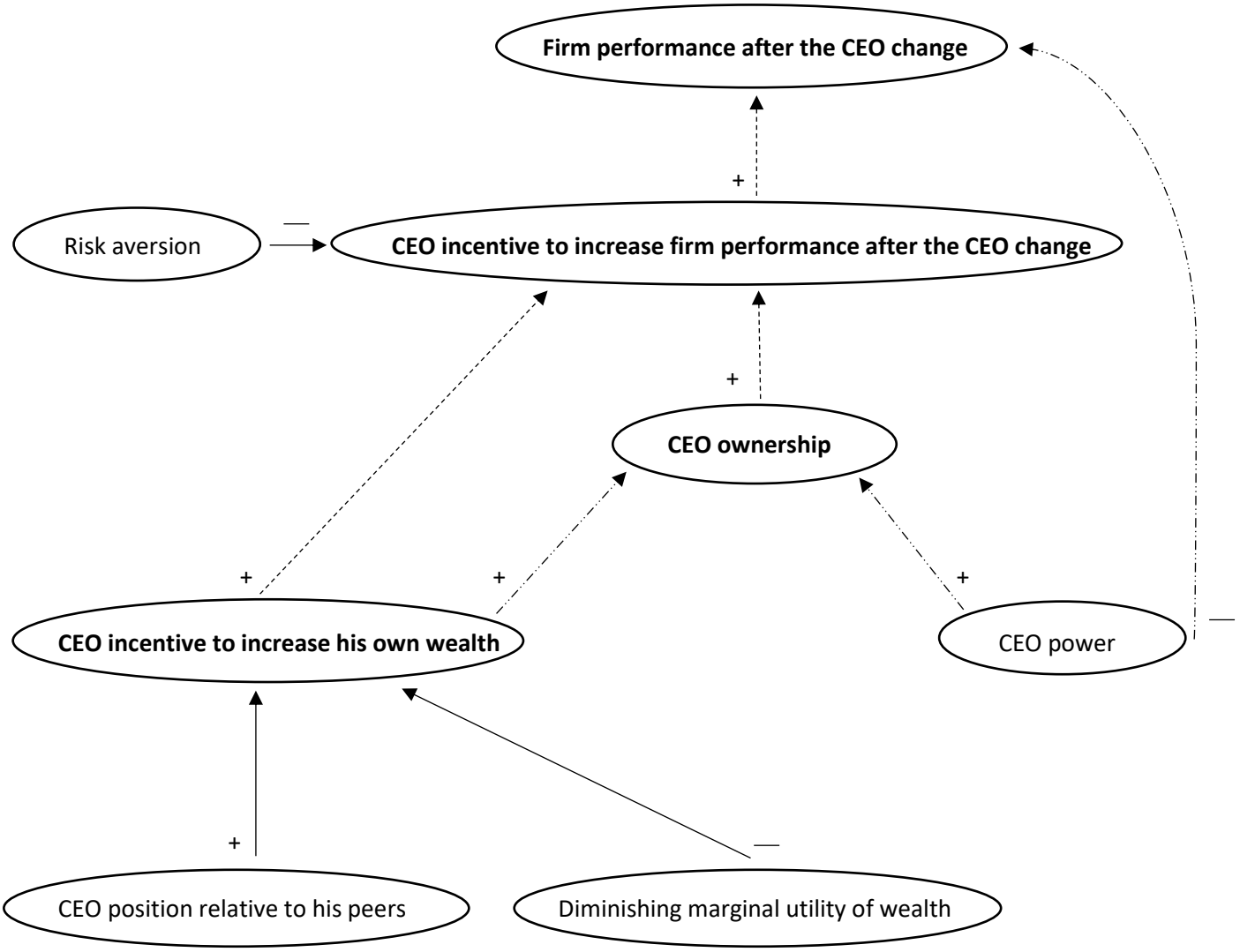
strong. Based on all this, one can state that the relation between CEO turnover and firm performance is influenced by a lot of factors such as the type of turnover and that the relation is not a very strong one. This means that there are to be no expectations in advance on how firm performance will be prior and after a CEO change, based on the mentioned studies on the relation between firm performance and CEO turnovers.

A paper that comes fairly close to this thesis is the research from Bhagat and Bolton (2008). Their research namely investigated the relation between CEO ownership and firm performance in subsequent years. It found no relation between CEO ownership and Tobin's q in later years and mixed results concerning the relation between CEO ownership and ROA in later years. This thesis is however not a replica of that study. This thesis measures firm performance in more ways than the ROA and Tobin's q (see section 2.3) and this thesis has a longer sample period (see section 3). Furthermore, the study of Bhagat and Bolton (2008) does investigate relation between CEO changes and firm performance, but it does not investigate the influence of CEO ownership before a CEO change in relation to firm performance. The contribution of this thesis lies in investigating that particular relation. For investigating this relation, firstly a framework is constructed in the next section containing the concepts and their influences on one another according to previous literature.

2.2: Relevant concepts, theories and phenomena

The four most important concepts in the theoretical framework of this study are the CEO ownership, the CEO incentive to increase his own wealth, the incentive of the CEO to increase firm performance after the CEO change and firm performance after the CEO change. In this section a number of theories are mentioned that predict certain relations between these concepts together with a number of phenomena that are predicted to influence certain concepts. In Figure 1 these concepts and the (predicted) relations are summarized in a scheme.

Figure 1



---------: These lines represent the influences between the constructs as predicted by the optimal contracting approach of agency theory.

–·–·–·–: These lines represent the influences between the constructs as predicted by the managerial power approach.

————: These lines represent the predicted influences of certain phenomena on the constructs in the framework.

The +/ — signal indicates whether an influence is predicted to be positive or negative.

It is important to note that the lines indicating predictions from one theory or phenomenon may not always coincide with the predictions from other theories or phenomena. For instance the positive influence of CEO ownership on the CEO incentive to increase firm performance is not in line with the managerial power approach.

Firstly, agency theory is relevant in this research setting. This theory namely states that the principal (in this case the shareholder) is unable to fully observe the agent (in this case the CEO) and therefore the principal has to motivate the agent (Gibbons, 2017). This is to ensure goal congruence. The paper from Gibbons (2017) illustrates that this theory is indeed a building block for managing the incentives of both individuals and organisational units. One approach in agency theory is what Bebchuck and Fried (2003) called the 'optimal contracting approach'. Following this approach, the agency problem that exists between a firm´s shareholders and managers can be remedied by an optimally designed contract.

If one applies the optimal contracting approach of agency theory to the concepts in the framework, the CEO incentive to increase his own wealth together with the CEO ownership enhance the CEO incentive to increase firm performance after the CEO change (see Figure 1). This is because the CEO ownership (shares etc.) becomes more valuable after the CEO change if firm performance is better after the CEO change. This ownership, combined with the CEO desire to acquire more wealth, should incentivise the CEO to increase firm performance after the CEO change.

On the other hand, there is an approach that does not predict a positive relationship between CEO ownership and firm performance. Bebchuck and Fried (2003) call it the 'managerial power approach' which states that certain generous contracts are the result of managerial rent seeking behaviour rather than the provision of incentives. CEOs, in this approach, may try to gain as many shares and options as possible to increase their wealth, just because they have the bargaining power to do so. In addition to this, firms where the CEO is very powerful in relation to the board perform worse (Core, Holthausen & Larcker, 1995). This means that the managerial power approach does not predict a positive relationship between CEO ownership and firm performance. When this approach is applied to the concepts in the framework, the CEO power and the CEO incentive to increase his own wealth enhance CEO ownership (see Figure 1). The predicted positive influence of CEO ownership on the CEO incentive to increase firm performance in Figure 1 is thereby not predicted by this theory that sees an increased CEO ownership and lower firm performance as consequences of higher CEO power. As stated earlier, CEO power is also negatively related to firm performance (Core, Holthausen, & Larcker, 1999).

One of the relevant phenomena is that of risk aversion. It can deter CEO ownership from providing the incentives that the shareholders desire. In many principal-agent models there is a trade-off between risk and incentives, because workers need to be incentivised to exert effort but are also risk averse (Lazear & Oyer, 2007). On the one hand stock-based CEO compensation aims to provide incentives as stated above, but on the other hand it involves a certain degree of risk for the person

receiving that compensation. Monetary bonuses based on firm performance also depend on the actions of others (employees for instance), but stock value is arguably more beyond the grasp of the CEO. The value of the shares or options the CEO receives does not just depend on his own firm, but also on market forces. Phenomena as market bubbles show that the capital market is also not fully efficient and, for instance, a sector wide trend may affect the stock value of the company of the CEO in question without him actually contributing to this trend. This uncertainty may prevent stock-based compensation from providing the incentives it aims to.

When it comes to fitting this phenomenon in the framework, it negatively affects the CEO incentive to improve firm performance after the CEO change (see Figure 1). This is because of the risk aversity that may cause the CEO to believe that increasing firm performance does not necessarily lead to an increase in his own wealth. In other words, it weakens the effect that the CEO incentive to increase his own wealth and the CEO ownership have on the CEO incentive to increase firm performance after the CEO change according to the optimal contracting approach.

The phenomenon of diminishing marginal utility of financial gains is also relevant here. It can easily be stated that this phenomenon is very well supported in academic literature (Easterlin, 2005). It encompasses the observation that the utility of economic agents increases whenever they make financial gains, but the magnitude with which this takes place diminishes when more financial wealth has been accumulated. This seems to hold true for individuals as well as societies that respond differently to financial gains, depending on their initial financial situation (Diener & Biswas-Diener, 2002; Frey & Stutzer, 2002). In other words, a millionaire is therefore 'less happy' with an extra 100 euros than someone who is on income support according to this empirically supported notion. If one applies this notion to this research, the CEO might not care that much about the wealth he can gain from the shares or stock options he has gathered during his period as a CEO. When the end of his tenure is drawing near, he may want to start enjoying the wealth he has already accumulated. He may therefore not exert the effort needed to make sure the company will perform well after he has left, despite the fact that he is one of the owners. Assuming the CEO is rational, the costs of making sure his shares and options retain or exceed their current value may be higher than (the diminished marginal) utility that he will gain from it. In the framework this concept (or phenomenon) has a negative effect on the CEO incentive to increase his own wealth, because of the wealth that has been gained in the past (see Figure 1).

However, it may not be just his own level of wealth that drives the CEO. This is because a number of studies found a positive relationship between CEO compensation and the compensation received by those that are viewed as his peers (Faulkender & Yang, 2010; Bizjak, Lemmon & Nguyen, 2011). The

desire to keep up with others that have his position might therefore be an incentive for the CEO to maximise his financial gains. Nobody, apparently, wants to be the poorest (or least wealthy) CEO. When applying this line of reasoning to this paper's setting the CEO may indeed be motivated to make sure that the performance of the company he serves stays up to par. In the framework this phenomenon positively affects the CEO incentive to increase his own wealth (see Figure 1), because of the wish of the CEO not be inferior in terms of wealth in relation to his peers. On the other hand, will he still have peers after he has resigned? It is unclear whether these results apply to the situation of a (nearly) replaced or retired CEO. Concluding, one can state that a number of theories can be put behind the research question of this paper and not all of them predict the same outcome.

2.3: Selection of performance measures and hypotheses development

There are a number of ways to measure firm performance. The aim in this thesis to measure performance in a broad and comprehensive way. Bhagat and Bolton (2008) use only two performance measures. This thesis uses more measures in order to contribute to the literature on the relation between CEO ownership and firm performance after the CEO resignation. Furthermore, this thesis aims to measure both stock market performance and accounting performance.

One of the reasons for measuring stock market performance is because of the closeness of stock market performance to shareholder value. If a firm performs well on the stock market, share prices go up or dividend payments increase, in other words the shareholder value increases. Since this study is relevant for shareholders who wish to provide managers with the appropriate incentives, performance measures that are close to the shareholder wealth (the stock based performance measures) are used. Also, both stock based and accounting based measures are used because they both have different qualities. Stock based measures are forward looking and take a firm's future into account as well as its past. When a firm for instance made large investments in the previous period that will pay off later on, this may be beneficial for a firm even though it is not reflected in accounting measures of performance. On the other hand, accounting measures are not subject to unfounded expectations of future performance, market bubbles and other inefficiencies of the capital market. The last reason for selecting both stock based performance measures and accounting measures is the aim of this thesis to find out whether the CEO finds stock based measures more important than accounting measures. After he has resigned he is still a shareholder if he received shares during his period as CEO. This means that the values of the performance measures that are close to the shareholder value, the stock based performance measures, affect his level of wealth after he has resigned. A difference in results concerning the relations between CEO ownership and the stock

based performance measures and CEO ownership and the accounting (or non-stock based) performance measures after the CEO resignation can indicate whether this is the case or not.

When it comes to selecting the appropriate performance measures, the paper from Lehn and Makija (1996) is used. This paper found that the measures Tobin's q, market value added (MVA) and economic value added (EVA) are more related to a firm's stock performance than the return on assets (ROA), the return on equity (ROE) and the return on sales (ROS). The Tobin's q, MVA and EVA can therefore be seen as the stock based performance measures and the ROA, ROE and ROS as the non-stock based performance measures.

Tobin's q depends on a firm's liabilities, the book value of its assets and the market value of its common stock (Kim & Lu, 2011). These are three concepts that are important for shareholders, so much so that Al Matari, Al-Swidi and Fadzil (2014) even call Tobin's q a measure that is forward looking and measures the expectations of shareholders. The Tobin's q is therefore conceptually linked to a firm's market value and because the 'owning' CEO is still one of the shareholders after his resignation, it would be in his own interest to make those expectations somewhat more favourable. The MVA is measured as the difference between the firm's market value and the book value of the capital that is contributed to it (Lehn & Makhija, 1996). The exact definition and measurement of the MVA can be found in section 3.2. Firstly, the closeness of the MVA to the market value of a firm is self-evident, because it directly depends on a firm's market value. Secondly, the MVA basically measures the market value in excess of the total book value of a firm. If the CEO is a shareholder, he will want to keep the market valuation of the firm, and with that the MVA, high after his departure, because a higher market valuation means a means a higher value of his ownership of the firm. The same can be said for the EVA, because the formula that determines EVA can be written in such a way that it depends on the MVA (de Wet, 2005). Not only is this measure close to a firm's market value conceptually, it has also been hauled as the best measure of shareholder value creation (Young & O'Byrne, 2000). Since the CEO is still a shareholder after his resignation, his wealth is likely to grow or stay high if the EVA of his firm after his departure grows or remains high as well.

The ROA, ROE and ROS on the other hand do not conceptually depend on a firm's market value. The ROA, ROE and ROS depend on the firm's total assets, stockholders equity and sales respectively and they measure the ratio of net income in relation to those concepts (Crosson, Needles & Powers, 2008; Gallo, 2016; Farris Bendle, Pfeifer & Reibstein, 2010). The exact definition and measurement of the ROA, ROE and ROS can be found in section 3.2. The ROA and ROS can be seen as operating measures and the ROE as a financial measure (Pogutz & Russo 2009). This is because they are not stock market measures, but backward looking measures that determine accounting performance (Al

Matari, Al-Swidi & Fadzil, 2014). The relation of these measures to a firm's stock performance is therefore likely to be less strong, as the findings of Lehn and Makija (1996) indicate.

The use of the six performance measures that are investigated by Lehn and Makija (1996) as well as their results are not outdated. A number of more recent studies use these measures to determine firm performance and they found similar results. Griffith (1999) uses Tobin's q to measure firm performance. Pogutz and Russo (2009) use Tobin's q as a measure for market value. The ROA and ROS on the other hand are used by them as measures for operating performance and the ROE as a measure for financial performance. Cui and Mak (2002) use both Tobin's q and ROA to measure performance. This is also the case for Kim and Lu (2011), although they use the ROA as a control variable. As mentioned earlier Coles, McWilliams and Sen (2001) measure performance with the MVA and EVA of a firm. In addition, de Wet (2005) uses the MVA as a measure for shareholder value. Li, Moshirian, Nguyen and Tan (2007), who investigate the effect of CEO ownership in newly privatised Chinese firms, use the ROS of a firm to measure it's performance. Krivogorski (2006) measured performance with a number of measures, including the ROA and the ROE. These papers demonstrate that the performance measures used by Lehn and Makija (1996) are also used in later research.

Despite the age of the paper of Lehn and Makija (1996), their results are also still relevant. As stated earlier Al Matari, et al. (2014) stated that Tobin's q is a measure that is forward looking and measures the expectations of shareholders. Based on research from Wahla, ShahSyed and Hussain (2012), Shan and McIver Ron (2011) and Ganguli Agrawal (2009) Al Mataria et al. (2014) call it a 'market based measure' with a focus on the long term. As opposed to the ROA, ROE and ROS, they refer to them as accounting-based, backward-looking measures that are only useful for the short term. When it comes to the MVA, Lee and Kim (2009) found that the MVA explains more of the market adjusted returns (which is a measure for shareholder value) than the measures ROA and ROE do for firms in the hospitality industry. The research by de Wet and du Toit (2007) demonstrated the relation of EVA to stock market performance, because they found that EVA (be it slightly) explained the changes in shareholder returns better than the ROE did.

In short, Tobin's q, MVA and EVA have a stronger relation with a firm's market value then the ROA, ROE and ROS, both conceptually and empirically. From all that is mentioned above one can derive that for the CEO who is still a shareholder after his departure, it may be more beneficial for him that the Tobin's q, MVA and EVA assume high values than the ROA, ROE or ROS.

A number of hypotheses are tested in order to investigate the relation between CEO ownership and firm performance for the period after the CEO departure, one for every performance measure. These

six hypotheses compose two sets. The first set contains the hypotheses concerning the stock based performance measures and the second set contains the hypotheses concerning the non-stock based performance measures. A difference in results between these two sets can give an insight into whether the CEO finds the values of the stock based performance measures more important than the values of the non-stock based performance measures for the period after he has left.

Hypothesis 1,2 and 3 compose the first set of hypotheses that use the stock based performance measures, Tobin's q, MVA and EVA. They are formulated as follows:

H1: CEO ownership does not change a firm's Tobin's q for the period after the CEO has resigned.

H2: CEO ownership does not change a firm's MVA for the period after the CEO has resigned.

H3: CEO ownership does not change a firm's EVA for the period after the CEO has resigned.

The fourth, fifth and sixth hypothesis compose the second set of hypotheses. They use the measures that are less related to stock performance, the ROA, ROE and ROS. The fourth, fifth and sixth hypothesis are formulated as follows:

H4: CEO ownership does not change a firm's ROA for the period after the CEO has resigned.

H5: CEO ownership does not change a firm's ROE for the period after the CEO has resigned.

H6: CEO ownership does not change a firm's ROS for the period after the CEO has resigned.

The hypotheses are formulated in the null-form. This is because in the light of the theories mentioned in section 2.1 the observed relation can take multiple forms. It may be positive, negative or non-existent. A confirmation of an hypothesis is therefore a sign that no relation has been found between a firm's performance for the period after the CEO has resigned and CEO ownership.

3: Methodology

3.1: Data sample & sample period

The collected data contains 190,524 observations of North American companies. This data is retrieved from the Compustat and ISS databases which are accessed through the WRDS platform. Compustat Execucomp provides data on the CEO, including his bonus, share ownership and tenure. Compustat Fundamentals provides data on firm characteristics, such as the total assets, debt and liabilities that are used to calculate the performance measures (see section 3.2). ISS provides the data on a firm's board, such as board size. This data is relevant for two of the control variables that

are used in the regressions of this study (see section 3.3). The sample period lasts from the beginning of 2010 until the end of 2016. The reason for this is twofold. Firstly, the year 2017 has not ended yet at the time of writing this paper and therefore the sample period ends in 2016. The sample period begins in 2010, because it avoids the financial crisis that started in 2007. The US was namely no longer in recession in June 2009 (the National Bureau of Economic Research, 2010). This period of economic hardship is very likely to coincide with lower firm performance and firms that went out of business to name a few things. Including data from the crisis may cause the sample to be not representative of today's economic reality. With the goal in mind of obtaining results that are not tainted by events during the financial crisis, the sample period begins in 2010.

After the data had been collected, a number of technical issues had to be put right before the variables of the regressions could be constructed. The data variables of the company name and the data year are renamed so that the data files can be merged. In the datasets, the cusip code is a code that identifies different firm across different databases and datasets. It is unique for every firm. The cusip code in the Compustat Execucomp data file has eight numbers instead of nine. Therefore the last digit of this cusip code is dropped in the other two datasets. The data files are merged with the cusip code and the data year as identifiers. Furthermore, the merged datafile contains no duplicates and if there were they would have been removed.

The 190,524 observations in the merged datafile are director-firm observations. For every year in the sample period all of a firm's directors are included. This is necessary for the calculation of two of the control variables in the regressions of this study (see section 3.3). However, this data sample cannot be used for the regressions. This is because the observations are of directors of a certain firm in a certain year, meaning that firms with bigger board have more observations and thereby more influence on the results. After the construction of all the variables (see section 3.2 and 3.3), this sample of 190,524 observations will be trimmed down to create a sample where there is only one observation for each firm per firm-year. Firstly, the directors that are not CEO's are dropped from the sample. This still leaves a number of duplicate firm-year observations. These are transition years where there is more than one CEO, namely the one that is leaving and the new CEO that has just assumed his position. In order to get rid of these, duplicates of observations with the same firm-year are removed. Specifically, the duplicates concerning the new CEO were removed and the ones with the 'old' CEO remained in the sample. This is because in a transition year this seated CEO has not left yet and this research aims to avoid using observations where he is still present for variables that measure past incentives (see section 3.3). All of this results in a sample of 10,108 firm-year observations on which the tests in the following sections will be done.

3.2: Investigating the basic relation

Per hypothesis (or per performance measure) two relations are investigated. The first relationship is that between the performance measure in question and CEO ownership, without the CEO change being relevant. In this thesis, this is called the 'basic relation'. It is related to the research question, because the research question asks whether CEO ownership from before the CEO change has an effect on firm performance. Investigating the basic relation will help to show whether the incentives imposed on the CEO influence firm performance or not. If this is not the case, than the relation in the research question is less likely to exist too. The basic relation is investigated in order to test whether the predictions that are made based on the papers mentioned in section 2 hold in the setting of this research. The results of the basic relation will therefore show how relevant those previously mentioned papers are in this research setting. As stated above, they will also give insights into the relation of the research question. The basic relation is investigated through OLS regressions where the performance measure is regressed on the variables measuring CEO ownership and a number of other control variables. The regression equations are set up as follows:

'Performance measure' = $\alpha + \beta_1 CEO\_OWN + \beta_2 CEO\_OP + \beta_3 CEO\_BONUS + \gamma controls + \varepsilon$

- α stands for the constant and ε for the residual.

It is important to note that all the independent variables in these equations are control variables. The independent variables of interest are added when the relationship of interest is investigated (see section 3.3). The 'CEO_OWN', 'CEO_OP' and 'CEO_BONUS' measure the current incentives placed on the CEO. They stand for CEO share ownership, CEO options and CEO bonus respectively. CEO share ownership is measured as the percentage of shares owned by the CEO. The CEO options are defined as the number of unexercised exercisable options. The CEO options are included, because CEO option ownership has a negative interaction effect in the relationship between CEO stock ownership and firm valuation (Kim & Lu, 2011). Kim and Lu (2011) showed a negative relation in their results between firm performance (specifically Tobin's q) and CEO share ownership. They also demonstrated that this relation is weaker when this CEO ownership is composed of options, because those do not involve voting rights that may help to entrench the CEO. This shows that options involve ownership and that they differ from shares. Therefore they are included in the regression model. The 'CEO_OWN' and 'CEO_OP' measure the CEO ownership. The bonus is added as an extra measure for the incentives that are placed on the CEO. Next to CEO ownership, monetary rewards can also be a tool to incentivise the CEO that is mentioned by both Gibbons (2017) and Bebchuck and Fried (2003). The findings from Kato and Kubo (2006) imply a positive relationship between variable CEO cash compensation (or bonuses) and firm performance. Firms may prefer to incentive the CEO with these

bonuses instead of ownership and who can blame them if that turns out to be more effective? In order to see whether this is also the case in this research setting, the CEO bonus is added to the regression equation. It is measured as the percentage of the new CEO's bonus in relation to his total compensation.

The performance measures are measured as follows: Tobin's q (TOB) is measured as the book value of a firm's liabilities plus the market value of its common stock and then this is divided by the book value of the firm's total assets (Kim & Lu, 2011). As stated before, the MVA is measured as difference between the firm's market value and the book value of the capital that is contributed to it (Lehn & Makhija, 1996). In this research the total fiscal market value is the data variable that comes closest to a firm's market value in the databases. The contributed capital is measured as the sum of a firm's liabilities and stockholders' equity. EVA is calculated as the net operating profit (after taxes) from which the invested capital multiplied by the weighted average cost of capital (WACC) is subtracted (Li Destri, Picone, & Mina, 2012). The exact calculation of EVA can be found in Appendix 1. The ROA is calculated as the net income divided by the total assets (Crosson, Belverd, Belverd, & Powers, 2008). The ROE is calculated as the net income divided by stockholders equity (Gallo, 2016). Lastly, the ROS is calculated as the net income divided by the net sales (Farris, Bendle, Pfeifer, & Reibstein, 2010).

In addition, a number of control variables are used. The first is the board size (BOARD_SIZE). Yermack (1996) concluded that there is a negative association between a firm's board size and its market valuation (specifically it's Tobin's q). He also found that CEO's are incentivized more strongly by their compensation in firm's with smaller boards. Because of these findings, board size is included as a control variable. It is measured as the number of directors that are seated on a firm's board. The second control variable is a dummy that indicates whether the CEO is also the chairman of the board of directors (CEO_CHAIR). This variable is included because of the negative association between CEO chairmanship and a firm's current and future operating performance (Bhagat & Bolton, 2008). Bhagat and Bolton (2008) also conclude that the stock ownership of board members is positively related to future and current operating performance (BOARD_OWN). Director stock ownership (together with CEO chairmanship) can be seen as a corporate governance proxy. Therefore it is possibly related to both performance and CEO ownership (if this ownership results from CEO compensation), because of the observed negative relationship between CEO compensation and firm performance (Core, Holthausen, & Larcker, 1999). This variable is measured as the percentage of the sum of shares owned by board members in relation to the total number of shares. Firm size (SIZE) is also included as a control variable in order to weed out any differences in performance measures that can be due to size. This is especially relevant for EVA and MVA because these measures are not ratios. Firm size will be measured as the natural logarithm of the total sales, as was done by Zajac and Westphal

(1996) to measure size. To be precise, it will be measured as log(sales+1). The reason for this is that the observations for companies with sales of zero, which is possible and occurs a number of times in the data, get lost without the '+1'. This is because log(0) is impossible. This '+1' therefore prevents observations from getting lost due to some mathematical issue.

3.3: Investigating the relation of interest

Next to the basic relation, the relation between CEO ownership before the CEO change and firm performance after the CEO change is investigated. Given the research question, this is obviously the relation of interest. Like the basic relation it is investigated with the use of OLS regressions. The performance measure is regressed on both the incentives placed on the current CEO and those placed on the previous CEO. The regression equations are set up as follows:

'Performance measure'= $\alpha + \beta_1$AVERAGE_CEO_OWN_BEFORE1 + β_2AVERAGE_CEO_OP_BEFORE1 + β_3AVERAGE_CEO_BONUS_BEFORE1 + γ_1CEO_OWN + γ_2CEO_OP + γ_3CEO_BONUS + δcontrols + ε

- α stands for the constant and ε for the residual.

These regression equations are the same as those of the basic relation, a part from the variables that measure the incentives of the previous CEO that have been added. These are the ones with the 'β'-parameters and these are the variables of interest. This is because these variables measure CEO ownership before the CEO resignation. They stand for the average CEO share ownership before the CEO change and the average CEO options before the CEO change. The average CEO bonus before the CEO change controls for the monetary incentives placed on the previous CEO. These average variables are based on the CEO share ownership, option and bonus variables. These are the ones that have the 'γ' parameters. The variables with the 'β'-parameters are made into averages in order make sure that they can assume their values (not being '0') in years after the CEO change, whilst they are based on years before the CEO change. In other words, they measure the average CEO share ownership, options and bonus in years before the CEO change, but they only assume their values (not being '0') in years after the CEO change. In years before the CEO change, these variables assume the value of '0'. This is because the previous CEO is still the current CEO in the years before the CEO change, who's incentives are captured by the (current) CEO_OWN, CEO_OP and CEO_BONUS in the years before the CEO change.

Appendix 2 shows the operationalisation of the constructs of interest in combination with the control variables in the form of a Libby box.

3.4: Winsorizing and clustered standard errors.

Almost all of the variables that are used in the regressions have skewed distributions. These variables have observations that can be labelled as outliers, because their values deviate so much from those of the vast majority of other observations. These extreme values may colour the results in an undesired way. For instance a company with an enormous EVA in the sample period may cause an overestimation or underestimation of the relation between EVA and CEO ownership, depending on the value of the ownership variables for that company. In order to prevent outliers from colouring the results, this paper has opted to winsorize these variables. They still have very high or low values, because that is what the data gives. Winsorizing just aims to prevent a minority of observations from having a disproportionate influence on the results. Per relation that is investigated, three regressions are run per performance measure (or per hypothesis). In one regression the variables that need winsorizing are winsorized at 95%. These are the results that are used to answer the hypotheses. There are two other regressions, one where the variables that need winsorizing are winsorized at 99% and one where they are not winsorized. These two regressions are included to show how stable (or instable) the results from the first regression are.

When it comes to the average CEO share ownership, options and bonus from before the CEO change, those variables are not winsorized. Instead, the (unaltered) variables on which they are based are winsorized (the CEO share ownership, options and bonus). This is because averages may smoothen large differences that occur for a variable during the sample period. This may cause the outliers that the data give to get lost in the average variable. Another reason is that the average variables are skewed, because they have to be. This is because they have a lot of '0' observations, but this is necessary for they can only assume a value that is not '0' in years after the CEO change.

The EVA variable needs to be winsorized on the left side. Appendix 3.1 shows its distribution. The variables measuring CEO share ownership, options and bonus, the board ownership, the board size and the Tobin's q need to be winsorized on the right side. Appendix 3.2 shows the distribution of the CEO share ownership variable as an example of what their distributions (roughly) look like. The board size is also winsorized on the right side, but its distribution has another shape (see appendix 3.3). The ROE variable needs to be winsorized at both sides, for it has extremely high and extremely low values. Appendix 3.4 shows its distribution. The MVA, ROA and ROS also need to be winsorized at both sides for they have extremely high and extremely low values. The difference is that the distributions of these three variables are a bit more skewed to the left. Appendix 3.5 shows the distribution of the MVA variable as an illustration of what their distributions look like.

There are two exceptions to this. These are the firm size and CEO chairmanship variables. These variables are not winsorized in any of the regressions, regardless of the fact whether the other variables are winsorized. The CEO chairmanship variable is a variable that can only assume two values. Winsorizing this variable is not useful in any way, for it has no extreme values. The firm size variable does not have a skewed distribution and no extreme values to take care off. Therefore it is not winsorized. Appendix 3.5 shows the distribution of this variable. Appendix 3.6 provides a clear overview of what variables are winsorized and if so, on what side.

In all of the regressions that are run, one dimensional clustered standard errors are used. This is because they correct for correlation that exists within a cluster of observations (Petersen, 2017). This cluster (or one dimension) is cusip, that identifies different firms. This is done, because firm performance may be correlated with its own values from earlier and later years. Graham, Harvey and Rajkopal (2005) namely found that persistent (predictable) firm performance is preferred by financial market players and managers alike.

4: Results

This section contains the results of the regressions that are done. Table 1 shows the results of the regressions concerning the basic relation and the relation of interest for the performance measure Tobin's q. It shows the results for the regressions when the variables that need winsorizing are winsorized at 95%, 99% or not winsorized. Because of the earlier stated need to winsorize, the results of the regressions where the variables are winsorized at 95% are used to answer the hypotheses. As stated above, the results of the regressions where the variables are winsorized at 99% or not winsorized are included to show the (in)stability of the results where the variables are winsorized at 95%.

After the OLS-regressions a number of joint significance F-tests are done for certain groups of variables in the regressions of the relation of interest. In the first row of Table 2, the joint significance of the CEO share ownership, options and bonus is tested to gain insights into the incentives of the current CEO. This is to show whether the bonus and ownership have any effect on firm performance. If this is not the case, it is more likely that previous CEO ownership does not influence performance either. In the second row, the joint significance of the average CEO share ownership, options and bonus from before the CEO resignation is tested. This is to determine whether the incentives placed on the previous CEO affect firm performance. If this turns out to be not true, the likelihood that previous CEO ownership affects firm performance also decreases. In the third row, the joint significance of the average CEO share ownership and options from before the CEO resignation is

tested. These are the variables of interest in the regressions on the relation of interest. These tests will help determine whether previous CEO ownership affects firm performance. Both the results from the regressions (Table 1) and the F-tests (Table 2) are used to answer the hypotheses.

4.1: The basic relation between CEO ownership and firm performance

Table 1, regression results for Tobin's q

Dependent variable: Tobin's q						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	basic rel.	rel. of interest	basic rel.	rel. of interest	basic rel.	rel. of interest
average_ceo_own_before1		0.0074		-0.0619		-0.0963
		(0.447)		(0.108)		(0.117)
average_ceo_op_before1		0.0002		-0.0000		-0.0001
		(0.0005)		(0.0003)		(0.0001)
average_ceo_bonus_before1		1.028		3.041		3.846
		(2.785)		(3.481)		(3.847)
ceo_own	-0.108***	-0.110***	-0.0052	-0.0046	0.0011	0.0014
	(0.0359)	(0.0366)	(0.0112)	(0.0118)	(0.0066)	(0.0068)
ceo_op	0.0002**	0.0002**	0.0001**	0.0001**	0.0000	0.0000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	-0.604**	-0.609**	-0.282	-0.300	-0.180	-0.202
	(0.281)	(0.276)	(0.330)	(0.312)	(0.338)	(0.317)
firm_size	0.0017	0.0019	-0.0039	-0.0035	-0.0080	-0.0079
	(0.0170)	(0.0170)	(0.0196)	(0.0196)	(0.0204)	(0.0204)
ceo_chairman	0.0224	0.0237	0.0047	0.0054	0.0000	0.0005
	(0.0384)	(0.0385)	(0.0462)	(0.0466)	(0.0507)	(0.0510)
board_own	0.0000**	0.0000**	0.0000	0.0000*	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
board_size	-0.0658***	-0.0659***	-0.0676***	-0.0676***	-0.0664***	-0.0664***
	(0.0115)	(0.0115)	(0.0122)	(0.0121)	(0.0130)	(0.0129)
Constant	2.429***	2.427***	2.546***	2.540***	2.603***	2.600***
	(0.132)	(0.131)	(0.147)	(0.147)	(0.156)	(0.156)
Observations	7,638	7,635	7,638	7,635	7,638	7,635
R-squared	0.025	0.025	0.021	0.022	0.018	0.019
F-statistic	8.07	5.82	7.46	5.58	6.37	4.85
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
num. of clus.	1704	1698	1704	1698	1704	1698

- The table shows results of a number of OLS regressions, for both the basic relation (basic rel.) and the relation of interest (rel. of interest). The variables in the first two rows are the variables of interest. They measure the CEO ownership before the CEO change. They stand for the average CEO ownership and CEO options before the CEO change respectively. The 'ceo_own' and 'ceo_op' stand for the share ownership and options of the current CEO. The variable 'board_own' stands for share ownership of board members of the firm.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.

- The ‘Prob> F’ shows the chance that all the variables together do not affect the Tobin’s q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Table 2, joint significance of the ownership variables on Tobin's q

Dependent variable: Tobin's q						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	F-value	p-value	F-value	p-value	F-value	p-value
ceo_own, ceo_op & ceo_bonus	5.12***	0.0016	2.38*	0.0682	1.30	0.2733
av. ceo_own bef., av. ceo_op bef. & av. ceo_bonus bef.	0.18	0.9099	0.28	0.8374	1.20	0.3092
av. ceo_own bef. & av. ceo_op bef.	0.11	0.8957	0.24	0.7892	1.68	0.1864

- This table shows the results of the F-tests on the joint significance of three groups of variables in relation to the Tobin’s q.
- The first row contains the variables that measure the incentives that are placed on the current CEO. These are the current CEO share ownership, options and bonus.
- The second row contains the variables that measure the incentives that are placed on the previous CEO. These are the (average) share ownership, options and bonus of the CEO before the CEO resignation.
- The third row contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The ‘95% win.’, ‘99% win.’ and ‘no win’ indicate the degree of winsorizing for the variables in the left column. The different ‘win. ’columns show the results for the F-tests when they are winsorized at 95%, 99% and not winsorized at all.
- The ‘F-value’ columns show the F-statistics of the groups of variables in the column on the far left.
- The ‘p-value’ shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to Tobin’s q.
- * means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

In Table 1, the column on the far left shows the results for the basic relation where the variables are winsorized at 95%. The basic relation is explored to see how well the predictions based on previous literature (see section 3) hold out in this research setting. Papers that predict effects that are opposite of those shown in the results are therefore less relevant in this study. The ownership variables, CEO share ownership and options, behave exactly as predicted by the results from Kim and Lu (2011). The coefficient of the CEO share ownership is significantly negative (-0.108***) and the

coefficient of the CEO options is significantly positive (0.0002**). This supports the theory that CEO share ownership helps to entrench the CEO, contrary to CEO options, and thereby creates a more powerful CEO. In turn, a more powerful CEO is negatively related to firm performance (Core, Holthausen, & Larcker, 1999). When it comes to the regressions of the basic relation concerning ROS, the coefficients of CEO share ownership (-0.0131***) and options (0.0000*) behave roughly the same. Appendix 8 shows full results concerning the ROS. However, CEO share ownership and options do not have significant effects in the results of the basic relation concerning the MVA and ROA (see appendix 4 and 6). In the results concerning the ROE, only the coefficient of the CEO options is significantly negative (-0.0000*), but the coefficient of CEO share ownership (0.0020) is not. Appendix 7 contains the complete results of the main regressions of the ROE. In the basic relation involving the EVA, the results are in complete contrast to those involving Tobin's q (see appendix 5). The CEO share ownership has a significantly positive effect (coefficient: 436,939**) and the options a significantly negative one (coefficient: -2,351***). This shows that the results of the paper from Kim and Lu (2011) do not hold in true in four out of six regressions concerning the basic relation. The reason for this is probably the fact that they used Tobin's q as the performance measure and this thesis uses multiple performance measures that have very different determinants. Their paper is therefore not very applicable when it comes to explaining the majority of the results of the basic relation.

The coefficient of the CEO bonus affects the Tobin's q negatively in Table 1 (coefficient: -0.604**). This is also the case for the basic relationship of the MVA (-11,765**) and EVA (-7.972e+06***). This supports the managerial power approach that states that a more powerful CEO has the ability to demand a larger payment. The more powerful the CEO in this approach, the higher his bonus and, as shown by Core, Holthausen and Larcker (1999), the lower the firm performance. The coefficient of the CEO bonus is however not significant in the basic relation involving ROA (0.0055) or ROE(0.0242). It is even positive in the basic relation between CEO ownership and ROS (0.107***), supporting the optimal contracting approach that states that bonuses incentivise the CEO to increase firm performance. Both of the approaches mentioned above do not explain all the results. It is interesting that the stock based performance measures (Tobin's q, MVA and EVA) are negatively related to the CEO bonus and the non-stock based performance measures are either not related or related in a positive way to the CEO bonus. The managerial power approach explains the results of the stock based performance measures and the optimal contracting approach explains (some of) the results of the non-stock based performance measures.

The top row in Table 2 contains the results of the joint significance tests for the variables that measure the incentives placed on the current CEO. These are the CEO share ownership, options and

bonus. The F-statistic is very significant (5.12***), which means that the incentives placed on the current CEO jointly influence the Tobin's q. These variables are also significant in the F-test results in relation to all other performance measures, a part from the ROA (F-statistic: 0.69) and ROE (F-statistic: 1.35) (see appendix, 4.2, 5.2, 6.2, 7.2 and 8.2).

The firm size is not significant in relation to Tobin's q, as shown in Table 1. This is also the case in the basic relation of the ROS (coefficient: -0.0029) and MVA (coefficient: 387.1). This control variable is included, because the MVA (as well as EVA) is not a ratio. The market value added could be much bigger for large corporations due to differences in scale. However, this seems to be not the case in relation to the MVA. Following this line of reasoning, it is even more peculiar that the effect of firm size on EVA is significantly negative (coefficient: -2.547e+06***). The results concerning CEO chairmanship are not surprising, a part from its positive coefficient (0.0068**) in the results concerning ROS. This is strange, for Bhagat and Bolton (2008) found a negative relation between CEO chairmanship and operating performance. The board ownership variable has a coefficient (0.0000**) that influences the Tobin's q positively. This is in accordance with the positive relation that was found by Bhagat and Bolton (2008) between board ownership and (operating) firm performance. The results from this paper do not hold in the results concerning the ROS. In those results, the coefficient of the board ownership is significantly negative (-0.0000***). Based on this, the paper from Bhagat and Bolton seems to accurately predict the effect of two variables for five out of six relationships investigated in this thesis. The same is true for the paper of Yermack (1996) concerning the board size variable. The board size affects the Tobin's q significantly negative, as can be seen in Table 1. This is in accordance with the negative relation between performance and board size that was found by Yermack (1996). Only in the results concerning the ROS is the coefficient of board size significantly positive (0.0048***).

Based on all that is stated above, one can conclude that the papers mentioned in section 3 explain the results of the basic relation quite well. The papers of Yermack (1996) and Bhagat and Bolton (2008) have shown to do this more accurately than the paper of Kim and Lu (2011). The basic relation between CEO ownership and the ROS is the relation that is explained the least accurate by those papers.

4.2: The relation of interest between previous CEO ownership and firm performance

In Table 1 the relation between CEO ownership of the previous CEO and firm performance does not seem to be present. This is because both of the variables that measure the ownership of the previous CEO, the average CEO share ownership and options before the CEO change, do not affect the Tobin's

q significantly. This is underlined by the findings in Table 2. In the third row, the joint significance of the two variables of interest is tested and the F-statistic (0.11) shows that they are not jointly significant in relation to Tobin's q. This means that the variables of interest (as a group, not individually) do not affect Tobin's q in the regressions concerning the relation of interest. Hypothesis 1 can therefore be confirmed, because no relation is found between the ownership of the previous CEO and Tobin's q. This is also true for all the other performance measures.

Appendix 4-8 hold the regression results and the results of the F-tests concerning the other performance measures. All of these results show that the variables of interest are not jointly significant in relation to a firm's MVA, EVA, ROA, ROE or ROS. In the regressions concerning the relation of interest the variables measuring past CEO ownership do not affect the performance measures. This means that hypothesis 2, 3, 4, 5 and 6 are also confirmed by these results. There does not seem to be a relation between CEO ownership before the CEO change and a firm's MVA, EVA, ROA, ROE or ROS. This finding is fairly stable in all tables that are mentioned in this section. For instance, in the results of all the F-tests the two independent variables of interest are insignificant, regardless of the degree of winsorizing. When it comes to the control variables, the results are less stable and depend on the degree of winsorizing. For instance, the significance of the effect of CEO share ownership in Table 1 is not present when the variables are not winsorized at 95%.

The second row of Table 2 shows the results of the joint significance test for the group of variables that measure the incentives imposed on the previous CEO. The F-statistics show that these variables are not jointly significant in relation to Tobin's q. This is not different when it comes the results of the F-tests on the incentives of the previous CEO in relation to any of the other performance measures (see appendix 4.2, 5.2, 6.2, 7.2, 8.2). This enforces the answer given to the hypotheses, for these results show that the whole of incentives placed on the previous CEO is not related to firm performance.

Theoretically, it is possible that multiple of the theories mentioned in section 2 are applicable with effects that cancel each other out. For example, the CEO may have the incentive to keep up with those that he views as his peers, but he may also view compensation through shares and options as more risky and thereby as undesirable. One concept mentioned in section 2 comes closest to explaining a non-existing relation between prior CEO ownership and firm performance. This is the phenomenon of the diminishing marginal utility of wealth. A CEO may have amassed so much wealth that he is indifferent towards the performance of the company, regardless of the fact whether he is one of the shareholders or not. If his ownership involves amounts that are very low in relation to his

total level of wealth, it would explain why he is not incentivised to improve firm performance for the period after he has resigned.

The most important thing to take away from this section is that no relation is found between CEO ownership before the CEO resignation and a firm's Tobin's q, MVA, EVA, ROA, ROE and ROS. This means that none of the hypotheses is rejected, for this would have happened if such a relation had been found. One of the concepts that explains this is the phenomenon of the diminishing marginal utility of wealth. Also, most of the papers that are used to identify control variables accurately predict the effects that these variables have in the regression results.

5: Additional tests

5.1: Alternative model

In this section another model will be used to investigate the research question. Naturally, the model described in section 3 also investigates the relation of interest. It uses methods as different degrees of winsorizing and clustered standard errors to gain insights into whether the relation between CEO ownership before the CEO change and firm performance after the CEO change is present in the dataset or not. It regresses firm performance on CEO ownership from before the CEO change that only assumes values (other than '0') for the period after the CEO change. Another approach is to have only one observation per firm and then run regressions to see whether firms with a higher CEO ownership before the CEO change also have higher performance after the CEO change. The unit of observation has changed from firm-years to firms. In this one observation every firm has its variables that measure its firm performance after the CEO change and CEO ownership before the CEO change.

In this model, the regressions concerning the relation of interest are redone with the use of an alternative model. The goal is to examine whether results that are gathered in this model differ from those in section 4 and if so in what way to what degree. This alternative model can therefore both undermine and enforce the results in section 4 and show to what degree the results depend on the choice of methodology.

The regression equations take the following form:

AVERAGE_'performance measure in question'_AFTER= α + βAVERAGE_CEO_OWN_BEFORE + βAVERAGE_CEO_OP_BEFORE + βAVERAGE_CEO_BONUS_BEFORE + γAVERAGE_NEW_CEO_OWN + γAVERAGE_NEW_CEO_OP + γAVERAGE_NEW_CEO_BONUS + δcontrols + ε

- α stands for the constant and ε for the residual.

A number of changes are made in relation to the regression equations used in previous sections. Firstly, all the variables are made into averages. This is to make sure that one can end up with only one observation per firm. In previous regressions, the variables concerning CEO ownership, firm performance and so on are all unique per firm-year. That is why the firm-year level of observation could be used. The variable that measures the average of a variable over the whole sample period is however unique per firm, because it assumes the same value for every firm-year for a particular firm. For example, the average Tobin's q after the CEO change is only based on values after the CEO change, but assumes its value in all firm-years. This means that firm duplicates can be removed from the data without losing any values of the variables. The independent variables of interest in these equation are the ones with the 'β' parameters. These are pretty much the same as the independent variables in the regressions in section 3 and 4 (for details: see appendix 9). The regressions in this section also investigate the effect of ownership of the CEO before the CEO change and correct for the incentives placed on the new CEO. This is done through the variables that have the 'γ' parameter. They measure the same construct as the independent variables of interest, but their values are based on observations after the CEO change, whereas the values of the independent variables of interest are based on values before the CEO change. The 'controls' in this regression are the averages of the additional control variables that are also used in the previous regressions. These are the averages of the firm size, COE chairmanship, board ownership and board size during the sample period. After constructing these variables in the sample of the previous regressions, the firm duplicates are removed. This results in a sample of 2037 observations.

In the regressions of this section, no clustered standard error are used. With only one observation per firm (or per cusip) there is no use in correcting for correlation between observations with the same cusip. This is because in the sample of the regressions in this section such observations are not present. When it comes to winsorizing, the same things is done as in the previous regressions. The variables that the averages are based on are winsorized. Average may smooth out certain large differences in variable values over time and in order not to ignore this, the data variables are winsorized before they are made into averages. These data variables are winsorized at 95% and in order to give an indication of the robustness of the results, they are also winsorized at 99%. Per hypothesis (meaning per performance measure) two regressions are run: one where the variables that need to be winsorized are winsorized at 95% and one where those variables are winsorized at 99%.

Table 3, alternative model
Tobin's q

Dependent variable: Tobin's q		Dependent variable: average_tobq_after		
Variables or. model:	or. results (Table 1)	Variables alt. model:	results alt. model (95% win.)	results alt. model (99% win.)
average_ceo_own_before1	0.0074	average_ceo_own_before	0.0027	-0.0053
	(0.447)		(0.0111)	(0.0044)
average_ceo_op_before1	0.0002	average_ceo_op_before	-0.0000	-0.0000**
	(0.0005)		(0.0000)	(0.0000)
average_ceo_bonus_before1	1.028	average_ceo_bonus_before	-0.0376	-0.0222
	(2.785)		(0.0542)	(0.0571)
ceo_own	-0.110***	averagenew_ceo_own	0.975***	0.0277**
	(0.0366)		(0.0370)	(0.0137)
ceo_op	0.0002**	averagenew_ceo_op	0.0014***	0.0011***
	(0.0000)		(0.0000)	(0.0000)
ceo_bonus	-0.609**	averagenew_ceo_bonus	5.985***	10.78***
	(0.276)		(0.342)	(0.299)
firm_size	0.0019	average_ceo_chairman	-0.0002	0.0014
	(0.0170)		(0.0062)	(0.0085)
ceo_chairman	0.0237	average_firm_size	0.0020**	0.0026**
	(0.0385)		(0.0010)	(0.0013)
board_own	0.0000**		-0.0000**	-0.0000
	(0.0000)		(0.0000)	(0.0000)
board_size	-0.0659***	average_board_size	-0.0001	-0.0007
	(0.0115)		(0.0015)	(0.0019)
Constant	2.427***	Constant	0.0049	0.0118
	(0.131)		(0.0148)	(0.0185)
Observations	7,635		2,037	2,037
R-squared	0.025		0.688	0.553
F-statistic	5.82		446.10	250.91
Prob > F	0.0000		0.0000	0.0000
num. of clus.	1698			

- The table shows results of three OLS regressions. On the left the results from the original (or.) model are shown and on the right the results of the alternative (alt.) model, so they can be compared.
- The dependent variable is on the top left. This is the average Tobin's q in the years after a CEO change. The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- The 'averagenew_ceo' variables measure the incentives imposed on the current CEO. They stand for the average share ownership, options and bonus for the new CEO (or the CEO after the CEO change). The variable 'average_board_own' stands for the average share ownership of board members of the firm during the sample period. All other variables are also averages.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the centre column. The variables of the original results are winsorized at 95%.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.

- The ‘Prob> F’ shows the chance that all the variables together do not affect the dependent variable significantly.
- The last row in the table list the clusters for which the standard error is adjusted in the original results.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

In the left column of Table 3, the original results of the relation of interest concerning Tobin’s q are given (where the variables that need winsorized are winsorized at 95%). In the two columns on the right, the results of the alternative model are given. The column where the variables are winsorized at 95% is the column that is compared to the original results. As stated above, the column that contains the results of the regression where the variables are winsorized at 99% only serves to illustrate the (in)stability of the results in the column where the variables are winsorized at 95%.

As the results in Table 3 show, there is also no relation between CEO ownership before the CEO change and Tobin’s q in the alternative model. This is because the coefficients of both the average CEO share ownership (0.0027) and options (-0.0000) from before the CEO change lack a significant effect on Tobin’s q. This is also the case for the results of the alternative model in relation to all other performance measures (see appendix 10-14) a part from EVA. In the results concerning EVA, the coefficient of the average CEO options before the CEO change is significantly negative (-217**). This is why an additional F-test is done concerning the joint significance of the variables of interest in relation to EVA (see appendix 11.2). These are of course the variables that measure the ownership of the past CEO, namely the average CEO share ownership and options from before the CEO change. The F-statistic is significant (2.54*). This means that the ownership of the previous CEO affects a firm’s EVA in the alternative model.

When it comes to the control variables, the differences are much bigger between the two models. For instance, Table 3 shows that the CEO share ownership of the current CEO (measured in the alternative model as the average CEO share ownership after the CEO change) has a different effect in each model. The coefficient of this variable is significantly negative in the original model (-0.110***) and significantly positive in the alternative model (0.975***). The coefficient and the significance of this variable also differ in the results of most other performance measures. For instance, in the results of the ROS the coefficient of the CEO share ownership is also significantly negative in the original model (-0.0142***) and significantly positive in the alternative model (0.0555***). Two other control variables that have very different coefficients in the two models are the (average) board ownership and board size. This is the case for the results of all performance measures (see appendix 10-14). For instance, in Table 3, it can be seen that the board ownership has a significantly positive coefficient in the original model (0.0000**) and a significantly negative one in the alternative

model (-0.0000**). Another example is that in the results involving the MVA (see appendix 10) the board size has a significant coefficient in the original model (-1,067***) and an insignificant one in the alternative model (10.75). Table 3 shows that this is also the case in the results concerning the Tobin's q.

Another thing is that the results in the alternative model demonstrate that the findings of the alternative model are not very stable. For example, in the results on the MVA the coefficient of the average board ownership is insignificant when the variables are winsorized at 95% (-0.0000), but it is significant at a 1% level when the variables are winsorized at 99% (-0.0010***).

Summarizing what is relevant to the answering of the hypotheses, the following can be stated: The answers given to hypothesis 1, 2, 4, 5 and 6 are underlined by the alternative model and the answer given to hypothesis 3 is undermined. In the alternative model, the CEO ownership before the CEO change is not related to a firm's Tobin's q, MVA, ROA, ROE or ROS. It is related to a firm's EVA, meaning that with the use of the alternative model hypothesis 3 should be rejected. This shows that the type of model indeed influences how the relationship of interest is identified and how the hypotheses are answered.

5.2: Transition years

In all previous regressions the so called 'transition years' are excluded in the construction of the variables of interest. When it comes to the average CEO options before the CEO change for instance, the transition years are not used in the calculation of this variable in the years before the CEO change and the transition years are also not seen as years after the CEO change. This means that this variable (the average CEO options before the CEO change) assumes the value of '0' in the transition years. The transition years are years in which there are basically two CEO's, one that is leaving and one that is going to lead the firm. This explains that some firm-year observations in the data are not before or after the CEO change, because their value is zero on the dummy variables that indicate either period. Transition years explain this phenomenon, because those observations are during the CEO change instead of before or after. The reason why those years are excluded is that it is unclear which CEO has the biggest influence on performance. Both are CEO on paper, but their influence in practice may be different due to for instance social and economic ties to other managers and board members. This section aims to gain insights into the consequences of the decision to exclude the transition years. It does so by rerunning a number of the regressions in section 4 and checking whether the results change if the transition years are included.

Only the relationship of interest can be investigated here. The regressions of the basic relationship do not have variables that are affected by 'before' or 'after' the CEO resignation and thereby these results would not be affected by the inclusion of transition years. Per performance measure two regressions are run. These are the same regressions as those section 4 with the same variables, winsorized at the (standard) 95%. The difference is that in one of these regressions the transition year observations are added to the observations of after the CEO change and in the other these observations are added to the observations from before the CEO change.

The variables that are affected are the average CEO share ownership, options and bonus before the CEO change. They are based on values before the CEO change, but assume these values in years after the CEO change. The variables (and with them maybe the results) are therefore affected whether the transition years are included in both the years before the CEO change and the years after the CEO change. The variables that are affected still need to be winsorized the same way and only the numbers that indicate the 95^{th} percentile have to be changed, but only slightly.

Table 4, adding transition years to Tobin's q

Dependent variable: Tobin's q Variables:	or. results (Table 1)	added to after	added to before
average_ceo_own_before1	0.0074	-0.0743	0.0202
	(0.447)	(0.303)	(0.447)
average_ceo_op_before1	0.0002	0.0001	0.0002
	(0.0005)	(0.0003)	(0.0005)
average_ceo_bonus_before1	1.028	-0.201	0.972
	(2.785)	(1.897)	(2.813)
ceo_own	-0.110***	-0.105***	-0.111***
	(0.0366)	(0.0362)	(0.0365)
ceo_op	0.0002**	0.0002**	0.0002**
	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	-0.609**	-0.605**	-0.607**
	(0.276)	(0.277)	(0.276)
firm_size	0.0019	0.0021	0.0020
	(0.0170)	(0.0170)	(0.0170)
ceo_chairman	0.0237	0.0222	0.0234
	(0.0385)	(0.0386)	(0.0385)
board_own	0.0000**	0.0000**	0.0000**
	(0.0000)	(0.0000)	(0.0000)
board_size	-0.0659***	-0.0658***	-0.0660***
	(0.0115)	(0.0115)	(0.0115)
Constant	2.427***	2.425***	2.427***
	(0.131)	(0.131)	(0.131)
Observations	7,635	7,635	7,637
R-squared	0.025	0.025	0.025
F-statistic	5.82	5.75	5.82
Prob > F	0.0000	0.0000	0.0000
num. of clus.	1.698	1698	1700

- The table shows results of three OLS regressions. In the left column the original (or.) results are shown for the model where the transition years (years with multiple CEO's) are not included. In the column on the right the results are shown for the regressions where the transition years are added to observations after and before the CEO change.
- All variables that need to be winsorized (see appendix 9) are winsorized at 95% in these regressions.
- The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- 'ceo_own', 'ceo_op' and 'ceo_bonus' measure the ownership and bonus of the current CEO. They stand for CEO ownership, CEO options and CEO bonus respectively. The variable 'board_own' stands for 'board ownership' of the firm.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Table 4 shows the results for the regressions where the transition years are added to both the observations after the CEO change and the observations before the CEO change. The column on the left shows the results of the original regression where the transition years are not included. The variables in all regressions shown in this section are winsorized at the (standard) 95%.

Table 4 shows that all variables in the regressions where the transition years are added behave the same as they do in the original results. The coefficients have the same sign and level of significance. The independent variables of interest, the average CEO share ownership and options from before the CEO change, remain insignificant in the results of all performance measures (see appendix 15-19). This holds true, regardless of whether the transition years are added to observations before or after the CEO change. When it comes to the control variables in the regressions where the transition years are added, they pretty much behave the same as they do in the original results. This again, holds true for all performance measures. In the results concerning the MVA (see appendix 15), the coefficient of the average CEO bonus from before the CEO change is insignificant in the original results (38,235). It is however significant in the results when the transition years are added to observations after the CEO change (25,017*). This illustrates that the results of the two models are not always identical, but differences like this are an exception.

This means that the decision to exclude the transition years does not affect the results of the regressions that much. It also does not change the answers given to the hypotheses. Based on the results in this section one can conclude the following: Whether the transition years are included or not, no relation is found between CEO ownership from before the CEO change and a firm's Tobin's q, MVA, EVA, ROA, ROE or ROS.

6: limitations and suggestions for further research

This research, despite its intention to be as thorough as possible, has a number of limitations. The first of this is the sample period. The sample period is likely to be not long enough to determine long term effects of the CEO change on firm performance. For example, a CEO may become more long term oriented towards the end of his career because of the shares and options that he owns. Whether this is the case or not, this research may not be able to identify whether this is true or not. Future research could therefore focus on the long term with longer sample periods, if the data availability allows it.

There are also a number of additional factors that this paper has not controlled for and might cause endogeneity issues to occur. Including these controls may also help to increase the R-squared of

some regressions, given that in some regressions in this study the R-squared is quite low. These controls are mentioned here with the intention that future research on this topic takes them into account. One of them is the fact whether the CEO is a former employee or not. Zajac (1990) shows that when the new CEO is an insider, the firm is likely to perform better. He argues that this is because of the reduced information asymmetry and adverse selection problem that boards have in relation to insider CEOs, because they know the characteristics and abilities of those CEOs from within the firm. In this research, it may also affect the stock-based compensation of the CEO. The reason for this is the one mentioned above, which is that the boards' perceived necessity for aligning CEO interests through stock compensation is diminished when there is less information asymmetry. This would imply that insiders would earn less stock-based compensation. However because of the previously mentioned finding that the firms of insider CEOs perform better, it is also possible that these CEOs earn more of this type of compensation. Another omitted control is the type of industry. This namely affects CEO turnover and succession because it affects a boards' ability to identify a badly performing CEO as well as the costs of replacing this CEO (Parrino, 1997). The board's need to align interests forms the link with the stock-based compensation, for this may differ per industry. In certain firms, boards could even refrain from providing this type of incentive if they can simply fire and replace the CEO if he turns out to be incapable.

This paper has also not identified CEO compensation in the broadest way, because not all forms and components of CEO compensation have been identified or measured. This paper has treated CEO compensation as either monetary or stock-based and ignores perks such as company cars/planes, pension plans etc. Thereby it ignores their effect on the CEO and firm performance. Future research should therefore try to include as many components of CEO compensation as possible when it discusses CEO compensation in relation to incentives. Another thing that future papers on this topic could take into account is the ability of CEO's to sell their shares and exercise their options. If a CEO is completely free to do this, he might behave differently than in the situation where his hands are tied.

7: Conclusion

In this paper the question was asked whether CEO ownership would lead to an improvement in firm performance for the period after the CEO had resigned. Also, this thesis tried to gain insights into whether stock-based performance measures are affected differently by CEO ownership than non-stock based performance measures in the period after the CEO departure. An insight into this is of value to boards and shareholders alike who wish to align the interests of the CEO with their own for the sake of the firm. A number of theories and phenomena have been mentioned, such as agency

theory and the phenomenon of diminishing marginal utility of wealth. All of those theories explain numerous results, or at least help to do so. In order to investigate the relationship between CEO ownership and firm performance the data is accommodated to the regressions in a number of ways. For instance, a number of variables are winsorized and one dimensional clustered standard errors are used.

The hypotheses, in their null-form, are confirmed. This means that no relation is found between CEO ownership before the CEO change and a firm's Tobin's q, MVA, EVA, ROA, ROE or ROS. With this in mind the research question can be answered. CEO ownership does not lead to an improvement of firm performance for the period after the CEO has resigned. This thesis hereby shows that the solution to the problem of the contract horizons may not be found in CEO ownership. The expectation that stock-based performance measures may be affected in a more positive way has thereby also been unfounded. This is because the Tobin's q, MVA and EVA turn out to be just as unrelated to ownership of the CEO before the CEO change as the ROA, ROE and ROS. This indicates that whether a performance measure is more closely related to stock performance or not, is not important for the relation between that performance measure and CEO ownership before the CEO change. Shareholders and board members can take away from this research the knowledge that increasing share and options in the CEO compensation package may not help firm performance after that CEO has gone.

The answers given to one of the hypotheses is challenged when an alternative model is used that relies on just one observation per firm instead of firm-year. In that model, the variables measuring the average CEO ownership before the CEO change are jointly significant in relation to the average EVA after the CEO change. This shows that some results of this paper are influenced by the choice of model. The inclusion of the transition years in the observations before and after the CEO change does not change the original results. Therefore, the decision not to include them has no consequences for the results in section 4 and the answering of the hypotheses. Hopefully future research follows the recommendations made in this study, such as the inclusion of a broader definition of CEO compensation. After all, insights into the relationship between CEO compensation, CEO incentives and firm performance are likely to benefit firms and with them the societies in which they operate.

Bibliography

Allgood, S., & Farrell, K. A. (2000). The effect of CEO tenure on the relation between firm performance and turnover. *The Journal of Financial Research*, 373–390 .

Al-Matari, E. M., Al-Swidi, A. K., & Fadzil, F. H. (2014). The Measurements of Firm Performance's Dimensions . *Asian Journal of Finance & Accounting 6(1)*, 24-49.

Baum, C. F., Nichols, A., & Schaffer, M. E. (2010, July 21). *Evaluating one-way and two-way cluster-robust covariance matrix estimates.* Retreived from Stata Data Analysis and Statistical Software: http://www.stata.com/meeting/boston10/boston10_baum.pdf

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

Bhagat, S., & Bolton, B. (2008). Corporate Governance And Firm Performance . *Journal of Corporate Finance 14(3)*, 257–273.

Bhagat, S., Bolton, B., & Subramanian, A. (2010, August 3). *CEO Education, CEO Turnover, and Firm Performance.* Retreived from SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1670219

Bizjak, J., Lemmon, M. L., & Nguyen, T. (2011). Are all CEOs above average? An empirical analysis of compensation peer groups and pay design. *Journal of Financial Economics 100(3)*, 538–555.

Boyd, B. (1994). Board Control and CEO Compensation. *Board Control and CEO Compensation 15(5)*, 335-344.

Brickley, J. (2003). Empirical research on CEO turnover and firm-performance: a discussion. *Journal of Accounting and Economics 36(1-3)*, 227–233.

Coles, J. W., McWilliams, V. B., & Sen, N. (2001). An examination of the relationship of governance mechanisms to performance. *Journal of Management 27(1)*, 23-50.

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

Crosson, S. V., Needles, B. E. & Powers, M. (2008). *Principles of accounting.* Boston: Houghton Mifflin.

Cui, H., & Mak, Y. (2002). The relationship between managerial ownership and firm performance in high R&D firms. *Journal of Corporate Finance 8(4)*, 313-336.

de Wet, J. H. (2005). EVA versus traditional accounting measures of performance as drivers of shareholder value – A comparative analysis. *Meditari Accountancy Research, 13(2)*, 1-16.

Diener, E., & Biaswas-Diener, R. (2002). Will money increase subjective well-being? A literature review and guide to needed research. *Social Indicators Research 57*, 119-169.

Easterlin, R. A. (2005). Diminishing Marginal Utility of Income? Caveat Emptor. *Social Indicators Research 70(3)*, 243-255.

Eisenhardt, K. M. (1989). Agency Theory: An Assessment and Review. *The Academy of Management Review 14(1)*, 57-74.

Farris, P. W., Bendle, N. T., Pfeifer, P. E., & Reibstein, D. J. (2010). *Marketing Metrics: The Definitive Guide to Measuring Marketing Performance.* Upper Saddle River, New Jersey: Pearson Education, Inc.

Faulkender, M., & Yang, J. (2010). Inside the Black Box: The Role and Composition of Compensation Peer Groups. *Journal of Financial Economics 96(2)*, 257-270.

Frey, B. S., & Stutzer, A. (2002a). *Happiness and Economics: How the Economy and Institutions Affect Well-Being .* Princeton: Princeton University Press.

Gallo, A. (2016, April 4). *A Refresher on Return on Assets and Return on Equity*. Retreived from Harvard Business Review: https://hbr.org/2016/04/a-refresher-on-return-on-assets-and-return-on-equity

Ganguli, S. K., & Agrawal, S. (2009). Ownership structure and firm performance: An empirical study on listed Mid-Cap Indian Companies. *he IUP Journal of Applied Finance, 15(12)*, 37-52.

Gibbons, R. (2017, January 17). *Lecture Note 1: Agency Theory.* Retreived from Massachusetts Institute of Technology: http://web.mit.edu/rgibbons/www/

Graham, J. R., Harvey, C. R., & Rajkopal, S. (2005). The Economic Implications of Corporate Financial Reporting . *Journal of Accounting and Economics 40(1-3 Dec.)*, 3-73.

Griffith, J. M. (1999). CEO Ownership and Firm Value. *Managerial and Decision Economics 20(1)*, 1-8.

Huson, M. R., Malatesta, P. H., & Parrino, R. (2004). Managerial Succession and Firm Performance. *Journal of Financial Economics, 74(2)*, 237-275.

Kato, T., & Kubo, K. (2006). CEO COMPENSATION AND FIRM PERFORMANCE IN JAPAN: EVIDENCE FROM NEW PANEL DATA ON INDIVIDUAL CEO PAY*. *Journal of the Japanese and International Economies 20(1)*, 1-19.

Kato, T., & Long, C. (2006). CEO Turnover, Firm Performance and Enterprise Reform in China: Evidence from New Micro Data . *Journal of Comparative Economics 34(4)*, 796-817.

Khurana, R., & Nohria, N. (15, March 2000). *The Performance Consequences of CEO Turnover.* Retreived from SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=219129.

Kim, E. H., & Lu, Y. (2011). CEO Ownership, External Governance, and Risk-taking. *Journal of Financial Economics 201(2)*, 272–292.

Kini, O., Kracaw, W., & Mian, S. (1995). Corporate takeovers, firm performance, and board composition. *Journal of Corporate Finance 1(3-4)*, 383–412.

Krivogorsky, V. (2006). Ownership, board structure, and performance in continental Europe. *The International Journal of Accounting 41(2)*, 176-197.

Lazear, E. P., & Oyer, P. (2007, October). *Personnel Economics.* Retreived from the National Bureau of Economic Research: http://www.nber.org/papers/w13480

Lee, S., & Kim, W. G. (2009). EVA, refined EVA, MVA, or traditional performance measures for the hospitality industry? *International Journal of Hospitality Management 28(3)*, 439-445.

Lehn, K., & Makhija, A. K. (1996). EVA & MVA as performance measures and signals for strategic change. *Strategy & Leadership 24(3)*, 34 - 38.

Li Destri, A. M., Picone, P. M., & Mina, A. (2012). Bringing Strategy Back into Financial Systems of Performance Measurement: Integrating EVA and PBC. *Business System Review 1(1)*, 85-102.

Li, D., Moshirian, F., Nguyen, P., & Tan, L. W. (2007). Managerial ownership and firm performance: Evidence from China's privatizations. *Research in International Business and Finance 21*, 396–413.

Parrino, R. (1997). CEO turnover and outside succession A cross-sectional analysis. *Journal of Financial Economics 46(2)*, 165–197.

Petersen, M. A. (2017, May 29). *Programming Advice*. Retreived from Kellogg School of Management : http://www.kellogg.northwestern.edu/faculty/petersen/htm/papers/se/se_programming.htm

Pogutz, S., & Russo, A. (2009, May). *Eco-efficiency vs Eco-effectiveness. Exploring the Link between GHG Emissions and Firm Performance.* Retreived from Academy of Management Annual Conference Best Paper Proceedings website: https://ssrn.com/abstract=1467790

Shan, Y. G., & McIver, R. P. (2011). Corporate governance mechanisms and financial performance in China: panel data evidence on listed non-financial companies. *Asia Pacific Business Review, 17(3)*, 301–324.

Suchard, J., & Signh, M. B. (2001). The Market Effects of CEO Turnover in Australian Firms. *Pacific-Basin Finance Journal 9*, 1-27.

the National Bureau of Economic Research. (2010, September 20). *Business Cycle Dating Committee, National Bureau of Economic Research.* Retreived from National Bureau of Economic Research: http://www.nber.org/cycles/sept2010.html

Wahla, K. U., Shah, S. Z., & Hussain, Z. (2012). Impact of ownership structure on firm performance evidence from non-financial listed companies at Karachi Stock Exchange . *International Research Journal of Finance and Economics, 84*, 6–13.

Wet, J. d., & du Toit, E. (2007). Return on equity: A popular, but flawed measure of corporate financial performance . *South African Journal of Business Management*, 59-69.

Xu, M. (2011). CEO Contract Horizon and Investment. *Faculty and Research Working Paper, INSTEAD the Business School for the World*.

Yermack, D. (1996). Higher market valuation of companies with a small board of directors . *Journal of Financial Economics 40*, 185-211 .

Young, S. D., & O'Byrne, S. F. (2000). *EVA and Value-Based Management.* United Sates of America: McGraw Hill Professional.

Zajac, E. J. (1990). CEO Selection, Succession, Compensation and Firm Performance: A Theoretical Integration and Empirical Analysis. *Strategic Management Journal 11(3)*, 217-230.

Zajac, E. J., & Westphal, J. D. (1996). Who Shall Succeed? How CEO/Board Preferences and Power Affect the Choice of New CEOs. *The Academy of Management Journal 36(1)*, 64-90.

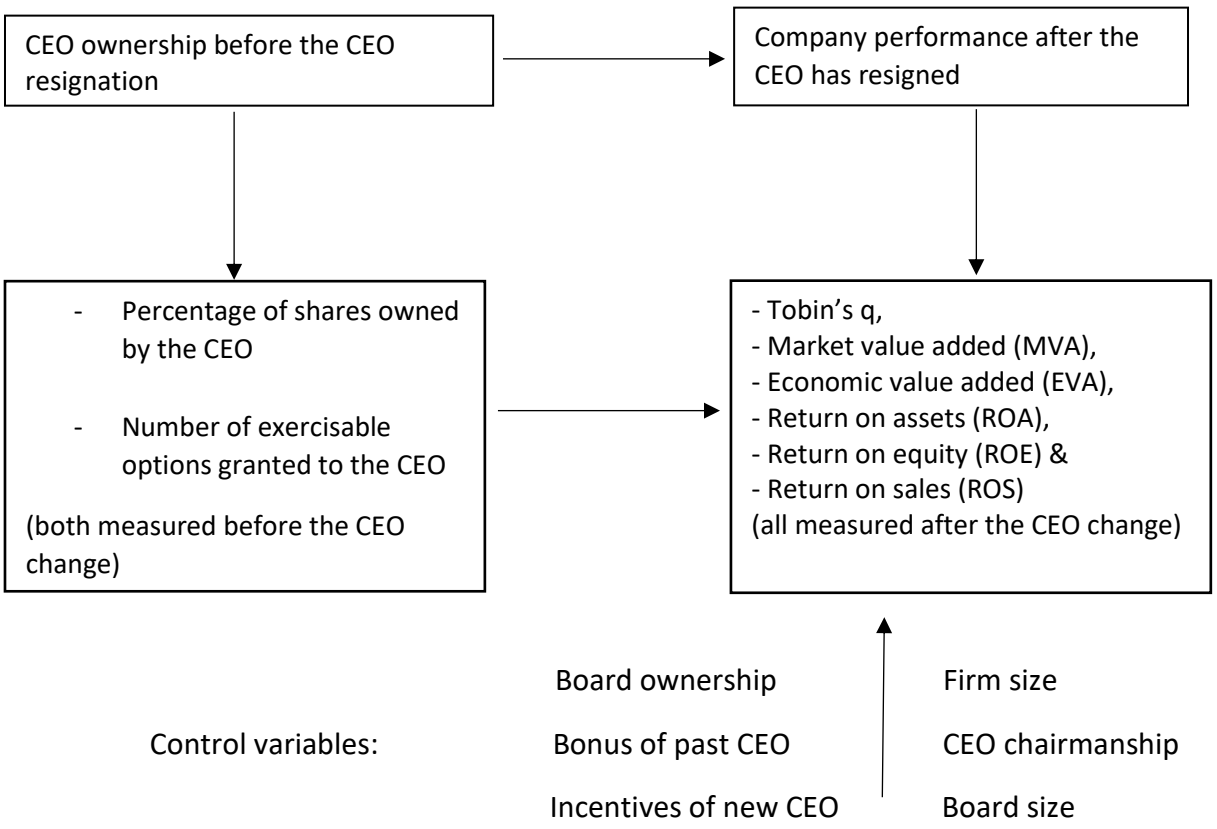
Appendix 1

The EVA depends on the invested capital, the net income and the weighted average cost of capital (WACC). The WACC, in turn, depends on the relative size of a firm's equity and debt. It also depends on the cost of equity and the cost of debt (interest). As Li Destri, Picone and Mina (2012) have put it, the formula is: $WACC=(Ke \cdot E+Kd \cdot D)/(D+E)$.

- Ke stands for the cost of equity. The data variable that measures this in this study are the total firm dividends.
- Kd for the cost of debt capital (net of tax benefits). The data variable that measures this in this study are the interest and related expenses.
- D stands for the total value of debt. The data variable that measures this in this study as the total debt of a firm including current debt.
- E stands for the total value of equity. The data variable that measures this in this study is the total fiscal market value of a firm.

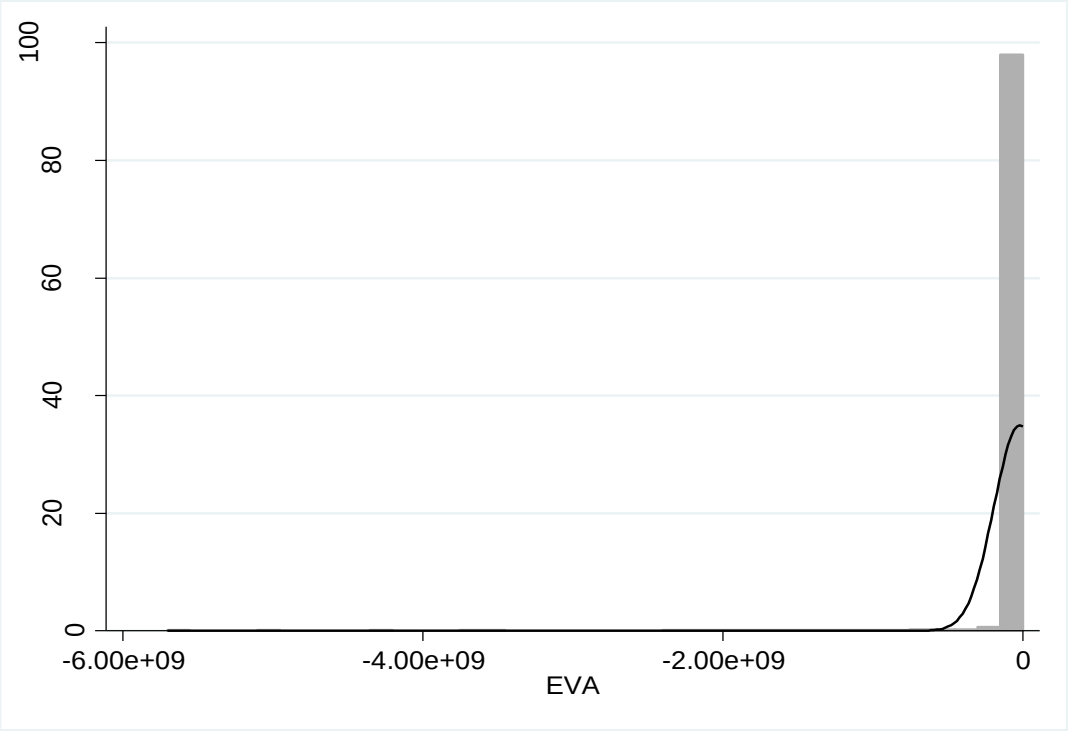
When the WACC is multiplied with the invested capital and this number is subtracted from net income the EVA is calculated.

Appendix 2


CEO ownership before the CEO resignation
Company performance after the CEO has resigned
- Percentage of shares owned by the CEO
- Number of exercisable options granted to the CEO
(both measured before the CEO change)
- Tobin's q,
- Market value added (MVA),
- Economic value added (EVA),
- Return on assets (ROA),
- Return on equity (ROE) &
- Return on sales (ROS)
(all measured after the CEO change)
Control variables:
Board ownership
Bonus of past CEO
Incentives of new CEO
Firm size
CEO chairmanship
Board size

Appendix 3.1

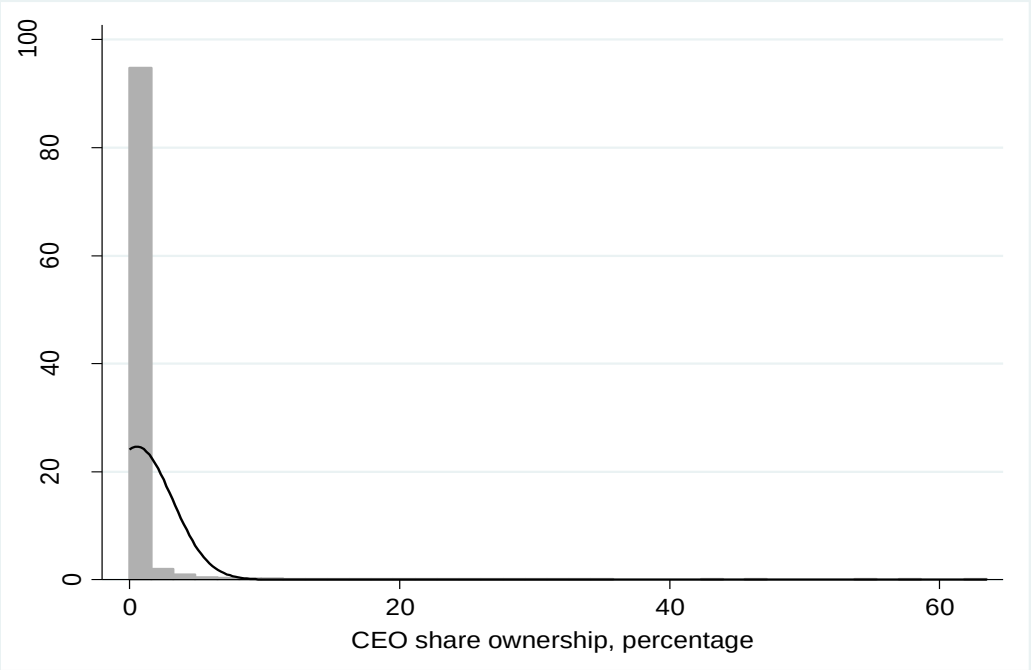
Figure 2, the distribution of the values of EVA



- The horizontal axis indicates the values assumed by the variable and the vertical axis the percentage of observations that assume the specific values on the horizontal axis.
- EVA stands for the economic value added of firm during the sample period (see appendix 1 for its calculation).

Appendix 3.2

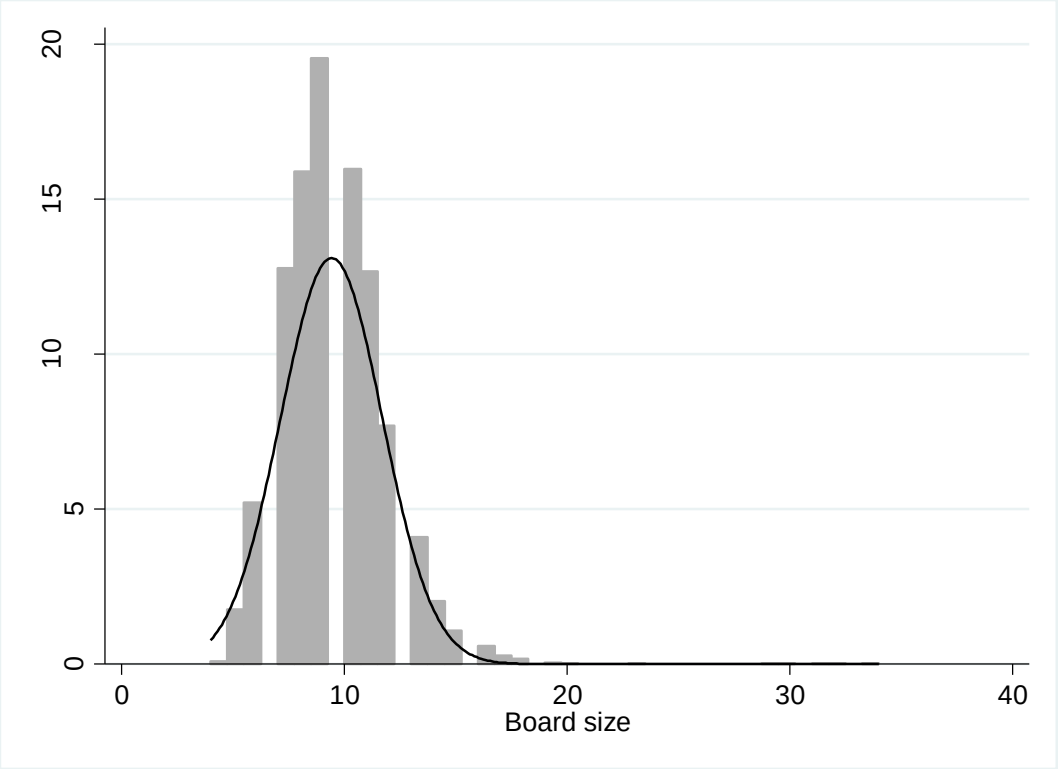
Figure 3, the distribution of the values of the CEO share ownership



- The horizontal axis indicates the values assumed by the variable and the vertical axis the percentage of observations that assume the specific values on the horizontal axis.
- The variable on the horizontal axis is the CEO share ownership as a percentage of the total ownership during the sample period.

Appendix 3.3

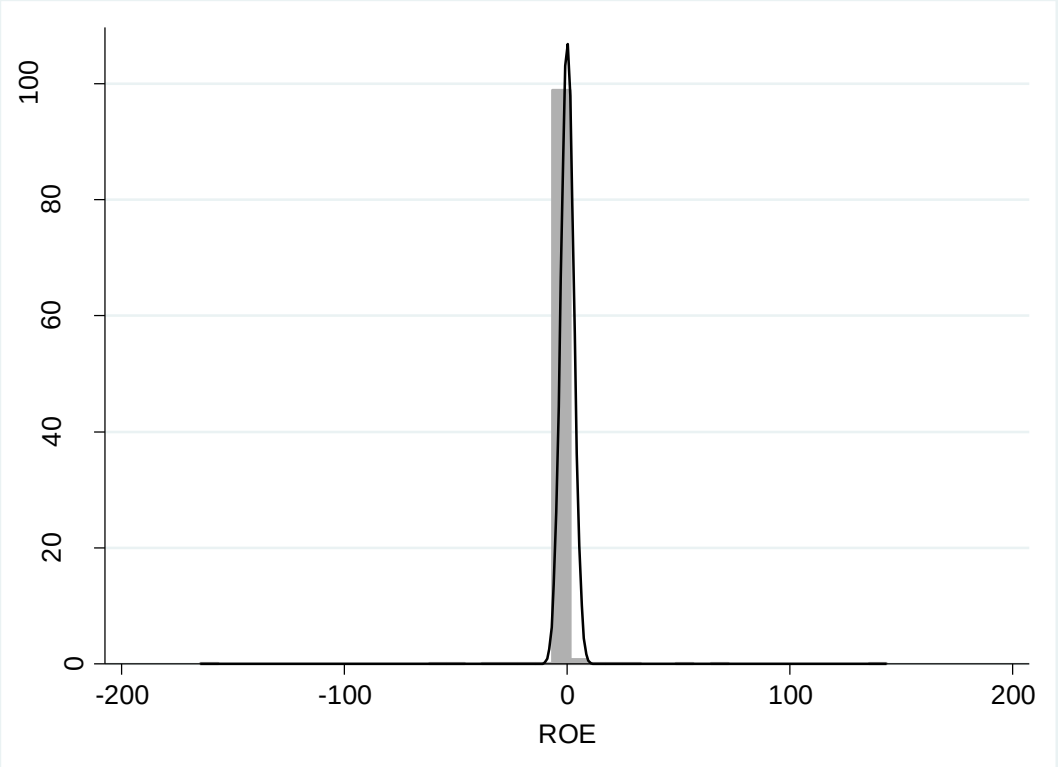
Figure 4, the distribution of the values of the board size



- The horizontal axis indicates the values assumed by the variable and the vertical axis the percentage of observations that assume the specific values on the horizontal axis.
- The variable on the horizontal axis is the board size of a firm during the sample period, measured as the number of directors seated on a firm's board.

Appendix 3.4

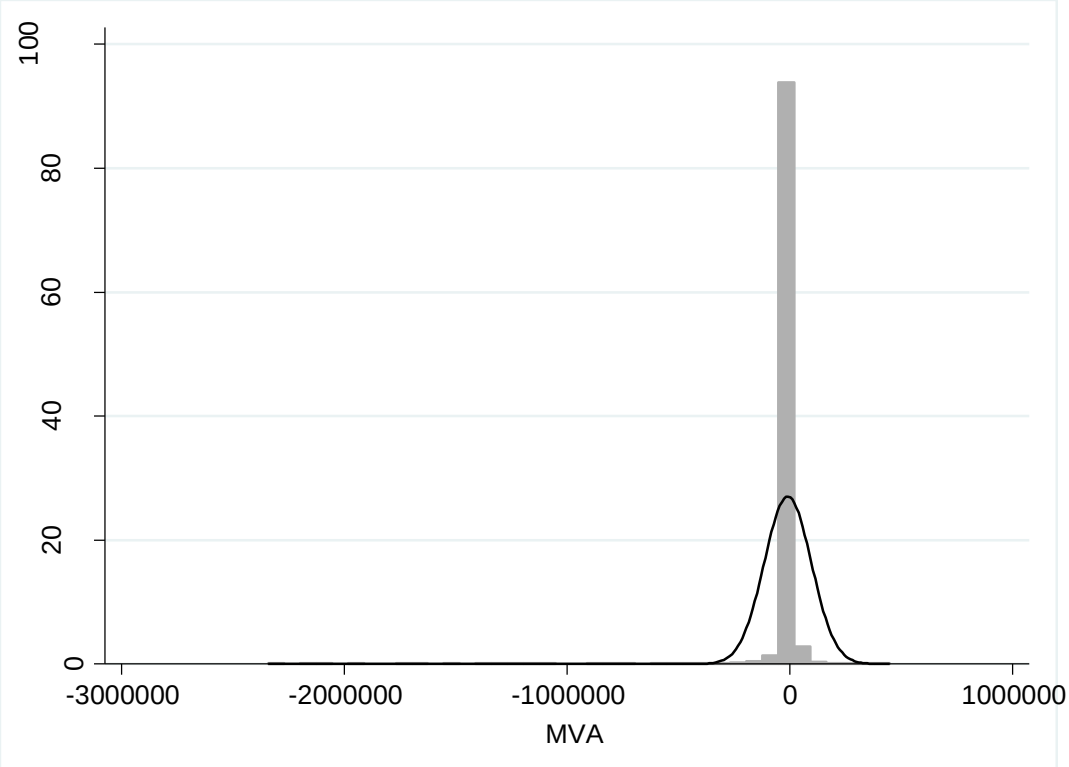
Figure 5, the distribution of the values of the ROE



- The horizontal axis indicates the values assumed by the variable and the vertical axis the percentage of observations that assume the specific values on the horizontal axis.
- The variable on the horizontal axis is the return on equity (or ROE) of a firm during the sample period.

Appendix 3.5

Figure 6, the distribution of the values of the MVA



- The horizontal axis indicates the values assumed by the variable and the vertical axis the percentage of observations that assume the specific values on the horizontal axis.
- The variable on the horizontal axis is the market value added (or MVA) of a firm during the sample period.

Appendix 3.6

Winsorizing is needed:	**Variables:**
On the left side	EVA (economic value added)
On both sides	ROE(return on equity), MVA(market value added), ROA(return on assets) and ROS(return on sales)
On the right side	CEO share ownership, CEO options, CEO bonus, board ownership, board size and Tobin's q
Winsorizing is not needed	Firm size and CEO chairmanship

- In this table, an overview is given of what variables are winsorized in the regressions and if so, on which side.
- It is important to realise that the two variables where winsorizing is not needed are not winsorized in any of the regressions. This is the case regardless of the fact of whether any of the other variables are winsorized or not. The values of the firm size variable have a distribution that is pretty much free from outliers and CEO chairmanship is a dummy variable. Winsorizing these variables is therefore pointless.

Appendix 4.1

Table 5, regression results for MVA

Dependent variable: MVA						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	basic rel.	rel. of interest	basic rel.	rel. of interest	basic rel.	rel. of interest
average_ceo_own_before1		936.2		350.8		-1,729
		(2,978)		(2,661)		(2,944)
average_ceo_op_before1		0.406		4.759		20.86
		(10.67)		(16.62)		(16.46)
average_ceo_bonus_before1		38,235		69,512*		112,831**
		(23,405)		(36,842)		(57,368)
ceo_own	-471	-571.2	249.9	222.6	254.4	269.6
	(358.9)	(363.9)	(259.4)	(241.8)	(192.3)	(203.2)
ceo_op	-1.672	-1.721	-6.128*	-6.746*	-1.161	-2.574
	(1.425)	(1.451)	(3.709)	(3.894)	(2.256)	(3.096)
ceo_bonus	-11,765**	-12,608**	-46,357**	-49,848**	-115,117**	-127,939**
	(4,815)	(4,918)	(19,938)	(20,990)	(51,970)	(60,041)
firm_size	387.1	369.8	316.3	232.0	-2,710	-3,029
	(313.3)	(315.1)	(817.3)	(839.7)	(2,977)	(3,144)
ceo_chairman	-707.1	-690.3	-1,867*	-1,925*	-2,180	-2,443
	(460.1)	(459.5)	(1,020)	(1,023)	(2,771)	(2,652)
board_own	0.0108***	0.0109***	0.0158***	0.0162***	0.0202***	0.0213***
	(0.0028)	(0.0028)	(0.0043)	(0.0044)	(0.0068)	(0.0075)
board_size	-1,064***	-1,067***	-2,466***	-2,491***	-3,358***	-3,475***
	(161.2)	(160.0)	(531.8)	(532.9)	(928.2)	(944.6)
Constant	6,553***	6,731***	20,948***	21,944***	51,587**	55,474**
	(2,408)	(2,438)	(7,401)	(7,686)	(21,475)	(23,601)
Observations	7,659	7,656	7,659	7,656	7,659	7,656
R-squared	0.035	0.037	0.053	0.056	0.032	0.035
F-statistic	7.92	6.00	3.77	2.90	3.19	2.51
Prob > F	0.0000	0.0000	0.0005	0.0013	0.0023	0.0055
num. of clus.	1.704	1698	1704	1698	1704	1698

- The table shows results of a number of OLS regressions, for both the basic relation (basic rel.) and the relation of interest (rel. of interest). The variables in the first two rows are the variables of interest. They measure the CEO ownership before the CEO change. They stand for the average CEO ownership and CEO options before the CEO change respectively. The 'ceo_own' and 'ceo_op' stand for the share ownership and options of the current CEO. The variable 'board_own' stands for share ownership of board members of the firm.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 4.2

Table 6, joint significance of the ownership variables on MVA

Dependent variable: MVA						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	F-value	p-value	F-value	p-value	F-value	p-value
ceo_own, ceo_op & ceo_bonus	4.43***	0.0042	2.00	0.1122	1.60	0.1866
av. ceo_own bef., av. ceo_op bef. & av. ceo_bonus bef.	2.05	0.1052	1.55	0.2007	1.46	0.2242
av. ceo_own bef. & av. ceo_op bef.	0.14	0.8682	0.12	0.8879	0.81	0.4464

- This table shows the results of the F-tests on the joint significance of three groups of variables in relation to the MVA.
- The first row contains the variables that measure the incentives that are placed on the current CEO. These are the current CEO share ownership, options and bonus.
- The second row contains the variables that measure the incentives that are placed on the previous CEO. These are the (average) share ownership, options and bonus of the CEO before the CEO resignation.
- The third row contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables in the left column. The different 'win. 'columns show the results for the F-tests when they are winsorized at 95%, 99% and not winsorized at all.
- The 'F-value' columns show the F-statistics of the groups of variables in the column on the far left.
- The 'p-value' shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to MVA.
- ***** means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

Appendix 5.1

Table 7, regression results for EVA

Dependent variable: EVA						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	basic rel.	rel. of interest	basic rel.	rel. of interest	basic rel.	rel. of interest
average_ceo_own_before1		1.692e+06		-1.864e+06		-3.272e+06
		(1.884e+06)		(3.838e+06)		(6.300e+06)
average_ceo_op_before1		-1,807		18,612		70,975
		(5,981)		(18,080)		(81,689)
average_ceo_bonus_before1		-1.787e+07		5.212e+07		1.353e+08
		(1.778e+07)		(4.126e+07)		(1.013e+08)
ceo_own	436,939**	443,619**	519,077	435,888	990,741	883,480
	(189,690)	(195,617)	(497,406)	(464,041)	(797,731)	(731,439)
ceo_op	-2,351***	-2,302***	-9,475	-9,449	-10,603	-13,938
	(679.2)	(675.5)	(6,301)	(6,503)	(10,993)	(14,536)
ceo_bonus	-7.972e+06***	-8.174e+06***	-7.496e+07**	-7.802e+07**	-2.204e+08*	-2.232e+08*
	(2.196e+06)	(2.197e+06)	(3.151e+07)	(3.170e+07)	(1.274e+08)	(1.262e+08)
firm_size	-2.547e+06***	-2.553e+06***	1.563e+07***	-1.573e+07***	2.789e+07***	2.791e+07***
	(195,168)	(195,758)	(3.003e+06)	(3.013e+06)	(6.919e+06)	(6.929e+06)
ceo_chairman	-644,115**	-627,765**	-2.253e+06	-2.145e+06	-8.154e+06	-7.702e+06
	(270,451)	(270,142)	(2.757e+06)	(2.762e+06)	(6.852e+06)	(6.542e+06)
board_own	3.058*	3.032*	-11.39	-11.05	-5.094	-4.622
	(1.709)	(1.703)	(24.80)	(24.78)	(33.10)	(33.15)
board_size	-232,160***	-234,338***	-829,340	-906,258	-3.446e+06	-3.586e+06
	(88,200)	(87,904)	(1.102e+06)	(1.108e+06)	(5.564e+06)	(5.576e+06)
Constant	1.995e+07***	2.002e+07***	1.238e+08***	1.252e+08***	2.425e+08***	2.441e+08***
	(1.376e+06)	(1.379e+06)	(2.120e+07)	(2.134e+07)	(7.115e+07)	(7.056e+07)
Observations	6,583	6,580	6,583	6,580	6,583	6,580
R-squared	0.379	0.379	0.179	0.180	0.094	0.096
F-statistic	35.54	24.97	6.17	4.79	2.92	7.02
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0048	0.0000
num. of clus.	1486	1482	1486	1482	1486	1482

- The table shows results of a number of OLS regressions, for both the basic relation (basic rel.) and the relation of interest (rel. of interest). The variables in the first two rows are the variables of interest. They measure the CEO ownership before the CEO change. They stand for the average CEO ownership and CEO options before the CEO change respectively. The 'ceo_own' and 'ceo_op' stand for the share ownership and options of the current CEO. The variable 'board_own' stands for share ownership of board members of the firm.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 5.2

Table 8, joint significance of the ownership variables on EVA

Dependent variable: EVA						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	F-value	p-value	F-value	p-value	F-value	p-value
ceo_own, ceo_op & ceo_bonus	8.08***	0.0000	2.22*	0.0843	1.21	0.3037
av. ceo_own bef., av. ceo_op bef. & av. ceo_bonus bef.	0.47	0.7003	0.92	0.4302	0.69	0.5583
av. ceo_own bef. & av. ceo_op bef.	0.48	0.6161	0.68	0.5079	0.38	0.6855

- This table shows the results of the F-tests on the joint significance of three groups of variables in relation to the EVA.
- The first row contains the variables that measure the incentives that are placed on the current CEO. These are the current CEO share ownership, options and bonus.
- The second row contains the variables that measure the incentives that are placed on the previous CEO. These are the (average) share ownership, options and bonus of the CEO before the CEO resignation.
- The third row contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables in the left column. The different 'win. 'columns show the results for the F-tests when they are winsorized at 95%, 99% and not winsorized at all.
- The 'F-value' columns show the F-statistics of the groups of variables in the column on the far left.
- The 'p-value' shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to EVA.
- * means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

Appendix 6.1

Table 9, regression results for ROA

Dependent variable: ROA						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	basic rel.	rel. of interest	basic rel.	rel. of interest	basic rel.	rel. of interest
average_ceo_own_before1		0.0439		0.0137**		0.0153**
		(0.0301)		(0.0068)		(0.0071)
average_ceo_op_before1		-0.0000		-0.0000		-0.0000**
		(0.0000)		(0.0000)		(0.0000)
average_ceo_bonus_before1		0.0597		0.156		0.166
		(0.179)		(0.209)		(0.210)
ceo_own	-0.0008	-0.0013	0.0012**	0.0010*	0.0008**	0.0007**
	(0.0022)	(0.0023)	(0.0006)	(0.0006)	(0.0003)	(0.0003)
ceo_op	-0.0000	-0.0000	-0.000	-0.0000	0.0000	0.0000
	('-0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	0.0055	0.0068	0.0286	0.0287	0.0308	0.0306*
	(0.0171)	(0.0168)	(0.0189)	(0.0183)	(0.0191)	(0.0185)
firm_size	0.0083***	0.0082***	0.0095***	0.0094***	0.0095***	0.0095***
	(0.0012)	(0.0012)	(0.0013)	(0.0013)	(0.0014)	(0.0014)
ceo_chairman	0.0027	0.0029	0.0032	0.0034	0.0043	0.0045
	(0.0023)	(0.0023)	(0.0027)	(0.0027)	(0.0029)	(0.0029)
board_own	0.0000***	0.0000***	0.0000*	0.0000*	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
board_size	-0.0037***	-0.0037***	-0.0036***	-0.0036***	-0.0035***	-0.0035***
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0009)	(0.0009)
Constant	0.0191**	0.0194**	0.0069	0.0070	0.0044	0.0045
	(0.0083)	(0.0083)	(0.0098)	(0.0098)	(0.0110)	(0.0110)
Observations	7,894	7,889	7,894	7,889	7,894	7,889
R-squared	0.030	0.030	0.027	0.028	0.021	0.021
F-statistic	10.94	8.13	10.74	8.61	10.40	8.21
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
num. of clus.	1737	1729	1737	1729	1737	1729

- The table shows results of a number of OLS regressions, for both the basic relation (basic rel.) and the relation of interest (rel. of interest). The variables in the first two rows are the variables of interest. They measure the CEO ownership before the CEO change. They stand for the average CEO ownership and CEO options before the CEO change respectively. The 'ceo_own' and 'ceo_op' stand for the share ownership and options of the current CEO. The variable 'board_own' stands for share ownership of board members of the firm.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 6.2

Table 10, joint significance of the ownership variables on ROA

Dependent variable: ROA						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	F-value	p-value	F-value	p-value	F-value	p-value
ceo_own, ceo_op & ceo_bonus	0.69	0.5591	1.99	0.1129	3.11**	0.0254
av. ceo_own bef., av. ceo_op bef. & av. ceo_bonus bef.	1.13	0.3351	2.60*	0.0510	3.05**	0.0276
av. ceo_own bef. & av. ceo_op bef.	1.21	0.2996	2.28	0.1021	2.69*	0.0681

- This table shows the results of the F-tests on the joint significance of three groups of variables in relation to the ROA.
- The first row contains the variables that measure the incentives that are placed on the current CEO. These are the current CEO share ownership, options and bonus.
- The second row contains the variables that measure the incentives that are placed on the previous CEO. These are the (average) share ownership, options and bonus of the CEO before the CEO resignation.
- The third row contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables in the left column. The different 'win. 'columns show the results for the F-tests when they are winsorized at 95%, 99% and not winsorized at all.
- The 'F-value' columns show the F-statistics of the groups of variables in the column on the far left.
- The 'p-value' shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to ROA.
- * means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

Appendix 7.1

Table 11, regression results for ROE

Dependent variable: ROE						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	basic rel.	rel. of interest	basic rel.	rel. of interest	basic rel.	rel. of interest
average_ceo_own_before1		0.0772		0.0230		-0.0029
		(0.0782)		(0.0203)		(0.0482)
average_ceo_op_before1		-0.0000		-0.0000		-0.0001
		(0.0000)		(0.0001)		(0.0001)
average_ceo_bonus_before1		0.0941		-0.175		-1.074
		(0.590)		(0.682)		(1.628)
ceo_own	0.0020	0.0011	0.0026	0.0027	0.0150*	0.0154*
	(0.0054)	(0.0054)	(0.0031)	(0.0031)	(0.0085)	(0.0087)
ceo_op	-0.0000*	-0.0000*	-0.0000*	-0.0000*	-0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	0.0242	0.0300	0.0336	0.0427	-0.174	-0.164
	(0.0399)	(0.0390)	(0.0471)	(0.0464)	(0.172)	(0.172)
firm_size	0.0255***	0.0254***	0.0324***	0.0322***	0.0692**	0.0689**
	(0.0027)	(0.0027)	(0.0052)	(0.0052)	(0.0269)	(0.0269)
ceo_chairman	0.0073	0.0078	0.0165	0.0166	0.112*	0.111*
	(0.0059)	(0.0059)	(0.0112)	(0.0113)	(0.0609)	(0.0612)
board_own	0.0000	0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
board_size	-0.0012	-0.0012	-0.0020	-0.0020	-0.0263	-0.0262
	(0.0017)	(0.0017)	(0.0029)	(0.0029)	(0.0279)	(0.0279)
Constant	-0.0718***	-0.0711***	-0.111***	-0.111***	-0.204	-0.202
	(0.0209)	(0.0209)	(0.0361)	(0.0361)	(0.183)	(0.183)
Observations	7,894	7,889	7,894	7,889	7,894	7,889
R-squared	0.047	0.047	0.015	0.015	0.002	0.002
F-statistic	16.10	11.75	7.14	5.37	1.54	1.25
Prob > F	0.0000	0.0000	0.0000	0.0000	0.1479	0.0019
num. of clus.	1737	1729	1737	1729	1737	1729

- The table shows results of a number of OLS regressions, for both the basic relation (basic rel.) and the relation of interest (rel. of interest). The variables in the first two rows are the variables of interest. They measure the CEO ownership before the CEO change. They stand for the average CEO ownership and CEO options before the CEO change respectively. The 'ceo_own' and 'ceo_op' stand for the share ownership and options of the current CEO. The variable 'board_own' stands for share ownership of board members of the firm.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 7.2

Table 12, joint significance of the ownership variables on ROE

Dependent variable: ROE						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	F-value	p-value	F-value	p-value	F-value	p-value
ceo_own, ceo_op & ceo_bonus	1.35	0.2567	1.23	0.2965	1.11	0.3438
av. ceo_own bef., av. ceo_op bef. & av. ceo_bonus bef.	0.55	0.6494	0.47	0.7037	0.45	0.7153
av. ceo_own bef. & av. ceo_op bef.	0.62	0.5359	0.66	0.5186	0.60	0.5480

- This table shows the results of the F-tests on the joint significance of three groups of variables in relation to the ROE.
- The first row contains the variables that measure the incentives that are placed on the current CEO. These are the current CEO share ownership, options and bonus.
- The second row contains the variables that measure the incentives that are placed on the previous CEO. These are the (average) share ownership, options and bonus of the CEO before the CEO resignation.
- The third row contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables in the left column. The different 'win. 'columns show the results for the F-tests when they are winsorized at 95%, 99% and not winsorized at all.
- The 'F-value' columns show the F-statistics of the groups of variables in the column on the far left.
- The 'p-value' shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to ROE.
- ***** means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

Appendix 8.1

Table 13, regression results for ROS

Dependent variable: ROS						
Degree of winsorizing:	95% win.		99% win.		no win.	
Variables:	basic rel.	rel. of interest	basic rel.	rel. of interest	basic rel.	rel. of interest
average_ceo_own_before1		0.0319		0.0104		0.0077
		(0.0401)		(0.0086)		(0.0088)
average_ceo_op_before1		-0.0000		-0.0000		-0.0000
		(0.0000)		(0.0000)		(0.0000)
average_ceo_bonus_before1		0.438**		0.368**		0.450**
		(0.222)		(0.180)		(0.198)
ceo_own	-0.0131***	-0.0142***	0.0003	0.0000	0.0006	0.0005
	(0.0033)	(0.0033)	(0.0011)	(0.0011)	(0.0006)	(0.0006)
ceo_op	0.0000*	0.0000*	0.0000	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	0.107***	0.107***	0.0919***	0.0918***	0.0719**	0.0710**
	(0.0255)	(0.0253)	(0.0225)	(0.0221)	(0.0345)	(0.0343)
firm_size	-0.0029	-0.0029	0.0024	0.0025	0.0106	0.0106
	(0.0018)	(0.0018)	(0.0028)	(0.0028)	(0.0069)	(0.0069)
ceo_chairman	0.0068**	0.0070**	0.0073	0.0073	0.0089	0.0089
	(0.0034)	(0.0034)	(0.0045)	(0.0045)	(0.0061)	(0.0062)
board_own	-0.0000***	-0.0000***	-0.0000**	-0.0000**	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
board_size	0.0048***	0.0048***	0.0043***	0.0044***	0.0034*	0.0035*
	(0.0011)	(0.0011)	(0.0013)	(0.0013)	(0.0020)	(0.0020)
Constant	0.0527***	0.0520***	0.0056	0.0046	-0.0554	-0.0566
	(0.0139)	(0.0139)	(0.0200)	(0.0200)	(0.0462)	(0.0463)
Observations	7,894	7,889	7,894	7,889	7,894	7,889
R-squared	0.020	0.022	0.013	0.014	0.009	0.010
F-statistic	12.15	9.18	8.26	6.45	6.62	5.18
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
num. of clus.	1737	1729	1737	1729	1737	1729

- The table shows results of a number of OLS regressions, for both the basic relation (basic rel.) and the relation of interest (rel. of interest). The variables in the first two rows are the variables of interest. They measure the CEO ownership before the CEO change. They stand for the average CEO ownership and CEO options before the CEO change respectively. The 'ceo_own' and 'ceo_op' stand for the share ownership and options of the current CEO. The variable 'board_own' stands for share ownership of board members of the firm.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 8.2

Table 14, joint significance of the ownership variables on ROS

Dependent variable: ROS						
Degree of winsorizing	95% win.		99% win.		no win.	
Variables:	F-value	p-value	F-value	p-value	F-value	p-value
ceo_own, ceo_op & ceo_bonus	12.58***	0.0000	6.09***	0.0004	2.03	0.1077
av. ceo_own bef., av. ceo_op bef. & av. ceo_bonus bef.	1.93	0.1227	1.86	0.1340	1.92	0.1248
av. ceo_own bef. & av. ceo_op bef.	0.32	0.7275	0.73	0.4802	0.39	0.6766

- This table shows the results of the F-tests on the joint significance of three groups of variables in relation to the ROS.
- The first row contains the variables that measure the incentives that are placed on the current CEO. These are the current CEO share ownership, options and bonus.
- The second row contains the variables that measure the incentives that are placed on the previous CEO. These are the (average) share ownership, options and bonus of the CEO before the CEO resignation.
- The third row contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The '95% win.', '99% win.' and 'no win' indicate the degree of winsorizing for the variables in the left column. The different 'win. 'columns show the results for the F-tests when they are winsorized at 95%, 99% and not winsorized at all.
- The 'F-value' columns show the F-statistics of the groups of variables in the column on the far left.
- The 'p-value' shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to ROS.
- * means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

Appendix 9

There is one difference between the variables of interest in section 5 and those in section 3. Those in section 5 are not multiplied by the 'after_ceoresignation' dummy, because this is not necessary when there is only one observation per firm. To distinguish these variables from one another, the 'average' variables in the regression in section 4 have the '1' at the end of their name and those in section 5 do not.

Appendix 10

Table 15, alternative model MVA

Dependent variable: MVA		Dependent variable: average_mva_after		
Variables or. model:	or. results (Table 5)	Variables alt. model:	results alt. model (95% win.)	results alt. model (99% win.)
average_ceo_own_before1	936.2	average_ceo_own_before	51.76	58.64*
	(2,978)		(73.82)	(32.96)
average_ceo_op_before1	0.406	average_ceo_op_before	0.0725	0.0113
	(10.67)		(0.121)	(0.104)
average_ceo_bonus_before1	38,235	average_ceo_bonus_before	126.7	663.2
	(23,405)		(361.5)	(423.3)
ceo_own	-571.2	averagenew_ceo_own	5,477***	2,514***
	(363.9)		(246.5)	(101.9)
ceo_op	-1.721	averagenew_ceo_op	-2.156***	0.636*
	(1.451)		(0.375)	(0.360)
ceo_bonus	-12,608**	averagenew_ceo_bonus	-29,521***	-22,072***
	(4,918)		(2,281)	(2,218)
firm_size	369.8	average_ceo_chairman	6.058	-10.67
	(315.1)		(41.49)	(63.14)
ceo_chairman	-690.3	average_firm_size	2.274	6.636
	(459.5)		(6.429)	(9.507)
board_own	0.0109***	average_board_own	-0.0000	-0.0010***
	(0.0028)		(0.0003)	(0.0003)
board_size	-1,067***	average_board_size	10.75	11.89
	(160.0)		(10.13)	(13.93)
Constant	6,731***	Constant	-161.1	-194.8
	(2,438)		(98.51)	(137.0)
Observations	7,656		2,037	2,037
R-squared	0.037		0.224	0.356
F-statistic	6.00		58.54	112.23
Prob > F	0.0000		0.0000	0.0000
num. of clus.	1698			

- The table shows results of three OLS regressions. On the left the results from the original (or.) model are shown and on the right the results of the alternative (alt.) model, so they can be compared.
- The dependent variable is on the top left. This is the average market value added (or MVA) in the years after a CEO change. The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- The 'averagenew_ceo' variables measure the incentives imposed on the current CEO. They stand for the average share ownership, options and bonus for the new CEO (or the CEO after the CEO change). The variable 'average_board_own' stands for the average share ownership of board members of the firm during the sample period. All other variables are also averages.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the centre column. The variables of the original results are winsorized at 95%.

- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the dependent variable significantly.
- The last row in the table list the clusters for which the standard error is adjusted in the original results.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 11.1

Table 16, alternative model EVA

Dependent variable: EVA		Dependent variable: average_eva_after		
Variables or. model:	or. results (Table 7)	Variables alt. model:	results alt. model (95% win.)	results alt. model (99% win.)
average_ceo_own_before1	1.692e+06	average_ceo_own_before	-43,319	-242,821***
	(1.884e+06)		(64,283)	(82,417)
average_ceo_op_before1	-1,807	average_ceo_op_before	-217**	-659.8**
	(5,981)		(105.1)	(259.2)
average_ceo_bonus_before1	-1.787e+07	average_ceo_bonus_before	191,895	-513,589
	(1.778e+07)		(314,783)	(1.058e+06)
ceo_own	443,619**	averagenew_ceo_own	-1.778e+06***	-7.133e+06***
	(195,617)		(214,614)	(254,768)
ceo_op	-2,302***	averagenew_ceo_op	-3,217***	-12,481***
	(675.5)		(326.8)	(899.1)
ceo_bonus	-8.174e+06***	averagenew_ceo_bonus	-2.276e+06	3.487e+07***
	(2.197e+06)		(1.986e+06)	(5.546e+06)
firm_size	-2.553e+06***	average_ceo_chairman	57,307	248,258
	(195,758)		(36,127)	(157,859)
ceo_chairman	-627,765**	average_firm_size	185.8	20,663
	(270,142)		(5,598)	(23,772)
board_own	3.032*	average_board_own	-0.0840	3.577***
	(1.703)		(0.266)	(0.850)
board_size	-234,338***	average_board_size	-19,925**	-61,745*
	(87,904)		(8,822)	(34,840)
Constant	2.002e+07***	Constant	194,038**	552,852
	(1.379e+06)		(85,779)	(342,452)
Observations	6,580		2,037	2,037
R-squared	0.379		0.183	0.550
F-statistic	24.97		45.49	248.02
Prob > F	0.0000		0.0000	0.0000
num. of clus.	1482			

- The table shows results of three OLS regressions. On the left the results from the original (or.) model are shown and on the right the results of the alternative (alt.) model, so they can be compared.
- The dependent variable is on the top left. This is the average economic value added (or EVA) in the years after a CEO change. The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.

- The 'averagenew_ceo' variables measure the incentives imposed on the current CEO. They stand for the average share ownership, options and bonus for the new CEO (or the CEO after the CEO change). The variable 'average_board_own' stands for the average share ownership of board members of the firm during the sample period. All other variables are also averages.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the centre column. The variables of the original results are winsorized at 95%.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the dependent variable significantly.
- The last row in the table list the clusters for which the standard error is adjusted in the original results.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 11.2

Table 17, joint significance of the ownership variables on EVA in the alternative model

Dependent variable: EVA				
Degree of winsorizing:	95% win.		99% win.	
Variables:	F-value	p-value	F-value	p-value
av. ceo_own bef. & av. ceo_op bef.	2.54*	0.0793	7.75***	0.0004

- This table shows the results of the F-tests on the joint significance of two variables in relation to the average economic value added (or EVA) in the years after the CEO change.
- The left column contains the variables that measure the ownership of the previous CEO. These are the variables of interest. These are the (average) share ownership and options of the past CEO.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the left column. The different 'win. 'columns show the results for the F-tests when they are winsorized at a 95% and a 99% level.
- The 'F-value' columns show the F-statistics of the groups of variables in the column on the far left.
- The 'p-value' shows the probability of such an F-value. This can be seen as the probability that the groups of variables in the far left column are not jointly significant in relation to EVA.
- * means that an F-value is significant at a 10% level. ** means that a F-value is significant at a 5% level. *** means that a F-value is significant at a 1% level.

Appendix 12

Table 18, alternative model ROA

Dependent variable: ROA		Dependent variable: average_roa_after		
Variables or. model:	or. results (Table 9)	Variables alt. model:	results alt. model (95% win.)	results alt. model (99% win.)
average_ceo_own_before1	0.0439	average_ceo_own_before	0.0006	-0.0000
	(0.0301)		(0.0006)	(0.0002)
average_ceo_op_before1	-0.0000	average_ceo_op_before	-0.0000	-0.0000
	(0.0000)		(0.0000)	(0.0000)
average_ceo_bonus_before1	0.0597	average_ceo_bonus_before	-0.0028	-0.0014
	(0.179)		(0.0032)	(0.0030)
ceo_own	-0.0013	averagenew_ceo_own	0.0491***	0.0042***
	(0.0023)		(0.0022)	(0.0007)
ceo_op	-0.0000	averagenew_ceo_op	0.0000***	0.0000***
	(0.0000)		(0.0000)	(0.0000)
ceo_bonus	0.0068	averagenew_ceo_bonus	0.269***	0.502***
	(0.0168)		(0.0201)	(0.0158)
firm_size	0.0082***	average_ceo_chairman	0.0003	0.0003
	(0.0011)		(0.0004)	(0.0004)
ceo_chairman	0.0029	average_firm_size	0.0000	0.0000
	(0.0023)		(0.0000)	(0.0000)
board_own	0.0000***	average_board_own	-0.0000**	-0.0000
	(0.0000)		(0.0000)	(0.0000)
board_size	-0.0037***	average_board_size	0.0000	0.0000
	(0.0007)		(0.0000)	(0.0000)
Constant	0.0194**	Constant	-0.0002	0.0000
	(0.0083)		(0.0009)	(0.0010)
Observations	7,889		2,037	2,037
R-squared	0.030		0.491	0.432
F-statistic	8.13		195.74	154.38
Prob > F	0.0000		0.0000	0.0000
num. of clus.	1729			

- The table shows results of three OLS regressions. On the left the results from the original (or.) model are shown and on the right the results of the alternative (alt.) model, so they can be compared.
- The dependent variable is on the top left. This is the average return on assets (or ROA) in the years after a CEO change. The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- The 'averagenew_ceo' variables measure the incentives imposed on the current CEO. They stand for the average share ownership, options and bonus for the new CEO (or the CEO after the CEO change). The variable 'average_board_own' stands for the average share ownership of board members of the firm during the sample period. All other variables are also averages.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the centre column. The variables of the original results are winsorized at 95%.

- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the dependent variable significantly.
- The last row in the table list the clusters for which the standard error is adjusted in the original results.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 13

Table 19, alternative model ROE

Dependent variable: ROE		Dependent variable: average_roe_after		
Variables or. model:	or. results (Table 11)	Variables alt. model:	results alt. model (95% win.)	results alt. model (99% win.)
average_ceo_own_before1	0.0772	average_ceo_own_before	0.0007	-0.0004
	(0.0782)		(0.0017)	(0.0011)
average_ceo_op_before1	-0.0000	average_ceo_op_before	-0.0000	-0.0000
	(0.0000)		(0.0000)	(0.0000)
average_ceo_bonus_before1	0.0941	average_ceo_bonus_before	-0.0014	-0.0004
	(0.590)		(0.0085)	(0.0137)
ceo_own	0.0011	averagenew_ceo_own	0.118***	0.0350***
	(0.0054)		(0.0058)	(0.0033)
ceo_op	-0.0000*	averagenew_ceo_op	0.0000**	-0.0001***
	(0.0000)		(0.0000)	(0.0000)
ceo_bonus	0.0300	averagenew_ceo_bonus	0.588***	0.491***
	(0.0390)		(0.0534)	(0.0718)
firm_size	0.0254***	average_ceo_chairman	0.0015	0.0037*
	(0.0027)		(0.0010)	(0.0020)
ceo_chairman	0.0078	average_firm_size	0.0001	0.0002
	(0.0059)		(0.0002)	(0.0003)
board_own	0.0000	average_board_own	-0.0000*	-0.0000
	(0.0000)		(0.0000)	(0.0000)
board_size	-0.0012	average_board_size	0.0001	0.0001
	(0.0017)		(0.0002)	(0.0005)
Constant	-0.0711***	Constant	-0.0019	-0.0018
	(0.0209)		(0.0023)	(0.0044)
Observations	7,889		2,037	2,037
R-squared	0.047		0.378	0.092
F-statistic	11.75		123.05	20.51
Prob > F	0.0000		0.0000	0.0000
num. of clus.	1729			

- The table shows results of three OLS regressions. On the left the results from the original (or.) model are shown and on the right the results of the alternative (alt.) model, so they can be compared.

- The dependent variable is on the top left. This is the average return on assets (or ROA) in the years after a CEO change. The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- The 'averagenew_ceo' variables measure the incentives imposed on the current CEO. They stand for the average share ownership, options and bonus for the new CEO (or the CEO after the CEO change). The variable 'average_board_own' stands for the average share ownership of board members of the firm during the sample period. All other variables are also averages.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the centre column. The variables of the original results are winsorized at 95%.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the dependent variable significantly.
- The last row in the table list the clusters for which the standard error is adjusted in the original results.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 14

Table 20, alternative model ROS

Dependent variable: ROS		Dependent variable: average_ros_after		
Variables or. model:	or. results (Table 13)	Variables alt. model:	results alt. model (95% win.)	results alt. model (99% win.)
average_ceo_own_before1	0.0319	average_ceo_own_before	0.0009	0.0000
	(0.0401)		(0.0008)	(0.0002)
average_ceo_op_before1	-0.0000	average_ceo_op_before	-0.0000	-0.0000
	(0.0000)		(0.0000)	(0.0000)
average_ceo_bonus_before1	0.438**	average_ceo_bonus_before	-0.0012	-0.0006
	(0.222)		(0.0038)	(0.0031)
ceo_own	-0.0142***	averagenew_ceo_own	0.0555***	0.0072***
	(0.0033)		(0.0026)	(0.0007)
ceo_op	0.0000*	averagenew_ceo_op	0.0000***	0.0000***
	(0.0000)		(0.0000)	(0.0000)
ceo_bonus	0.107***	averagenew_ceo_bonus	0.566***	0.530***
	(0.0253)		(0.0241)	(0.0161)
firm_size	-0.0029	average_ceo_chairman	-0.0002	-0.0002
	(0.0018)		(0.0004)	(0.0005)
ceo_chairman	0.0070**	average_firm_size	0.0000	0.0000
	(0.0034)		(0.0001)	(0.0001)
board_own	-0.0000***	average_board_own	-0.0000*	-0.0000
	(0.0000)		(0.0000)	(0.0000)
board_size	0.0048***	average_board_size	0.0001	0.0000
	(0.0011)		(0.0001)	(0.0001)
Constant	0.0520***	Constant	-0.0005	0.0005
	(0.0139)		(0.0010)	(0.0010)

Table 20 continued:

Observations	7,889		2,037	2,037
R-squared	0.022		0.556	0.536
F-statistic	9.18		254.13	233.76
Prob > F	0.0000		0.0000	0.0000
num. of clus.	1729			

- The table shows results of three OLS regressions. On the left the results from the original (or.) model are shown and on the right the results of the alternative (alt.) model, so they can be compared.
- The dependent variable is on the top left. This is the average return on sales (or ROS) in the years after a CEO change. The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- The 'averagenew_ceo' variables measure the incentives imposed on the current CEO. They stand for the average share ownership, options and bonus for the new CEO (or the CEO after the CEO change). The variable 'average_board_own' stands for the average share ownership of board members of the firm during the sample period. All other variables are also averages.
- The '95% win.' and '99% win.' indicate the degree of winsorizing for the variables in the centre column. The variables of the original results are winsorized at 95%.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the dependent variable significantly.
- The last row in the table list the clusters for which the standard error is adjusted in the original results.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 15

Table 21, adding transition years to MVA

Dependent variable: MVA Variables:	or. results (Table 5)	added to after	added to before
average_ceo_own_before1	936.2	217.9	1,857
	(2,978)	(2,137)	(3,230)
average_ceo_op_before1	0.406	0.615	0.517
	(10.67)	(6.553)	(10.38)
average_ceo_bonus_before1	38,235	25,017*	35,858
	(23,405)	(15,110)	(24,015)
ceo_own	-571.2	-551.3	-583.2
	(363.9)	(364.4)	(362.3)
ceo_op	-1.721	-1.757	-1.726
	(1.451)	(1.479)	(1.451)
ceo_bonus	-12,608**	-12,574**	-12,603**
	(4,918)	(4,919)	(4,918)
firm_size	369.8	370.0	368.8
	(315.1)	(315.0)	(314.9)
ceo_chairman	-690.3	-691.7	-685.1
	(459.5)	(459.7)	(459.0)
board_own	0.0109***	0.0109***	0.0109***
	(0.0028)	(0.0028)	(0.0028)
board_size	-1,067***	-1,065***	-1,067***
	(160.0)	(159.6)	(160.0)
Constant	6,731***	6,707***	6,741***
	(2,438)	(2,434)	(2,437)
Observations	7,656	7,656	7,658
R-squared	0.037	0.036	0.037
F-statistic	6.00	5.91	5.98
Prob > F	0.0000	0.0000	0.0000
num. of clus.	1698	1698	1700

- The table shows results of three OLS regressions. In the left column the original (or.) results are shown for the model where the transition years (years with multiple CEO's) are not included. In the column on the right the results are shown for the regressions where the transition years are added to observations after and before the CEO change.
- All variables that need to be winsorized (see appendix 9) are winsorized at 95% in these regressions.
- The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- 'ceo_own', 'ceo_op' and 'ceo_bonus' measure the ownership and bonus of the current CEO. They stand for CEO ownership, CEO options and CEO bonus respectively. The variable 'board_own' stands for 'board ownership' of the firm.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 16

Table 22, adding transition years to EVA

Dependent variable: EVA Variables:	or. results (Table 7)	added to after	added to before
average_ceo_own_before1	1.692e+06	1.015e+06	1.229e+06
	(1.884e+06)	(1.522e+06)	(2.039e+06)
average_ceo_op_before1	-1,807	539.6	-1,556
	(5,981)	(3,998)	(5,855)
average_ceo_bonus_before1	-1.787e+07	-8.090e+06	-1.663e+07
	(1.778e+07)	(1.120e+07)	(1.809e+07)
ceo_own	443,619**	412,015**	444,506**
	(195,617)	(189,387)	(193,896)
ceo_op	-2,302***	-2,346***	-2,304***
	(675.5)	(683.4)	(675.4)
ceo_bonus	-8.174e+06***	-8.201e+06***	-8.166e+06***
	(2.197e+06)	(2.192e+06)	(2.196e+06)
firm_size	-2.553e+06***	-2.554e+06***	-2.552e+06***
	(195,758)	(195,644)	(195,597)
ceo_chairman	-627,765**	-617,263**	-631,686**
	(270,142)	(269,523)	(269,623)
board_own	3.032*	3.057*	3.038*
	(1.703)	(1.705)	(1.699)
board_size	-234,338***	-236,543***	-235,015***
	(87,904)	(87,931)	(87,909)
Constant	2.002e+07***	2.004e+07***	2.001e+07***
	(1.379e+06)	(1.378e+06)	(1.378e+06)
Observations	6,580	6,580	6,582
R-squared	0.379	0.379	0.379
F-statistic	24.97	25.03	24.96
Prob > F	0.0000	0.0000	0.0000
num. of clus.	1482	1482	1484

- The table shows results of three OLS regressions. In the left column the original (or.) results are shown for the model where the transition years (years with multiple CEO's) are not included. In the column on the right the results are shown for the regressions where the transition years are added to observations after and before the CEO change.
- All variables that need to be winsorized (see appendix 9) are winsorized at 95% in these regressions.
- The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- 'ceo_own', 'ceo_op' and 'ceo_bonus' measure the ownership and bonus of the current CEO. They stand for CEO ownership, CEO options and CEO bonus respectively. The variable 'board_own' stands for 'board ownership' of the firm.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 17

Table 23, adding transition years to ROA

Dependent variable: ROA Variables:	or. results (Table 9)	added to after	added to before
average_ceo_own_before1	0.0439	-0.0023	0.0446
	(0.0301)	(0.0229)	(0.0298)
average_ceo_op_before1	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)
average_ceo_bonus_before1	0.0597	-0.0659	0.0729
	(0.179)	(0.105)	(0.172)
ceo_own	-0.0013	-0.0004	-0.0013
	(0.0023)	(0.0023)	(0.0023)
ceo_op	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	0.0068	0.0072	0.0069
	(0.0168)	(0.0169)	(0.0168)
firm_size	0.0082***	0.0083***	0.0083***
	(0.0011)	(0.0012)	(0.0012)
ceo_chairman	0.0029	0.0025	0.0028
	(0.0023)	(0.0023)	(0.0023)
board_own	0.0000***	0.0000***	0.0000***
	(0.0000)	(0.0000)	(0.0000)
board_size	-0.0037***	-0.0037***	-0.0037***
	(0.0007)	(0.0007)	(0.0007)
Constant	0.0194**	0.0190**	0.0192**
	(0.0083)	(0.0083)	(0.0083)
Observations	7,889	7,889	7,891
R-squared	0.030	0.030	0.031
F-statistic	8.13	7.82	8.23
Prob > F	0.0000	0.0000	0.0000
num. of clus.	1729	1729	1731

- The table shows results of three OLS regressions. In the left column the original (or.) results are shown for the model where the transition years (years with multiple CEO's) are not included. In the column on the right the results are shown for the regressions where the transition years are added to observations after and before the CEO change.
- All variables that need to be winsorized (see appendix 9) are winsorized at 95% in these regressions.
- The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- 'ceo_own', 'ceo_op' and 'ceo_bonus' measure the ownership and bonus of the current CEO. They stand for CEO ownership, CEO options and CEO bonus respectively. The variable 'board_own' stands for 'board ownership' of the firm.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 18

Table 24, adding transition years to ROE

Dependent variable: ROE Variables:	or. results (Table 11)	added to after	added to before
average_ceo_own_before1	0.0772	0.0129	0.0862
	(0.0782)	(0.0577)	(0.0777)
average_ceo_op_before1	-0.0001	-0.0001	-0.0001
	(0.0001)	(0.0001)	(0.0001)
average_ceo_bonus_before1	0.0941	-0.264	0.134
	(0.590)	(0.310)	(0.572)
ceo_own	0.0011	0.0029	0.0011
	(0.0054)	(0.0054)	(0.0054)
ceo_op	-0.0000*	-0.0000*	-0.0000*
	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	0.0300	0.0316	0.0303
	(0.0390)	(0.0392)	(0.0390)
firm_size	0.0254***	0.0255***	0.0255***
	(0.0027)	(0.0027)	(0.0027)
ceo_chairman	0.0078	0.0072	0.0077
	(0.0059)	(0.0059)	(0.0059)
board_own	0.0000	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)
board_size	-0.0012	-0.0011	-0.0012
	(0.0017)	(0.0017)	(0.0017)
Constant	-0.0711***	-0.0719***	-0.0717***
	(0.0209)	(0.0209)	(0.0209)
Observations	7,889	7,889	7,891
R-squared	0.047	0.047	0.047
F-statistic	11.75	11.63	11.91
Prob > F	0.0000	0.0000	0.0000
num. of clus.	1729	1729	1731

- The table shows results of three OLS regressions. In the left column the original (or.) results are shown for the model where the transition years (years with multiple CEO's) are not included. In the column on the right the results are shown for the regressions where the transition years are added to observations after and before the CEO change.
- All variables that need to be winsorized (see appendix 9) are winsorized at 95% in these regressions.
- The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- 'ceo_own', 'ceo_op' and 'ceo_bonus' measure the ownership and bonus of the current CEO. They stand for CEO ownership, CEO options and CEO bonus respectively. The variable 'board_own' stands for 'board ownership' of the firm.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.

Appendix 19

Table 25, adding transition years to ROS

Dependent variable: ROS Variables:	or. results (Table 13)	added to after	added to before
average_ceo_own_before1	0.0319	-0.0214	0.0388
	(0.0401)	(0.0311)	(0.0402)
average_ceo_op_before1	-0.0000	-0.0000	-0.0000
	(0.0001)	(0.0000)	(0.0001)
average_ceo_bonus_before1	0.438**	0.0695	0.439**
	(0.222)	(0.174)	(0.220)
ceo_own	-0.0142***	-0.0126***	-0.0142***
	(0.0033)	(0.0033)	(0.0033)
ceo_op	0.0000*	0.0000*	0.0000*
	(0.0000)	(0.0000)	(0.0000)
ceo_bonus	0.107***	0.107***	0.107***
	(0.0253)	(0.0254)	(0.0253)
firm_size	-0.0029	-0.0028	-0.0029
	(0.0018)	(0.0018)	(0.0018)
ceo_chairman	0.0070**	0.0065*	0.0070**
	(0.0034)	(0.0034)	(0.0034)
board_own	-0.0000***	-0.0000***	-0.0000***
	(0.0000)	(0.0000)	(0.0000)
board_size	0.0048***	0.0049***	0.0048***
	(0.0011)	(0.0011)	(0.0011)
Constant	0.0520***	0.0514***	0.0517***
	(0.0139)	(0.0139)	(0.0139)
Observations	7,889	7,889	7,891
R-squared	0.022	0.021	0.022
F-statistic	9.18	8.60	9.25
Prob > F	0.0000	0.0000	0.0000
num. of clus.	1729	1729	1731

- The table shows results of three OLS regressions. In the left column the original (or.) results are shown for the model where the transition years (years with multiple CEO's) are not included. In the column on the right the results are shown for the regressions where the transition years are added to observations after and before the CEO change.
- All variables that need to be winsorized (see appendix 9) are winsorized at 95% in these regressions.
- The variables in the first two rows are the variables of interest. These stand for the average CEO share ownership and option in the period before the CEO resignation. The variable in the third row stands for the (average) CEO bonus from that period.
- 'ceo_own', 'ceo_op' and 'ceo_bonus' measure the ownership and bonus of the current CEO. They stand for CEO ownership, CEO options and CEO bonus respectively. The variable 'board_own' stands for 'board ownership' of the firm.
- * means that a coefficient is significant at a 10% level. ** means that a coefficient is significant at a 5% level. *** means that a coefficient is significant at a 1% level.
- The 'Prob> F' shows the chance that all the variables together do not affect the Tobin's q significantly.
- The last row in the table lists the number of clusters for which the standard error is adjusted.
- The coefficients and standard errors are rounded off to four digits after the decimal point.