

Non-GAAP reporting and CEO compensation

Explorative and empirical evidence from the European Union



Abstract

The purpose of this thesis is to enhance knowledge about non-GAAP reporting and to find an answer if non-GAAP reporting has an influence on variable CEO compensation in the European Union. This research uses hand-collected data of non-GAAP earnings and CEO compensation in the period of 2014-2017. The focus of this research is the difference between a non-GAAP metric and its counterpart (i.e. GAAP metric that is 'closest' to the non-GAAP metric, not in terms of absolute difference, but in terms of concept), and the number of non-GAAP metrics in the annual report or press release. Firstly, the explorative research finds that some firms' annual bonus is partly based on non-GAAP earnings targets, however, these targets do not contain targets about the number of non-GAAP metrics. The remuneration report of some firms contains non-GAAP targets, next to other financial and non-financial targets. Secondly, the empirical research finds evidence that the difference between non-GAAP metrics and its counterpart have a significant positive influence on variable CEO compensation. Lastly, this research does not find answers about the reasons of non-GAAP reporting: informativeness or manipulation. The purpose of non-GAAP reporting is not known yet so I cannot conclude if the finding that CEOs receive bonuses for non-GAAP targets, is positive or negative for investors.

Keywords: non-GAAP, non-IFRS, alternative performance measures (APMs), variable CEO compensation, CEO bonus

Master Thesis

Name: Boyan van Hoeven

Student number: 380305

Faculty: Erasmus School of Economics

Master programme: Accounting & Auditing

Supervisor: M.H.R. Erkens

Date: 29-6-2018

Contents

- 1. Introduction** 1
- 2. Background research** 3
 - 2.1 Non-GAAP reporting*..... 3
 - 2.1.1. Users of non-GAAP information* 3
 - 2.1.2. Calculation of non-GAAP earnings*..... 4
 - 2.1.3. Motivations for non-GAAP reporting*..... 5
 - 2.1.4 Non-GAAP regulations (in the US and EU)*..... 7
 - 2.1.5. Non-GAAP research in the EU*..... 10
 - 2.2. CEO compensation*..... 11
 - 2.2.1. CEO compensation construction*..... 11
 - 2.2.2. Variable CEO compensation*..... 11
 - 2.3 Non-GAAP reporting and CEO compensation*..... 12
- 3. Hypothesis development** 15
- 4. Research design** 17
 - 4.1 Sample selection*..... 17
 - 4.2 Methodology*..... 17
 - 4.2.1. Explorative research* 18
 - 4.2.2. Empirical research*..... 18
 - 4.2.2.1. Dependent variables*..... 18
 - 4.2.2.2. Independent variables* 19
 - 4.2.2.3. Control variables*..... 20
 - 4.2.2.4 Regression model* 21
- 5. Results** 22
 - 5.1 Explorative results*..... 22
 - 5.1.1. Non-GAAP data*..... 22
 - 5.1.2. CEO compensation data*..... 24
 - 5.1.3. Non-GAAP and CEO compensation data*..... 24

<i>5.2 Descriptive statistics</i>	26
<i>5.3. Data preparation and testing</i>	28
<i>5.4 Regression results</i>	28
6. Conclusion	32
7. Limitations and further research	34
8. References	36
Appendices	42
<i>Appendix A</i>	42
<i>Appendix B</i>	43
<i>Appendix C</i>	44

1. Introduction

Generally accepted accounting principles (GAAP) is a standard framework of guidelines for financial accounting. Non-GAAP reporting (i.e. disclosure of adjusted earnings metrics) can inform or mislead investors by portraying an adjusted performance metric for that year. This research explores non-GAAP reporting in the European Union and the influence of non-GAAP reporting on variable CEO compensation.

Over the past twenty years there has been done a lot of research to non-GAAP reporting in the US. There has been concern among regulators and investors that managers use non-GAAP earnings for both altruistic and opportunistic reasons (Bradshaw and Sloan, 2002; Bhattacharya et al. 2003; Black and Christensen, 2009; Curtis et al. 2014; Bradshaw et al. 2014). Non-GAAP reporting is an important topic for regulators because it could mislead investors and regulators already warned investors (e.g. ‘cautionary advice’ of the SEC) or create (or change) regulations (e.g. Regulation G and Sarbanes-Oxley Act (Section 401)). CEO compensation incentives could influence managers to enhance the degree of non-GAAP reporting.

This research focuses on expanding the knowledge of non-GAAP reporting and to find evidence about the relation between variable CEO compensation and non-GAAP reporting. I expect a relation between these variables because firms focus more on non-GAAP earnings, which could result in bonuses because it is important for the firm. Isidro and Marques (2013) find a positive relation between non-GAAP reporting and CEO compensation after collecting data for 1 year. Furthermore, Scheetz and Wall (2014) find evidence that CFO stock awards and the number of non-GAAP metrics are correlated. For the relation between non-GAAP reporting and variable CEO compensation, I will use a multivariate regression as mentioned in the research design. The data for non-GAAP earnings and CEO compensation is hand-collected from annual reports and press releases. Non-GAAP reporting is operationalized by the difference of non-GAAP earnings and its GAAP counterpart (i.e. GAAP metric that is ‘closest’ to the non-GAAP metric, not in terms of absolute difference, but in terms of concept), and the number of non-GAAP metrics reported in the annual report or press release. Variable CEO compensation is measured by annual bonus divided by fixed remuneration. Furthermore, I used Compustat for the control variables of my research. The relation between non-GAAP earnings and annual variable CEO compensation is expected to be positive.

The explorative research finds that CEOs have non-GAAP bonus targets and so, receive annual bonuses based on non-GAAP earnings metrics. There is no bonus awarded for the number of non-GAAP measures according to the remuneration report. The empirical analysis finds that the difference between non-GAAP earnings and its GAAP counterpart has a positive significant relation with annual variable compensation. There is no evidence that the number of non-GAAP metrics affect the bonus of the CEO. Furthermore, there is no sufficient evidence to conclude if the positive relation between non-GAAP and variable executive compensation is positive or negative for investors. The motivations to report non-GAAP earnings, informativeness or manipulation, are not clear and have to be investigated in further research. The motivations of the company and the effect on the investors is important because at the end, the investors have to benefit from these extra measures. If the users of financial information are misled by non-GAAP earnings, stricter rules and regulations are necessary. If the investors benefit from non-GAAP earnings, regulators and researchers do not have to worry about this topic anymore.

This research contributes to existing literature in several ways. The influence of non-GAAP reporting in the EU is not well-investigated by academics yet and is already suggested by a lot of articles to add richness to the literature of non-GAAP earnings in various settings (e.g. Black et al. 2017a). The explorative part of this research enhances the knowledge about non-GAAP reporting in the EU, which is according to this research totally different in comparison to the US. This research finds differences between the strictness of rules in the US and the EU, where the SEC uses stricter rules than the ESMA guidelines of the EU. EU companies are not very transparent and do not comply with the ESMA guidelines. This difference emphasizes the need to investigate this topic more, with the new knowledge of this research. The article could be useful for EU regulators since they lack strict rules for non-GAAP reporting. The explorative research shows the urgent need of strict rules in the EU because non-GAAP earnings are not transparent and do not comply with ESMA guidelines. Furthermore, this is one of the first studies in this direction that uses data of the period after the ESMA issued its final guidelines. According to Isidro and Marques (2015), managers report less non-GAAP earnings after they adopted IFRS.

2. Background research

This chapter is divided in three parts. In the first part I discuss earlier research to non-GAAP reporting. Firstly, a short explanation of non-GAAP reporting, and afterwards I discuss evidence about non-GAAP users, the calculation of non-GAAP numbers, motivations of non-GAAP reporting, non-GAAP regulations and research in the EU. Secondly, the definition of CEO compensation will be explained, with its construction and components. Lastly, the relation between non-GAAP reporting and CEO compensation will be discussed.

2.1 Non-GAAP reporting

The ESMA guidelines define an alternative performance measure (APM) as ‘a financial measure of historical or future financial performance, financial position or cash flows, other than a financial measure defined or specified in the applicable financial reporting framework’ (ESMA, 2015). It is an alternative performance measure which is voluntarily disclosed in quarterly earnings press releases and annual reports.

Bradshaw and Sloan (2002) were the first researchers that investigated a large sample in this research topic for the period 1986-1997, and concluded that the earnings response coefficient is higher for non-GAAP numbers than GAAP numbers after 1992. According to Bhattacharya et al. (2003), non-GAAP earnings are seen as more informative than GAAP earnings by investors. These studies were the start of the growing literature of non-GAAP reporting. Also empirical research finds that non-GAAP metrics can influence investors’ decisions (Frederickson and Miller, 2004; Elliott, 2006).

2.1.1. Users of non-GAAP information

Non-GAAP earnings numbers are used by several stakeholders: investors, analysts, and companies. Investors can be divided in professional (sophisticated) investors and non-professional (less-sophisticated) investors. This section outlines a few studies to different stakeholders and explains how stakeholders can be affected.

Experimental research from Frederickson and Miller (2004) and Elliott (2006) find that less-sophisticated investors are more likely to be affected by the existence of non-GAAP numbers. They find that informed investors use information from non-GAAP disclosure. Elliott (2006) performs an experiment with first-year MBAs (non-professional investors) and analysts where

all participants view an earnings press release with different disclosures. He concludes that investors depend more on analyst's view of non-GAAP earnings when firms reconcile their non-GAAP metric to GAAP-based earnings. Furthermore, he finds that non-professional investors are affected by more emphasized non-GAAP earnings. Less-sophisticated investors buy more stocks when a non-GAAP profit metric is placed before a GAAP loss figure, while sophisticated investors are not affected by the placement of the figures. Frederickson and Miller (2004) ask participants to evaluate a company's quarterly press release. The announcement was manipulated to report only GAAP earnings in one condition and both GAAP and non-GAAP earnings in the different condition. They find that less-sophisticated investors react positively on pro forma earnings, where professional investors did not respond. Consistent with the research of Frederickson and Miller, Allee et al. (2007) performed an archival study and find that less-sophisticated investors rely more on non-GAAP earnings than well-informed investors when it is placed before GAAP earnings. Andersson and Hellman (2007) find that non-GAAP earnings can influence analysts' EPS forecasts, however, Bhattacharya et al. (2003) conclude that analysts are more sceptical about non-GAAP earnings than investors. They confirm that analysts only use non-GAAP information to forecast future earnings. Moreover, Curtis et al. (2017) find that most of the firms use non-GAAP earnings benchmarks and Black et al. (2017b) provide evidence that compensation committees use non-GAAP earnings metrics to determine executive compensation. Guillamon-Saorin et al. (2017) identify a positive market reaction to the adjustments made by managers when calculating their non-GAAP earnings measures in Europe, which is consistent with earlier mentioned findings in the US.

2.1.2. Calculation of non-GAAP earnings

Non-GAAP earnings are created by excluding costs and benefits to give a different view on earnings. Exclusions are often divided by recurring and non-recurring items. This section describes which items are commonly excluded and the impact of these particular exclusions.

The difference between non-GAAP and GAAP earnings grew around 1990 and is largely attributable to the exclusion of special items. The exclusion consisted mostly of 'one-time' items or 'infrequent' items to calculate more sustainable earnings for investors (Bhattacharya et al. 2003; Lougee and Marquardt, 2004; Entwistle et al. 2005) and are less likely to achieve strategic earnings targets (Black and Christensen, 2009). However, Bhattacharya et al. (2003) and Curtis et al. (2014) find that managers also exclude one-time gains, which results in a

lower non-GAAP earnings number. This would indicate that managers' goal is to inform investors instead of misleading them. Doyle et al. (2003) find that firms with non-GAAP metrics exclude an average of two cents per share of expenses related to recurring items. Similar research is done by Black and Christensen (2009) and Black et al. (2017b), they find that recurring items are commonly excluded and that this mostly relates to stock compensation, amortization and investment gains and losses. Changes in accounting standards (SFAS 141 and SFAS 123R) contribute to the increase of excluding recurring items (Barth et al. 2012).

2.1.3. Motivations for non-GAAP reporting

Non-GAAP reporting became popular around 1990 and got attention from regulators, the financial press, and investors because these alternative measures were different from the prescribed GAAP standards. Research to the motivations of non-GAAP reporting started from 2000. In existing literature, researchers focus mostly on two incentives: informativeness and opportunism. This section describes the motives for managers to report non-GAAP earnings, beginning with informative reasons. The motives of managers are important to draw conclusions at the end of this article because a high difference between GAAP and non-GAAP does not have to be bad.

The first motive of non-GAAP reporting is found by Bhattacharya et al. (2003) who states that managers report non-GAAP numbers because non-GAAP numbers are more persistent than GAAP numbers over time. This is acknowledged by FactSet's senior earnings analyst John Butters. He says that in the fourth quarter of 2017 the numbers were less volatile and were a better reflection of the profit growth than the usual GAAP numbers for Dow Jones firms (Racanelli, 2018). Furthermore, Heflin et al. (2015) finds that non-GAAP earnings are more useful for investors because they reduce conditional conservatism. Conditional conservatism has a bad influence on earnings persistence, which decreases future earnings quality, according to Heflin et al. (2015).

The second motive is to provide more (value-relevant) earnings information. Bradshaw and Sloan (2002) claim that non-GAAP numbers are more useful for valuation purposes, where analyst earnings forecasts have been used as a proxy for non-GAAP earnings. These forecasts differ from GAAP numbers due to the exclusion of certain items. This evidence is consistent with non-GAAP earnings being motivated by an incentive to better inform financial statement

users about ‘core operations’. Managers can systematically choose to exclude one-time losses and gains when calculating non-GAAP earnings to give a more accurate depiction of the ‘core performance’. Some firms even report pro forma earnings numbers lower than GAAP earnings before extraordinary items (Bhattacharya et al. 2003, Lougee and Marquardt, 2004; Curtis et al. 2014; Black and Christensen, 2009). Some researchers find that investors are not misled by non-GAAP information (Johnson and Schwartz, 2005), especially after the issuance of Regulation G (Reg. G) (Jennings and Marques, 2011; Whipple, 2016). Black et al. (2017b) examined the comparability and consistency of firms’ non-GAAP reporting. They find evidence that managers change the way they calculate non-GAAP earnings over time and from other firms for informative reasons. Besides that, they find that managers are experts in determining earnings persistence components and use this knowledge to explain their exclusions.

The third motive is detected by Andersson and Hellman (2007), they find that managers and financial analysts try to create a simple and comprehensible mode of financial reporting by reporting non-GAAP earnings numbers.

Conversely, prior research indicates that managers report non-GAAP earnings to mislead stakeholders. For instance, several studies argue that, where the exclusion of one-time items gives a better view on the future performance, the exclusion of recurring items is less acceptable (Bhattacharya et al. 2003; Black and Christensen, 2009; Barth et al. 2012). Bradshaw and Sloan (2002) note that most of non-GAAP exclusions are expenses, so non-GAAP reporting might actually represent an attempt by managers and analysts to report higher performance metrics to achieve higher valuations. In this topic, further research finds that the exclusion of recurring items are the lowest quality non-GAAP adjustments and that these adjustments could be misleading for investors. (e.g., Doyle et al. 2003; Kolev et al. 2008; Bentley et al. 2016; Black et al. 2017b). Moreover, a vast literature focuses on the importance of meeting the benchmark based on non-GAAP earnings or missing a strategic earnings target based on GAAP earnings. The results of these studies suggest that managers want to mislead investors by convincing them that a ‘made-up’ performance metric meets a desired outcome (Bhattacharya et al. 2003; Black and Christensen, 2009; Marques, 2010; Doyle et al. 2013; Isidro and Marques, 2015; Bradshaw et al. 2017; Brockbank, 2017).

More examples of aggressive non-GAAP behaviour are: (1) the emphasis of non-GAAP earnings compared to GAAP (Bowen et al. 2005; Elliott, 2006; Guillamon-Saorin et al. 2012), (2) the strategic timing of earnings announcements containing non-GAAP information (Brown et al. 2012a), (3) the disclosure of non-GAAP information in response to general investor sentiment (Brown et al. 2012b), (4) unsuccessfully excluding one-time items persistently (Baik et al. 2009; Hsu and Kross, 2011; Curtis et al. 2014), and (5) excluding non-GAAP numbers to affect IPO pricing (Brown et al. 2018). Moreover, non-GAAP disclosures can also be used as part of an overall perception management strategy in conjunction with earnings management (Guillamon-Saorin et al. 2017). Specifically, non-GAAP disclosures can be a substitute for other forms of earnings management, and are often used as last option of all perception techniques (Doyle et al. 2013; Black et al. 2017c).

2.1.4 Non-GAAP regulations (in the US and EU)

In this research, it is important to see the difference between the non-GAAP environment in the US and EU. Research to non-GAAP is already done in the US, and this research aims to find evidence in a different setting. This section describes regulations in the US and EU and the differences between these regulations.

U.S. Securities and Exchange Commission (SEC) is trying to mitigate the likelihood of manipulated non-GAAP reports from the beginning of this decade. The SEC noted that non-GAAP financial information has ‘no defined meaning and no uniform characteristics’, may ‘mislead investors if it obscures GAAP results’, and is likely to harm the existing securities laws (SEC, 2001). After the major accounting scandals and the issuance of SOX, SEC implemented Regulation G in 2003. The aim of Reg G is to improve the information quality of non-GAAP earnings to investors. The disclosure must contain an understandable reconciliation of the non-GAAP and GAAP number (SEC, 2003). After new guidelines and warnings for investors and companies, SEC is still struggling with non-GAAP issues. T-Mobile’s earnings release in 2017 contained half GAAP and half non-GAAP numbers, where GAAP numbers are only used in the footnotes. T-Mobile did not adhere to the last SEC guidance that explains that GAAP numbers have to be presented before non-GAAP numbers (McKenna, 2017).

After Reg G, researchers explored the influence of this regulation on non-GAAP reporting quality. Several studies find a decline in non-GAAP reporting after the issuance of Reg G

(Nichols et al. 2005; Marques, 2006; Entwistle et al. 2006; Heflin and Hsu, 2008). This is consistent with findings of Black et al. (2011), they find that opportunistically non-GAAP behaviour decreased after the passage of SOX. According to Black et al. (2012) and Bentley et al. (2016), this ‘shock’ after Reg G, was only measured short after the regulation was implemented and bounced back to the old level. However, researchers find evidence that the quality of non-GAAP disclosures increased significantly since Reg G passed. Kolev et al. (2008) find that exclusions are more transitory, and that firms with low quality non-GAAP earnings stopped to report non-GAAP after Reg G. Furthermore, Bowen et al. (2005) provide evidence that firms report non-GAAP earnings less prominently after the regulation. After Reg G, investors react more to non-GAAP numbers (Marques, 2006; Black et al. 2012), and are less likely to be misled in the post-Reg G period (Jennings and Marques, 2011). Even though recurring items remain a common adjustment, the quality of these exclusions increased after Reg G and are no longer misleading investors (Whipple, 2016). Isidro and Marques (2015) find that countries in the EU with more pressure on benchmarks and where it is hard to engage in earnings management, managers report more non-GAAP earnings metrics to reach targets.

The first organization in Europe that addresses the issue of non-GAAP reporting was the International Organization of Securities Commission (IOSCO). This commission also issued a cautionary advice regarding alternative performance measures to stakeholders in May 2002. IOSCO published a similar advice as the SEC to the investors and stated that non-GAAP earnings can be useful ‘if properly used and presented’, but they can also mislead stakeholders ‘if such measures are used in such a way as to obscure the financial results determined according to GAAP or provide an incomplete description of true financial results’. After the cautionary advice, there was more attention to the regulation of non-GAAP earnings. The Committee of European Securities Regulators (CESR), the predecessor of the European Securities and Markets Authority (ESMA), issued a Recommendation on Alternative Performance Measures (APMs). APMs refer to measures that are similar to non-GAAP measures as defined by the SEC. The aim of this recommendation was to promote a different approach for non-GAAP measures ‘in a way that is appropriate and useful for investor’s decision making’. It organizes APMs into two categories, according to their source: (1) measures derived from audited financial statements, and (2) measures not derived from the audited financial statements (e.g. prospectus). Moreover, it suggests that ‘issuers should define the terminology used and the basis of calculation adopted’ and, where possible, present

non-GAAP and GAAP measures together and explain the differences (reconciliation) (CESR, 2005).

The ESMA issued its Final Guidelines on APMs in 2015 to replace the Recommendation issued by the CESR of 2005. The guidelines became effective from the 3rd of July 2016 and changed regulations in the field of non-GAAP reporting in the EU (ESMA, 2015). The ESMA aims to improve the usefulness and transparency of APMs, in order to boost the comparability, reliability and comprehensibility of APMs. Issuers providing APMs should do so in a way that is appropriate and useful for users' decision-making (Barboutis and Nagayets, 2017). The key facts are defined by Littleford (2015) of KPMG:

- do not display APMs with more emphasis than other measures
- define the chosen APMs and give them clear labels to inform users better
- reconcile APMs to its comparable measure in the financial statements and explain material reconciling items, and disclose APMs over time;
- only change disclosed APMs to enhance reliable and more relevant information, and explain these changes; and
- if permitted, may replace the required APM disclosures with a direct reference to other published documents that contain those disclosures and are readily and easily accessible to users.

The EU securities regulators have not focused much on the interpretation or application of the ESMA guidelines. Both regulations present a notable consistency on general principles and approach. Furthermore, they provide a well-described specific technical guidance, and do not contain remarkable differences. It is noteworthy that this consistency between the SEC and a EU securities regulator is very rare. However, The SEC provided more detailed guidance on specific matters, especially through its recent release of the SEC interpretations in May 2016 (Barboutis and Nagayets, 2017).

However, the application of non-GAAP metrics by companies differs a lot between US and EU companies. According to a Dutch regulator, analysts, and auditors, EU companies are not very transparent and do not fully comply with the ESMA guidelines. At the national level, very few EU members undertook action to mitigate non-GAAP problems. In the U.K. Financial Reporting Standard 3 (Accounting Standards Board, 1993) stated that alternative EPS figures have to be consistent and reconciled with non-GAAP metrics. However, the

standard does not refer to non-GAAP particularly. In France, the Autorité des Marchés Financiers (AMF) has issued guidelines requesting a reconciliation between non-GAAP and GAAP measures. However, in practice reconciliations are rare (Aubert, 2010). In Germany, the securities act constrains the disclosure of misleading information, but is not specifically for non-GAAP earnings (Hitz, 2010).

2.1.5. Non-GAAP research in the EU

As stated in the prior section, this research aims to find answers about non-GAAP reporting in a less-investigated setting: the European Union. This section discusses earlier research to non-GAAP reporting in the EU.

Most of the research is performed in the US, although, early work in non-GAAP research took place in the UK. Lin and Walker (2000) find evidence that when a new standard is imposed, firms change to different metrics. In recent years, researchers have attempted to perform cross-sectional analyses examining non-GAAP reporting across a large cross-section of firms from various countries. In particular, Isidro and Marques used 500 firms across Europe to study non-GAAP reporting. Firstly, they scrutinize the relation between performance based contracts and the likelihood of reporting non-GAAP earnings in press releases (Isidro and Marques, 2013). They find that higher reporting frequency is also associated with more aggressive exclusions, but strong corporate governance restrains this behaviour. Later, Isidro and Marques (2015) find that institutional and country-specific economic factors affect the use of non-GAAP exclusions to meet strategic earnings benchmarks in Europe. They further state that IFRS adopters are less likely to disclose non-GAAP earnings, while the financial press argues that IFRS adoption adds extra complexity to financial statements, which could encourage managers to report non-GAAP earnings.

Recent research establishes a score of the extent to which firms use ‘impression management’ techniques to distort stakeholders’ perceptions. Companies that engage in ‘impression management’ tend to have lower quality adjustments and investors discount that is accompanied by high ‘impression management’. Moreover, sophisticated investors are more likely to penalize non-GAAP information communicated with ‘impression management’ (Guillamon-Saorin et al. 2017). Research to non-GAAP earnings in the EU could be more interesting because it is less regulated than in the US.

2.2. CEO compensation

Executive compensation is ‘a governance mechanism that seeks to align the interests of managers and owners through salaries, bonuses and long-term incentives such as stocks awards and options’ (Ireland et al. 2014). There have been many studies on executive compensation in both the US and the UK. Most of these studies examined whether there was a significant relation between executive compensation and corporate performance (Jensen and Murphy, 1990; Gibbons and Murphy, 1990), and were trying to test whether directors in large companies have an incentive to increase a shareholder's value. According to agency theory, CEO compensation may depend on shareholders' return, so compensation helps managers to act in the interest of the shareholders (Murphy, 1999). Executive compensation is a well-discussed topic and leads to great controversy. This discussion about excessive CEO compensation renewed after the Enron scandal and other bankruptcies. Most people agree that the excessive compensation of Enron’s directors have damaged their objectivity in monitoring management (Brick et al. 2006). Recently, ING Bank in the Netherlands hits national headlines after the announcement of the CEO’s salary increase from €2 million to €3 million, which consists of 29% of stocks. After this news, some ING customers left the bank and politicians were discussing this salary increase (Braaksma, 2018). Finally, ING Bank announced that they will not increase the salary, however, Dutch politicians still discussing this in order to prevent this excessive payments in the future (Braaksma, 2018).

2.2.1. CEO compensation construction

The board of directors is responsible to set the level and structure of the compensation, and this has to be accepted by the shareholders, which raises the issue of how the composition of the board influences. This is often decided during the annual general shareholders’ meeting (Basu et al. 2007; Fama and Jensen, 1983). Although, there is no doubt that CEOs have influence on the structure of their own compensation. Companies in the US have a compensation committee with several non-executive directors. This committee is not participating actively for determination of compensation because they lack time and expertise to be involved in the compensation design. The proposals and ideas for the CEO compensation structure is done by other departments, e.g. human resource department (Murphy, 1999).

2.2.2. Variable CEO compensation

CEO compensation can be divided in two components: cash-based compensation (including

base salary and bonus) and equity-based compensation (Balsam, 2002). The base salary of an executive represents the fixed component of the wage and is determined by benchmarks and analyses of selected industry and market peers. Risk-averse executives prefer a high base salary instead of an increase in variable compensation in executive contracts (Murphy, 1999).

This paper deals solely with the variable part of cash-based compensation (bonus), as the fixed compensation cannot be influenced by non-GAAP reporting. Variable compensation is mostly determined by a percentage of the base salary (Murphy, 1999). Managers often receive bonuses (generally cash payments) when they reach short-term objectives. Most companies offer an annual bonus plan for the top managers and paid annually based on the performance of one year. Achievement of these objectives, if incentivized and measured properly, can maximize firm value (Dikolli, 2001). Shaw and Zhang (2010) find evidence that poor firm performance does not necessarily influence CEO compensation, but the relation between firm performance and bonuses is positively significant. Similarly, Finkelstein and Hambrick (1989) provide evidence that the relation between total compensation and firm performance is weak because the salary is set at the beginning of the year, and so cannot align with performance. Moreover, Brick et al. (2006) conclude that excessive CEO compensation is associated with firm underperformance due to cronyism. Short-term incentives, like bonuses, may strengthen managers' focus on short-term performance instead of long-term performance which can damage firm value (Smith and Watts, 1982; Healy, 1985; Narayanan, 1985; Gaver et al. 1995; Holthausen et al. 1995; Furner et al. 2014).

2.3 Non-GAAP reporting and CEO compensation

Since a few years it is known that managers can be compensated based on their non-GAAP performance because of two reasons. This section discusses the aim of this research: the relation between non-GAAP earnings and variable CEO compensation. Earlier research in the US and Europe finds a positive relation between these two factors.

Firstly, managers are compensated based on non-GAAP earnings because it is more informative than GAAP earnings¹. Secondly, compensation can be higher because non-GAAP earnings are often higher than GAAP earnings (Larcker et al. 2015). The exclusion of non-recurring items is more likely to predict future performance (informativeness). The objective

¹ Explained in Chapter 2.1.4.

of excluding recurring items is for own purpose and can be manipulative for investors (opportunistic) (Black et al. 2017b).

Scheetz and Wall (2014) use actual manager-adjusted, non-GAAP earnings disclosures to examine the relation between executive compensation incentives and non-GAAP reporting. They examine a single one-year cross-section of CFOs in 2012 and find evidence of a positive correlation between CFO stock awards and the number of manager non-GAAP earnings numbers in press releases.

Black et al. (2011) hypothesize that long-term compensation based on performance is negatively associated with the extent of non-GAAP reporting from 1998 to 2006. This paper proxies for non-GAAP reporting by using the I/B/E/S EPS number minus Compustat's operating EPS. If this calculation gives a positive number, the authors assume that recurring items are excluded. They find that even if compensation contracts do not include a non-GAAP target, managers are less likely to report non-GAAP earnings opportunistically if the compensation contract contains a long-term performance plan. Similarly with Grey et al. (2013), where they analyse a setting where EPS performance targets are included in contracts. They find that the existence of an EPS target is positively correlated to the decision to disclose alternative performance metrics.

Isidro and Marques (2013) study the effect of compensation on non-GAAP reporting for the 500 largest European firms from the period 2003-2005. They hand-collect non-GAAP data by searching labels as 'adjusted EBIT' and 'EBITDA' and found that 80% of the European firms report at least one non-GAAP figure in the sample, where 21.2% of the firms engage in non-GAAP reporting in all three sample years. In order to obtain the results, the authors measure non-GAAP reporting in four alternative ways: (1) if a firm discloses a non-GAAP measure, (2) whether it is a recurring adjustment or not, (3) emphasis on non-GAAP measure, and (4) if a firm discloses any type of reconciliation. They find a positive relation between all those aspects of non-GAAP reporting. The results confirm that performance-based compensation gives an incentive to managers to report non-GAAP earnings opportunistically to give a better view on firm performance to users and thereby maximize compensation. Furthermore, they find that a strong board of directors leads to less non-GAAP reporting.

Black et al. (2017a) make a difference between short-term and long-term incentives in the study, where the short-term incentives are linked to the bonus compensation plans. This study

employs the largest existing database of hand-collected non-GAAP data of the period 1998-2006 to search how compensation incentives affect: (1) the likelihood of non-GAAP reporting, and (2) the likelihood and magnitude of aggressive non-GAAP reporting. They find evidence that bonus plan incentives give managers more reason to disclose non-GAAP earnings, what they already expected. In addition, results of this study confirm that long-term incentives are associated with a reduced likelihood and magnitude of aggressive non-GAAP reporting.

3. Hypothesis development

After exploring the world of non-GAAP reporting, the second purpose of this study is to find a relation between non-GAAP reporting and variable annual CEO compensation. In this section I discuss some earlier research to find and explain the direction of my hypothesis.

CEOs often report non-GAAP earnings to inform or to manipulate the user's view of firm performance to achieve compensation. Bradshaw and Sloan (2002) find that managers and analysts use non-GAAP earnings metrics to achieve higher valuations by reporting higher non-GAAP earnings numbers. The exclusion of recurring items suggests that managers report for own purposes and the exclusion of non-recurring items is more likely to predict future performance (Black et al. 2017b). Performance-based incentives have been found to affect financial reporting quality and to create incentives to manipulate financial information (e.g. Holthausen et al. 1995). Grey et al. (2013) find evidence suggesting that firms are more likely to use non-GAAP earnings metrics when their executive share option plans contain an EPS target. However, it is unclear if the manager reports opportunistically or for informative reasons in this research. Compensation contracts based on non-GAAP performance are nowadays more used because they better reflect the performance of the manager (Black et al. 2017a). This could motivate managers to use an aggressive way of reporting non-GAAP earnings. Scheetz and Wall (2014) find a positive correlation between CFO stock awards and the number of non-GAAP numbers in press releases. These researchers conclude that CEOs report non-GAAP numbers for own purposes and indicates that CEOs would report non-GAAP for a higher bonus.

Some other studies are more positive about non-GAAP earnings and indicate that non-GAAP earnings are more persistent than GAAP earnings (Bhattacharya et al. 2003) and more useful for valuation (Bradshaw and Sloan, 2002; Brown and Sivakumar, 2003; Frankel and Roychowdhury, 2005). According to Black et al. (2017b) firms vary in their non-GAAP calculations over time and from other firms for informative reasons. This coincides with previous mentioned evidence that non-GAAP earnings are reported to enhance information of 'core operations'. Furthermore, Andersson and Hellman (2007) conclude that the purpose of non-GAAP reporting for managers is to create a more simple and understandable financial report. These researchers find evidence that CEOs would not report non-GAAP earnings to get a higher bonus and that they report non-GAAP to enhance information for investors.

Prior literature is mostly based on non-GAAP research in the US. Non-GAAP reporting in the US is very different in comparison to non-GAAP reporting in the EU, so it does not make it easier to give a direction to the hypotheses. The transparency of companies and strictness of rules enhances differences of the freedom to report non-GAAP earnings. Companies in the US have stricter rules, so it is hard for US companies to report non-GAAP earnings aggressively. I can assume that investors in both parts of the world are comparable, as these are all human beings, so the response on non-GAAP should not differ a lot between investors. European firms do not follow certain strict rules and are able to present bigger differences between non-GAAP and GAAP earnings and put more emphasis on these non-GAAP measures. Firms do not comply with the ESMA regulation and are more free to report non-GAAP in an aggressive way. Focus on non-GAAP without taking into account regulations, makes non-GAAP an interesting way of reporting in the EU. With this knowledge, I expect a positive direction for the hypothesis, were I expect that CEOs that focus more on non-GAAP earnings, are more likely to receive variable executive compensation, which is also in consistent with most literature. Firms in the US have to deal with strict regulations, which makes non-GAAP less attractive. EU firms do not have to deal with this issue, so non-GAAP could be used in the way companies want to use it.

H1: Firms that engage in aggressive non-GAAP reporting are more likely to give CEOs higher variable compensation.

The outcome of this research is not directly positive or negative because we do not know if non-GAAP reporting gives investors more information or manipulates investors. I might find answers on this question during the explorative research.

4. Research design

The execution of this research is discussed in this chapter. Firstly, this chapter discuss the development of the sample and dataset. Secondly, it provides an explanation of the methods that are used for this research to gain more knowledge about non-GAAP reporting. Thirdly, all the variables of the empirical research are explained. Lastly, the regression model with all the variables and effects are described.

4.1 Sample selection

The sample consists of firms from the five largest EU countries: Germany, UK, France, Italy, and Spain. Furthermore, the sample contains some Dutch companies. The sample firms have total assets of at least €100 million. The sample is provided by my supervisor and contains in total 1000 companies, and I used 300 companies for this research (random sample). This sample ended in 642 firm year observations because of missing reports and reports in foreign languages. The external validity is not high because this sample only contains big firms with at least €100 million of total assets. This research will not investigate non-GAAP reporting for small firms and will not find evidence if these firms report non-GAAP earnings and if this influences bonuses and investors. Financial firms were already excluded from this sample. Appendix B explains the sample selection process in more detail.

The sample period is from 2014-2017 of yearly observations. In this period, we do not have to consider the different accounting principles (local GAAP, US GAAP, etc.) anymore, as in this period IFRS is mandated. Non-GAAP data is not available for European companies and so, this data has to be hand-collected. I derive most of this data from annual reports and if this is not available, I use press releases or other sources. CEO compensation data is unfortunately also not available for most firms. This data is hand-collected from annual reports and remuneration reports. This research focuses on annual variable compensation. The control variables for this study are obtained from the Compustat database. I will merge these databases to obtain results from the regression.

4.2 Methodology

This chapter explains the execution this research which is done in two ways: explorative and empirical research. The explorative research discusses the lessons learned during the data

collection and the empirical research explains the results from all the data collected. In this section I discuss both in different sections.

4.2.1. Explorative research

In this section, I explore the world of non-GAAP reporting in the European Union because this topic is not well-known in this part of the world. As stated before, non-GAAP in the EU differs a lot from non-GAAP reporting in the US, which is already researched more in the latest years. I will gain more knowledge about the non-GAAP earnings in the EU through extensive research of annual reports and press releases. The focus is only on non-GAAP earnings, so I will not use metrics as non-GAAP sales. This information will not give answer to my hypotheses, however, this extensive research will give me a lot of information about non-GAAP reporting which could be important for my research and other researchers in the future. The basic knowledge of this subject has to be known before we can answer other questions.

4.2.2. Empirical research

This part of the research focuses on answering the research question: ‘Does an aggressive way of non-GAAP reporting affects CEO compensation?’. The hypothesis is investigated by empirical research with STATA and Excel. In the next section, I will discuss the three different variables for the regression: the dependent variables, the independent variables, and the control variables. These variables are also explained briefly in Appendix A.

4.2.2.1. Dependent variables

The dependent variable for this regression is a ratio of annual bonus divided by fixed salary: RBONUS_CEO. I choose for this variable because it is less influenced by firm and industry specific effects. The bonus only consists of the annual variable bonus and does not contain the long-term bonus because this is affected by more variables. Furthermore, the independent variables of this study are based on an annual report or press release of a certain year (from 2014-2017), if I would include the long-term incentives, the first year of the sample (2014) would include remuneration of targets that are not in this sample. The usage of long-term incentives would bias the results of this research negatively. The bonus is mostly measured by financial performance which we will investigate in this study. The total remuneration is not taken into account because this is based on CEO experience, firm size, etc., and not based on non-GAAP reporting. Furthermore, an advantage of using a bonus ratio is that the year where

the CEO resigns and a new CEO is appointed, are years with a high payment due to, for example, leaving bonus and a sign bonus. These bonuses are not taken into account because I only use bonuses based on short-term performance, so for these years I do not have to control in my sample. The other advantage of the bonus ratio is that influences from different currencies cannot affect the results because it is a ratio.

4.2.2.2. Independent variables

The independent variables of this study are mostly obtained by looking into annual reports and press releases. All firms in the sample engage in non-GAAP reporting, so I do not use a (dummy) variable for this. I use three independent variables for the aggressiveness of non-GAAP reporting to find an answer on my research question. Firstly, NG_diff is a variable calculated by the difference between the main non-GAAP metric and its counterpart. This variable shows the aggressiveness of non-GAAP reporting and the bigger difference between these variables can explain the variable compensation of the CEO. Secondly, NG_amount is the number of all the reported non-GAAP metrics of a company in the annual report or press release. It is an indicator of the extent of non-GAAP reporting of a firm.

Furthermore, two dummy variables are added for an interaction effect. D_adj is a dummy variable for the adjusted main metric of a firm. If a firm's main metric is an adjusted measure of a non-GAAP (commonly) or GAAP metric (e.g. adjusted/underlying EBITDA and adjusted/underlying earnings per share), the variable takes a value of 1, and if the main metric is an unadjusted non-GAAP metric (e.g. EBITDA and profit before tax), I give a value of 0. This dummy is used for the interaction effect with NG_diff in the empirical analysis. This part of the regression focuses more on the misleading aspect of non-GAAP reporting, as adjusted measures are more easy to alter to company's targets. The adjusted non-GAAP metrics are often unclear because people do not know which items are excluded from these measures. The unadjusted measures as EBITDA are more clear and are less likely to manipulate investors because they know that interest, taxes, depreciation and amortization are excluded from the earnings.

The second dummy variable D_source takes the value of 1 if the source of non-GAAP information is an annual report, and 0 for other sources. For every firm-year, I use an annual report or a press release. The press releases usually contain less non-GAAP numbers, so this could influence the results. This dummy variable is made because the source influences the

number of non-GAAP metrics. The annual report contains more non-GAAP measures than a press release in most cases.

The variables NG_diff and NG_amount are made by own judgement. The most important non-GAAP metric is chosen by myself and is explained in the result section. NG_diff is based on the most important metric. Further, I searched for all non-GAAP metrics in annual reports and press releases to calculate the number of non-GAAP measures.

4.2.2.3. Control variables

The control variables in this section may have an influence on the relation between the independent and dependent variables:

- ROA – Firm performance is often measured by ROA and is a reliable measure because net income and total assets are objective numbers in the database. The return on assets is calculated by net income divided by lagged total assets. ROA is a highly important ratio in determining CEO compensation (e.g., Antle and Smith, 1986). A well-performing firm could give a broader bonus range to a CEO, for example, 200% of base salary. ROA is expected to have a positive influence on the bonus ratio.
- Natural logarithm of total assets (LNSIZE) – Firm size is commonly operationalized by the natural logarithm of total assets (Dang et al. 2018). Graham et al. (2011) use the natural logarithm of assets for executive payments. This measure is also reliable because of the existence in the Compustat database. A bigger firm could be able to give a CEO a higher bonus percentage of fixed salary. The firm size is expected to have a positive effect on RBONUS_CEO.
- CEO gender – The gender pay gap is a well-discussed topic in this century and exists according to research (e.g. Carpenter, 2017), and therefore, it is a control variable for this research. The variable takes 1 for male, and 0 for female. It might be that females can receive a lower percentage bonus of the fixed salary because they do not negotiate like men in general. This dummy variable is taken from annual reports, Google, and Compustat Capital IQ – Compensation Summary. The prediction is that CEO gender positively affects the bonus ratio.
- Leverage – The leverage is calculated by total liabilities divided by total assets. This calculation is derived from research of Eng and Mak (2003). A high extent of

liabilities is not beneficial for a company, so I expect that this variable negatively influences RBONUS_CEO.

4.2.2.4 Regression model

The variables explained in prior sections are used in a multivariate regression. All statistical methods are performed through STATA and most variables are collected from annual reports and press releases in Microsoft Excel. The other variables are calculated through STATA with the numbers of the dataset and Compustat.

RBONUS_CEO

$$\begin{aligned}
 &= \beta_0 + \beta_1 NG_diff + \beta_2 d_adj + \beta_3 NG_diff * d_adj + \beta_4 NG_amount \\
 &+ \beta_5 d_source + \beta_6 NG_amount * d_source + \beta_7 ROA + \beta_8 LNSIZE \\
 &+ \beta_9 CEO_gender + \beta_{10} LEVERAGE + \sum Year\ fixed\ effects \\
 &+ \varepsilon
 \end{aligned} \tag{1}$$

The outcome of β_1 and β_4 will answer the hypothesis. However, the number of non-GAAP metrics (NG_diff) could be influenced by the source because I use an annual report or a press release for every firm-year. Annual reports are more likely to contain more non-GAAP earnings numbers because this document contains more information than a press release in general. In order to check if this difference between sources is important to the results, I included an interaction effect (β_6). For the difference between non-GAAP and GAAP earnings, the interaction effect β_3 is important as well. If this interaction effect is more positive than β_1 , CEO's focus on adjusted metrics are more likely to give higher variable compensation. This interaction effect could indicate more or less manipulation of investors.

5. Results

This section describes the explorative and empirical results, which is explained in the research design. Firstly, I discuss the explorative results, which is divided in 3 parts, similar to the theory section. Lastly, the results of the empirical tests are analysed and discussed.

5.1 Explorative results

The first section of the results section discusses my findings during the data collection of non-GAAP and CEO compensation data. I discuss the method of collecting data and my conclusions about non-GAAP (in combination with CEO compensation).

5.1.1. Non-GAAP data

Most companies report non-GAAP measures at the beginning of the annual report or press release, which are most often the most important metrics of the firm or the best performing non-GAAP metrics. In this section of financial highlights/key figures on one of the first pages on the annual report, it is already clear in which way they report non-GAAP earnings.

Companies use many different terms for non-GAAP metrics. The most common way to address metrics that are changed for informative or manipulative reasons are called 'adjusted metrics', e.g. adjusted EBITDA or adjusted earnings per share. Other companies also use 'underlying', 'normalised', 'headline', 'recurring'. and before certain costs (e.g. EBIT before exceptional items and acquisition costs), and even adjusted underlying metrics (e.g. McCarthy & Stone plc reported 'adjusted underlying earnings per share'), to emphasize it even more. After knowing in which way they present non-GAAP data, it makes it easier to find all these metrics, by using the search button on the computer and to search for the metrics (e.g. 'underlying'). For some companies this is a quick search, however, some companies report more than 200 times an adjusted metric, which makes it very unclear sometimes. After the search with the search button, I went to the consolidated income statement to find other non-GAAP metrics that I might missed during my prior search to adjusted metrics because not all non-GAAP earnings are adjusted by (non-)recurring items. These are metrics as gross profit/(loss), operating profit/(loss), and profit/(loss) before tax. Finally, I did a last check and searched for metrics from continuing operations and some common non-GAAP metrics that I did not noticed.

Non-GAAP metrics in Europe are totally different reported than in the US. Most of the companies had a section where they mentioned and explained all their non-GAAP metrics (since 2016), however, these sections did not report all of these metrics. Some companies did a good job by stating after every non-GAAP measure that it is a non-GAAP measure in brackets, however, they only did this with some of the non-GAAP metrics. For instance, Eros International plc reports 'EBITDA (Non-GAAP)' and 'adjusted EBITDA (Non-GAAP)', however, they report 'operating profit' and 'profit before tax' as GAAP metrics. Software AG reports in the same way, only they report these metrics with 'non-IFRS' in brackets. Noticing that, there is a positive trend in reporting non-GAAP metrics after the issuance of the ESMA guidelines that became effective from July 2016. Companies report a list of APMs and some of these companies even reconciled all the non-GAAP metrics with a counterpart. Royal Mail Holdings is one of the examples. They explain the importance of the adjusted metrics for the company and explain the metrics. Further, they report how these metrics are calculated and give a reconciliation of the reported results to the adjusted results. However, also this company fails to report all the non-GAAP metrics as non-GAAP metrics and only mentions the adjusted metrics as non-GAAP measures.

The theory section discussed the Recommendation of Alternative Performance Measures and the key facts of these guidelines by Littleford (2015) of KPMG. I will discuss three goals of the ESMA. Firstly, he states that APMs should not be emphasized more than GAAP measures. After my research, I can conclude that this goal of the ESMA did not succeed in the reports of 2016 and 2017. The APMs are often more emphasized than GAAP measures and presented in the financial highlights more than the common GAAP metrics. Secondly, the ESMA aims to have clear definitions and labels for APMs. This goal is partly achieved in my opinion because most companies do not label this measures, however, the definitions of APMs is given at the end of the annual report, as the ESMA guidelines intended. Lastly, the ESMA guidelines expect that companies will reconcile APMs to its comparable measure. This aim is partly achieved in my opinion. Most companies do not present reconciliations to the comparable measures, however, the reconciliation to the comparable measures is more featured in annual reports after the issuance of the guidelines.

For this research, I had to choose the main metric of the company and its counterpart to calculate the aggressiveness of non-GAAP reporting. I chose the main non-GAAP metric on different reasons: (1) remuneration report (see 5.1.2) based on non-GAAP measure, (2) first

mentioned metric at financial highlights/key figures/key performance indicators (KPIs), (3) most emphasized metric in comparison to other non-GAAP metrics, (4) headline sentences or bullet points of press release, and (5) most mentioned non-GAAP measure of the source. Furthermore, I had to choose the counterpart of the non-GAAP measure and I had to search if the non-GAAP measure was reconciled with an GAAP measure. The counterpart is often ‘net profit’, ‘profit after tax’, or ‘earnings per share’ and the metrics are often reconciled in the income statement, except for the earnings per share. The high amount of reconciled non-GAAP metrics due to the income statement are the reason that I do not use this variable for my results. It does not seem logical that the variable CEO compensation is based on the reconciliation of non-GAAP earnings numbers. However, emphasized reconciliations could indicate informative reasons as motivation for reporting APMs.

In conclusion, after collecting non-GAAP data it became clear that the EU lack a set of strict rules. There is no structure in reporting of non-GAAP metrics and the list of APMs does not contain all APMs in the annual report. It would be more clear if every company presents a list with all APMs with an explanation (of the importance) and a reconciliation.

5.1.2. CEO compensation data

After gathering all the non-GAAP data, I had to collect CEO compensation data, as there is no clear database about CEO compensation in Europe. Annual reports from firms from the UK, the Netherlands, and Germany usually contain a remuneration report where the compensation of the board of directors is discussed. There is consistency in remuneration reports for companies, for example, the remuneration report template of all British companies is the same and most clear of all countries. For Italian (and some Spanish) companies, the remuneration reports were on the website. The remuneration reports for Spanish and French companies were mostly unable to find on the website. These reports were often written in the own language, but it was still easy to find the compensation numbers. In the remuneration report, the company describes the targets for the annual bonus and the long term bonus. The collection of compensation data provide 2 variables: fixed remuneration and annual variable bonus. The variables are obtained to calculate the bonus ratio. In my opinion, the bonus ratio would be the best to measure the influence of non-GAAP reporting on variable CEO compensation.

5.1.3. Non-GAAP and CEO compensation data

Germany, United Kingdom, and the Netherlands are mostly very clear in the annual report about short-term bonuses and long-term bonuses based on non-GAAP metrics. The other countries with a remuneration report were written in their own language, so I cannot be sure about the transparency of the bonus targets. The remuneration report is clear about the distribution of the bonuses and this mostly include three short-term targets and a few long-term targets. The most used short-term non-GAAP target is (adjusted) profit before tax, and adjusted earnings per share is frequently used as long-term non-GAAP target. CEOs are mostly paid based on non-GAAP and GAAP numbers and the bonus is often partly based on non-financial performance (around 20%). The remuneration report does not pay attention to the number of non-GAAP metrics that are reported in the annual report. They only focus on the measure and if they meet or beat the target. I hypothesized previously that firms that engage in non-GAAP reporting are more likely to receive more variable compensation. After the data collection of data, it is clear that all firms in the sample are using non-GAAP metrics and so, we cannot conclude that firms that engage in non-GAAP reporting are more likely to give CEOs higher variable compensation. The remuneration report often says that a CEO can receive a bonus of 100-150% of the fixed salary and this is not different when the bonus is based on GAAP or non-GAAP metrics. It could be easier to meet or beat targets for (adjusted) non-GAAP metrics because they can adjust these metrics easily. I will check this in the result section later to get a better view of non-GAAP bonuses.

The discussion about manipulation versus informative reasons of non-GAAP reporting cannot be fully answered. However, during the data collection I experienced that the non-GAAP bonus target (probably the most important metric for the company) was not the metric with most emphasis in a lot of reports and press releases. I can conclude based on this observation that companies do not always let CEOs focus on the metric with most emphasis. If companies always give more emphasis to the bonus target, it could be an indication that the company wants to give a better view than it might be. The CEO would focus on this metric which might give a better earnings number for that year than it actually would be, which is even more easy with an adjusted metric. Some firms even report lower adjusted non-GAAP metrics than statutory metrics. This could indicate that firms want to inform investors, however, lower non-GAAP metrics could also mislead investors in some cases. National Grid reported statutory earnings per share of 207.1p and adjusted earnings per share of 73.0p in 2017. This difference is due to a gain of disposal of UK Gas Distribution, and the firm wants to show to investors with the adjusted metric that this is a one-time special item. However, most of the

firms report higher adjusted metrics than statutory metrics, which indicates manipulative reporting, as this should be 50/50.

5.2 Descriptive statistics

This section discusses the descriptive statistics of the data collected manually and the data from Compustat. The table, presented on the next page, consists of information about the amount of observations, mean, standard deviation, minimum, maximum and percentiles. Companies give CEOs 74% bonus of the fixed remuneration on average, in a range between 0 and 4.285 times fixed remuneration. Approximately 25% of the CEOs receive a bonus that is higher than 100% of the fixed remuneration, which indicates an outstanding performance that year. The average number of non-GAAP metrics reported is 8.5 per firm-year. The highest number of non-GAAP metrics in 1 year is 28 different metrics, reported by Royal Mail Holdings plc in 2014. The mean of the difference between the non-GAAP metric and its counterpart is 344 million (or in a few cases euro or penny). The minimum difference is -379 million, so firms report lower non-GAAP earnings than GAAP earnings, which does not indicate manipulative reasons for non-GAAP reporting. The maximum difference is 6771 million, which is a huge difference between both measures, and could indicate manipulation as motivation of non-GAAP reporting. The first percentile of NG_diff contains negative values and small differences between the non-GAAP measure and its counterpart, which are not likely to affect investors negatively. The main metric is 56% of the times an adjusted non-GAAP metric (e.g. normalised EPS), so there is no specific focus of the companies on adjusted or unadjusted non-GAAP metrics.

The mean of ROA is 0.045, which is a normal average for ROA. The natural logarithm of total assets is 7.335 million. 96% of the CEOs in this sample are men, which is a very high number of male CEOs. The leverage ratio is 0.584, so total liabilities is 58% of the total assets.

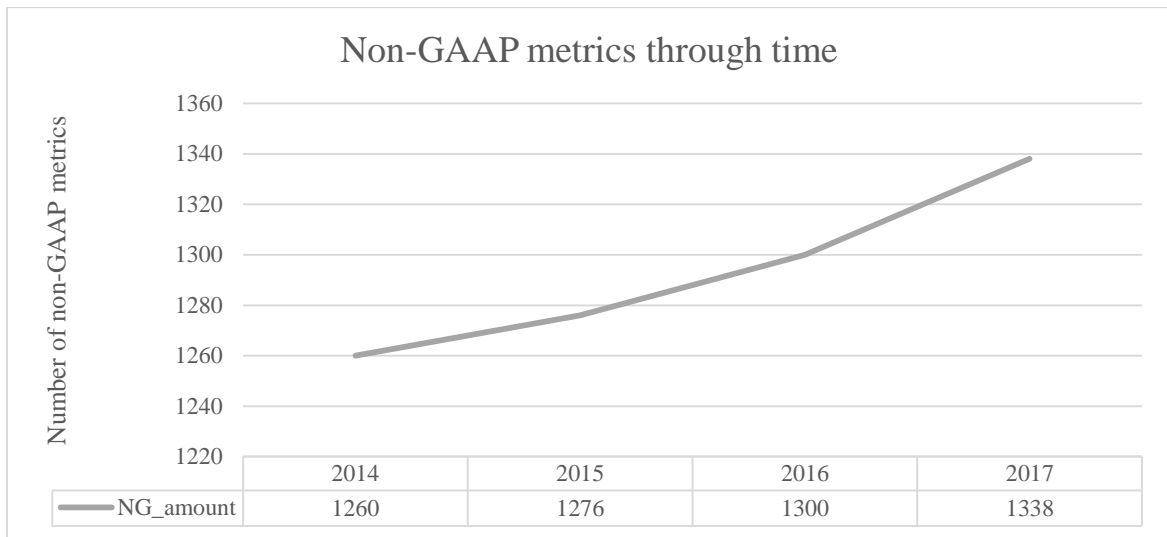
Figure 1 Descriptive Statistics

Descriptive statistics								
N	mean	sd	Min	p25	p50	p75	max	N
RBONUS_CEO	642	0.740	0.730	0	0.209	0.654	1.016	4,285
NG_amount	510	8.490	3.959	1	6	8	11	28
D_source	642	0.927	0.261	0	1	1	1	1
NG_amount*D_source	510	7.949	4.592	0	5	8	10	28
NG_diff	642	343.812	951.899	-378.6	13.7	58.771	259	6,771
D_adj	642	0.561	0.497	0	0	1	1	1
NG_diff*D_adj	642	247.165	1,215.801	-3,033	0	4.725	106	19,119
ROA	642	0.045	0.071	-0.183	0.015	0,044	0.075	0.271
LNSIZE	642	7.335	1.750	4.391	5.951	7.154	8.662	11.641
CEO_GENDER	642	0.955	0.208	0	1	1	1	1
LEVERAGE	642	0.584	0.217	0.142	0.441	0,570	0.718	1.427

The observations are different between some variables because I used the database of another student partly, to prevent biased results. The observations for the regression model will be equal to the lowest amount of observations in this table.

Furthermore, the reporting of non-GAAP metrics becomes more popular through time, also after the issuance of the ESMA guidelines. Over 4 years, there is an increase of 6.2% of reported non-GAAP metrics. This increase is not directly negative because the ESMA guidelines aims more on the fair presentation of non-GAAP metrics, but it is certainly not a positive trend in the eyes of the ESMA.

Figure 2 Non-GAAP metrics through time



5.3. Data preparation and testing

The first part of preparing data for the regression is check for outliers in the data. All variables are checked for outliers, except for the dummy variables because there are no outliers for these variables. In this process, the most extreme values are reduced to a normal level, in order to prevent results influenced by a few variables with high values.

The second part of preparing data checks for multicollinearity. This part checks if variables are strongly correlated with other variables. Variables that have a 1 in the correlation table, are strongly correlated and could influence results. The correlation table in Appendix C shows that there is no correlation above 0.9. In conclusion, multicollinearity problems are not present in this research.

5.4 Regression results

The results of the regression table are presented below. The regression table is divided in 2 models. The first model explains the regression results without the interaction effects. The second model shows the results after including the interaction effects. The predictive signs are positive because I hypothesized that non-GAAP reporting will result in more variable compensation for CEOs. The dummy variable D_source is predicted to have no influence because the source that I used, cannot influence a CEO's compensation.

The explanatory power of this regression is 18.7%. It is not a high R^2 , however, it is not bad for a research in a not well-investigated setting. The control variables have a lot of influence

on the dependent variable, as already stated by other research. The control variables enhance the R^2 for this research strongly.

The main independent variables NG_diff and NG_amount, which are explained in the research design, are expected to have a positive influence on CEO compensation. The number of non-GAAP metrics (NG_amount) is in both models positive, but not significant, which is consistent with the findings of the explorative research. NG_diff is significant (p.value: 2.726) at a 1% level and is positive. This result acknowledges that there is a positive relation between the difference of the main non-GAAP metric and its counterpart, but this relation is not very strong. This finding is also in line with the results of the explorative research. Model 2 differs a bit because of the added interaction variables, and because of the low significant level, it is changed in an insignificant variable.

The interaction effects of the regression do not have a lot of influence on the dependent variable (RBONUS_CEO). The R^2 improves with 0.8% and the variables are negatively influence, and not significant. However, the variable D_source has a positive significant effect on RBONUS_CEO according to this regression. This result is unexpected and has nothing to do with my research. This positive significant effect cannot be explained and could be due to a very low usage of press releases, so this regression makes inferences about a few firm-year observations. The interaction effect of NG_amount with D_source is, like NG_amount, not significant positive as expected before. The interaction effect is made to check for biased results of the sources. The source does not have a significant influence on the number of non-GAAP metrics. The other interaction effect between NG_diff and d_adj checks for an effect of the difference of adjusted non-GAAP measures on RBONUS_CEO. The interaction effect has a negative influence on RBONUS_CEO, which is not significant.

The number of observations of this research is also not high due to the European setting without data about non-GAAP reporting. 510 firm-year observations are counted.

Furthermore, the research controls for fixed-year effects in both models.

The hypothesis is partly accepted at a 1% significance level. NG_diff has a significant positive relation with RBONUS_CEO and there is no evidence that NG_amount affects the CEO's bonus. Bigger differences between the non-GAAP metric and its GAAP counterpart,

results in higher CEO bonuses. An aggressive way of non-GAAP reporting by using a high number of non-GAAP will not result in a higher variable annual bonus.

Figure 3 Regression results

Regression results			
RBONUS_CEO	Sign	Model 1	Model 2
NG_amount	(+)	0.004 (1.061)	0.015 (0.754)
NG_diff	(+)	0.000* (2.726)	0.000 (2.179)
ROA		2.232*** (25.63)	2.131*** (19.02)
LNSIZE		0.161*** (20.77)	0.161*** (23.81)
CEO_GENDER		0.092 (1.017)	0.073 (0.822)
LEVERAGE		-0.270* (-3.118)	-0.244* (-2.618)
D_source	(?)		0.255* (2.797)
NG_amount*D_source	(+)		-0.013 (-0.626)
D_adj	(+)		-0.036 (-0.970)
NG_diff*d_adj	(+)		-0.000 (-2.200)
Constant		-0.495** (-5.282)	-0.695*** (-6.577)
Fixed-year effects		Fixed	Fixed
Observations		510	510
R-squared		0,179	0,187

The multivariate regression's explained variable is RBONUS_CEO. The first model explains the variables without the interaction effects. The second model includes the interaction effects. The models explain RBONUS_CEO for respectively 17.9% and 18.7% (R²). The number of observations is 510 firm-year observations. Robust t-statistics in parentheses: *** p<0.01, ** p<0.05, * p<0.1

6. Conclusion

The goal of this study is to explore non-GAAP reporting and to find a relation between non-GAAP reporting and variable CEO compensation in the European Union. This research helps to fill the gap of research in the European setting. After the collection of non-GAAP data and CEO compensation data, I tried to find an answer on the research question: ‘Does an aggressive way of non-GAAP reporting affects CEO compensation?’

A positive relation between non-GAAP reporting and CEO compensation is not directly negative because it is not known if non-GAAP earnings inform investors or manipulate investors. This investigation conducts 2 different research approaches: explorative research and statistical research.

The explorative research finds that a lot of companies give CEOs compensation based on non-GAAP earnings, if they meet or beat the target of these earnings. This part of the research also finds information about the reasons of non-GAAP reporting, however, I cannot make inferences about this. I find that adjusted metrics are mostly higher than statutory metrics. This should be around 50% higher non-GAAP metrics and 50% lower non-GAAP metrics. This finding is an indication of manipulation of investors because they only subtract exceptional costs from the GAAP metrics and seem to ‘forget’ the one-time gains. In contrast with this, the metric with the most emphasis, was clearly not always the non-GAAP bonus measure, which indicates more informative reasons for non-GAAP reporting. If CEOs have to focus on a metric, they are more likely to manipulate this metric more than other metrics. The combination of the most emphasized metric and the same metric as bonus target, could give a better view to investors about the company than it actually is. The remuneration report does not include the number of reported non-GAAP metrics as a bonus target. In conclusion, the explorative research finds a positive relation between non-GAAP earnings and CEO bonus, and does not find any evidence about a relation between the number of non-GAAP metrics and bonus for the CEO.

During the data collection, I discovered that non-GAAP metrics are not clear and do not follow the ESMA guidelines mostly. Some firms report non-GAAP measures according to the ESMA guidelines. They report reconciliations between the non-GAAP metric and its closest counterpart and they explain the variables at the end of the annual report, where they also

refer to the ESMA guidelines. Most firms do not follow these guidelines. Firms use different names for the adjusted non-GAAP measures (e.g. normalized/underlying earnings) and do not reconcile the metrics. Thus, it is often not (directly) clear which costs are subtracted from the non-GAAP metrics. After this research, I recommend more strict rules for the European Union to prevent manipulation and to present non-GAAP measures that inform investors.

The empirical research to non-GAAP reporting finds a positive significant relation between the difference of the non-GAAP metric and its counterpart on CEO's bonus, which is calculated as a ratio (annual variable bonus divided by yearly fixed remuneration). Thus, an aggressive way of non-GAAP reporting results in a higher bonus for the CEO, which is in line with the explorative research. This research does not find a relation between the number of reported non-GAAP measures and the bonus of a CEO. Furthermore, the adjusted non-GAAP metrics (e.g. underlying EBT) do not have a significant effect on CEO's bonus, which is an indication that firms do not report adjusted measures to manipulate investors because the exceptional items that are subtracted are often not clear.

I can conclude that the answer on the research question is that non-GAAP earnings affect variable CEO compensation. Explorative research discovers that bonuses are paid based on non-GAAP measures according to the remuneration report. Furthermore, empirical research finds significant evidence that non-GAAP earnings have a positive influence on CEO bonuses. This research could not give an answer if the outcome of this research is positive or negative for investors. In other words, this research does not have a clear answer if CEOs report non-GAAP earnings to inform investors or to manipulate investors.

7. Limitations and further research

It is still unclear if non-GAAP reporting is manipulative or informative. I stated earlier that the bonus target is not always the metric with most emphasis. This finding (that indicates informativeness) could be used for further research to the reasons of non-GAAP reporting. The theory part of this research describes studies that are related to this question, which could be used to perform research for the EU.

This research does not make a distinction between the distance of a main metric from the counterpart. The difference between gross profit (as main metric) and profit after tax is substantially higher than the difference between profit before tax (as main metric) and profit after tax. This is very likely to influence the results and I did not find a good solution to control for this problem during my research. The usage of the difference between adjusted earnings per share and statutory earnings per share could be an option, however, firms that report non-GAAP earnings do not always report adjusted earnings per share. Furthermore, this research focuses on the non-GAAP metric and its counterpart, where firms focus on the non-GAAP metric and the target for that year. This different approach could bias the results, as a reported low difference between the non-GAAP metric and its counterpart, could still be enough to reach the target to receive a bonus.

The hand-collected dataset contains more variables than used in this research. I collected the date of issuance of the annual report or press release to see differences between early and late filers. Furthermore, I noted if a firm reconciled the most important non-GAAP metric with a GAAP metric. In further research it is possible to investigate differences between firms that reconcile non-GAAP metrics and firms that do not.

Lastly, the first idea of this research was to search for a relation between corporate governance and non-GAAP, and non-GAAP and CEO compensation. After time-consuming data collection for non-GAAP and CEO compensation, I found out that corporate governance variables are not available in datasets as in the US. For further research, the relation between corporate governance and non-GAAP reporting could be interesting for the EU. In the early stage of my research, I discovered that firms in the US changed their non-GAAP behaviour after the issuance of Regulation G, which indicates that they used non-GAAP aggressively.

This research could be done similar in the EU, where change could be measured before and after the issuance of the ESMA guidelines.

8. References

- 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, Organizations and Society*, 32 (3): 201-222.
- Andersson, P. & Hellman, N. 2007. Does Pro Forma Reporting Bias Analyst Forecasts?. *European Accounting Review*, 16 (2): 277-298.
- Antle, R., & Smith, A. 1986. An empirical investigation of the relative performance evaluation of corporate executives. *Journal of Accounting Research*: 1-39.
- Baik, B., Farber, D.B., & Petroni, K. 2009. Analysts' incentives and street earnings. *Journal of Accounting Research*, 47 (1): 45-69.
- Balsam, S. 2002. *An introduction to executive compensation*. Academic Press.
- Barboutis, G., & Nagayets, I. 2017. Non-GAAP Financial Measures and APMs: US and EU Regimes Compared. *PLC Magazine*, Retrieved on: March 19, 2018.
- Barth, M. E., Gow, I. D., & Taylor, D.J. 2012. Why do pro forma and Street earnings not reflect changes in GAAP? Evidence from SFAS 123R. *Review of Accounting Studies*, 17 (3): 526-562.
- Basu, S., Hwang, L. S., Mitsudome, T., & Weintrop, J. 2007. Corporate governance, top executive compensation and firm performance in Japan. *Pacific-Basin Finance Journal*, 15 (1): 56-79.
- Beekes, W., & Brown, P. 2006. Do Better-Governed Australian Firms Make More Informative Disclosures?. *Journal of Business Finance & Accounting*, 33 (3-4): 422-450.
- Bentley, J. W., Christensen, T. E., Gee, K. H., & Whipple, B. C. 2016. Disentangling managers' and analysts' non-GAAP reporting incentives.
- 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 (1-3): 285-319.
- Bhattacharya, N., Black, E. L., Christensen, T. E., & Mergenthaler, R. D. 2007. Who trades on pro forma earnings information?. *The Accounting Review*, 82 (3): 581-619.
- 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., & Waagelein, J. F. 2011. The effects of executive compensation contracts and auditor effort on firms' pro forma reporting decisions. *Working paper*

- Black, D.E., Black, E.L., Christensen, T.E., & Heninger, W.G. 2012. Has the regulation of pro forma reporting in the US changed investors' perceptions of pro forma earnings disclosures?. *Journal of Business Finance & Accounting*, 39 (7-8): 876-904.
- Black, D., Black, E., Christensen, T., & Gee, K. 2017a. Executive Compensation Contracting and Non-GAAP Earnings Disclosures. *Working paper*.
- Black, D. E., Christensen, T. E., Ciesielski, J. T. & Whipple, B.C. 2017b. Non-GAAP Reporting: Evidence from academia and current practice. *Journal of Business Finance & Accounting*.
- Black, E.L., Christensen, T.E., Taylor Joo, T., & Schmardebeck, R. 2017c. The Relation Between Earnings Management and Non-GAAP Reporting. *Contemporary Accounting Research*, 34 (2), 750-782.
- 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.
- Braaksma, J. 2018. *De rel die je zag aankomen*. Retrieved on 7 March 2018, from Het Financieel Dagblad: <https://fd.nl/weekend/1245256/de-rel-die-je-zag-aankomen>
- Braaksma, J. 2018. *Knieval van ING na dreiging met wetgeving*. Retrieved on 14 March 2018, from Het Financieel Dagblad: <https://fd.nl/ondernemen/1245809/de-snotneus-en-de-knieval-van-ing>
- 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.
- Bradshaw, M., Christensen, T., Gee, K., & Whipple, B. 2014. Empirical evidence on the effects of measurement error in non-GAAP earnings research.
- Bradshaw, M., Christensen, T., Gee, K., & Whipple, B. 2017. Analysts' GAAP earnings forecasts and their implications for accounting research. *Working Paper*.
- Brick, I. E., Palmon, O., & Wald, J. K. 2006. CEO compensation, director compensation, and firm performance: Evidence of cronyism?. *Journal of Corporate Finance*, 12 (3): 403-423.
- Brockbank, B. G. 2017. Do Non-GAAP Exclusions Impact the Extent to Which Current Returns Reflect Future Earnings Information?. *Working Paper*.
- Brown, L. D., & Sivakumar, K. 2003. Comparing the value relevance of two operating income measures. *Review of Accounting Studies*, 8 (4): 561-572.
- Brown, N.C., Christensen, T.E., & Elliott, W.B. 2012a. The timing of quarterly 'pro forma' earnings announcements. *Journal of Business Finance & Accounting*, 39 (3-4): 315-359.

- Brown, N.C., Christensen, T.E., Elliott, W.B., & Mergenthaler, R. D. 2012b. Investor sentiment and pro forma earnings disclosures. *Journal of Accounting Research*, 50 (1): 1-40.
- Brown, L. D., Call, A. C., Clement, M. B., & Sharp, N. Y. 2015. Inside the “black box” of sell- side financial analysts. *Journal of Accounting Research*, 53 (1): 1-47.
- Brown, N. C., Christensen, T. E., Menini, A., & Steffen, T. D. 2018. Non-GAAP earnings disclosure and IPO pricing. *Working Paper*.
- Carpenter, J. 2017. The gender pay gap doesn't close - even at the very, very top. Retrieved on June 7, 2018, from CNN: <http://money.cnn.com/2017/12/13/news/companies/women-executive-pay/index.html>
- Committee on European Securities Regulators 2005. *CESR recommendation on alternative performance measures*.
- Curtis, A., McVay, S., & Whipple, B. 2014. Non-GAAP earnings: informative or opportunistic? An analysis of transitory gains. *The Accounting Review*, 89: 933-958.
- Curtis, A., Li, V., & Patrick, P.H. 2017. The use of adjusted earnings in performance evaluation. *Working Paper*.
- Dang, C., Li, Z. F., & Yang, C. 2018. Measuring firm size in empirical corporate finance. *Journal of Banking & Finance*, 86: 159-176.
- Doyle, J. T., Jennings, J. N., & Soliman, M. T. 2013. Do managers define non-GAAP earnings to meet or beat analyst forecasts?. *Journal of Accounting and Economics*, 56 (1): 40-56.
- Doyle, J. T., Lundholm, R. J., & Soliman, M. T. 2003. The predictive value of expenses excluded from pro forma earnings. *Review of Accounting Studies*, 8 (2-3): 145-174.
- Dikolli, S. S. 2001. Agent Employment Horizons and Contracting Demand for Forward- Looking Performance Measures. *Journal of Accounting Research*, 39 (3): 481-494.
- Drobetz, W., Schillhofer, A., & Zimmermann, H. 2004. Corporate governance and expected stock returns: Evidence from Germany. *European financial management*, 10 (2): 267-293.
- Elliott, W. B. 2006. Are investors influenced by pro forma emphasis and reconciliations in earnings announcements?. *The Accounting Review*, 81 (1): 113-133.
- 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. 2005. The voluntary disclosure of pro forma earnings: a US-Canada comparison. *Journal of International Accounting Research*, 4 (2): 1

23.

ESMA - European Securities and Markets Authority. 2015. *Guidelines on alternative performance measures*. ESMA – European Securities and Markets Authority.

Fama, E.F., & Jensen, M.C. 1983. Agency problems and residual claims. *The Journal of Law and Economics*, 26 (2): 327-349.

Finkelstein, S., & Hambrick, D. C. 1989. Chief executive compensation: A study of the intersection of markets and political processes. *Strategic Management Journal*, 10 (2): 121-134.

Frankel, R., McVay, S., & Soliman, M. 2011. Non-GAAP earnings and board independence. *Review of Accounting Studies*, 16 (4): 719-744

Frankel, R., & Roychowdhury, S. 2005. Testing the clientele effect: An explanation for non-GAAP earnings adjustments used to compute I/B/E/S earnings. *Working Paper*.

Frederickson, J. R., & Miller, J. S. 2004. The effects of pro forma earnings disclosures on analysts' and nonprofessional investors' equity valuation judgments. *The Accounting Review*, 79 (3): 667-686.

Furner, Z., Oler, D., & Waegelien, J. F. 2015. The Association between the Use of Long-Term Performance Plans and Corporate Performance. *Journal of Applied Financial Research*, 2: 73.

Gaver, J. J., Gaver, K. M., & Austin, J. R. 1995. Additional evidence on bonus plans and income management. *Journal of accounting and Economics*, 19 (1): 3-28.

Gibbons, R., & Murphy, K. J. 1990. Relative performance evaluation for chief executive officers. *ILR Review*, 43 (3): 30-S.

Gillan, S. 2006. Recent Developments in Corporate Governance: An Overview. *Journal of Corporate Finance*, 12 (3): 381–402.

Graham, J. R., Li, S., & Qiu, J. 2011. Managerial attributes and executive compensation. *The Review of Financial Studies*, 25 (1): 144-186.

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., Osma, B.G., & Jones, M.J. 2012. Opportunistic disclosure in press release headlines. *Accounting and Business Research*, 42 (2): 143-168.

Guillamon Saorin, E., Isidro, H., & Marques, A.C. 2017. Impression management and non-GAAP reporting in earnings announcements. *Working paper*.

- Healy, P. M. 1985. The effect of bonus schemes on accounting decisions. *Journal of accounting and economics*, 7 (1-3), 85-107.
- Heflin, F., & Hsu, C. 2008. The impact of the SEC's regulation of non-GAAP disclosures. *Journal of Accounting and Economics*, 46 (2-3): 349-365.
- Heflin, F., Hsu, C., & Jin, Q. 2015. Accounting conservatism and Street earnings. *Review of Accounting Studies*, 20 (2): 674-709.
- Hitz, J. M. 2010. Press release disclosure of 'pro forma' earnings metrics by large German corporations—Empirical evidence and regulatory recommendations. *Accounting in Europe*, 7 (1): 63-86.
- Holthausen, R. W., Larcker, D. F., & Sloan, R. G. 1995. Annual bonus schemes and the manipulation of earnings. *Journal of accounting and economics*, 19 (1): 29-74.
- Hsu, C., & Kross, W. 2011. The market pricing of special items that are included in versus excluded from street earnings. *Contemporary Accounting Research*, 28 (3): 990-1017.
- Ireland, R. D., Hoskisson, R. E., & Hitt, M. A. 2014. Strategic Management: Concepts and Cases: Competitiveness and Globalization. *Boston: South-Western College Publishing, 2014.*
- Isidro, H. & Marques, A. 2013. The Effects of Compensation and Board Quality on Non-GAAP Reporting Decisions. *The International Journal of Accounting*, 48 (3): 289-317.
- Isidro, H. & A. Marques 2015. The Role of Institutional and Economics Factors in the Strategic Use of Non-GAAP Disclosures to Beat Earnings Benchmarks. *European Accounting Review*, 24 (1): 95-128.
- 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.
- Jensen, M. C., & Murphy, K. J. 1990. Performance pay and top-management incentives. *Journal of political economy*, 98 (2): 225-264.
- Johnson, W. B., & Schwartz, W. C. 2005. Are investors misled by "pro forma" earnings?. *Contemporary Accounting Research*, 22 (4): 915-963.
- Kolev, K., Marquardt, C. A., & McVay, S. E. 2008. SEC scrutiny and the evolution of non-GAAP reporting. *The Accounting Review*, 83 (1): 157-184.
- Larcker, D. F., Tayan, B., & Xiao, Y. 2015. Pro Forma Compensation: Useful Insight or Window Dressing?.

- Lin, S., & Walker, M. 2000. FRS3 earnings, headline earnings, and accounting-based valuation models. *Accounting and Business Research*, 30 (4): 299-306.
- Littleford, D.J. 2015. *Communicating effectively through non-GAAP information*, Retrieved March 12, 2018, from KPMG: <https://home.kpmg.com/xx/en/home/insights/2015/07/esma-guidelines-alternative-performance-non-gaap-measures-apm-170715.html>
- 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. 2006. SEC interventions and the frequency and usefulness of non-GAAP financial measures. *Review of Accounting Studies*, 11 (4): 549-574.
- McKenna, F. 2017. *T-Mobile is not listening to SEC guidance on non-GAAP metrics*. Retrieved on March 14, 2018, from MarketWatch: <https://www.marketwatch.com/story/t-mobile-is-not-listening-to-sec-guidance-on-non-gaap-metrics-2017-10-24>
- Narayanan, M. P. 1985. Managerial incentives for short- term results. *The Journal of Finance*, 40 (5): 1469-1484.
- Nichols, N.B., Gray, S.J., & Street, D.L. 2005. Pro Forma adjustments to GAAP earnings: Bias, materiality, and SEC action. *Research in Accounting Regulation*, 18: 29-52.
- Racanelli, V.J. 2018. *Should Investors Still Mind the GAAP When it Comes to Earnings?*, Retrieved March 7, 2018, from Barrons: <https://www.barrons.com/articles/should-investors-still-mind-the-gaap-when-it-comes-to-earnings-1519673149>
- Scheetz, A., & Wall, J. 2014. Mind the GAAP: CFO stock awards and non-GAAP press releases. *Case Western Reserve University: Working paper*.
- Shaw, K.W., & Zhang, M.H. 2010. Is CEO cash compensation punished for poor firm performance?. *The Accounting Review*, 85 (3): 1065-1093.
- Smith Jr, C.W., & Watts, R.L. 1982. Incentive and tax effects of executive compensation plans. *Australian Journal of Management*, 7 (2): 139-157.
- U.S. Securities and Exchange Commission 2003. Final Rule: Conditions for Use of Non-GAAP Financial Measures. Retrieved March 12, 2018, from U.S. Securities and Exchange Commission: <https://www.sec.gov/rules/final/33-8176.htm>

Appendices

Appendix A

Variable description	
Variables	Description (or calculation)
RBONUS_CEO	This dependent variable is calculated by annual bonus divided by fixed remuneration
NG_amount	The number of non-GAAP metrics used in the annual report or press release of the fiscal year
NG_diff	The difference between the main non-GAAP metric and the GAAP counterpart of the fiscal year
ROA	Return on assets measures firm performance and is calculated by net income divided by lagged total assets
LNSIZE	The size of the firm is measured by the natural logarithm of total assets
CEO_gender	This dummy variable takes the value of 1 if the CEO is a man, and 0 if the CEO is a woman.
LEVERAGE	The leverage is calculated by total liabilities divided by total assets
D_source	This dummy variable takes the value of 1 if the source is the annual report, and 0 for other sources
D_adj	This dummy takes the value of 1 if the non-GAAP measure is adjusted for exceptional items (e.g. adjusted EBITDA), and 0 if the non-GAAP measure is not adjusted for other items (e.g. EBITDA)

Appendix B

Sample selection	
Sample	1,200
Less: Dropping of duplicates of dataset	(162)
Less: Firm-year observations without non-GAAP information in manual dataset	(250)
Less: Firm-year observations without CEO compensation information in manual dataset	(128)
Less: Firm-year observations lost due to merge	(12)
Less: Firm-year observations with missing control variables	(6)
Firm-year observations	642
Less: Firm-year observations without the number of non-GAAP metrics	(132)
Firm-year observations (for regression)	510

Appendix C

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
RBONUS_CEO (1)	1										
NG_amount (2)	0.047	1									
D_source (3)	0.118**	0.187***	1								
NG_amount*D_source (4)	0.079	0.888***	0.552***	1							
NG_diff (5)	0.149**	-0.026	0.051	-0.001	1						
D_adj (6)	-0.006	0.369***	0.145***	0.341***	0.009	1					
NG_diff*D_adj (7)	0.065	-0.002	0.057	0.019	0.673***	0.163***	1				
ROA (8)	0.227***	-0.013	0.073	-0.007	-0.094*	-0.040	-0.103*	1			
LNSIZE (9)	0.353***	0.141**	0.104*	0.162***	0.407***	-0.089*	0.327***	0.019	1		
CEO_GENDER (10)	0.054	-0.143**	0.057	-0.077	0.051	-0.082	0.023	0.118**	0.027	1	
LEVERAGE (11)	0.002	0.182***	-0.018	0.123**	0.086	0.129**	0.118**	-0.109*	0.271***	0.0571	1

Significance level: *** p<0.01, ** p<0.05, * p<0.1