

---

## Master Thesis

---

# **The compensation of executives based on non-GAAP performance measures: The effect of corporate governance**

**Evidence from the United States of America**



Kevin Dercks

June 19, 2017

### ***Abstract***

*This paper has investigated if corporate governance has an influence on the compensation of executives based on non-GAAP performance measures. First of all, hand-collected data in the period 2007-2015 provide descriptive evidence that executives in more than half of the cases are compensated based on these measures. To test the effect of corporate governance, this thesis uses nine proxies. The effect of busy board members and board block holders – that are proxies for weak corporate governance – result in less usage of non-GAAP performance measures in the compensation contracts of executives. For independent board members – that is a proxy for strong corporate governance – it is the other way around. The other proxies were insignificant. Although, the results of this analysis should be interpreted carefully and do not imply for corporate governance in total because the robustness test in this thesis suggest that the corporate governance index score does not have an influence on the compensation of executives based on non-GAAP performance measures.*

*Keywords: non-GAAP, performance measures, corporate governance, executive compensation*

Supervisor: Dr. M.H.R. Erkens

Master Programme: Accountancy, Auditing & Control

Erasmus School of Economics

Erasmus University Rotterdam

# Table of Contents

<b>1. Introduction</b>	1
1.1 Background & Research Question	1
1.2 Contribution	3
1.3 Outline	4
<b>2. Theoretical Background</b>	5
2.1 Non-GAAP financial performance measure	5
2.2 Executive Compensation	6
2.3 Corporate Governance	9
<b>3. Literature Review</b>	10
3.1 Non-GAAP performance measures	10
3.1.1 The information perspective and value relevance of non-GAAP earnings	10
3.1.2 Opportunistic behaviour of management and non-GAAP earnings disclosures	12
3.1.3 Mitigating effects of non-GAAP earnings disclosure	14
3.1.4 The effect of Regulation on the disclosure of non-GAAP performance measures	15
3.2 Performance evaluation in compensation contracts	18
3.2.1 Performance evaluation in compensation contracts	18
3.2.2 Executive compensation <i>indirectly</i> based on non-GAAP performance measures	20
3.2.3 Executive compensation <i>directly</i> based on non-GAAP performance measures	21
<b>4. Hypothesis Development</b>	23
4.1 The Development	23
4.1.1 Descriptive part	23
4.1.2 The Hypothesis	24
<b>5. Research Design</b>	25
5.1 Data Sample	25
5.2 Methodology	26
5.2.1 Descriptive part	26

5.2.2 The Hypothesis .....	27
<b>6. Results.....</b>	<b>32</b>
6.1 Descriptive part .....	32
6.1.1 Main descriptive evidence .....	32
6.1.2 Other descriptive evidence.....	34
6.2 The Hypothesis .....	35
6.2.1 Data Preparation and Testing .....	36
6.2.2 Descriptive statistics.....	37
6.2.3 Empirical results.....	38
6.2.4 Robustness Test.....	41
<b>7. Conclusion .....</b>	<b>44</b>
<b>8. Limitations.....</b>	<b>46</b>
<b>References.....</b>	<b>47</b>
<b>Appendix A.....</b>	<b>51</b>
<b>Appendix B.....</b>	<b>53</b>
<b>Appendix C.....</b>	<b>54</b>

# 1. Introduction

The purpose of this thesis is in the first place to examine if executives are compensated based on non-GAAP performance measures. Besides that, if the usage of non-GAAP performance measures is more used within firms with a stronger corporate governance.

## 1.1 Background & Research Question

Non-GAAP performance measures deviate from GAAP measures most of the times in a positive way. In the last two decades the research on non-GAAP earnings – also called pro forma earnings – is accelerated. This had something to do with the criticism on the usage of non-GAAP earnings. First of all, the disclosure of non-GAAP earnings was in most of the cases higher than the normal GAAP earnings (Larcker & Tayan, 2010). Out of evidence from Bhattacharya et al. (2003) came forward that 70% of the firms – that used non-GAAP earnings – had higher pro forma earnings than GAAP earnings and in 87% of the cases was non-GAAP earnings mentioned first. In 2014 used 19% of the firms, that went for an IPO<sup>1</sup>, non-GAAP earnings that were higher than GAAP earnings. With the usage of non-GAAP earnings they became more profitable or in some cases, they turned a loss in a profit (McBride, 2015). Secondly, the usage of non-GAAP earnings could have misled investors (Bhattacharya et al., 2004; Trainer & Guske II, 2015), but misleading is hard to prove. For these reasons was the usage of non-GAAP earnings controversial.

The discussion on the usage of non-GAAP earnings and the accounting scandals in the beginning of this century have led to new regulation for the disclosure of non-GAAP earnings. The new regulation means that firms cannot disclose non-GAAP earnings information that would result in misleading investors, and they have to provide a reconciliation with the GAAP earnings (SEC, 2002). The regulation was introduced by the Securities and Exchange Commission (SEC) and named as the Sarbanes-Oxley Act. Accordingly, the SEC introduced Regulation G. By this regulation companies has to ensure that they provide more information on the difference between non-GAAP and GAAP earnings (SEC, 2003). The new regulations have provided a different environment around the disclosure of non-GAAP earnings. After these regulations, the disclosures of non-GAAP earnings decreased dramatically with almost 25% under S&P 500 firms (Entwistle et al., 2006). This means that some firms felt some

---

<sup>1</sup> Initial Public Offering

pressure to be careful with the disclosure of non-GAAP earnings because the risk of litigation cost was higher. These numbers came out a research close after the introduction of SOX and Regulation G. In contrast to this paper, a more recent research came with different numbers. In 2015 approximately 88% of the firms had disclosed non-GAAP earnings (Coleman & Usvyatsky, 2015).

Non-GAAP earnings could also be used as performance measure for the compensation of top executives. Nowadays, firms are required to disclose the paid compensation to their executives. In 1993 most of the companies shifted towards more pay-for-performance contracts, because of new regulations introduced by the U.S. government. The regulation ensured that the salary of executives above the one million was not tax deductible anymore. However, the regulation was not applicable to bonuses based on the performance of the executives (Ferris & Wallace, 2009). This made the payments of executives more uncertain because they do not want to get underpaid and give them incentives to manipulate the earnings numbers. Evidence that is obtained from S&P 500 firms suggests that firms are adjusting their earnings to reach the bonus target of executives (McBride, 2015). This suggests that the performance evaluation of executives is more based on adjusted earnings figures in their contracts. The usage of non-GAAP measures could be for self-enrichment, but this is unclear and it is not sure how many firms have executives that are compensated based on other metrics than GAAP.

Although, the concept of corporate governance could play an important role in the usage of non-GAAP performance measures in the compensation of executives. Corporate governance could mitigate the inappropriate usage of non-GAAP performance measures because the management has less freedom and discretion under a strong corporate governance. With all this information together the following research question is formed:

*Do firms with a stronger corporate governance make more use of non-GAAP performance measures as compensation component for named executive officers?*

The research question is answered via descriptive evidence and one hypothesis which both have a different approach. First of all, hand-collected data about the usage of non-GAAP performance measures in compensation contracts of top executives should provide descriptive evidence to find out if executives are compensated based on these measures. Secondly, the information out of the compensation filings will form together with the information about the

corporate governance of the executives firm's the basis for the empirical analysis. The outcome of the empirical analysis is interpreted to give an answer to the research question. To check the validity of the empirical analysis, a robustness test is performed.

## **1.2 Contribution**

The contribution of this thesis is the originality regarding the previous papers about these subjects. The previous papers have done a lot of research towards non-GAAP measures, but none of all or almost nobody investigated the link between corporate governance and the usage of non-GAAP performance measures as an evaluation tool in compensation contracts of executives. Besides that, some of the data used are hand-collected out of the compensation filings of firms in the EDGAR database of the SEC.

Regarding the findings in this thesis, on average, firms are using non-GAAP performance measures as evaluation basis to compensate their executives. Firms are still not that transparent about the definition and the exclusions they made to non-GAAP measures, regarding the less usage of reconciliation tables. Most of the non-GAAP performance measures are based on compensation incentives for the short-term.

Earlier papers also examined the effects of corporate governance on non-GAAP performance measures. Christensen et al. (2015) have found that a strong corporate governance can limit the usage of non-GAAP performance measures after a debt covenant violation. Frankel et al. (2011) have found that a weak corporate governance, in terms of less board independence, resulted in a more opportunistic usage of non-GAAP performance measures. In my thesis, the results are adding also to the dimension of the compensation of executives instead of the earlier papers. The results suggest that more independent board members, as a proxy for strong corporate governance, resulting in the usage of more non-GAAP performance measures in compensation contracts and that more busy board members, as a proxy for weak corporate governance, result in less usage of non-GAAP performance measures in compensation contracts. I also found evidence that block holders on the board with more than 5% of the voting power have a negative association with the compensation of executives based on non-GAAP performance measures. Although, based on the robustness test, to check whether or not corporate governance in total has an influence, there is not a significant effect on the compensation of executives based on non-GAAP performance measures.

### **1.3 Outline**

The thesis will start with the discussion of the theoretical background in chapter 2 and the literature review in chapter 3, regarding non-GAAP measures, compensation, and corporate governance. Thereafter, the hypothesis development and the methodology will be explained. This will happen in chapter 4 and 5. Next, the results are discussed and the thesis will be ended with a conclusion and a description of the limitation of the research which is stated in the chapters 6, 7 and 8.

## **2. Theoretical Background**

This chapter will provide information about the incentives to disclose non-GAAP financial performance measures. These incentives could be ambiguous. Later more on this ambiguity. First of all, the concept of non-GAAP financial performance measure will be discussed. Secondly, the concept of executive compensation will be discussed with the understanding of the agency theory. At last, the concept of corporate governance will be discussed.

### **2.1 Non-GAAP financial performance measure**

There are several incentives to use non-GAAP performance measures. The concept of non-GAAP financial performance measures is mostly used by firms to provide better inside information of the firm. This information adds to the information provided with the GAAP financial reporting standards that firms use to report their performance. Firms make adjustments to the GAAP financial measures to show in a better way the operating results of the company (PWC, 2014). The most common differences between non-GAAP and GAAP measures are the adjustments relating to non-persisting items, or most of the times called non-recurring items (Halsey & Soybel, 2002). The motive of most of the firms is that these excluding's result in earnings that contain the persistent part of the earnings which give investors better information to predict future earnings (Phillips et al., 2002).

On the other hand, the incentive to provide these adjusted earnings measures could also be an opportunistic one. Investors are more relying on non-GAAP earnings because they think that these earnings are presenting a better picture of the operating performance of the firm (Pitt, 2002). Although, regulators think that this kind of earnings could be used for opportunistic behavior (Larcker & Tayan, 2010). This assumption has resulted in the new regulation introduced by the SEC.

One of the biggest disadvantages of non-GAAP financial measures is the comparability among different firms. Every firm could standalone decide which adjustments it will make to GAAP earnings and there also is not a common description of non-GAAP earnings. In other words, these adjustments could be several items. The most used metrics as non-GAAP performance measures are EBITDA<sup>2</sup>, adjusted EBITDA, earnings from operations, and adjusted earnings per share (PWC, 2014). Bhattacharya et al. (2004) and Black & Christensen (2009) did

---

<sup>2</sup> EBITDA: earnings before interest, taxes, depreciation and amortization



investigate the most common adjustments to arrive at the non-GAAP earnings measure. Out of their papers came forward that depreciation and amortization are in both periods much used as an adjustment item. Besides that item, the items stock charges, restructuring charges, R&D expenses, and stock compensation costs are also much used as an adjustment. In conclusion, the adjustments are not always non-recurring items. This could explain the discussion in the last two decades about the usage of non-GAAP earnings measures. Although, non-cash items are also often named as exclusions to arrive at non-GAAP earnings. The literature about this discussion and the research on this is discussed in the Literature Review.

Nowadays, firms in the United States, that make use of non-GAAP measures in their press releases, are entitled to the regulations of the Securities and Exchange Commission (SEC). Due to Regulation G, the press release should contain a reconciliation table that explains the adjustments made to the GAAP figures to come at the non-GAAP reported number (Deloitte & Touche, 2003; PWC, 2014). This gives investors more information for better decision making.

## **2.2 Executive Compensation**

To describe the concept of executive compensation it is important to understand the agency theory. The Agency theory is one of the most important theories that is developed in the history of economic science. The theory describes the relationship between the agent and the principal. The theory is mostly used in describing relations within a particular firm. The CEO is at a firm in charge. In words of the agency theory, the CEO is the agent. The principals are the shareholders/stakeholders because they are the owners of the firm. The CEO has to work in favor of them. There are two main problems that arise in this principal-agent relationship. The first problem is that the CEO and the shareholders think in their own interest. The CEO wants a high reputation and makes decisions that are beneficial for him and the shareholders want high earnings per share because of that yield the most advantages for them. The CEO has also more inside information than the shareholders. This is also called information asymmetry. Due to this asymmetry, it is difficult for shareholders to monitor the CEO (Eisenhardt, 1989).

The information asymmetry can be reduced when firms are required to produce more information or if they produce more information out of themselves. Firms that make use of non-GAAP performance measures are arguing that this describes in the best way the underlying core performance of the firm. Providing these measures in press releases gives stakeholders

more information than they eventually in the first place would have received. The information asymmetry is reduced with this kind of information (Entwistle et al., 2006). The new regulation of the SEC – Regulation G – for providing non-GAAP earnings measures has also reduced the information asymmetry.

Another way to mitigate the conflicting interest problem is that nowadays most of the CEO's are compensated based on the level of earnings per share they have achieved. Due to this pay-for-performance model, the CEO is working in the advantage of the shareholders. But what if the CEO is paid based on the non-GAAP earnings number? Is this pay-for-performance model still a good idea? Pay-for-performance gives also incentives to earnings management (Holthausen et al., 1995). The usage of non-GAAP measures is uncertain because a loss on a GAAP basis could result in a profit on a non-GAAP basis (Entwistle et al., 2006). Therefore, these numbers could also be used for other reasons, such as self-enrichment or misleading investors.

Thus, the pay-for-performance contract is a mitigating factor in the agency problem of the CEO and shareholders. Although, to arrive at a contract model the CEO and the shareholders have to come to an agreement on a contract. This contract contains information about the compensation of the CEO. The agreement also is about the performance measure on which the compensation, most of the times the bonus, is based. The CEO has to align his work with the values of the shareholders. In this way, the agency problem can be solved. Accordingly, the chosen performance measure has to be a measure that requires information about the actions of the CEO (Lambert, 2001). Besides that, CEO's should be rewarded for the firm's output over time, because every year there could be some uncertainty in the actual performance of the firm. Therefore, the compensation of the CEO is most of the times based on previous year performance (Lambert, 1983). This create an incentive for firms to compensate top executives based on adjusted earnings measures because this kind of measures, like non-GAAP earnings, are used because of their informativeness to the stakeholders about the firm's performance and it provides a picture of the actions of the manager

The concept of the agency theory explains the problems that could arise between the top executives and the owners of a firm, and that pay-for-performance contracts could help to align the conflict. Such a contract is not the only component of the compensation of executives. In the contracts of executives is stated how they are annually compensated. Executives are most of the times compensated based on four components. The components that are used the most

consist of the annual salary, the annual bonus, and stock options. The contracts usually expire after five years (Murphy, 1999).

The base salary of the executives is normally based on the peer benchmark of the overall industry due to competitive forces and is fixed every year. Over the years the base salary will increase normally. The base salary is an important factor, because all the other components are expressed in terms of the base salary (Murphy, 1999).

Executives are also compensated by bonuses. These bonuses are based on the performance of the firm. This is a pay-for-performance structure. In these structures is it all about getting the target. If executives do not exceed the threshold than they receive no bonuses. The threshold is less than the bonus target and will result in a minimum bonus. When the target is reached, the real bonus will be paid. Most of the times there is a cap on the bonus. The target is based on performance measures and most of the firms use multiple measures. There is two kinds of these measures, namely financial performance measures and non-financial performance measures. The financial performance measures are expressed in a per share value, in a dollar/euro value, or as a growth rate. These measures are most of the times based on accounting measures like net income, revenue, earnings per share etc. For the non-financial performance measures is often used the individual performance of the executive and customer satisfaction (Murphy, 1999). If firms use non-GAAP performance measures as an evaluation tool in the contracts of the executives than this will affect the bonus component. A good thing about the usage of non-GAAP performance measures, as already discussed, is that these measures show in a better way the actions of the named executive officers (NEO) because non-recurring items are removed from the measures. Evidence from De Angelis & Grinstein (2015) endorses this assumption. A bad thing about the usage of non-GAAP measures is that it provides discretion to the NEO's what could affect the bonus for them in a positive way.

The stock options are also an often used component to compensate the top executives in the firm. Stock options give executive's rights to buy shares or stocks at an exercise price upon agreement. These options could not be used for trading purposes and the executives lose the rights on the options if they leave firm before the vesting period<sup>3</sup> is ended (Murphy, 1999).

The compensation of the executives also is an important piece of information for stakeholders. Therefore, the SEC have introduced in 2006 changes to the rules about the disclosure of several items. One of these items is indeed the compensation of executives. A new key element in the

---

<sup>3</sup> The vesting period is the time the executive has to wait before he/she can exercise his/her stock options.

disclosure of executive compensation is the Compensation Discussion & Analysis (CD&A) paragraph. The content of this paragraph is about the compensation program of firms regarding their top executives. It must provide stakeholders better information about the policies and decisions made by firms regarding the chosen compensation plan. Besides that, the provided compensation, that reflects the chosen policies and decisions, must be displayed in the Summary Compensation Table. This table also is changed after the last revision of the SEC. From now on, the names of the executives are named in the table and every component of compensation is apart from each other mentioned with the corresponding amount of compensation. This also includes the fair value of stock options and the change in the pension value (McGuireWoods, 2007).

## **2.3 Corporate Governance**

Corporate Governance is a sort of system or mechanism by which a firm is controlled. The corporate governance in a firm is directed by the Board of Directors (ICAEW, sd). The purpose of the corporate governance is to ensure that the rights of the shareholders are protected, the identification of stakeholders and the cooperation with these stakeholders, high-quality financial reporting and transparency, and at last a Board of Directors that must monitor management. The Board of Directors has the responsibility to ensure that the company works in a way with high ethical values by setting an appropriate tone at the top. This must create a culture in which fraudulent behavior is not tolerated. Other ways to ensure an effective Corporate Governance is to install an internal audit committee. The committee has the responsibility to control the financial reporting behavior of the firm which has to result in high-quality financial reporting. Corporate governance also deals with the in the previous paragraph described agency theory. A proper corporate governance mitigates the agency problem (Souster, 2012).

### **3. Literature Review**

In this chapter will be discussed the relevant literature about two types of literature. The first stream of literature is about the research of non-GAAP financial performance measures that is frequently conducted in the last two decades. The second stream is about performance evaluation in compensation contracts.

#### **3.1 Non-GAAP performance measures**

The research about non-GAAP measures is done in several directions. The usage of these measures is linked with the information perspective and with the value relevance and opportunistic behavior. More recent is the stream that examines the effect of regulation on non-GAAP performance measures.

##### **3.1.1 The information perspective and value relevance of non-GAAP earnings**

The research about the value relevance of non-GAAP earnings is frequently been conducted in the last two decades. The study of Bradshaw & Sloan (2002) is one of the first studies that focussed on the difference in value relevance between GAAP earnings and non-GAAP earnings. They used data in the sample period 1986 – 1997. They used a proxy for the non-GAAP earnings, namely the analyst tracking services from the I/B/E/S. The first interesting result they found was the increasing difference in magnitude between GAAP and non-GAAP earnings in the early nineties. The results of the value difference were based on the adjusted  $R^2$  of two regression models. The main difference between the models was the independent variable. In one model the forecast error of GAAP earnings was used and in the other one the forecast error of non-GAAP earnings. In both models was the dependent variable the stock return. The main finding out of these models is that in the period before the increasing difference there was not a significant difference in explanatory power between GAAP and non-GAAP earnings on the stock return. However, after this period the explanatory power of non-GAAP earnings was significantly higher than GAAP earnings. The increasing difference in the two earnings measures could have been explained by increasing reported special items in the same period. Special items are most of the times non-recurring items. By the fact that the negative special items exceeded the positive special items the increased difference between GAAP and non-GAAP earnings is logical.

Another paper that uses almost the same proxies for the earnings and makes also the use of a comparable model is the paper of Brown & Sivakumar (2003). Instead of the Bradshaw &

Sloan (2002) paper, they make use of the earnings response coefficient (ERC) from investors towards the GAAP and non-GAAP earnings numbers. In other words, they examine the reaction of investors to the unexpected part of the reported or disclosed earnings. This is the reason that they use the abnormal return as the dependent variable in their model. In this paper, they compare also the adjusted  $R^2$  between the two ERC's. If the  $R^2$  significantly differ from each other is measured with the likelihood ratio test of Vuong. This test calculates whether or not the different models explain equally the connection, or if one model is superior over the other (Vuong, 1989). This paper had the same result. Non-GAAP earnings are more value relevant than GAAP earnings because they have more explanatory power.

Consistent with the two papers above, Bhattacharya et al. (2003) find similar results. The biggest difference with the other two papers is that they have hand-collected data out of press releases to get data about non-GAAP earnings. They found this method better because in their opinion the non-GAAP earnings reflected by the I/B/E/S database was not precise enough and differed too much from the real non-GAAP earnings. Besides that, they also found results about the differences in permanency between the two earnings figures. How permanent the earnings are is measured by the extent of how well the earnings could explain the forecast of on- quarter ahead. They call this the revision. The results suggest that non-GAAP earnings are better in forecasting the quarter ahead. Entwistle et al. (2010) did in a more recent period almost the same research with data out of press releases and got the same results about the value relevance. A different measure of non-GAAP earnings is Standard & Poor's core earnings metric. Albring et al. (2010) and Wieland et al. (2013) used this measure to compare non-GAAP with GAAP earnings. They use the same methodology like Bradshaw & Sloan. (2002) and Bhattacharya et al. (2003). They find that the S&P core earnings metric also is more value relevant than GAAP earnings.

In previous papers is tested the difference in informativeness between the two earnings measures. The authors of these papers did not have examined that there could be a difference in informativeness between GAAP earnings. Some GAAP earnings have a high information content and some a low information content. This is exactly what Lougee & Marquardt (2004) have tested in their study. They controlled for the difference in informativeness in GAAP earnings. They divided their sample into two groups of informativeness. The high group had a significantly higher ERC than the low group. The interesting finding was that when the informativeness of GAAP earnings was low, those firms were more eager to disclose non-

GAAP earnings. Besides that, investors seem to rely more on non-GAAP earnings when the informativeness of GAAP earnings is low.

Another study that also considers effects that could affect the relative value relevance of non-GAAP earnings is the study of Allee et al. (2007). Non-GAAP earnings could be informative to investors. In this study, they test whether or not the disclosure of non-GAAP earnings affects the reaction of certain types of investors. They divide the group of investors into two groups. One group is coded as less experienced investors and is filled with MBA students and the other group is coded as experienced investors and filled with security analysts. The ultimate test examines if the ERC differs between the two groups on the release of non-GAAP earnings. The results suggest that the less experienced investors rely more on non-GAAP earnings and found them be more informative instead of the more experienced investors. To conclude, the experience level of investors does matter and could affect the judgment of some type of investors. This argumentation also has resulted in more regulation about the disclosure of non-GAAP earnings. Literature about regulation will be discussed later in this chapter.

### **3.1.2 Opportunistic behavior of management and non-GAAP earnings disclosures**

There is also a stream in the literature that has studied the opportunistic behavior of managers in using non-GAAP earnings disclosures in press releases. One of the arguments is that managers disclose these earnings to misled investors or to meet analyst forecast.

In chapter 2 is already discussed that the difference between GAAP and non-GAAP earnings is caused by excluding non-recurring items. Black et al. (2009) have investigated the most common adjustments that managers make to arrive at the non-GAAP measure. They found that most managers also exclude recurring items, what could suggest aggressive reporting behaviour which result in meeting earnings targets.

Bhattacharya et al. (2004) find similar results with descriptive statistics. In the first place, the firms in their sample from 1998-2000 excluded most of the times expenses, which results in higher non-GAAP earnings than GAAP earnings. Besides that, they also tested whether or not the firms meet or beat the analyst forecast when using GAAP or non-GAAP earnings. The difference in meeting or beating the analyst forecast was 41% with the use of non-GAAP instead of GAAP earnings.

Doyle et al. (2013) got the same results with their empirical test. They also examined what the effect was of non-GAAP earnings in meeting or beating analyst forecast. In this study, they particularly test what kind of exclusion have the most impact on the change to meet or beat the analyst forecast. First of all, they found results that firms have a better change in meeting or beating analyst forecast when the exclusions are positive, so when the non-GAAP earnings are higher than GAAP. Secondly, they had split the group of exclusions into two groups. The expected exclusions and unexpected exclusions. The expected exclusions were defined as the special items. The unexpected exclusions as other exclusions. The fact that the positive exclusions had an impact on meeting or beating analyst forecast were mainly driven by the unexpected exclusions. These other exclusions are easier to manage in the best direction for the company.

Two other studies have focussed more on the emphasis of managers in certain situations. Bowen et al. (2005) examined the level of emphasis placed by the management towards the two earnings measures. The approach to obtain the level of emphasis was to check which earnings measures was placed first in the press releases. The relative emphasis was obtained out of the difference in the level of emphasis between the two measures. The main finding in this study is that when the result of the firm is a loss on a GAAP basis, but it has a profit based on non-GAAP managers place more emphasis on non-GAAP. Marques (2010) goes one step further with her study. In this study with a sample of S&P 500 firms the relative emphasis is tested in a setting that one of the earnings measures is not meeting the analyst forecast. Management is placing more emphasis to non-GAAP earnings when GAAP is not meeting or beating analyst forecast and non-GAAP earnings do meet the target.

The opportunistic behavior of managers is also tested in a European setting. In Europe is the disclosure of non-GAAP earnings measures less regulated than in the USA. Isidro & Marques (2015) have tested the effect of institutional and economic factors in meeting or beating the analyst forecasts. They found results that managers disclose more often non-GAAP earnings measures in countries with a stronger legal environment, better regulation to protect investors and well-developed capital markets. The expectation was the opposite, because in a country with developed laws and enforcements you should expect less non-GAAP disclosures due to high litigation costs. Although, as early mentioned in Europe there is less regulation about these disclosures. Another result of their study and maybe more surprising is that managers have used these non-GAAP measures to meet or beat analyst forecasts.



To conclude, previous papers have found evidence that non-GAAP performance measures are used for opportunistic reasons or to mislead investors. With the non-GAAP earnings, they easily meet or beat the analyst forecasts. Besides that, managers also are more emphasizing non-GAAP measures when this is in favor of the company.

### **3.1.3 Mitigating effects of non-GAAP earnings disclosure**

The problem of opportunistic behavior or misleading investors could be mitigated by corporate governance, contracts, or due investors who are looking through the opportunistic behavior of managers. Some empirical evidence regarding these factors will be discussed below.

Johnson & Schwarz (2005) examined if investors were misled by non-GAAP earnings. Their results suggest no difference in the reaction of investors towards the earnings measures. Besides that, they have found evidence that the stock price of firms that released non-GAAP earnings was higher than firms that released GAAP earnings – which could give rise to the conclusion that non-GAAP earnings are more informative – but this was not caused by the effect of the non-GAAP numbers. Their results suggest that investors use more information when they are analyzing the performance of a firm.

Allee et al. (2007) did already provide evidence that only investors with less experience are affected by non-GAAP earnings. Guillamon-Soarin et al. (2017) examined also a study that contains the sophistication of investors. First of all, they conducted a research in the period 2003-2009 about the largest European firms. The aim of the study was to test whether or not investors could see through the behavior of the management when they emphasize the importance of the non-GAAP measure. The level of emphasize in the reports was based on three factors: the tone towards non-GAAP measures, emphasis on non-GAAP measures, and the usage of a benchmark to compare the current numbers with previous ones. The main finding was that non-GAAP measures provoke a positive reaction from investors if the level of emphasize is low, but the reaction is lower when the level of emphasize is higher. The reaction was even more negative if the company was based in an industry where the investors were more sophisticated.

E. Black et al. (2014) tested for mitigating effects in the firm itself based on earnings management engagements of the firm. Their theory was that it not necessary was to also disclosure non-GAAP earnings measures if the firm was managing the earnings. The key

finding was the more earnings management in the current period, the lesser the aggressive disclosure of non-GAAP earnings measures. On the other hand, the opposite results were obtained if there was fewer earnings management in the current period.

A topic that is not discussed in relation to non-GAAP earnings is corporate governance. In theory, could a strong corporate governance mitigate the intention to use non-GAAP earnings for misleading stakeholders or self-enrichment. Christensen et al. (2015) examined the interaction between reporting non-GAAP earnings measures and violating debt covenants. They argue that when a firm is violating a debt covenant that their two agency conflicts could arise. The first one is obviously with creditors because the covenant is settled with them. The second one is agency problems with managers because they think about their own wealth. The violation of the debt covenant could give signals to stakeholders that will seek their attention. Stakeholders will more strictly follow the performance of the firm and judge opportunistic behavior. This setting is examined by Christensen et al. (2015). They have found that in the period after a debt covenant violation firms were less disclosing non-GAAP performance measures or the quality of the disclosure was increased. Besides that, they also tested the influence of corporate governance factors such as an independent audit committee, better audit quality or block holder ownerships. These three factors strengthen the effect that after a debt covenant violation, firms are less eager to report non-GAAP measures or these factors ensure that the quality of these disclosures is higher. This finding of the effect of corporate governance is consistent with the findings of Frankel et al. (2011). They found that a weak corporate governance – measured with board independence – resulted in more exclusions classified as recurring items from non-GAAP.

### **3.1.4 The effect of Regulation on the disclosure of non-GAAP performance measures**

In the beginning of the century, the SEC have introduced regulation to mitigate the chance that managers could mislead investors by disclosing non-GAAP performance measures. This new regulation – named as Regulation G – must ensure that firms non-GAAP earnings measures used only for better inside information to stakeholders. The disclosure must consist of a reconciliation table that explains the transition of GAAP to non-GAAP (SEC, 2003).

Some studies have tested the effect of the regulation right after the introduction of it. In the period after Regulation G is the disclosure of non-GAAP earnings declined (Bowen et al.,

2005; Entwistle et al., 2006). Furthermore, the amount of non-GAAP earnings that were higher than GAAP earnings declined as well. Another result was that the press releases with the earnings announcements were less focused on the non-GAAP earnings number than in the period before the regulation (Entwistle et al., 2006).

Jennings & Marques (2011) have investigated the setting before and after the introduction of the regulation. The purpose of their study was to test if investors were misled by non-GAAP earnings measures before and after the introduction of Regulation G. Besides that, they also tested the influence of corporate governance within a firm on the behavior of investors. They divided the sample into two groups based on the strength of their corporate governance. Investors were not misled by firms with a strong corporate governance before and after the regulation. In contrast to firms with a strong corporate governance, investors were indeed misled by firms with a low corporate governance in the period before the regulation. This effect changed after the introduction of the regulation. Investors in low corporate governance firms were not still misled by the disclosures of non-GAAP earnings measures. This result suggests that the regulation is effective.

Before the introduction of Regulation G, the SEC made a warning to all U.S. firms about the disclosure of non-GAAP measures. This warning was in 2001 one year before the introduction of the regulation. Marques (2006) have also studied the three-year window from 2001-2003 to take into consideration the two interventions of the SEC. One of the main findings was that the warning of the SEC did not have much influence on the disclosure behavior of the firms. The amount of disclosure remained stable in the 2001 and 2002. Regulation G was instead of the warning effective because the amount of disclosures was declining in 2003. The reaction of investors was positive after Regulation G, which could suggest that investors had more confidence in the disclosures of the firm. This also could suggest that firms are more careful after the regulation because the chance of litigation costs is higher (Entwistle et al., 2006).

In the beginning of this chapter are the former studies described that were not influenced by the regulations of the SEC. The study of Heflin & Hsu (2008) has combined all these studies in the period after Regulation G. The first test is about the amount of exclusions. Comparable to the study of Doyle et al. (2013), they investigated the exclusions of special items and other exclusions. They found a decrease in this kind of exclusions due to the regulations. The second test is about the magnitude of the difference between GAAP and non-GAAP earnings. In the period after the regulation, the difference between the two measures is decreased due to the fact that the magnitude of the exclusions declined. The third test is about meeting or beating

analyst forecasts. Bhattacharya et al. (2004) found results that non-GAAP earnings measures are used to meet or beat analyst median forecasts. Heflin & Hsu (2008) found evidence that due to regulation the chance to meet or beat these forecasts was lower than before the regulation. Although, like the study of Doyle et al. (2013), this was caused by a decline in the other exclusions and not due to the special items. The last test is about the value relevance of non-GAAP earnings. This is measured with the association between the stock returns and the forecast errors of the non-GAAP earnings. This is the same as the study of Bhattacharya et al. (2003). They found that the value relevance of non-GAAP earnings declined after the regulation.

The study of Kolev et al (2008) used, like Marques & Jennings (2011), a difference-in-difference design. In other words, a research setting where in the middle of the sample period an exogenous shock takes place. In these studies is this the introduction of regulation regarding the disclosure of non-GAAP earnings metrics. They suggest that due to the intervention of the SEC the exclusions should be more transitory than before the regulations. Exclusions that are transitory have been entitled as high-quality exclusions. The results suggest indeed that the intervention of the SEC was necessary because the quality of the exclusions improved. The introduction of the regulations also has resulted in firms that choose to stop with the disclosure of non-GAAP performance measures. Kolev et al. (2008) examined the quality of the exclusions made by firms in the period before the intervention. They found evidence that the exclusions used by these firms were of a lower quality than firms that not had chosen to quit with the disclosures. This could suggest that these firms used non-GAAP performance measures for opportunistic reasons. At last, like the study of Doyle et al. (2013), they investigated also the exclusions – the special items and other exclusions – that firms made to reconcile from GAAP to non-GAAP. The quality of the other exclusions has increased after the intervention of the SEC, but the quality of the special items has decreased after the intervention. This could suggest that a classification shifting has taken place from other exclusions to special items. A reason for this suggestions is that former research has found out that other exclusions are mostly used to meet or beat the analyst forecasts. (Doyle et al., 2013).

In the end, the behavior of managers is still opportunistic and this suggestion is amplified by the study of Shiah-Hou & Teng (2016). Their results suggest as well that opportunistic behavior still exists after the intervention of the SEC. Their results are that recurring items are used in exclusions to arrive at non-GAAP earnings. Besides that, CEO's or CFO's that sell their shares two weeks after the earnings announcement are surprisingly still emphasizing the disclosure of

non-GAAP earnings. This could be a surprise because investors and other stakeholders have insight in the exclusions by seeing the reconciliation table.

To conclude, the regulations introduced by the SEC has caused better quality exclusions and fewer investors that are misled by managers, but there is evidence that opportunistic behavior still exists.

### **3.2 Performance evaluation in compensation contracts**

In this part will be discussed the literature regarding the performance evaluation in compensation contracts. The focus of this review is more about the performance evaluation based on non-GAAP earnings measures or other alternative earnings measures in the compensation contracts of top executives, but in the first place will be some literature discussed about performance evaluation in compensation contracts in general.

#### **3.2.1 Performance evaluation in compensation contracts**

The performance evaluation in compensation contracts of executives is often investigated. The management accounting literature provides evidence about the different performance evaluation measures in these contracts. The best performance measure is a measure that contains information about the actions of the CEO<sup>4</sup> (Lambert, 2001). The traditional corporate financial performance measures could contain noise in explaining the performance of executives. Therefore, the compensation of executives is based on individual performance evaluation measures or non-financial measures when this noise exist (Bushman et al., 1996; Ittner, et al., 1997). Although, these individual and non-financial performance measures are sensitive to the discretion of the executives themselves. In contrast, Ittner et al. (1997) did not find any evidence that supports this assumption. In these papers, they come up with measures that better explains the actions of CEO's. This is the reason that sometimes firms compensate their CEO's based on these measures and not on the traditional financial GAAP measures. This could explain the usage of non-GAAP performance measures as evaluation in compensation contracts.

Some executives are compensated based on their performance in comparison with the peer group. They call this the relative performance evaluation (RPE). Evidence provided by Gong et al. (2011) explained that only a quarter of their firm observations used an RPE in the

---

<sup>4</sup> Chapter 2.3 (Agency theory) explains this suggestion

compensation contracts of the CEO. The other firms did not make use of an RPE or the measures they used is not useful in comparing with peer groups. This is the same when non-GAAP performance measures because they are not comparable to other firms<sup>5</sup>.

Many executives receive a cash compensation based on their EPS performance. Many firms use this performance metric as the only measure to evaluate the executives in their bonus plans. In the first place, former research has provided evidence about incentives of executives when they are annually cash compensated based on EPS targets. Bennett et al. (2017) have provided evidence that firms are meeting the EPS target of the executives with a small amount. This also is explained by the fact that these firms had higher accruals and less R&D expenditures. The reason that these firms are not meeting the target with a big amount is the ‘target ratcheting effect’. This means that the target will be more difficult in the next year if they are above the target with a big amount in the current year. Bennett et al. (2017) did also find that these firms also reached the target in the next year, which could explain that firms are only just meeting their target. Secondly, research has provided evidence about the different incentives of executives towards inside and outside EPS targets. Executives are compensated based on the internal EPS target, but evidence by Armstrong et al. (2017) suggest that the executives have more incentives towards the external EPS targets. When the external target is easier than the internal target most of the firms are not willing to also meet the internal target. This will mean that executives are willing to give up their maximum bonus to only reach the external target set by analysts.

The earnings measure that evaluates the performance of the executive also could contain exclusions like non-recurring items or special items. Potepa (2014) did investigate the role of special items in cash incentive bonus plans of executives. Special items could contain recurring and non-recurring items. Out of the earlier discussed study by Doyle et al. (2013), it is known that most of the time non-recurring items and special items are excluded from the earnings measure and that with the new regulation of the SEC most firms have shifted recurring expenses to the special items to have a better earnings figure. The evidence of Potepa (2014) suggests that the cash compensation is only associated with recurring income and negative special items. This means that executives are no longer protected from special items. In some cases, special items are still excluded from earnings. This is the case when the firm is in

---

<sup>5</sup> Chapter 2.1 (Non-GAAP performance measures) explains this further.

financial trouble or in difficult financial times, or the special item is really non-recurring. To conclude, the exclusions made to earnings have to be non-recurring before they are really excluded. These exclusions could mean that executives are compensated based on non-GAAP performance measures.

### **3.2.2 Executive compensation *indirectly* based on non-GAAP performance measures**

Some executives are not directly compensated based on non-GAAP performance measures. In the paragraph about the value relevance of non-GAAP earnings is evidence described that non-GAAP earnings have a higher association with stock returns than GAAP earnings. So, if executives are compensated with stock options based on the market performance of the firm this will result in indirect compensation via non-GAAP performance measures as the firms disclose such measures. Isidro & Marques (2013) have tested this assumption that executives emphasize the disclosure of non-GAAP earnings because in that way they maximize their compensation. The results of their study suggest indeed that firms with executives compensated based on the stock performance on the market are disclosing more non-GAAP earnings in the press release of the earnings announcement.

A study that also tests the indirect compensation based on non-GAAP performance measures is the paper of Gray et al. (2013). In their study, they have focused on an alternative EPS. In their study is the alternative EPS not the key factor for the compensation. The alternative EPS is the component where the compensation based on share options depends on. The study is based on a sample of the largest firms in the United Kingdom (UK). The UK lacks such regulation as the SEC has introduced in the U.S. The use of alternative EPS is voluntary in the UK. The compensation based on share options could only be exercised if the EPS target, as stated in the contract, is achieved. Grey et al. (2013) wanted to know of the disclosure of alternative earnings measures is associated with share-based compensations that require the achievement of an EPS target. The results of the regression provide evidence that the change of a disclosure of alternative earnings is higher when there exist an EPS target in the share-based compensation.

The study of D. Black et al. (2016) also has examined the indirect compensation of executives based on non-GAAP performance measures. They have divided their focus on the short-term and long-term incentives. The short-term incentives have something to do with the bonus

compensation plans. Executives receive often bonuses paid in cash if they achieve some targets that are included in their contract. The expectation is that top executives aggressively disclose non-GAAP earnings in order to get a big bonus. In contrast to this expectation, the results provide evidence that bonus incentives are not associated with aggressive non-GAAP earnings disclosures.

Top executives also could be rewarded based on the long-term performance of the firm. This could provide executives incentives to comply with the long-term goals of the company. The used performance measure is mostly the long-term growth. The theory behind the usage of compensation plans, based on the long-term performance, have argued that managers will be less willing to engage in earnings management. This will result in less effort to report aggressively non-GAAP performance metrics. Evidence from D. Black et al. (2016) suggest indeed that long-term performance plans for executives result in less aggressive non-GAAP performance measure reporting.

To conclude, it depends on the kind of compensation that executives are compensated indirectly based on non-GAAP performance measures. Compensation based on share-options gives incentives for providing alternative earnings, Compensation based on the short-term, like bonus cash compensation, and on the long-term are not associated with indirect compensation based on non-GAAP measures.

### **3.2.3 Executive compensation *directly* based on non-GAAP performance measures**

Nowadays, executives also could be directly compensated based on non-GAAP performance measures. The literature about this phenomenon is not really extending because only in recent years it has become public that firms compensate their top executives based on non-GAAP measures. This could have two reasons. The first reason is that top executives have to be compensated based on their actions and based on a measure that is more informative than GAAP performance measures<sup>6</sup>. The second reason is to get better compensated because the performance measures under non-GAAP are normally higher than under GAAP (Larcker et al., 2015).

---

<sup>6</sup> Chapter 2.3 explains the theory behind this reason.



The study of D. Black et al. (2016) also did study towards the compensation of top executives directly based on non-GAAP performance measures. The sample period they had taken was 2005-2008. They have limited their sample of the original research, because before 2006 were the disclosure standards not sufficient enough to find fillings with this kind of compensation. This kind of compensation plan could result in more opportunistic reporting of non-GAAP metrics. On the other hand, the contracts of executives could contain specifically the used non-GAAP performance measure with all the exclusions made to come at this measure. This could limit the incentive of executives to report non-GAAP measures that are used for self-interest and self-enrichment. The results of D. Black et al. (2016) suggest that when the compensation contract of CEO's contain defined non-GAAP performance measures, this will result in less aggressive reporting of non-GAAP performance measures. In contrast, when this information in the contract is not available or defined, the reporting behavior of CEO's will be more aggressive with non-GAAP performance metrics.

## **4. Hypothesis Development**

In this chapter will be discussed the development of the hypothesis that will be tested in this thesis. The prior chapters have explained the theory and the prior literature regarding non-GAAP performance measures, the usage of these measures in compensation contracts of executives, and the influence of corporate governance on this matter. This will be the starting point of the hypothesis development. Further, the hypothesis will be formulated and briefly explained. The explanation contains information about the reason behind the test of these formulated hypotheses.

### **4.1 The Development**

The research will contain one hypothesis because the first part of the evidence is descriptive and should not contain an empirical analysis. Although, I will provide some explanations from what I expect of the descriptive evidence. The second part is the development of the hypothesis.

#### **4.1.1 Descriptive part**

The descriptive part is based on the question whether or not named executive officers are compensated on measures that could be defined as non-GAAP performance measures. In the previous chapters is discussed what the advantages and disadvantages are of this kind of measures. Besides that, in a pay-for-performance contract, a well-chosen compensation measure helps to solve the principal-agent conflict. An important factor in determining the best performance measure is the information that it contains. The measure should contain information that describes the actions of the executives in the best way (Lambert, 2001). The executives should have the idea that their compensation, such as bonuses or equity awards, are based on fair measures that reflect their actions. This will give them incentives to place the highest effort in their job. On the other hand, shareholders want a measure that could monitor the actions of the executives. These two characteristics should be present in the chosen performance measure. In the end, the executives and shareholders should share the risks of the benefits without the loss of effort from executives (Hölmstrom, 1979). We know from evidence of De Angelis & Grinstein (2015) that executives are compensated based on measures that reflect in the best way their actions. The literature review already discussed that the informativeness of non-GAAP earnings was higher than GAAP earnings. Non-GAAP measures exclude items that are out of the hands of the executives. Thus, if the executives are

compensated based on an earnings measure it would be logical that this measure will be adjusted to a non-GAAP measure.

#### **4.1.2 The Hypothesis**

The hypothesis is based on the link between the usage of non-GAAP performance measures and corporate governance. The literature review provides information that people are skeptical about the usage of non-GAAP performance measures. They believe that these measures play into the hand opportunistic behavior. This could be a reason that stakeholders of a firm do not want that the executives are compensated based on non-GAAP measures. Although, evidence from Jennings & Marques (2011) describe that a strong corporate governance can weaken the opportunistic effect of non-GAAP performance measures. Investors were less misled by the non-GAAP numbers. Evidence of Christensen et al. (2015) found that firms with a stronger corporate governance reported higher quality disclosures about how they have used non-GAAP performance measures. The evidence from these papers describes that corporate governance could mitigate the negative sides of non-GAAP measures. This also sounds logical. Firms with a strong corporate governance have a culture that avoids fraudulent behavior and other inappropriate actions. You will expect that in such a firm the usage of non-GAAP performance measures is only based on the information content of these measures because in such firms there is less opportunistic behavior. As a result, misuse of these measures shall be detected or it will happen not at all because firms with a strong corporate governance will have a good working monitoring mechanism but most of all a culture in which such a behavior is not tolerated. To conclude, firms with a strong corporate governance will have less opportunistic behavior inside the firm which could lead to more trust in the usage of non-GAAP measures. Based on this, I expect that firms with a strong corporate governance use more non-GAAP performance measures as a basis for the compensation of named executive officers. The following hypothesis is formulated in the alternative form:

***Ha: Firms with a stronger corporate governance make more use of non-GAAP performance measures as tool for the compensation of named executive officers***

## 5. Research Design

This chapter will explain the research designs of the formulated hypotheses in the previous chapter. The explanation will include the chosen method and the chosen variables. An important factor in the analysis is the data. Therefore, the data obtained will be discussed before the research design is explained.

### 5.1 Data Sample

The data in this thesis could be separated into three parts because every part has its own source. The sample period of all the data is 2007-2015. As previously mentioned, the data for the non-GAAP performance in compensation contracts is hand-collected. The reason for this method of obtaining data has something to do with the fact that there is not a lot of research done on the subject that links non-GAAP measures with the compensation of NEO's. Besides that, databases do not have any data to obtain about non-GAAP performance measures as the basis for compensation. Therefore, the data is obtained from compensation filings out of the EDGAR database of the SEC. These are the 14A filings which include the CD&A and other information about the executives and also the directors. For the research are used 619 filings that were pre-selected based on the words adjusted earnings in the filing. The purpose was to find out if the executives were compensated based on non-GAAP performance measures. The search method in the filing was based on the following words: 'adjusted', 'pro forma', and 'non-gaap'. After this search through the filings, I had to judge whether or not the executives were compensated based on non-GAAP performance measures.

The two other parts of the data are obtained via the WRDS<sup>7</sup> database. The data for the corporate governance variables is obtained from the Institutional Shareholder Services (ISS) database. The ISS database contains for example data about the characteristics of the executives/directors, the number of directors in a board and other relevant information. The data for the control variables are obtained from the COMPUSTAT database. The COMPUSTAT database contains data with financial information about the firms. To avoid the creation of a sample selection bias via the pre-selected filings, the data from the entire databases of the corporate governance and control variables are obtained. With the data from all these databases, a control group is created.

---

<sup>7</sup> Wharton Research Database Services

Table 1 describes the sample selection process. The starting point of the sample selection process is the corporate governance database because I had to create a control group and this database had the most observations. The sample starts with 13.584 unique firm year observations and 2445 unique firms. Some firms are deleted because they miss data about their board. After that, the corporate governance database is merged with the COMPUSTAT database. This result in less firm year observations, because some firms do not have data in the COMPUSTAT database. At last, some observations disappeared by creating new variables. In the end, the sample without my own database contains 10.707 firm year observations and 1.831 firms.

The final step of the data sample process is to merge all this data with my own created database about the compensation of executives. The choice is made not to skip the unmatched data because the control group is then deleted as well. This process added 368 unique firm year observations and 120 unique firms to the sample. The final sample contains 11.075 firm year observations and 1.951 unique firms.

Table 1: Sample Selection

	Firmyears	Firms
Firmyear observations with fiscal years ending in 2007 through 2015 in the ISS database	13.584	2445
Less: firms missing data about the board	(282)	(1)
Less: firms missing COMPUSTAT data	(1.717)	(581)
Less: firms missing data by creating new variables	(878)	(32)
Add: firms with data about executive compensation	368	120
Total sample	<u>11.075</u>	<u>1.951</u>

## 5.2 Methodology

This paragraph explains the chosen methodology of the descriptive part and the hypothesis. The paragraph will be split into two sub-paragraphs about the different methodologies of the two parts

### 5.2.1 Descriptive part

The descriptive part is used to give answers regarding the question whether or not executives are compensated based on non-GAAP performance measures. As earlier mentioned, my expectation is that top executives are compensated based on these measures. The created database about non-GAAP performance measures and executive compensation is the basis for the descriptive statistics. In the past, this subject is not much or not at all investigated.

Therefore, this is answered via these statistics. The main purpose of the descriptive analysis is to find out how many executives are compensated based on non-GAAP measures. The focus is on adjusted net income, adjusted EPS, and adjusted operating income. So, only income measures whether or not divided by the total shares outstanding. The focus is not on measures like EBITDA because these kind of measures are well known and they do not have a non-GAAP equivalent. Besides data about non-GAAP performance measures as compensation, the database also consists of information about the definition, the exclusions to arrive at non-GAAP, the chosen other non-GAAP measures, weights and targets based on non-GAAP measures, and whether or not these targets are met. The statistics will provide some answers, but I am aware that this is not sufficient to make hard conclusions. Although, the descriptive statistics should provide a good overview and insights in the world of non-GAAP performance measures as a compensation tool.

### **5.2.2 The Hypothesis**

The hypothesis is more based on the question whether or not a strong corporate governance endorses the usage of non-GAAP performance measures in compensation contracts of NEO's. This hypothesis is investigated via an empirical analysis. The empirical analysis is fulfilled with a regression. To conduct the analysis three kinds of variables are needed. The dependent variable, the corporate governance proxies as independent variables, and at last control variables.

#### **5.2.2.1 The Dependent Variable**

To answer the hypothesis and in the end the research question I will run a logit regression. The dependent variable in this regression is coming from the data out of the created database. The variable is a dummy variable with the value of one if the executives are compensated based on a non-GAAP performance measure and zero if this is not the case. The variable is stated as *COMP\_NONGAAP*. A note to this variable is that the creation of it was partly related to my own judgment.

#### **5.2.2.2 Corporate Governance Proxies**

The independent variables in the logit regression are corporate governance proxies. I use nine different proxies for corporate governance. The first proxy is related to the age of the board members. Directors who become too old are maybe less effective in monitoring the executives

(Core et al., 1999). The variable is somewhat extended regarding the variable used by Core et al. (1999). The variable *BoardOLD* is a dummy variable that has the value of one if half or more of the board is older than 70. If this is the case the majority of the board is maybe less effective and could this have an effect on corporate governance. If only one member is older than 70 the effect on the overall board will have less influence. Therefore, the predicted sign of this variable on *COMP\_NONGAAP* will be negative. The second proxy also is derived from Core et al. (1999). The variable is stated as *Percentage\_BoardBusy*. If a board member also is a member of three or more other boards than they will be remarked as busy. The percentage is calculated by dividing the total board members who are busy by the board size. The predictive sign will be negative because busy board members are too busy or less effective in monitoring. The third proxy is the board size. Regarding the paper of Yermack (1996) is corporate governance influenced by the size of the board. The higher the board size, the lower the effectiveness of the monitoring of the executives. For this proxy, I also follow Yermack (1996) to include the board size as the natural logarithm. The variable is stated as *LNBoardsize*. The predictive sign of the variable also will be negative.

For the fourth proxy, I follow the research design of Beasley & Petroni (2001). They argue that independent board members have a positive influence on monitoring management and therefore a strong corporate governance. The independence of board members is included in the regression as a percentage variable, stated as *Percentage\_BoardIndep*. The variable predicts the percentage of independent board members. The calculation of the percentage is the total independent board members divided by the board size. The prediction is that if the percentage of independent board members increase by one, the corporate governance should be stronger and therefore it should have a positive effect on the usage of non-GAAP performance measures in compensation contracts.

The fifth proxy is CEO duality. This means that the CEO of the firm also is the chair of the board of directors. This gives the CEO more power over the operations of the firm because he is basically his own reviewer (Harrison et al., 1988). This could harm the corporate governance in the firm. Although, some other research argue that CEO is beneficial for the firm and that benefits outweigh the cost of separation (Brickley et al., 1997). The benefits are mostly stated in terms of shareholder value. Achieving more shareholder value is beneficial for the shareholders, but this does not mean that it is beneficial for all the stakeholders. Therefore, the predictive sign will be negative. For the proxy, I use the same variable as Boyd (1994), namely a dummy variable with the value of one if the CEO also is the chair and zero otherwise. The variable is stated as *BoardCEODual*.

A proxy that is more related to the ownership structure of the firm is the *BoardBLOCKHOLDER* variable. This variable is a dummy variable which takes the value of one if one or more the directors on the board have more than five percent of the voting power. The predictive sign of this variable is a little bit unclear. Core et al. (1999) have found that weak corporate governance in terms of ownership structure has a positive effect on the level of compensation of the CEO. A block holder on the board could mitigate the misappropriate behavior of executives in terms of self-enrichment. Holderness & Sheehan (1988) have found that there is no significant difference in the compensation of executives when the executives have a block holding at the firm. Mehran (1995) also have examined compensation and the effect of inside block holders on the board. He found that performance-based compensation declines when there were inside block holders. In general, the effect of block holders on total compensation is a little bit unclear. Evidence of prior papers suggests that performance-based compensation declines, so this could also be the case for the usage of non-GAAP performance measures. Besides that, compensation increase when corporate governance is weak in terms of a bad ownership structure which is the case with block holders. So, I expect a negative reaction which means that the predictive sign will be negative.

The last three proxies are related to the expertise of the executives and the board of directors. The first two expertise proxies are determined by the experience of the CEO and the board. Barro & Barro (1990) have found in their study that the experience of the CEO has an influence on the performance and the compensation. The variable reflecting the experience of the CEO is stated as *CEOExp* which is the total amount of years that the CEO is serving or has served. The predictive sign will be positive because more experienced CEO's should be better in setting the tone at the top. The number of years is calculated by deducting the year when the service has started from the year when the service has ended. With the note that the final year of ending the service is 2015 because the data sample is till 2015. CEO's that are going to end their service after 2015 are for the previously mentioned reason also set at 2015. The variable reflecting the experience of the board is stated as *BoardExp* which is the average amount of years that the board members are serving or have served on the board. This variable also is predicted to be positive. The last proxy of expertise is when the board has a member with financial expertise. The variable is stated as *BoardFinExp* and is a dummy variable with the value of one if one or more of the board members is a financial expert and zero otherwise. The study of Wang et al. (2009) has provided evidence that a financial expert on the board of directors is beneficial for corporate governance. Therefore, the predictive sign will be positive.



### 5.2.2.3 Control Variables

Data about economic determinants are obtained as control variables in the regression model. Previous research has provided evidence that some economic determinants could have an influence on compensation. The study of Core et al. (1999) is followed by implementing the market-to-book ratio for the firms as a proxy for investment opportunities. The variable is stated as *MTBratio* and is calculated by dividing the market value of the firm by his book value. The book value is calculated by deducting the total liabilities from the total assets. The size of the firm also is implemented. Therefore, the study of Firth et al. (2007) is followed. The size of the firm is operationalized by the natural logarithm of the total assets. The variable is stated as *LNSIZE*. The last economic determinant is the leverage. For this variable, I followed the study of Eng & Mak (2003). This variable is operationalized by dividing the total liabilities by the total assets and is stated as *LEVERAGE*.

### 5.2.2.4 Regression Model

In the previous paragraphs is explained what the variables are for the research. These variables are used in a logit regression model because the dependent variable can only have two values, respectively one or zero. As earlier mentioned, the effect of corporate governance on the usage of non-GAAP performance measures as compensation tool for executives is less investigated. Therefore, the model is built upon *nine* corporate governance proxies, that are used in earlier studies and are quite similar to my study, and three economic determinants that serve as control variables. Besides that, the model controls for fixed year effects and the model uses robust standard errors. The explanation of the variables is summarized in Table 2. All this information together will lead to the following regression:

$$\begin{aligned} COMP\_NONGAAP_{jt} &= \beta_0 + \beta_1 BoardOLD_{jt} + \beta_2 Percentage\_BoardIndep_{jt} \\ &+ \beta_3 BoardCEODual_{jt} + \beta_4 Percentage\_BoardBusy_{jt} + \beta_5 LNBoardsize_{jt} \\ &+ \beta_6 CEOExp_{jt} + \beta_7 BoardExp_{jt} + \beta_8 BoardFinExp_{jt} \\ &+ \beta_9 BoardBLOCKHOLDER_{jt} + \beta_{10} LNSIZE_{jt} + \beta_{11} LEVERAGE_{jt} \\ &+ \beta_{12} MTBratio_{jt} + \varepsilon \end{aligned}$$

Where:

- *COMP\_NONGAAP*: Dummy variable which takes the value of “1” if the executives are compensated based on non-GAAP performance measures.

- *BoardOLD*: Dummy variable which takes the value of "1" if half or more of the board is older than 70.
- *Percentage\_BoardIndep*: The independent board members divided by the board size.
- *BoardCEODual*: Dummy variable which takes the value of "1" the CEO also is the chair of the board.
- *Percentage\_BoardBusy*: The busy board members divided by the board size.
- *LNBoardsize*: the natural logarithm of the total amount of board members.
- *CEOExp*: The year of service (has) end(s)(ed) minus the year of service began.
- *BoardExp*: The mean of the total value of the year of service ends minus the year of service began.
- *BoardFinExp*: Dummy variable which takes the value of "1" if the board has one or more financial experts.
- *BoardBLOCKHOLDER*: Dummy variable which takes the value of "1" if the board has one or more members with more than 5% of the voting power.
- *LNSize*: The natural logarithm of the total assets.
- *LEVERAGE*: The total liabilities divided by the total assets.
- *MTBratio*: The market value divided by the book value of a firm
- $\varepsilon$ : error term

The regression model has twelve coefficients. The coefficients of interest are the first till the eight coefficient. Coefficients  $\beta_1$ ,  $\beta_3$ ,  $\beta_4$ , and  $\beta_5$  are predicted to be negative. The sign of  $\beta_9$  is unclear. The other coefficients are predicted to be positive. The variables and their measurement are further explained in Appendix A.

## **6. Results**

Chapter 6 will provide the results of the tests regarding the two hypotheses. In the first place, the results of the descriptive part and other statistics will be discussed. Secondly, the empirical results of the hypothesis will be discussed with data about the logit regression, but also some descriptive statistics and a correlation matrix.

### **6.1 Descriptive part**

The descriptive part was based on the question whether or not executives are compensated based on non-GAAP performance measures. I provide for this descriptive evidence. The results obtained from this descriptive test should be interpreted carefully because the test is not empirical and could not be free from bias.

#### **6.1.1 Main descriptive evidence**

More than 600 filings are used for this investigation. The statistics are presented in Table 3 on the next page. The most important statistic, which could be found in Panel A, is that in more than half of the cases the executives are compensated based on non-GAAP performance measures (59%). This result could suggest that it truly exist that executives are compensated based on non-GAAP performance measures, but the results are not as hard if an empirical analysis was used to could reject or accept a hypothesis. For this statistics only unique firm years are used. The other statistics are based on all the different kind of measures that are used and also if different measures are used for different executives. Therefore, the total amount of non-GAAP performance measures in Panel A is not equal to the total amount of measures in the other Panels.

Besides the main statistic, other statistics also are described in Table 3. In 88% of the cases, one measure is used as an evaluation tool. In 11% of the cases two or three measures are used to evaluate the compensation of the executives. As earlier, mentioned, this study only recognizes adjusted earnings or adjusted EPS as non-GAAP performance measures. Panel B provide statistics about the usage of these measures. EPS is the most used measure as an evaluation tool (34%) and second is operating income. Operating income is only recognized when it was not stated as an EBITDA measure. Panel C provide descriptive statistics about the definition of the non-GAAP performance measures. In 81% of the cases, the definition was given in the filing. In the other cases not. There also was a difference in presenting the

Table 2: Descriptive statistics non-GAAP performance measures

## Panel A: Descriptive statistics about the usage of non-GAAP performance measures (firm year)

	Frequency	Percentage
NONGAAP	368	40,55%
No NONGAAP	251	59,45%
Total	619	100%

## Panel B: Descriptive statistics about the different sort of non-GAAP performance measures

	Frequency	Percentage
One measure	325	88,08%
Two measures	41	11,11%
Three measures	3	0,81%
Total	369	100%

	Frequency	Percentage
EPS	142	34,13%
Dil. EPS	84	20,19%
NI	77	18,51%
Oper. I	113	27,16%
Total	416	100%

## Panel C: Descriptive statistics about a given definition of the non-GAAP performance measure

	Frequency	Percentage
Definition	338	81,25%
Reference	11	2,64%
Reconciliation table	55	13,22%
Only definition	272	65,38%
Not mentioned	78	18,75%
Total	416	100%

## Panel D: Descriptive statistics about the incentive for the compensation

	Frequency	Percentage
Bonus	314	75,48%
Long-term incentive	61	14,66%
Both	40	9,62%
Not mentioned	1	0,24%
Total	416	100%

definition in the filing. Most of the times only the definition with the type of exclusions and not the number of exclusions was given. The most transparent manner is to provide a reconciliation table. Only 13% provide a reconciliation table in their filing. This suggests that the information content about the usage of non-GAAP performance measures is not very transparent. The last Panel in Table 3 is about the incentives of the compensation. There are short-term incentives, stated as bonus incentives, and long-term incentives. Bonus incentives are most of the times cash compensation and long-term incentives are mostly equity awards. Non-GAAP performance measures are in 75% of the cases used with bonus incentives. In 15% and respectively 10% of the cases, they are used with long-term incentives and a combination of bonus and long-term incentives.

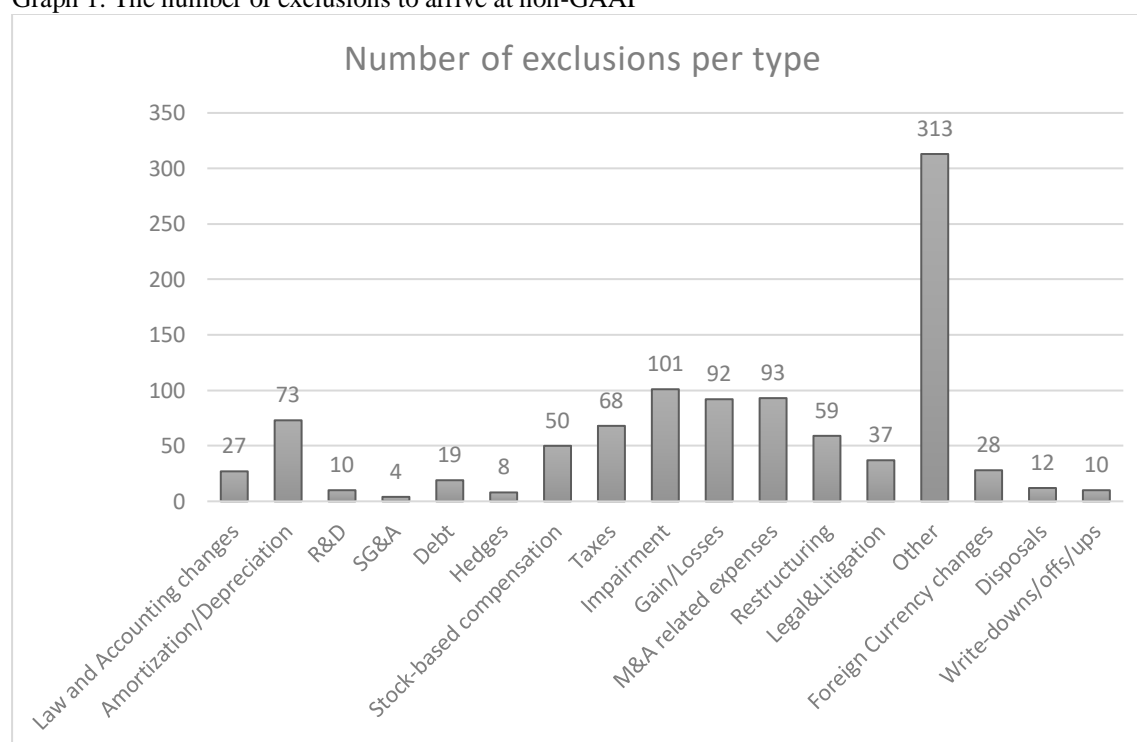
### **6.1.2 Other descriptive evidence**

Besides the descriptive evidence that is provided in the previous paragraph, some other statistics will be provided that are less related to the main part of the descriptive part. These statistics could provide some better insights in the non-GAAP performance measures. Table 3 describes statistics about the definition of the measures. The definition particularly means what kind of exclusions are made to arrive from GAAP at non-GAAP. Graph 1 provides evidence about these exclusions.

I created eleven categories of exclusions and placed them in one of the categories. The category 'other' is the largest category, but that is not a shocking result because firms exclude also often firm-specific items. Some items in 'other' are severance charges, bonus reversals, and refinancing expenses. The other categories are a mix of recurring and transitory items. Not all the transitory item are questionable because it is normal that non-cash items like depreciation and amortization also are excluded. The second largest category are impairments. Impairments are not particularly recurring items, but with IFRS/US GAAP every firm should perform an impairment test on some assets on the balance sheet. Therefore, it is logical that impairments are a large category. Gain and losses also is a large category. Most of the times are this a one-time gain or loss on a sale of assets. One-time items are a good example of items that are excluded to arrive from GAAP at non-GAAP. The most questionable item that exists in the chart graph is the stock-based compensation expense. This also is in line with previous other studies like Bhattacharya et al. (2004) and Black & Christensen (2009). Stock-based compensation expenses are recurring items because they exist every year at most of the firms. Besides that, it also could be a cash item. This is the case when for example stock options are

exercised. In the previous periods the compensation is expensed and at the exercise date, this will result in a cash outflow.

Graph 1: The number of exclusions to arrive at non-GAAP

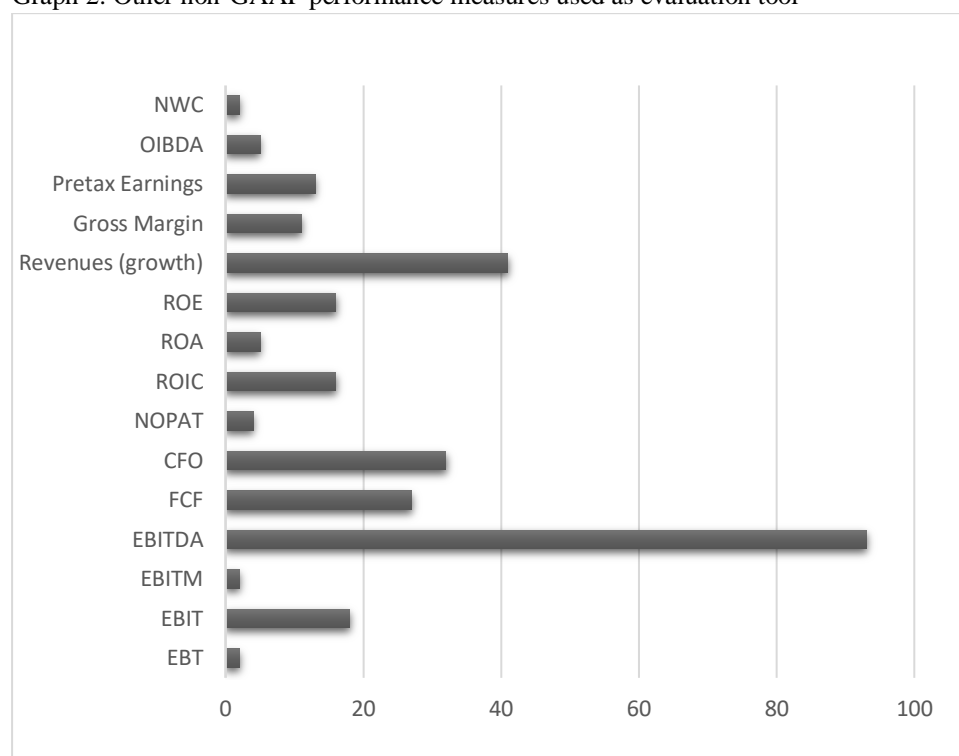


Other statistics out of the filings is the usage of other non-GAAP measures than mentioned in Table 3. As earlier mentioned, the focus in this study is at measures that are not much used or known. As an example, EBITDA or similar measures are much used for instance in financial reports. Although, these measures could also be adjusted and perform as a non-GAAP measure. This is only the case when they really contain non-GAAP exclusions. Graph 2 will provide results of the other non-GAAP measures that are used in the filings. Not surprising, EBITDA is the most used alternative non-GAAP measure. Also, derivatives from EBITDA, like EBIT and EBT are used. Besides EBITDA, revenue-related measures and cash flow related are widely used as a performance measure.

## 6.2 The Hypothesis

The results of the test of the hypothesis are based on an empirical analysis. The analysis is conducted with a logit regression. In the first place, some descriptive statistics will be provided about the variables and also about the preparation of the data. After that, the empirical results will be provided and discussed.

Graph 2: Other non-GAAP performance measures used as evaluation tool



### 6.2.1 Data Preparation and Testing

The first step of the empirical part is the individual test of the variables to check whether or not they possess for instance outliers. Every variable, with the exception of the dummy variables, are winsorized. This means that the extreme values of the variables are eliminated and the most extreme outliers are deleted. As a note, not all the outliers could have been eliminated.

The variables also are tested for a normal distribution. The variables with a less normal distribution are reformed in their natural logarithm which is performed for the size of the firm and the board size

Besides the variables, the residuals also need to be tested. The distribution of the residuals should be normal and they should be homoscedastic. To test the distribution of the residuals, the Shapiro-Wilkinson test is performed. This test examines, based on a significance level, if the residuals are normally distributed. In Appendix B the results are tabulated. In the table is shown that the p-value (0,0000) is significant which indicate that the hypothesis of the normal distribution of the residuals is rejected. The distribution also is shown in Appendix B with the Kernel density estimate of the normal distribution. The graph is clear that the residuals do not have a normal distribution. This is a limitation of the regression model. To test the

homoscedasticity of the residuals, the Breusch-Pagan test is performed. The test examines if the residuals have a constant variance which if present assumes homoscedasticity. The untabulated results suggest that the residuals are subject to heteroscedasticity because the p-value is significant. This means that the variance of the residuals is not constant. To address the issue of heteroscedasticity, the regression model makes use of robust standard errors.

The last step is to check for multicollinearity. Multicollinearity means that some variables are strongly correlated which could influence the coefficients in the regression which reduce their reliability. To test multicollinearity, a Pearson correlation matrix is implemented in Appendix C. The matrix does not show fully correlated variables which mean that multicollinearity in the regression model does not exist.

### **6.2.2 Descriptive statistics**

Table 3 provide the most common statistics of all the variables in the regression model. The statistics are the mean, standard deviation, minimum, maximum, and the number of observations. The number of observations per variable is different. This is caused by the control group that is implemented in the regression model. Therefore, all the variables are kept and not only the matched variables. The number of observations is denoted by the number of unique firm-year observations.

The control group has caused that in only 3% of the firm year's executives are compensated based on non-GAAP performance measures. In Table 3, on the next page, also can be found that approximately in 7% of the firm years more than half of the board members is older than 70. Only 7% of the board members is on average independent and almost 80%, on average of the board members, serves at three or more other boards. Approximately half of the CEO's also is the chair and the board of directors has in 90% of the cases a financial expert on the board. The average experience of the CEO and the board is approximately 11 years. In approximately 24% of the cases has the board a block holder with more than 5% of the voting power.

Regarding the control variables, the mean leverage is circa 0,5 and the mean value of the market-to-book ratio is almost 3 which implies that on average the market value is higher than the book value.



Table 3: Descriptive statistics

Descriptive Statistics					
Variable	Obs.	Mean	St. Dev.	Min	Max
COMP_NONGAAP	11.075	0,0330474	0,1787685	0	1
BoardOLD	10.707	0,0698608	0,2549242	0	1
Percentage_BoardIndep	10.707	0,0708528	0,094223	0	0,375
Percentage_BoardBusy	10.707	0,7900921	0,1068322	0,5	0,9230769
BoardCEODual	10.707	0,5224619	0,4995185	0	1
CEOExp	10.436	11,37048	8,677959	1	42
BoardExp	10.707	10,51206	3,79287	2,909091	22,375
BoardFinExp	10.707	0,9062296	0,2915227	0	1
BoardBLOCKHOLDER	10.707	0,2352666	0,4241852	0	1
LNBoardsize	10.707	2,20321	0,241812	1,609438	2,772589
LEVERAGE	10.707	0,5437906	0,2197576	0,0977764	1,033229
LNSIZE	10.707	8,018989	1,619764	4,911765	12,3538
MTBratio	10.707	2,882688	2,987648	-2,244336	20,46465

The observations are different among the variables. This has something to do with the data sample that is not merged. The regression model will have another amount of observations than the number of observations which are present in the variables. This is caused by the logit regression which has dropped some extra observations.

### 6.2.3 Empirical results

The results of the regression are presented in Table 4 on the next page. In Table 4 are two models tabulated. The first model is without the control variables and the second model includes the control variables. The predictive signs that are discussed in chapter 5, as part of the variable description, also are implemented.

The explanatory power of the regression model, given the  $R^2$  of 3,39%, is not that high. The coefficients in the two models are not much different from each other. The main difference between the two models is that the coefficients change when the control variables are added to the model, but the significant variables stay significant. A little bit unexpected is that most of the independent variables are insignificant. The reason for this could be the limitations of the model that are explained in the paragraph about the data preparation. Although, the model controls for most of these limitations. Another reason could be that there is not really an effect between these proxies of corporate governance and the usage of non-GAAP performance measures as an evaluation tool in compensation contracts.

Two proxies of corporate governance that are significant are *Percentage\_BoardBusy* and *Percentage\_BoardIndep*. The difference between these variables is that the coefficient of *Percentage\_BoardBusy* is more significant than *Percentage\_BoardIndep*. They are significant at the 1% and the 10% level, respectively. The expectation for *Percentage\_BoardBusy* was that the percentage of busy board members would have a negative effect on the usage of non-GAAP performance measures because busy board members are not beneficial for the corporate governance. The coefficient is indeed negative, which means that if the percentage of busy board members increases the number of executives that are compensated based on non-GAAP performance measures would decline. It is the other way around for the variable *Percentage\_BoardIndep*. More independent board members will help in building a stronger corporate governance. The expectation was the more independent board members the more usage of non-GAAP performance measures in compensation contracts of executives. The coefficient is indeed positive, which means that if the percentage of independent board members increases the usage of non-GAAP performance measures also would increase. The finding is consistent with the paper of Frankel et al. (2011) that also found that independence board members have an effect on non-GAAP performance measures. Regarding the results, a suggestion could be made that a strong corporate governance will weaken the negative sides of non-GAAP measures, what also is in line with the findings of Jennings & Marques (2011).

The last proxy of corporate governance that is significant (p-value: 0,020) is the variable *BoardBLOCKHOLDER*. The expectation of the sign of the coefficients of this variable was negative. The coefficient is negative which mean that if there are block holders on the board with more than 5% of the voting power, the number of executives being compensated on non-GAAP performance measures declined. The reason for this effect is that the block holders are afraid that the compensation of executives increases when they are evaluated based on non-GAAP performance measures. Most of the times are non-GAAP measures higher than GAAP measures (Larcker & Tayan, 2010). Although, a firm with a strong corporate governance should on forehand know what the exclusions are to arrive at non-GAAP measures.

These results are the main findings of the regression. The other proxies of corporate governance are insignificant and this also is the case for the control variables.

Table 4: Regression results

Regression Results			
COMP_NONGAAP	Sign	Model 1	Model 2
<i>Intercept</i>		-3,655926 (0,003)	-3,803351 (0,002)
<i>BoardOLD</i>	(-)	0,322118 (0,302)	0,322101 (0,299)
<i>Percentage_BoardBusy</i>	(-)	-3,535141*** (0,000)	-3,348215*** (0,001)
<i>Percentage_BoardIndep</i>	(+)	1,511549* (0,089)	1,578623* (0,077)
<i>BoardCEODual</i>	(-)	-0,0617656 (0,714)	-0,0114559 (0,945)
<i>CEOExp</i>	(+)	-0,0191619 (0,216)	-0,0202868 (0,192)
<i>BoardExp</i>	(+)	-0,0165789 (0,540)	-0,0168579 (0,534)
<i>BoardFinExp</i>	(+)	0,0035964 (0,996)	-0,0078971 (0,991)
<i>BoardBLOCKHOLDER</i>	(-)	-0,5157677** (0,030)	-0,5654578** (0,020)
<i>LNBoardsize</i>	(-)	-0,2055935 (0,451)	0,2283738 (0,519)
<i>LEVERAGE</i>			-0,3138256 (0,446)
<i>LNSIZE</i>			-0,0820126 (0,182)
<i>MTBratio</i>			-0,0060404 (0,833)
Fixed-year effects		yes	yes
Adj R2		0,0321	0,0339
Robust St. Errors		yes	yes
N		9.261	9.261

The logit regression is performed with *COMP\_NONGAAP* as explained variable. The R-squared is 3,39% which means that this proportion explains the response variable variation of the model. The number of observations is 9.261 which indicate the unique firm-year observations. The numbers in the parentheses indicate the p-values  
 \*\*\*, \*\*, \* indicate the significance level of the coefficients at 1%, 5%, and 10%, respectively.

In Table 4 is stated that the number of observations is equal to 9.261. This is a different amount than the number mentioned in table 1 about the description of the data. The reason for this number of observations is that due to the control group in the sample some variables have fewer observations than the dependent variable as example. Besides that, due to the usage of a logit regression and fixed year effects, the number of observations in the regression model decreased to 9.261.

The hypothesis was based on the logical reasoning that a strong corporate governance would result in more executives that are compensated based on non-GAAP performance measures. Based on the results of the regression analysis, the null hypothesis cannot be fully rejected, because some corporate governance proxies are insignificant and do not have an effect on the usage of these measures. The three proxies that have an effect are independent board members in a positive way, and too busy board members and block holders on the board in a negative way. Although, these results should be interpreted carefully, because it is unsure if these variables are free from bias and regarding the limitations in the model.

#### **6.2.4 Robustness Test**

I also perform a robustness test to check whether or not the empirical analysis is sufficient enough to test the effect of corporate governance on the usage of non-GAAP performance measures because there is a chance that the proxies are highly correlated with each other.

The robustness test is based on the model of Gompers et al. (2003). In this paper, they make use of a corporate governance index (GC index). This index is based on the scores of the firms on multiple corporate governance subjects. These subjects are the same as the proxies used in the logit regression model of the empirical analysis in the main research. The firms can score positive or negative on the different themes. If they score positive, which is in terms of strong corporate governance then they get the value of one and otherwise they get the value of zero which implies bad corporate governance.

The score is built upon the nine themes that are used in the main research. The first one is the age of the board members. If less than half of the board members is under the age of 70 then the firm gets a score of one on this theme and otherwise zero. The second theme is the percentage of busy board members. If the percentage is under the 75<sup>th</sup> percentile value of the percentage

of busy board members then this will result in a score of one. I used not the median value, because otherwise, everyone got the score of zero because the median value was zero. For the theme of independent board members, the firms collect a score of one if the percentage of independent board members is above the median value. If the CEO is not the chairman of the Board then they also receive the score of one. For the experience of the CEO and the board, they get for both the score of one if the experience of the CEO and the board is above the median value of experience. It also is in favor of a strong corporate governance when there is a financial expert placed on the board. If this is the case, they will get a score of one. They also get a score of one if there are no block holders at the board. At last, firms score a one if the board size is less than the median value of the board size. The sum of these scores is the GC index.

The robustness test is also fulfilled with a logit regression with dependent variable *COMP\_NONGAAP* and as independent variable *GC\_index*. I use the same control variables as in the main research and also fixed year effects and robust standard errors to control for the endogeneity concern. Table 5 presents the results of the regression. The table contains two models. The first model is without the control variables and the second with the control variables. The main difference between the two models is that the *GC\_index* variable changes significantly. There was an omitted variable bias present in the first model and that endogeneity concern is disappeared in the second model. The *GC\_index* is insignificant which implies that there is not a significant correlation between the corporate governance index and the usage of non-GAAP performance measures as evaluation basis for the compensation of executives. Thus, how a firm scores on corporate governance decide not if they compensate their executives based on non-GAAP performance measures. So, the evidence found in the main research about the significant proxies of corporate governance are still valid, but with this robustness test, I conclude that corporate governance, in general, does not have an effect on the compensation of executives based on non-GAAP performance measures. Although, the model of the robustness test also could have its limitations.

Table 5: Regression Robustness test

Regression Results GC index		
COMP_NONGAAP	Model 1	Model 2
<i>Intercept</i>	-0,9650809	-3,800135
	0,020	0,000
<i>GC_index</i>	-0,6216353***	0,1041166
	0,000	0,144
<i>LEVERAGE</i>		-0,0453877
		0,904
<i>LNSIZE</i>		-0,0362924
		0,533
<i>MTBratio</i>		-0,0098469
		0,729
Fixed-year effects	yes	yes
Adj R2	0,2088	0,0156
Robust st. Errors	yes	yes
N	9.830	9.462
<p>The logit regression is performed with <i>COMP_NONGAAP</i> as explained variable. The R-squared is 1,56% which means that this proportion explains the response variable variation of the model. The number of observations is 9.462 which indicate the unique firm-year observations. The numbers in the parentheses indicate the p-values</p> <p>***, **, * indicate the significance level of the coefficients at 1%, 5%, and 10%, respectively.</p>		

## 7. Conclusion

The purpose of this study is to examine in the first place whether or not executives are compensated based on non-GAAP performance measures and secondly if a strong corporate governance has an influence on this compensation motive. With other words, strengthen corporate governance the compensation of executives based on non-GAAP performance measures. Therefore, data out of the compensation filings from firms in the period 2007-2015 are collected by hand. With this data is a database created with all kind of information about the compensation of executives based on non-GAAP performance measures. Descriptive evidence from this database provided some answers to the question if executives are compensated based on these measures. To test whether corporate governance can influence this usage, a logit regression is run with merged databases of corporate governance, economic fundamentals, and the database created from the compensation filings. The regression is performed with the non-GAAP performance measure as the dependent variable and corporate governance proxies as independent variables. The regression is made with robust standard errors and has provided answers to the research question:

*Do firms with a stronger corporate governance make more use of non-GAAP performance measures as compensation component for named executive officers?*

This question is step-by-step answered via a descriptive part and a formulated hypothesis. The descriptive part is executed regarding the question if executives are compensated based on non-GAAP performance measures and the hypothesis if corporate governance plays any role in this matter. A robustness test is performed to check the validity of the main empirical analysis.

Regarding the first test, the data have provided descriptive evidence that in more than half of the firm years the executives are compensated based on non-GAAP performance measures. This could suggest that executives on average are compensated based on non-GAAP performance measures, but it should be interpreted carefully. The data is based on my own judgment and maybe not free from bias.

The second test with the logit regression has provided evidence about the effect of the multiple corporate governance proxies on the compensation of executives based on non-GAAP performance measures. The most completed model have three significant variables. Two significant proxies are the percentage of independent board members and the percentage of board members that serves on three or more other major company boards. The percentage of

independent board members have a positive effect on the usage of non-GAAP performance measures in compensation contracts and busy board members have a negative effect on the usage of non-GAAP performance measures in compensation contracts. These findings match with the expected signs of those coefficients. Independent board members strengthen the corporate governance within a firm and busy board members weaken the corporate governance. The last significant proxy is the situation where one or more board members have more than 5% of the voting power. These members are called block holders. The effects are negative which means that block holders have a negative association with the chance that executives are compensated based on non-GAAP performance measures.

The other proxies of corporate governance – like boards with more than three people older than 70, a CEO that also is the chair of the board, or a board with financial experts – are insignificant. The reason for this is undisputed, but a possible explanation is the limitations of the variables or the model. It is not sure that the variables are free from bias.

Although, the results of the robustness test suggest that corporate governance, in general, does not have a significant effect on the compensation of executives based on non-GAAP performance measures. This was based on the insignificant corporate governance index in the model.

The research question is answered with appropriate caution. An answer to the research question is that corporate governance, in general, does not influence the compensation of executives based on non-GAAP performance measures. This is the answer because I indeed found evidence in the main empirical analysis but here is a chance that these proxies are correlated with each other. The results for these proxies are still valid, but they do not imply as result for corporate governance in total.

As a recommendation for future research, more compensation filings should be included to get a bigger database. Besides that, different corporate governance variables could be used that are proxies for the ownership structure of the firm. With the data generated from the filings, another angle of incidence could be investigated. They could examine what the effect is of being compensated based on non-GAAP performance measures on the total amount of compensation. The independent variable is then the dependent variable in this thesis and the amount of compensation the dependent variable. This also could give opportunities to create interaction effects with other information that is obtained from the filings and included in the own created database.



## 8. Limitations

In this chapter, all the limitations of the thesis will be discussed. In several parts of the thesis is indicated that the thesis has its limitations, regarding the data and also the research model. These limitations are in this part more described in detail.

The first limitation is regarding the data process. Data about the compensation of executives based on non-GAAP performance measures is obtained from compensation filings that were selected based on pre-determined criteria. The filings are selected based on the words 'adjusted earnings'. If firms compensate their executives based on their performance, which is determined by non-GAAP measures, is judged by myself and could contain some errors. Besides that, the data contains 619 firm-year observations of 221 unique firms. It is possible that more executives of firms are compensated based on non-GAAP performance measures. The control group than consist of biased results if firms in the control group also use non-GAAP measures for the performance evaluation. All these things could cause some effects on the regression and could work through into the findings of this thesis.

The other limitations are regarding the regression model. First of all, the variables are winsorized to eliminate outliers, but not all the outliers could be reduced. Besides that, the variables are kept in the original state, because it does not make sense to reform them into a square root and most of the times they had the best normal distribution in their original form. Although, the distribution of the variables was not always a fully normal distribution. It also is plausible that the variables are not free from bias, which is known as the omitted variable bias. This endogeneity concern is likely because the model does not contain many variables about the ownership structure of the firms instead of the multiple variables about the board characteristics. Another problem with the model, the distribution of the residuals. The distribution was not normal, which means that the residuals do not have a constant variance.

## References

- Albring, S. M., Cabán-Garcia, M. T., & Reck, J. L. 2010. The value relevance of a non-GAAP performance metric to the capital markets. *Review of Accounting and Finance*, 9 (3): 264-284.
- Allee, K. D., Bhattacharya, N., Black, E. L., & Christensen, T. E. 2007. Pro forma disclosure and investor sophistication: External validation of experimental evidence using archival data. *Accounting, Organization and Society*, 32 (3): 201-222.
- Armstrong, C., Chau, J., Ittner, C. D., & Xiao, J. 2017. Internal Versus External Earnings per Share Goals and CEO Incentives.
- Barro, J. R., & Barro, R. J. 1990. Pay, Performance, and Turnover of Bank CEOs. *Journal of Labor Economics*, 8 (4): 448-481.
- Beasley, M. S., & Petroni, K. R. 2001. Board Independence and Audit-Firm Type. *Auditing: A journal of practice and theory*, 20 (1): 97-114.
- Bennett, B., Bettis, J. C., Gopalan, R., & Milbourn, T. 2017. Compensation goals and firm performance. *Journal of Financial Economics*, 124 (2): 307-330.
- Bhattacharya, N., Black, E. L., Christensen, T. E., & Larson, C. R. 2003. Assessing the relative informativeness and permanence of pro forma earnings and GAAP operating earnings. *Journal of Accounting and Economics*, 36 (1): 285-319.
- Bhattacharya, N., Black, E. L., Christensen, T. E., & Mergenthaler, R. D. 2004. Empirical Evidence on Recent Trends in Pro Forma Reporting. *Accounting Horizons*, 18 (1): 27-43.
- Black, D. E., & Christensen, T. E. 2009. US Managers' Use of 'Pro Forma' adjustments to meet strategic earnings targets. *Journal of Business Finance & Accounting*, 36 (3-4): 297-326.
- Black, D. E., Black, E. L., Christensen, T. E., & Gee, K. H. 2016. CEO Compensation Incentives and Non-GAAP Earnings Disclosures.
- Black, E. L., Joo, T. T., & Schmardebeck, R. 2014. *The Relation Between Earnings Management and Pro Forma Reporting*.
- Bowen, R. M., Davis, A. K., & Matsumoto, D. A. 2005. Emphasis on Pro Forma versus GAAP Earnings in Quarterly Press Releases: Determinants, SEC Intervention, and Market Reactions. *The Accounting Review*, 80 (4): 1011-1038.
- Bradshaw, M. T., & Sloan, R. G. 2002. GAAP versus The Street: An Empirical Assessment of Two Alternative Definitions of Earnings. *Journal of Accounting Research*, 40 (1): 41-66.
- Brickley, J. A., Coles, J. L., & Jarrell, G. 1997. Leadership structure: Separating the CEO and Chairman of the Board. *Journal of Corporate Finance*, 3 (3): 189-220.
- Brown, L. D., & Sivakumar, K. 2003. Comparing the Value Relevance of Two Operating Income Measures. *Review of Accounting Studies*, 8 (4): 561-572.
- Bushman, R. M., Indjejikian, R. J., & Smith, A. 1996. CEO compensation: The role of individual performance evaluation. *Journal of Accounting and Economics*, 21 (2): 161-193.

- Christensen, T. E., Hang, P., Pierce, S. E., & Tan, L. 2015. *Non-GAAP Reporting following Debt Covenant Violations*.
- Coleman, D., & Usvyatsky, O. 2015. *Trends in non-GAAP disclosures*. Retrieved January 23, 2017, from Audit Analytics: <http://www.auditanalytics.com/blog/trends-in-non-gaap-disclosures/>
- 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.
- De Angelis, D., & Grinstein, Y. 2015. Performance Terms in CEO Compensation Contracts. *Review of Finance*, 19 (2): 619-651.
- Deloitte & Touche. 2003. *Conditions For Use of Non-GAAP Financial Measures*. Deloitte & Touche.
- Doyle, J. T., Jennings, J. N., & Soliman, M. T. 2013. Do managers define non-GAAP earnings to meet or beat analyst forecast? *Journal of Accounting and Economics*, 56 (1): 40-56.
- Eisenhardt, K. M. 1989. Agency theory: An Assessment and Review. *The Academy of Management Review*, 14 (1): 57-74.
- Eng, L. L., & Mak, Y. T. 2003. Corporate governance and voluntary disclosure. *Journal of Accounting and Public Policy*, 22 (4): 325-345.
- Entwistle, G. M., Feltham, G. D., & Mbagwu, C. 2010. The Value Relevance of Alternative Earnings Measure: A Comparison of Pro Forma, GAAP, and I/B/E/S Earnings. *Journal of Accounting, Auditing and Finance*, 25 (2): 261-288.
- Entwistle, G., Feltham, G. D., & Chima, M. 2006. Financial Reporting Regulation and the Reporting of Pro Forma Earnings. *Accounting Horizons*, 20 (1): 39-55.
- Ferris, K. R., & Wallace, J. S. 2009. IRC Section 162(m) and the law of unintended consequences. *Advances in Accounting*, 25 (2): 147-155.
- Firth, M., Fung, P. M., & Rui, O. M. 2007. Ownership, two-tier board structure, and the informativeness of earnings – Evidence from China. *Journal of Accounting and Public Policy*, 26 (4): 463-496.
- Frankel, R., McVay, S., & Soliman, M. 2011. Non-GAAP earnings and board independence. *Review of Accounting Studies*, 16 (4): 719-744.
- Gompers, P., Ishii, J., & Metrick, A. 2003. Corporate Governance and Equity Prices. *The Quarterly Journal of Economics*, 118 (1): 107-155.
- Gong, G., Li, L. Y., & Yong Shin, J. 2011. Relative Performance Evaluation and Related Peer Groups in Executive Compensation Contracts. *The Accounting Review*, 86 (3): 1007-1043.
- Grey, C., Stathopoulos, K., & Walker, M. 2013. The impact of executive pay on the disclosure of alternative earnings per share figures. *International Review of Financial Analysis*, 29: 227-236.
- Guillamon-Saorin, E., Isidro, H., & Marques, A. 2017. Impression Management and Non-GAAP Disclosure in Earnings Announcements. *Journal of Business Finance and Accounting*, 44 (3-4): 448-479.

- Halsey, B., & Soybel, G. 2002. All about pro forma accounting: Certified Public Accountant. *The CPA Journal*, 72 (4): 13.
- Harrison, J. R., Torres, D. L., & Kukalis, S. 1988. The Changing of the Guard: Turnover and Structural Change in the Top-Management Positions. *Administrative Science Quarterly*, 33 (2): 211-232.
- Heflin, F., & Hsu, C. 2008. The impact of the SEC's regulation of non-GAAP disclosures. *Journal of Accounting and Economics*, 46 (2): 349-365.
- Holderiness, C. G., & Sheehan, D. P. 1988. The Role of Majority Shareholders in Publicly Held Corporations: An explanatory analysis. *Journal of Financial Economics*, 20: 317-346.
- Hölmstrom, B. 1979. Moral Hazard and Observability. *The Bell Journal of Economics*, 74-91.
- Holthausen, R., Larcker, D., & Sloan, R. 1995. Annual bonus schemes and the manipulation of earnings. *Journal of Accounting and Economics*, 19 (1): 29-74.
- ICAEW. (n.d.). *What is corporate governance?* Retrieved May 5, 2017, from icaew.com: <https://www.icaew.com/en/technical/corporate-governance/overview/does-corporate-governance-matter>
- Isidro, H., & Marques, A. 2013. The Effects of Compensation and Board Quality on Non-GAAP Disclosures in Europe. *The International Journal of Accounting*, 48 (3): 289-317.
- Isidro, H., & Marques, A. 2015. The Role of Institutional and Economic Factors in the Strategic Use of Non-GAAP Disclosures to Beat Earnings Benchmarks. *European Accounting Review*, 24 (1): 95-128.
- Ittner, C. D., Larcker, D. F., & Rajan, M. V. 1997. The Choice of Performance Measures in Annual Bonus Contracts. *The Accounting Review*, 72 (2): 231-255.
- Jennings, R., & Marques, A. 2011. The Joint Effects of Corporate Governance and Regulation on the Disclosure of Manager-Adjusted Non-GAAP Earnings in the US. *Journal of Business Finance & Accounting*, 38 (3-4): 364-394.
- Johnson, W. B., & Schwarz, W. C. 2005. Are Investors Misled by "Pro Forma" Earnings? *Contemporary Accounting Research*, 22 (4): 915-963.
- Kolev, K., Marquardt, C., & McVay, S. 2008. SEC scrutiny and the evolution of non-GAAP reporting. *The Accounting Review*, 83 (1): 157-184.
- Lambert, R. A. 1983. Long-Term Contracts and Moral Hazard. *The Bell Journal of Economics*, 14 (2): 441-452.
- Lambert, R. A. 2001. Contracting theory and accounting. *Journal of Accounting and Economics*, 32 (1): 3-87.
- Larcker, D. F., & Tayan, B. 2010. Pro Forma Earnings: What's Wrong with GAAP?
- Larcker, D. F., Tayan, B., & Xiao, Y. 2015. Pro Forma Compensation: Useful Insight or Window Dressing.
- Lougee, B. A., & Marquardt, C. A. 2004. Earnings Informativeness and Strategic Disclosure: An Empirical Examination of "Pro Forma" Earnings. *The Accounting Review*, 79 (3): 769-795.

- Marques, A. 2010. Disclosure strategies among S&P 500 firms: Evidence on the disclosure of non-GAAP financial measures and financial statements in earnings press releases. *The British Accounting Review*, 42 (2): 119-131.
- McBride, S. 2015. *Non-GAAP Earnings Boost Executive Pay At The Expense Of Shareholders*. Retrieved March 16, 2017, from News Constructs: <https://www.newconstructs.com/non-gaap-earnings-boost-executive-pay-expense-shareholders/>
- McGuireWoods. 2007. *A Comprehensive Analysis of the SEC's Executive Compensation Disclosure Rules*. McGuireWoods LLP.
- Mehran, H. 1995. Executive Compensation Structure, Ownership, and Firm Performance. *Journal of Financial Economics*, 38 (2): 163-184.
- Murphy, K. J. 1999. Executive Compensation. In O. Ashenfelter, & D. Card (Eds.), *Handbook of Labor Economics* (pp. 2485-2563). 3rd ed. Elsevier Science B.V.
- Phillips, T. J., Luehlfiging, M. S., & Vallario, C. W. 2002. Hazy Reporting. *Journal of Accountancy*, 194 (2): 47.
- Pitt, H. L. 2002. *Speech by SEC Chairman: Remarks Before the AICPA Governing Council*. Retrieved January 27, 2017, from U.S. Securities and Exchange Commission: <https://www.sec.gov/news/speech/spch516.htm>
- Potepa, J. 2014. The Treatment of Special Items in Determining CEO Cash Compensation.
- PWC. 2014. *Point of View: Non-GAAP financial measures*. PriceWaterhouseCoopers.
- Securities and Exchange Commission. 2002. *Sarbanes-Oxley Act*. Securities and Exchange Commission.
- Securities and Exchange Commission. 2003. *Final Rule: Conditions for Use of Non-GAAP Financial Measures*. Retrieved January 23, 2017, from U.S. Securities and Exchange Commission: <https://www.sec.gov/rules/final/33-8176.htm>
- Shiah-Hou, S.-R., & Teng, Y.-Y. 2016. The informativeness of non-GAAP earnings after Regulation G? *Finance Research Letters*, 18: 184-192.
- Souster, R. 2012. Corporate governance: the board of directors and standing committees. *Student Accountant*, 1-9.
- Trainer, D., & Guske II, K. 2015. *The Dangers of Non-GAAP Earnings*. Retrieved January 23, 2017, from News Constructs: <https://www.newconstructs.com/dangers-non-gaap-earnings-2/>
- Vuong, Q. H. 1989. Likelihood Ratio Tests for Model Selection and Non-Nested Hypotheses. *Econometrica*, 57 (2): 307-333.
- Wang, R. Z., Ó Hogartaigh, C., & Van Zijl, T. 2008. Measures of Accounting Conservatism: A Construct Validity Perspective.
- Wieland, M. M., Dawkins, M. C., & Dugan, M. T. 2013. The Differential Value Relevance of S&P's Core Earnings versus GAAP Earnings: The Role of Stock Option Expense. *Journal of Business Finance & Accounting*, 40 (1-2): 55-81.

Yermack, D. 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40 (2):185-211.

## Appendix A

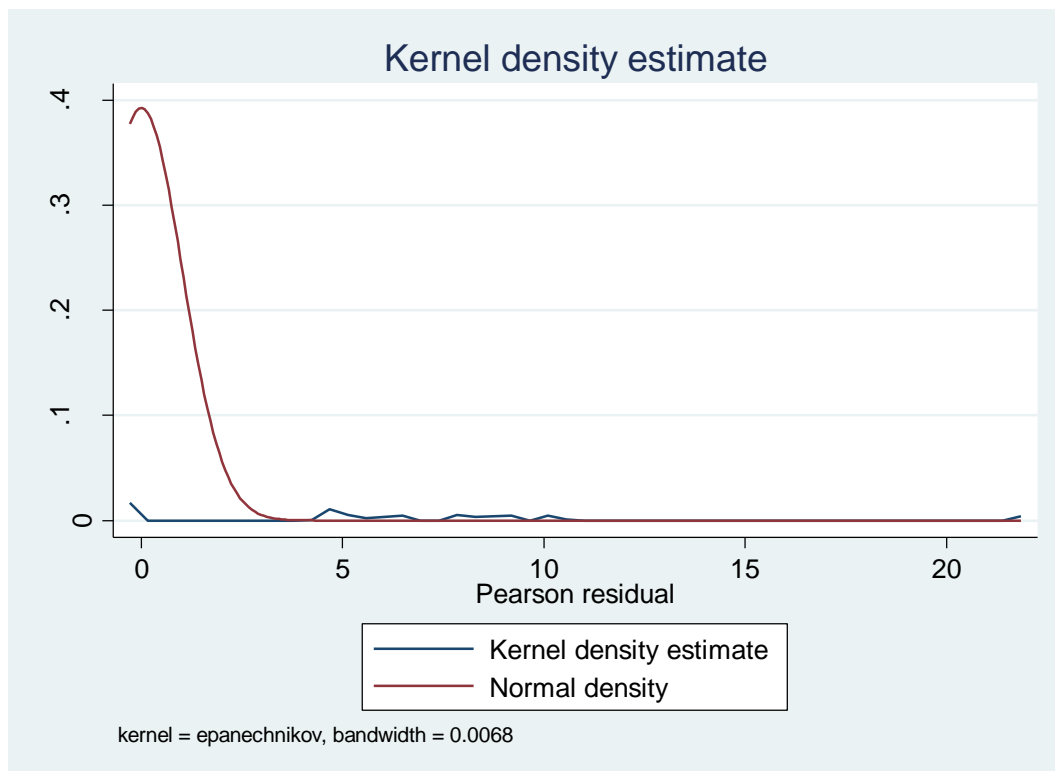
Regression Variable Descriptions		
Variable	Description	Measurement
Dependent Variable		
<i>COMP_NONGAAP</i>	The compensation of the executives based on non-GAAP performance measures	Dummy variable which takes the value of "1" if the executives are compensated based on non_GAAP performance measures
Independent Variables		
<i>BoardOLD</i>	The amount of board members that is older than 70 years	Dummy variable which takes the value of "1" if half or more of the board is older than 70
<i>Percentage_BoardIndep</i>	The percentage of board members that is independent	The independent board members divided by the board size
<i>BoardCEODual</i>	A situation at a firm when the CEO also is the chair of the board	Dummy variable which takes the value of "1" if the CEO also is the chair of the board
<i>Percentage_Boardbusy</i>	The percentage of board members that serves on three or more other boards	The busy board members divided by the board size
<i>LNBoardsize</i>	The total amount of the board members	the natural logarithm of the total amount of board members
<i>CEOExp</i>	The experience of the CEO that is explained by the total amount of years he/she leads or have lead the firm	The year of service (has) ends(ed) minus the year of service began
<i>BoardExp</i>	The average experience of the board members explained by the years they serve on the board	The mean of the total value of the year of service ends minus the year of service began
<i>BoardFinExp</i>	The board with a financial expert	Dummy variable which takes the value of "1" if the board has one or more financial experts
<i>BoardBLOCKHOLDER</i>	A board member that has a voting power of more than 5%	Dummy variable which takes the value of "1" if one or more board members have more than 5% voting power
Control Variables		
<i>LNSIZE</i>	The amount of total assets	The natural logarithm of the total assets
<i>LEVERAGE</i>	The growth opportunity of a firm	The total liabilities divided by the total assets
<i>MTBratio</i>	The market-to-book ratio	The market value divided by the bookvalue of a firm

## Appendix B

The Shapiro-Wilkinson test

Variable	Obs	W	V	z	Prob>z
residuals	9.261	0,14354	3990,354	22,151	0,00000

Kernel Density test for normal distribution





## Appendix C

Pearson Correlation Matrix

VARIABLE	COMP_NONGAAP	BoardOLD	Percentage_BoardIndep	Percentage_BoardBusy	BoardCEODual	CEOExp	BoardExp	BoardFinExp	BoardBLOCKHOLDER	LNBoardsize	LEVERAGE	LNSize	MTBRatio
COMP_NONGAAP	1,0000												
BoardOLD	0,0002	1,0000											
Percentage_BoardIndep	0,0264*	-0,1361*	1,0000										
Percentage_BoardBusy	-0,0329*	-0,0629*	0,1482*	1,0000									
BoardCEODual	-0,0081	0,0087	0,1211*	0,0182	1,0000								
CEOExp	-0,0247*	0,2037*	-0,2653*	-0,1371*	0,3190*	1,0000							
BoardExp	-0,0162	0,2959*	-0,3441*	-0,1542*	0,0638*	0,5793*	1,0000						
BoardFinExp	0,0205*	0,0165	0,0819*	-0,0401*	-0,0150	-0,0467*	-0,0817*	1,0000					
BoardBLOCKHOLDER	-0,0313*	0,1356*	-0,3851*	-0,0903*	-0,0049	0,3375*	0,2746*	-0,0369*	1,0000				
LNBoardsize	-0,0016	-0,0512*	0,1960*	0,1258*	0,0588*	-0,1573*	-0,0715*	0,0583*	-0,1446*	1,0000			
LEVERAGE	-0,0097	-0,0556*	0,1848*	0,0763*	0,0618*	-0,1314*	-0,1143*	0,0340*	-0,1608*	0,4327*	1,0000		
LNSize	-0,0106	-0,0502*	0,2311*	0,2041*	0,1405*	-0,1481*	-0,1231*	0,0685*	-0,2389*	0,6158*	0,5257*	1,0000	
MTBRatio	-0,0015	-0,0123	0,0534*	0,0489*	-0,0036	-0,0407*	-0,0426*	-0,0159	-0,0088	-0,0196*	0,0991*	-0,0499*	1,0000
* indicate the significance level of the coefficients at the 5% level													