

CEO variable remuneration and Earnings Management:

“A study on the relationship between CEO remuneration and Earnings Management”

Master Thesis MSc, Accounting, Auditing and Control

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Preface

In March 2010 I started an internship at KPMG to write this thesis. KPMG gave me the opportunity to write this thesis and also introduced me to the work culture of the company. I really had a great time at KPMG during my internship. I planned to finish my thesis during my internship. Unfortunately, I have faced a lot of obstacles. At the end I have finished this thesis. Especially, I would like to thank Dr.sc.ind. van der Boom who was my thesis supervisor. During the whole process of writing my thesis he was very patient and gave me adequate advice and ideas on finding appropriate data.

Furthermore, I would like to thank Carel van Oldenbeek who was my supervisor and KPMG for his valuable support and ideas.

Finally, I would like to thank my family and friends. They really supported me to keep things going and gave me strength during the difficult periods. It was an intensive period.

Wilton Kam

Rotterdam, 24 april 2010

Abstract

This paper investigates whether CEO variable remuneration affects earnings management in the Euro next area. Does CEO variable remuneration provide incentives to do earnings management? Or does earnings management exist in every company whether or not a variable remuneration exists in the remuneration package? CEO variable remuneration is also defined as pay for performance. Earnings management is estimated on basis of discretionary accruals. The sample for this study concerns data from 1999 – 2009 of all industries except public and financial industries. For the total sample a positive relationship between CEO short term remuneration and earnings management is found.

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1. Introduction

§ 1.1 the background

In the last decades there were many fraud scandals. The Enron affair in 2002 has put accounts manipulation in the spotlight (Stolowy and Breton, 2004). Other companies which can be associated with fraud scandals are: Xerox, Parmalat, Ahold, Shell, etc. The consequence of these scandals was the dramatic drop of the share prices after the detected fraud. For example, Enron went bankrupt after the scandal. In these cases there were many victims ranging from employees to credit suppliers. Many people have lost their jobs and money. It is claimed that managers did not give the right information about the economic situation of the company. Shareholders would not have made decisions to invest in companies that were associated with fraud scandals if they would have known that the management has used accounting manipulation. Stolowy and Breton (2004) argued that the management, especially the managers or CEOs, has manipulated the accounts to achieve a specific objective. Accounting manipulation seems to fall outside the boundaries of rules and regulation on financial reporting.

Stolowy and Breton (2004) are the only authors who do not always place accounting manipulation outside the boundary rules and regulations. Because of this there could be confusion in the terminology that is used. Ronen and Yaari (2008) explain earnings management in three ways. In the first way, earnings management can be beneficial because it shows transparency of reports, also called earnings management in the white area. In the second way, earnings management is outside the boundary rules and regulations, also called earnings management in the black area. This could be associated with accounting manipulation. In the last way earnings management stays within the boundary rules and regulations. The report could be too opportunistic or efficiency enhancing but falls within the rules and regulations.

The companies which were associated with fraud scandals had use earnings management outside the boundaries of rules and regulations on financial reporting. Stolowy and Breton (2004) use account manipulation as terminology. Other scientist as Healy and Wahlen (1999), Schipper (1989) Scott (2003) and Ronen and Yaari (2008) use earnings management. In this thesis earnings management is used as terminology, because earnings management is not always outside the boundary rules and regulations. Earnings management can also take place within and outside the rules, whereas account manipulation takes place outside the rules except for Stolowy and Breton (2004). According to Roonen and Yaari

(2008) earnings management that violates General Accepted Accounting Principles is associated with fraud. Accounting choices within the law and standard are defined as conservative accounting, neutral accounting or aggressive accounting.

CEOs could use earnings management to obtain or maximize their variable remuneration. CEOs use aggressive accounting to show an opportunistic performance of the company, also called earnings management in the grey area.

In the last couple of years the CEO bonus is a hot topic which lead to discussion. Bergstresser and Philippon (2005) argued that in the past 15 years a very big increase in performance based executive remuneration, like stock option grants and cash bonuses, has occurred. On the other hand, in the last years more and more people criticize the bonuses of CEOs. As a result of the credit crisis the average amount of CEO remuneration has dropped in this period¹. The CEO remuneration plans are based on stock remuneration. Recently the CEO bonus plan of Heineken is under fire. The chairman Cees van de Lede wants to double the short-term bonus of the CEO. The labor unions oppose this plan. An increase in bonus gives a negative signal to employees, because the bonus is not aligned with the vision of focusing on moderating costs. Niels Lemmers represents the shareholders association (Vereniging van Effectenbezitters). He complains that the company is not sufficiently transparent². As long as the shareholders will not get the right information, it is hard to decide whether or not the bonus is righteous. Remuneration plans that are strongly based on short-term performance could lead to CEO incentives that have poor consequences for the company.

According to Fahlenbrach and Stulz (2009) poor CEO incentives could explain the credit crisis. There are different versions of poor incentives. Option remuneration leads to more incentives for the CEO to taking more risks, which could potentially not be beneficial to shareholders. Another version of poor incentives is that CEOs have strong incentives to focus on short-term rather than long-term goals. In the example of Heineken, shareholders do not agree with the short-term remuneration, because there will be a higher chance that the CEO only performs on the short- term. In other words, CEOs have more incentives to achieve their self-interest than the interests of the shareholder, which is damaging the company in the long run.

¹ http://www.risktalent.com/cm/news/20090806_capitalmarkets

² <http://www.fd.nl/artikel/14705409/heineken-krijgt-felle-kritiek-beloningsbeleid>

§ 1.2 Research question

Previous studies concentrated on the relation between executive pay and earnings management. Most of these studies are done in the United States. The remaining studies are done in several other countries like Australia, Singapore and Japan. Bergstresser and Philippon, Cornett et al. have found evidence that a relative high variable based remuneration is positive related to earnings management. The research of this thesis will focus on the relation between CEO variable remuneration and earnings management in companies of the Euro-next index. The listed companies of the Euro-next 100 index between 1999-2009 will be used for this study. This index represents companies of France, Belgium and the Netherlands. This study will be additive to previous studies, because the relation between CEO variable remuneration and earnings management has not been studied for the Euro-next index. Furthermore, the previous studies were mostly studied in the United States. The corporate governance structure of Continental Europe is different from the United States. Countries like the United States use common law, whereas European countries use code law. Within Continental Europe there are also differences in corporate governance. Compared with the differences between Continental Europe and the United States, the differences within Continental Europe are much smaller. It is useful to merge the countries of Continental Europe for corporate governance. This is a very important characteristic between the different research areas that could lead to different results. This will be discussed further in § 3.3. For this thesis the next research question is stated:

“What is the relationship between CEO variable remuneration and the level of earnings management in companies of the Euro-next 100 index for 1999-2009?”

To explain the research question in detail, the variable part of the CEO remuneration will be analyzed and compared with the level of earnings management.

The next sub questions provide some detailed information about the research topic. Furthermore, they will give a structure of the chapters. The sub questions are:

1. *Which research approach will be used?*
2. *What is earnings management?*
3. *What are the factors that could influence the level of earnings management?*
4. *How can earnings management be measured?*
5. *What are the different ways to build CEO remuneration?*
6. *What is variable remuneration?*

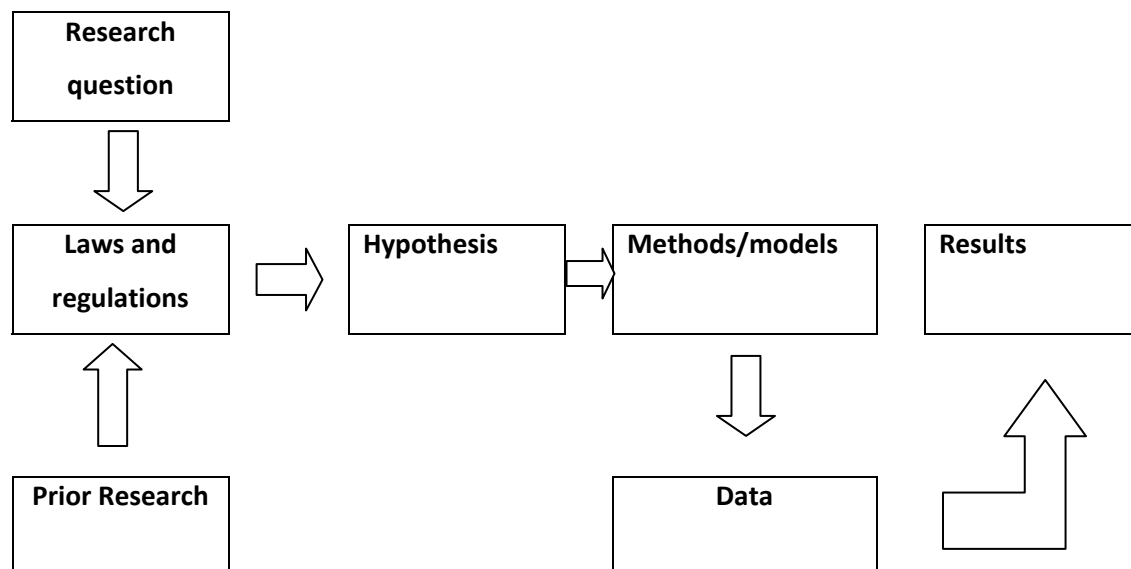
7. *What is the relationship between CEO variable remuneration and earnings management? (prior research)*
8. *What are the hypotheses for the research for this thesis?*
9. *Which model will be used to measure earnings management? (Research design)*
10. *What are the empirical results?*
11. *What is the additive value of the results of the analysis?*

§ 1.3 the contribution

This study is mainly relevant for investors and credit suppliers, because they will make decisions, which rely on financial statements. Dye (1988) and Schipper (1989) differentiate between several sub-groups, which are existing shareholders, potential shareholders, existing bondholders and potential bondholders. They have different interests, which could lead to different reactions to using earnings management (Stolowy and Breton, 2004). When investors or credit suppliers would have known that management manages the earnings of the company, they could have made another decision. As mentioned before this research could make a contribution to previous studies. As mentioned before the United States regulations are rules based. This thesis focuses on European companies. The regulations of Europe are principle based. Lam (2005) did a study, which is comparable with this thesis. He studied the relationship of CEO remuneration and earnings management in the Netherlands on Dutch companies. The Dutch regulations are a mix of principle based and rules based (Djankov et al., 2000). The topic of this thesis is almost the same as the study of Lam. Lam only studied the short term remuneration (cash bonus) whereas this thesis also studies the long term remuneration. This study investigates in the relation between all variable remuneration and earnings management. Besides the long term remuneration this thesis has a broader research area. It contains more companies than the study of Lam. This thesis also use more sample years. Furthermore, improved accounting standards and regulations as the IFRS and the introduction of “Code Tabaksblat” and other corporate governance codes are implemented in the research period. In other words, compared with the previous studies this study is more recent and includes other regulations which could lead to different results.

§ 1.4 the structure

In chapter 2 sub question 1 “which research approach” will be answered. After the choice is made for the research approach, sub question 2 will be answered in chapter 3. At the end of this chapter it will be clear what kind of factors could influence the level of earnings management. This will answer sub question 3 “what factors that could influence the level of earnings management”. Chapter 3 also give an answer for sub question 5 and 6, “what are the different ways to build an CEO remuneration” and “what is variable remuneration”. In chapter sub question 4 “how can earnings management be measured” will be answered. There will be an overview pronounced of the models to measure earnings management. In chapter 5 sub question 7 “what is the relationship between variable remuneration and earnings management” will be answered. A literature review will be presented about prior research. All these studies are concerned with the relationship between CEO variable remuneration and earnings management. In chapter 6 sub question 5 will be answered. The hypothesis for this thesis will be explained. The methodology will be discussed in chapter 7. Sub question 9 “which model will be used to measure earnings management” will be answered. In chapter 8 the results will be analyzed. This chapter gives an answer for sub question 10 “what are the empirical results”. The conclusion, the limitations and the recommendations of this study will be discussed in chapter 10. Sub question 11 “what is the additive value of the results of the analysis” will be answered. Moreover, the following framework shows the structure visually.



2. Research Approach

In this chapter three approaches will be considered to do a research. The approaches are:

- the normative accounting research;
- the market based accounting research;
- The positive accounting theory.

One approach will be selected for this research. Furthermore, the agency theory will be described. The agency theory describes the phenomena of frictions between principal and agent. Variable remuneration could be a solution for this problem. Finally, the choice for the definitive research approach will be substantiated by arguments.

§ 2.1 Normative accounting approach

The normative accounting approach focuses on one truth. It does not focus on predictions and other explanations either, of particular phenomena. It is also called the classic theory. The users of the information accept the information at face value. They believe in the information which they have received. The users of information have a naive attitude. The information suppliers have a big responsibility to ensure that the information reflects the firms' true financial activities. Concepts, goals, rules and regulations are very important for this purpose. They are like a set of guidelines and hence are not based on empirical evidence. The guidelines are based on values and beliefs, but in a scientific view it cannot express the true economic reality. The normative approach is an old approach that was used in the middle of the 20th century. Nowadays, people believe in reasons instead of one truth. The modern approach makes use of empirical testing. The classical theory is not proper for thesis, because in one would use this theory it is not possible to identify the reality with empirical research.

§ 2.2 Market based accounting research

The market based approach involves statistical relations of financial information in equity markets (Deegan and Unerman, 2006). Lev and Ohlson (1983) define the market based approach as:

'the search into the relationship between publicly disclosed accounting information and the consequences of the use of this information by the major group of users (equity investors) as such consequences are reflected in characteristics of common stocks traded in major exchanges.'

The capital market research approach uses the efficient market hypothesis to assume that information is processed in the share prices. The efficient market hypothesis has three forms: the strong form, the semi-strong form and the weak form. The strong form exists when public knows all inside information of the company. The share price of the company will be influenced by this information. The semi-strong form exists when published information is reflected in the share price. The weak form exists when only information of the company from the past is reflected in the share price. Other information about the company is not available for the public. This approach is not proper for this study, because the purpose of this study is not to look how the market reacts on financial information but to analyze the relation between CEO remuneration and earnings management.

§ 2.3 Positive accounting theory

This theory is based on the philosophical stream "Positivism". Positivism is a belief that only empirical research to the reality will leads to empirical evidence (Deegan and Unerman, 2006). When applied to accounting it comes down to describing and explaining accounting behavior of managers. Modern positive accounting research began in 1960s. Several authors like Ball and Brown (1968), Beaver (1968) developed empirical methods to financial accounting. The assumption was that accounting numbers would supply information for investment decisions. Watts and Zimmerman (1986) define Positive accounting theory as:

"It is concerned with explaining accounting practice. It is designed to describe, explain and predict which firms will and will not use a particular method... but it says nothing about the method a firm should adopt".

The definition of Scott (2003) is:

'Positive accounting theory (PAT) is concerned with predicting actions as choices of accounting policies by firm managers and how managers will respond to the proposed accounting standards.'

These definitions are both important to describe the positive accounting theory. The theory of Watts and Zimmerman (1986) assumes that the positive accounting theory is designed to describe, explain and predict which firms will and will not use earnings management. On the other hand the definition of Scott

(2003) assumes that the positive accounting theory is concerned with predicting actions by managers and with explaining how managers will respond to the proposed accounting standards. In sum these theories together describe “Positivism” as mentioned before.

The positive accounting theory is based on a contractual view of the company (Coase, 1937; Jensen and Meckling, 1976). The company is a nexus of contracts. It is based on contracts with different parties who cooperate. For example, companies contracts with suppliers, creditors and employees. The company tries to minimize the several contracting costs. Agency costs are a part of the total costs. It is the sum of bonding costs, monitoring costs and residual loss (Jensen and Meckling, 1976.) The theory is based on past observations and on inductive reasoning. According to Deegan and Unerman (2006) it will assist to the functioning by providing recourses and how accounting is used between various individuals who cooperate in a firm. The agency theory explains the existence of this relation. The positive accounting theory is related on the agency theory. The individuals in a company could have a conflict of interests, which could lead to loss of efficiency. When there is a conflict between the principal (shareholders) and the agent (managers), it could point out that the managers are underperforming, which could lead to agency costs. An elaborate explanation of the agency theory will be provided in the next paragraph.

§ 2.4 the agency theory

The agency theory is directed at the relationship between the principal and the agent (Jensen and Meckling, 1976). The theory is more focused on shareholders’ interest than stakeholders’ interest. This is because shareholders are the owners of the company. The relationship between the two parties is because the shareholders have not the time or/and the knowledge to manage the company. Therefore, the shareholders will hire managers to manage the firm. The relationship between shareholders and managers is also called the principal-agent relationship. The shareholders and managers both want to maximize their wealth. Managers are recruited to maximize the wealth of the firm.

§ 2.4.1 Wealth of Nations

In “the Wealth of Nations” (1776) Adam Smith argued that every individual is rational and will therefore try to maximize his own utility. If all individuals would try to maximize their utility, the “invisible hand” of the free market would provide for harmony and equilibrium. At the moment the invisible hand of Adam Smith is not more than an illusion. As long as the managers maximize the firm’s interests it means that the principal and the agent have the same interests. When managers maximize their own interests at the cost of the wealth of the company and this will result in an agency problem. The agent will act in a

manner that serves his interests best, which conflicts with the interest of the principal. A solution for this problem could be setting up a remuneration plan for the agent by the principal.

§ 2.4.2 Information asymmetry

Another agency problem is that it is difficult or expensive for the principal to monitor the daily operations of the agent (Eisenhardt, 1989). The company is a “black box” for the shareholders. The manager also has more information about the company than the shareholders. The information will give the managers advantage in executing business transactions. This is called information asymmetry. There are two major types of information asymmetry. The first type is adverse selection. As mentioned before in this situation a party (managers) has an informational advantage over other parties (shareholders, credit suppliers, etc.). According to Scott (2003), *the accounting role is to provide a “level playing” through full disclosure of relevant, reliable, timely, and cost-effective information to investors and other financial statement users.* The second type is moral hazard. In this situation there is informational asymmetry due to a party (managers) that can observe their actions in fulfillment of the transaction, whereas other parties (shareholders, credit suppliers, etc.) do not have the possibility. It is almost impossible for shareholders to observe the performance of the CEO directly. The CEO could shirk on effort or blame the bad firm performance on factors beyond the manager’s control. Furthermore, the manager could bias or manipulate reported net income to improve their own utilities such as remuneration, reputation and covenant ratios.

§ 2.5 Conclusion

In this thesis the CEOs behavior will be observed to manage the firms’ earnings in order to maximize their variable compensation. Shareholders will use mechanisms like variable compensation to align CEOs interests with their own interests. They will try to avoid agency problems. However, CEOs can be driven opportunistically and by self-interest. As Adam Smith mentioned every individual is rational and has strong incentives to maximize their self-interests. CEOs might only be interested in maximizing the variable compensation, which can result in inefficiency in the firm’s performance, and can lead to agency costs. Therefore, agency problems will always exist. It is the responsibility of the principal to reduce the agency costs as much as possible. The positive accounting approach will be used for the empirical research to provide an answer to the research question. This approach is related to the agency theory. This also provides an answer to the first sub question. Other approaches are less useful for this thesis. The normative accounting approach is based on logical thinking. Nowadays it is not useful to use this approach. The market based approach is confused on how the market will react on financial

information. This is not the core relevance of this thesis. According to Watts and Zimmerman (1986) the positive accounting approach is designed to describe, explain and predict which firms will and which firms will not use a particular method. Scott (2003) mentioned the positive accounting approach is predicting actions as accounting policies by managers. As mentioned before this thesis studies the relation between earnings management and CEO remuneration. This study describes the theories of earnings management and the CEO remuneration. Further it predicts the relationship between these variables and provides the results. These results are obtained by empirical evidence.

3. Theoretical Concepts

This chapter contains the background information on the use of earnings management. Furthermore the difference in corporate governance between Europe and the United States will be explained. At last the variable remuneration will be described. It will be structured as follows. First, the definition of earnings management will be explained in § 3.1. Secondly, the motives for earnings management will be explained in § 3.2. The motives of earnings management could lead to a conflict with the principal and agent. In § 3.3 the difference in corporate governance between Europe and the United States will be described. In § 3.4 the executive pay will be discussed. Finally § 3.5 presents a conclusion.

§ 3.1 Earnings Management: Definition

Most International firms have to publish an annual report. This is an overview of the consequences of the economic events the company faces. An important element of the report is the financial statement. This statement is a summary of events that have affected the firm over the fiscal period for which the report has been prepared (Van der Meulen et al, 2007). The firms use financial reporting to communicate with the stakeholders. *“Ideally, financial reporting helps the best-performing firms in the economy to distinguish themselves from poor performers and facilitates efficient recourse allocation and stewardship by stakeholders”* (Healy and Wahlen, 1999).

According to Xiong (2006), managers are given opportunities to provide judgment in financial reporting. The managers could use their knowledge about the business to improve the effectiveness of financial statements. In other words, they decorate the financial statements. To do this, they have several manners to exercise judgment in financial reporting. This is also called earnings management. Earnings management can be realized in the following two ways: real transactions and accrual accounting.

The manager has to make a policy for the working capital, the debtors- period, the payment-period and the existence of the inventory. The manager could manipulate the real transactions by using these elements. In this thesis real-transactions will not be concerned, because it is too difficult to research.

Accrual accounting demands for several choices.

- 1) The manager has to make an assessment of the depreciation period of several assets

- 2) The manager has the opportunity to make a choice between different accounting methods within the boundary of accounting rules and regulations. These choices could have an impact on the short-term results, but they do not influence the total results on long-term.

In this thesis earnings management refers to transferring earnings in time to get bonus-plan remuneration benefits for managers or income smoothing benefits for shareholders. The objectives are to alter the two bases of wealth transfer. These are the earnings per share and the debt/equity ratio (Breton and Taffler, 1995). Earnings management that does not meet the standards of the legal framework will be identified as fraud. Managers trying to manage earnings within the boundaries of the law are not to be considered as frauds. However, managers could use earnings management to mislead the stakeholders, which means that they don't know the real firm performance. There are many different definitions for earnings management. The following definitions of earnings management are relevant for this thesis.

- Healy and Wahlen (1999): *“Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers”.*
- Schipper (1989): *“Earnings management is really disclosure management in the sense of a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain as opposed to merely facilitating the neutral operation of the process”.*
- Scott (2003): *“Earnings management is the choice by a manager of accounting policies so as to achieve some specific objective”.*

White	Gray	Black
Earnings management is taking advantage of the flexibility in the choice of accounting treatment to signal the manager's private information on future cash flows	Earnings management is choosing an accounting treatment that is either opportunistic (maximizing the utility of management only) or economically efficient	Earnings management is the practice of using tricks to misrepresent or reduce transparency of the financial reports

According to Ronen and Yaari (2008) the definition in the literature that best describes earnings management seems to be that of Healy and Wahlen (1999). However, there are two weaknesses associated with this definition. First, it does not set a clear boundary for earnings management (Dharan, 2003). Second, not all earnings management is misleading. There must be an intention to mislead for a purpose. Earnings management could in addition to unblock blocked communication to the stakeholders. The manager can communicate private information to the stakeholders. The definition of Scott (2003) has a negative, but also a positive view on earnings management. Ronen and Yaari explain earnings management which can be '*beneficial (**white**), it enhances the transparency of reports; the pernicious (**black**) involves outright misrepresentation and fraud; the **gray** is manipulation of reports within the boundaries of compliance with bright-line standards, which could be either opportunistic or efficiency enhancing.*' It is not possible to separate earnings management in black, white or gray.

Ronen and Yaari (2008) specify earnings management in greater detail. Earnings management that violates General Accepted Accounting Principles (GAAP) is associated with fraud. Earnings management that resides within GAAP can be divided in different shades. Accounting choices within the law and standards are defined as conservative accounting, neutral accounting or aggressive accounting. Conservative accounting means that earnings are taken cautiously, earnings are deflated. The result is an overly aggressive recognition of provisions or reserves and an overstatement of restructuring charges and asset write offs. If there is no earnings management this means the manager uses neutral accounting. When earnings are inflated, it could be that the aggressive accounting method is used. Examples of this method are an understatement of the provision for bad debts and drawing down provisions or reserves in an overly aggressive manner. As discussed before, the manager has the possibility to choose an accounting policy to achieve a specific objective. It is important that the objective meets the interests of the manager and the stakeholders. Earnings management in a good sense will be providing a signal on future value and is an efficient means to bridge the information asymmetry between management and shareholders without getting into detail. Earnings management in the bad sense is distorting the truth and that is a result of poor governance (Ronen and Yaari, 2008). This paragraph also answers the second sub question. The methods to measure earnings management will be explained in chapter 4.

§ 3.2 Motives for earnings management

It is clear that earnings management is driven by managers' incentives. Especially, it is interesting what the incentives are. According to the reviews of Stolowy and Breton (2004), Fields et al. (2001), Vander Bauwhede (2003) and Healy and Wahlen (1999) the incentives are divided into three groups. The groups are: Capital market incentives, contractual incentives and regulatory incentives.

§ 3.2.1 Capital market motivations

Several stakeholders such as financial analyst and investors use accounting information. In their decision making process they rely on accounting information to value stock prices through discounting future cash flows. Financial reports, such as the financial statements, could be very important to value the stocks. It is possible that the manager could have incentives to manage earnings to influence the evolution of the short-term stock prices. This could be result in reporting higher earnings or lower earnings. When there is a management buy-out, lower earnings report could be issued. De Angelo (1988) concludes there is little evidence that management understates the earnings for management buy-out the management. This means that it would be cheaper to buy out the management due lower stock prices. Perry and Williams (1994) confirmed this. Friedlan (1994) and Teoh et al. (1998a) find evidence that management use overstated earnings in periods before initial public offers to retain the stock prices.

§ 3.2.2 Contractual motivations

A firm can be seen as a pool of contracts (Jensen and Meckling, 1976). These contracts are made with employees, suppliers, the management and creditors. The firm wants to minimize the costs of the contracts. Several writers suggest that there is a positive relation between contracts and earnings management. In the study of Kasanen et al., (1996) it is concluded that there is a relation between dividend and earnings management. The management could manage the earnings to stimulate investors to buy stocks. To do this they will show a better forecast than they could achieve in practice. Watts and Zimmerman (1986) have stated different hypothesis about the motives for using earnings management. The hypotheses are based on the positive accounting theory. Two are related to contractual motivations. The first hypothesis is the debt/equity ratio hypothesis. This theory suggests that the higher the debt/equity ratio, the more likely it is that management will choose the accounting procedures to affect the short-term earnings. The future earnings will be shifted to the current period to show higher short-term earnings. This will be discussed further in § 3.4.2

Second, Watts and Zimmerman (1978) have also stated the bonus-plan hypothesis. The idea is comparable with the debt-equity ratio hypothesis. Managers will use accounting methods to report higher earnings to maximize their bonuses. On the other hand, the managers could also use accounting methods to report lower earnings to maximize their bonuses (Healy, 1985 and Holthausen et al., 1995). According to Healy and Wahlen (1999) firms use accounting numbers to judge the performance of the manager. The managers could have incentives to use accounting methods to maximize their remuneration. There is also evidence that new CEOs manage earnings by using the “take a bath strategy”. They will report high losses to previous periods at the time of the old CEO (Murphy and Zimmerman, 1993). All future earnings are related to him (Healy and Wahlen, 1999). The third hypothesis is related to regulatory motivations and will be explained in the next sub-paragraph.

§ 3.2.3 Regulatory motivations

There are several forms of regulatory motivations for earnings management. Earnings management will be used to avoid industry regulations. Furthermore, there will be more incentives by the manager to use earnings management in case of an anti-trust investigation to reduce the risk. Managers could also use earnings management with the motive to reduce the tax. Holland and Jackson (2004) conclude that there is a relation between deferred tax and the profit. According to the positive accounting theory of Watts and Zimmerman (1978) large firms have more tendencies to choose accounting methods to present lower the earnings. They show lower earnings to pay lower taxes. Jones provides evidence for this in a specific case regarding Jones (1991).

§ 3.3 Corporate Governance

Corporate governance deals with elements such as how shareholders or stakeholders finances to corporations to assure investment returns (Shleifer and Vishny, 1997). The OECD provides for the most authoritative functional definition of corporate governance:

"Corporate governance is the system by which business corporations are directed and controlled. The corporate governance structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as the board, managers, shareholders and other stakeholders, and spells out the rules and procedures for making decisions on corporate affairs. By doing this, it also provides the structure through which the company objectives are set, and the means of attaining those objectives and monitoring performance."

Corporate governance mechanism can be divided into internal governance and external governance. There are many different structures and leaderships in corporate governance between different Western countries. The corporate governance models in Europe and the United States are not the same. This research could have other results than the prior researches, which have been conducted in the United States.

3.3.1 Corporate governance in the United States

In Anglo-Saxon countries like the United Kingdom, Canada and the United States the one tier board model is adopted. The companies are one organization where directors have executive and non-executive functions in the company. It is possible that board leadership structure separates the CEO and chair positions of the board. One-tier boards also make use of board committees (G.F. Maasen, 2002). Furthermore, the listed companies in the United States use the Sarbanes-Oxley Act as guidance for good corporate governance to protect the confidence of investors (Arens, 2008). The Anglo-Saxon countries use common law. Common law countries are principle based. The law is mainly developed by judges through decisions of courts and tribunals. It uses circumstances of a case to evaluate the laws that are applicable. In these countries a Code is a less common form of legislation compared with civil law countries.

3.3.2 Corporate governance in Europe

Most countries of the European Union except the United Kingdom operate under a two tier management board structure, consisting of a supervisory board and a management board (Slagter, 2006). Between the countries there are little differences. France, Germany and Italy roughly have the same corporate governance.

The supervisory board is responsible for supervision of management policy. This board is independent. Mostly, the members are outsiders. The management board is the management team of the company. This board is responsible for achieving objectives, strategy and policy of the company. The board also reports to the supervisory board. In Europe, shareholders have much power on a large number of issues, such as dividend payments and shares buy-back programs (Enriques and Volpin, 2007). Most European countries use code law. Code law countries are rule-based. In contrast with the common laws, the code laws are codified. These laws proceeds from abstractions, formulates general principles and distinguishes substantive rules from procedural rules. The code typically covers the whole legislation system.

3.3.3 Corporate governance in the Netherlands

Most countries of the European Union operate under a two-tier management board structure, consisting of a supervisory board and a management board (Slagter, 2006). Between the countries there are little differences. The supervisory board is responsible for the supervision of management policy. This board is independent. Mostly, the members are outsiders. The management board is the management team of the company. This board is responsible for achieving objectives, strategy and policy of the company. The board also reports to the supervisory board.

Corporate governance in the Netherlands focuses on the rights of investors and the balance of power between investors and a company's supervisory board and management board (de Jong et al. , 2000). Companies in the Netherlands operate under a two-tier management structure like most other European countries, consisting of a supervisory board and management board (Slagter, 2006). The supervisory board is responsible for supervision of management policy. This board is independent. Mostly, the members are outsiders. The management board is the management team of the company. This board is responsible for achieving objectives, strategy and policy of the company. The board also reports to the supervisory board. Furthermore, the listed companies in the Netherlands should meet the requirements of the "Code Tabaksblat" by making up the annual report. When they do not meet these requirements, they have to explain and provide disclosure. (Boot and Wallage , 2006). In contrast to the most European countries, the Netherlands have a common law and code law (Djankov, 2000). The Code Tabaksblat is a code of conduct. Belgium uses the Code-Lippens and France uses the corporate governance code of 2006/46/EG. On short term all companies of the Continental Europe countries should meet the requirements of 2006/46/EG.

§ 3.4 Variable remuneration

Previous studies (Berle and Means, 1932; Jensen and Meckling 1976) have addressed the agency costs generated by the separation of ownership and control. In these studies different methods were used to improve the alignment of the CEOs incentives and the interests of the company. Such methods are an example of high corporate leverage (Jensen, 1986), more effective monitoring by the board of directors (Hermalin and Weisbach, 1988; Shleifer and Vishny, 1988) and CEO remuneration. As mentioned before this study only focuses on CEO remuneration.

§ 3.4.1 The last decades

In 1980 more than 90 percent of the largest companies used earnings based remuneration plan in the United States (Fox, 1980). Managers will try to select income-increasing accounting procedures. Managers could also try to select income-decreasing procedures. In the 90's there was an increase in performance based remuneration in the United States. Direct CEO bonus increased during the 1990s. This change came in because there was a belief that managers were under-incentivized. Moreover as a reaction to changes in the tax-code that increased the attractiveness of performance-based compensation such as grants of stock and options (Berstreser and Phippon, 2006).

After 2000 companies are using more and more performance based remuneration in the form of stock options. Mostly this remuneration package consists of a base salary, cash bonus and options and performance based shares. CEOs are more and more trying to reduce their salaries and increasing the performance based remuneration. Several studies have concluded that the CEO faces higher incentives to perform when his salary is based on this remuneration plan.

American corporations acted as the pioneers. In the beginning variable remuneration showed positive effects. The variable part of a CEO's salary in 1993 was 37% and rose in 2003 to 57% (Bebchuk and Grinstein, 2005). In 2005, the variable part of a CEO's salary in Switzerland was 59%, in Germany 57%, in Austria 50%, and in the United States 81% (Piazza 2006). In addition, the number of published articles in the *Web of Science* on pay for performance has greatly increased since 2002. The causes for the increasing popularity of pay for performance are unsolved corporate governance problems in modern stock corporations (Rost and Osterloh, 2009).

§ 3.4.2 Definition

In general companies remunerate CEOs for their effort. This remuneration is usually based in a remuneration plan. As mentioned before the remuneration plan usually exists of a fixed loan, also called a base salary, and a variable part of remuneration. This variable part could be a bonus plan of stock options or other forms of equity remuneration. According to Gao and Shrieves (2002) the most executive remuneration package contains four components: the cash salary, an annual performance-based bonus, stock options, and long-term incentive plans. The company hires a CEO to maximize the wealth of the company. According to Adam Smith every individual will try to maximize his or her own utilities. The remuneration above the base salary is to give the CEO incentives to perform. CEO incentives could be separated in short term incentives and long-term incentives. Cash bonus and stock

options are forms of short-term incentives. Options and performance-based shares are forms of long-term incentives. The company will always try to reduce the agency costs and mitigates the agency problem. Variable remuneration is a mechanism to stimulate the CEOs to perform to maximize the wealth of the company.

§ 3.4.3 Disadvantages of variable remuneration

As mentioned before the CEO remuneration plan relates on performance and is a mechanism to reduce or minimize the agency problem. Through cash bonuses and stock options the company aligns the self-interest of the CEOs to the interest of the company. This is more fiction than reality. In reality, at the end CEOs will always try to maximize their own wealth. Cash bonuses and stock options will create incentives to the CEOs to perform, but it is not always in the interests of the company. Cash bonus is a remuneration plan to create incentives for CEOs on the short-term. They maximize the value of the company on short term and don't mention about the consequences could be on long term. When CEOs reach the maximum of their bonus they could face the incentive to perform sub-optimal in order to get the bonus in the next period. The CEOs could achieve this through to decrease the current earnings and increase the future earnings. This is also called "big bath accounting". Other methods to earnings management are: the choice in accounting methods, change in accounting methods by changes in rules and regulations, impairments and revaluations, distribute the profit value, and round off the profit value (van der Bauwhede, 2003). The consequence for the company is that shareholders do not have the accurate company information to make the right decisions.

Stock options could be granted to a CEO. It could also work on the long term. It depends on the level stock options that have been exercised by CEO. Options are either in-the-money or out-the-money. In-the-money options have an exercise price that is lower than the current stock price in the case of call options. The CEOs receive a profit when the options are exercised. Usually, CEOs receive out-the-money options. The strike price of these options is higher than the current stock price. The strike price is the price at which underlying contract will be delivered in the event an option is exercised. CEOs have to perform to increase the value of the company and this will reflect an increase in the stock price. In the first view it is a good plan to align the interests of the company and the CEO, but it also could work contrarily. CEOs could have incentives to use "creative accounting" to achieve a high as possible stock price. On the short term this is good for the company, but on long term it can damage the company. On the other hand, CEO could also report lower earnings to achieve a low as possible strike price. The CEO

will receive stock options with a low exercise price. This will make it easier to make the stock options in the money.

§ 3.4.4 Long Term Incentive Plan

The long-term incentive plan is designed to align the interests of the company and the CEO on the long-term. The CEO will have ownership with Long Term Incentive Plan. These are shares, which are provided to the CEO for free to the fulfillment of specific performance conditions. Earnings per share (EPS) and shareholder return (TRS) are measurements of CEOs performance. The problem of this method is that it could reduce the transparency of the financial statements. CEOs could have incentives to make decisions based on their own interests. According to Aboody and Kasznik (2000) option grants will create incentives to the CEOs to disclose bad news and withhold good news. They will manage the timing of the disclosures of the company to maximize their own compensation. On this manner the CEOs receives options at a lower strike price. At the end they will disclose the good news which leads to an increase of the stock price. Then the CEO could exercise the call options for cash. Normally LTIP shares are long term CEO incentives and will not lead to earnings management. Variable cash remuneration could also be a part of a Long Term Incentive Plan.

§ 3.5 Conclusion

Earnings management is a general notion. It has many approaches. For this study the definitions of Healy and Wahlen (1999) and Scott (2003) will be used, because this study is related to the relation between CEO remuneration and earnings management. The definitions are focused on CEOs, which manage earnings to achieve their own interests. According to Scott (2003) CEOs use earnings management to achieve a specific objective. The CEO remuneration plan is introduced to align the interests between the company (shareholders) and the CEO. Unfortunately, it did not always produce the expected results, because CEOs could also have the incentive to maximize his own wealth even if it has negative consequences for the company. Healy and Wahlen (1999) claim that earnings management is bad for the company, because it misleads shareholders and will damage the reputation of the company on the long term. The bonus plan hypothesis of Watts and Zimmerman (1978) suggests CEOs with bonus plans are more likely to choose accounting procedures that shift earnings from future periods to current periods. On the other hand, the Long Term Incentive Plan would create incentives for CEOs to shift current earnings to the future. It can be concluded that the agency problem is not solved with the remuneration plan. There is still an information asymmetry between shareholders and CEOs. In this study the incentives of CEOs in Europe, who are rewarded with bonuses, stock and options and are

managing earnings in order to increase their variable compensation. The differences in corporate governance between Europe and the United States could be an important factor in the final results compared with prior studies. The companies in Europe with the two-tier board system have more monitoring between principal and agent than the companies with the one tier board of the United States. This chapter also answers the third, the fifth and the sixth sub questions.

4. Measurement of earnings management

As mentioned before managers use different methods to manage earnings. It is not easy to measure earnings management, because there are many different proxies to do the test. When stakeholders, standard setters or other parties are interested in research about earnings management, they can use several methods. According to Van der Bowhead (2003) the first studies looked at firms which systematically choose or change accounting methods systematically to manage earnings. There are many other methods to test the proxies of earnings management. The most common way is to use accruals as proxy to measure earnings management (Banish, 2001). These studies focus to examine earnings management by using of specific accruals. These can be defined like loan loss provisions and deferred tax valuation allowances (Healy and Wahlen, 1999). Another method to examine earnings management is using of total accruals.

§ 4.1 Accruals

The net income consists of cash from operations plus the accruals. The formula for total accruals is:

$$TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta ST\ Di_{i,t} - Dep_{i,t} / A_{i,t-1}$$

Where:

$\Delta CA_{i,t}$ = change in current assets;

$\Delta CL_{i,t}$ = change in current liabilities;

$\Delta Cash_{i,t}$ = change in cash and cash equivalents;

$\Delta ST\ Di_{i,t}$ = change in debt included in current liabilities;

$Dep_{i,t}$ = depreciation and amortization expense;

$A_{i,t-1}$ = total assets.

When CEOs want to manage earnings they will increase reported income by positive accruals or reported income will be decreased by negative accruals (Gao and Shrieves, 2002). Negative accruals can be associated with “Big Bath Accounting”. Examples of accruals are: depreciation costs, increases in the accounts receivable, decreasing of the accounts payable and accrued liabilities (Bissessur and Langedijk, 2005). Accruals can be decomposed into four categories: short- and long-term, non- discretionary and

discretionary accruals (Teoh et al., 1995). Short-term accruals are assets and liabilities related to day-to-day operations. Long-term accruals are adjustments, which involves long-term assets.

According to Klein (2002) total accruals are defined as: “*net income before extraordinary items minus cash flows from operations*”. These accruals can be decomposed in two different types: the non-discretionary accruals and the discretionary accruals. The formula of the total accruals is:

Ronen and Yaari (2008) defined non-discretionary accruals as accruals from transactions that is made in the current period that are normal for the firm given performance level. These accruals cannot be influenced by CEOs. The discretionary accruals are the choice of accounting treatments in order to manage earnings. The managers can directly influence discretionary accruals.

Jones (1991) mentioned that analysis of earnings management often focuses on managements’ use of discretionary accruals. This is in line with the statement of Beneish (2001). The use of discretionary accruals as proxy for earnings management is very common, because CEOs can influence them. There are many models to measure discretionary accruals. The models estimate the discretionary components of reported income. These models separate total accruals into discretionary- and non-discretionary accruals. There are different models for measuring non-discretionary accruals. These models will be discussed in the next paragraph.

§ 4.2 Models to detect earnings management

As mentioned before earnings management can be realized by real transactions and accrual accounting. According to McNicols (2000) there are three approaches to detect earnings management. The approaches are: specific accrual models, behavior of the results around a specific point, like the zero point or expected profit of a specific quarter, and total accrual models. When specific accrual models are used for measurement of earnings management there will be one accrual that is important to make a judgment. Earnings management will be concentrated in this specific accrual. When earnings management will be detected by analyzing the results around a specific point, the frequency of amounts will be tested on normally partition. This is a kind of a matching principle. The test will show the existence of discontinuity in the amounts as result of earnings management. The most common way to measure earnings management is to use total accrual models. The total accruals exist of discretionary accruals and non discretionary accruals. Discretionary accruals are the cause of managers. Non-discretionary accruals cannot be influenced by managers, because they are directly related and necessary for the operations of the company. Managers are able to influence discretionary accruals

however. For this study we want to detect the discretionary accruals. To compute the discretionary accruals we have to deduct the non-discretionary accruals from the total accruals. As mentioned before there are different models to measure the non – discretionary accruals.

The following models will be discussed for this study: the Healy model (1985), the DeAngelo model (1986), the Jones model (1991) and the modified Jones model (1995). The model of Kothari et al. (2005) is the most recent model. These five models are the most common used to measure non - discretionary accruals. They all use discretionary accruals as proxy for earnings management. The non-discretionary accruals will deduct from the total accruals to get the discretionary accruals. The difference between these models is the different methods used to calculate the non-discretionary accruals. After measuring the non-discretionary accruals, the discretionary accruals can be measured by the next formula:

$$DA_{i,t} = TA_{i,t} - NDA_{i,t}$$

§ 4.2.1 The Healy model (1985)

Healy (1985) tried to detect earnings management by comparing the total mean accruals across earnings management-partitioning variables. This study is different from other earnings management studies. The main reason for this was his view of that systematic earnings management occurs in every period. Healy (1985) assumes that there is no earnings management in this year (period) if there is no earnings management in the previous year (period). The measure of nondiscretionary accruals is represented by the mean total accruals from the estimation period. The following model implies the non-discretionary accruals of Healy:

$$NDA_{\tau} = \frac{\sum_t TA_t}{T},$$

where

NDA = estimated nondiscretionary accruals;

TA = total accruals scaled by lagged total assets;

t = 1, 2,...T is a year subscript for years included in the estimation period; and

τ = a year subscript indicating a year in the event period.

T = economic trends in period

Healy's model was the First model that considers accruals as proxy for earnings management. The non-discretionary accruals are represented by the mean total accruals of the previous year (period). Healy (1985) divides his partitioning variable into three groups. He compares the mean total accruals of the groups with the mean total accruals of each specific year. Earnings are predicted to manage upwards in

the estimation period. In the event period earnings are predicted downwards. Earnings management takes place when the variation of the non-discretionary accrual is > 5%. This model omits too many variables like gross property, plant and equipment and sales to provide accurate estimate. (McNichols, 2002). There is no place for discretionary accruals. The discretionary accruals can be influence by the CEOs. This model does not have taken the discretionary accruals into account. Thus, this model is not useful for this study.

§ 4.2.2 The DeAngelo Model (1991)

The DeAngelo model can be seen as a special case of the Healy model. The estimation period for non-discretionary accruals is not restricted to periods used in for example the Healy model, but it is rather restricted to the observation of the previous year. DeAngelo tried to detect earnings management by computing the first differences in total accruals. Hereby, he assumes that the first differences have an expected value of zero by the hypothesis, which presents no earnings management. *“This model uses last period’s total accruals (scaled by lagged total assets) as the measure of non-discretionary accruals”*. (Dechow et al, 1995) The model to measure earnings management of DeAngelo is as follows:

$$NDA_{\tau} = TA_{\tau-1}$$

Where

NDA_τ = estimated non-discretionary accruals;

TA_{τ-1} = total accruals scaled by lagged total assets.

This model assumes that non discretionary accruals are constant in time. It is possible to assume that last year non- discretionary accruals are also the non discretionary accruals of this year. In changing times the assumption that is described is too naïve. For this reason this model is not useful for this study.

§ 4.2.3 The Jones Model (1991)

An important assumption of the model of Jones is that non-discretionary accruals are not always constant. *“The model attempts to control for effect of changes in firm’s economic circumstances on non-discretionary accruals.”* (Dechow et al, 1995) The Jones Model to measure earnings management is as follows:

$$NDA_{\tau} = \beta_1(1/A_{\tau-1}) + \beta_2(\Delta REV_{\tau}) + \beta_3(PPE_{\tau})$$

Where

- ΔREV_t = revenues in year τ less revenues in year $\tau-1$ scaled by total assets at $\tau-1$;
- PPE_t = Gross property plant and equipment in year τ scaled by Total assets at $\tau-1$;
- $A_{\tau-1}$ = Total assets at $\tau-1$;
- $\beta_1, \beta_2, \beta_3$ = firms specific parameters.

Estimates of the firm- specific parameters β_1, β_2 and β_3 are generated using the following model in the estimation period:

The revenues are all non-discretionary. *“If earnings are managed through discretionary revenues, then the Jones model will remove part of the managed earnings from the discretionary accrual proxy.”* (Dechow et al, 1995). $(1/A_{\tau-1})$ are the total assets of the company at prior year. The total assets represent the liquidity of the company. (ΔREV_t) are revenues in year τ less revenues in year $\tau-1$ scaled by total assets at $\tau-1$. In the Jones model the revenues are the most important non-discretionary variable which affects the short-term accruals. The revenues represent the business activities of the company. The (PPE_t) are Gross property plant and equipment in year τ scaled by Total assets at $\tau-1$. The gross property plant and equipment are the most important variable which affects the long-term accruals (Bissessur and Langendijk, 2005). The gross property plant and equipment represents the sustainable development of the company. The total accruals will be linked to non-discretionary accruals in a regression model.

$$TA_t = b_1(1/A_{\tau-1}) + b_2(\Delta REV_t) + b_3(PPE_t) + E_t$$

Where:

a_1, a_2 and a_3 denote the OLS estimates of β_1, β_2 and β_3 and TA is total accruals scaled by lagged total assets. The results in Jones (1991) indicate that the model is successful at explaining around one quarter of variation in total accruals.

$$DA_{i,t} = TA_{i,t} - NDA_{i,t}$$

The residues of the regression are assumed as discretionary accruals. The discretionary accruals are used as proxy for earnings management. When the deviation of the discretionary accruals is above 5% it indicates that the company use earnings management.

The estimation of accruals is more precise than the Healy model and the DeAngelo model. According to Guay et al. (1996) and Thomas et al. (2000) cautioned that the model due to imperfections. This model hasn't taken the accounts receivables into account. This is a limitation of this model.

§ 4.2.4 The Modified Jones Model

The Modified Jones model also uses discretionary accruals as proxy for earnings management. In relation to the original Jones model this model does control for changes in the receivables account. Adjusting for change in receivables will result in more accurate accruals from change in sales. The non-discretionary accruals are estimated during the event period as:

$$NDA_{\tau} = \beta_1(1/A_{\tau-1}) + \beta_2(\Delta REV_{\tau} - \Delta REC_{\tau}) + \beta_3(PPE_{\tau})$$

Where

ΔREV_{τ} = revenues in year τ less revenues in year $\tau-1$ scaled by total assets at $\tau-1$;

ΔREC_{τ} = net receivables in year τ less net receivables in year $\tau-1$ scaled by total assets at $\tau-1$;

$PPE_{i,t}$ = gross property plant and equipment in year τ scaled by total assets at $\tau-1$;

$A_{\tau-1}$ = Total assets at $\tau-1$;

$\beta_1, \beta_2, \beta_3$ = firms specific parameters.

The earnings can be managed in the accounts receivables. The accounts receivables can present within the sales, but it is not certain that the payment will be realized. CEOs could burn up the accounts receivables to show higher sales and let them depreciate after the disclosure of the annual report. This model is more accurate than the Jones model, because the changes in account receivables are taken into account. The risk that CEOs will burn up the accounts receivable is mitigated in the modified Jones model. Adjusting for change in receivables will result in more accurate accruals from change in sales, but the modified Jones model still shows imperfections.

§ 4.2.5 The Model of Kothari

Kothari et al. (2005) developed a model which focuses on the performance of companies in determining the non-discretionary accruals. According to Kothari et al. (2005) former models like the Jones and the modified Jones model lack control of performance. They don't take the company performance into account in their models. By measuring accruals with a performance related variable, results could be

more accurate. To control for the effect of performances, Kothari et al. (2005) have developed a model to detect earnings management by including the variable return on assets (ROA) in their model. The formula for total accruals is:

$$TA_{it} = \delta_0 + \delta_1 (1/ASSETS_{it-1}) + \delta_2 \Delta SALES_{it} + \delta_3 PPE_{it} + \delta_4 ROA_{it(or\ it-1)} + u_{it}$$

Where

ASSETS_{it-1} = assets of previous year;

ΔSALES_{it} = change in sales;

PPE_{it} = gross property plant and equipment in year t scaled by total assets;

ROA_{it(or it-1)} = Return on assets at recent year or previous year;

δ₀, δ₁, δ₂, δ₃, δ₄ = firms specific parameters.

u_{it} = error term

The non-discretionary accruals are measured by the same formula as the modified Jones model. The total accruals will be linked to non-discretionary accruals in a regression model. The discretionary accruals are the residues of the regression.

§ 4.3 Conclusion

The Healy model (1985) and DeAngelo model (1986) are both examples of time-series models to measure earnings management. The total accruals, which no earnings management is expected, will compare with the year where earnings management has been used. On the other hand the Jones model (1991) and the modified Jones model (1995) can be used as time-series model, but also as cross-sectional models. The time series version focuses on earnings management for a longer period of time for a single company. The cross-sectional version focuses on economical circumstances and features among companies, like types of industry (Van der Bouwhede, 2003). Furthermore, the Jones model uses a regression model with several independent factors to calculate the non-discretionary accruals. The modified Jones model is similar to the Jones model, but has one extra feature: the model has adjusted the change in revenues and therefore provides for a better proxy to measure earnings management. Kothari et al. (2005) have developed a model, which is focused on the performance of the company. This study does not look at the performance of the companies, because it would be very complicated. If we take the performance of the companies into account it could give the appearance that higher

performance companies use more earnings management. This study focuses on CEO variable remuneration and not on the performance of the companies. This study will use time-series and a cross-sectional model to estimate earnings management. The Healy (1985) model and DeAngelo (1989) model are only based on time series. The model of Kothari et al. (2005) takes the performance of the company into account. For this study we do not study the performance of the companies. Furthermore, the Kothari et al. (2005) model does not take the accounts receivables into account. The Jones model (1991) does not take the accounts receivables into account either. Thus, the only study that is left is the Modified Jones Model (1991). The prior studies in the United States have most often used the Modified Jones model (1991) to study the estimation of earnings management. For this study the Modified Jones model will be the best model for measuring the non-discretionary accruals. This chapter also answers the fourth sub question.

5. Prior Research

This section will provide an overview of prior studies which explore the relation between CEO variable compensation and earnings management. As mentioned in the introduction the most prior studies are focused on earnings management in the United States. It is not possible to provide an overview of all the prior studies. The criterion for selecting prior studies is: there should be a relation between CEO variable compensation and earnings management. The prior studies, which are selected for this study, fulfilled this criterion. The prior studies have different characteristics. There are differences in sample selection, sample area and objective of CEO variable compensation, methodology or outcome. The sample area of the studies is listed companies in the United States except the studies of Lam (2005) and Shuto (2007). Lam (2005) has listed companies of the Dutch AEX index as sample area. Shuto (2007) has listed companies of Japan as sample area.

§ 5.1 Bergstresser and Philippon (2006)

Bergstresser and Philippon (2006) found evidence that suggest that firms where CEOs potential total compensation is more closely tied to the value of stock and option holdings use more discretionary accruals. The main variables are: accruals, CEO incentives, CEO option exercises and share sales. The data is based on the period 1993-2000. Compustat is used for the accruals and Compustat Executive Compensation is used for the CEO incentives and CEO option exercises. Thomson Financial is used for purchases and sales of shares by the CEOs. After analyzing these data they found that companies with more incentivized CEOs have higher level of earnings management. These CEOs are more likely to use aggressively discretionary components of earnings to affect the firm performance. There are four measures of CEO and insider sales: the gross number of shares sold by the CEO normalized by the number of shares outstanding, net sales of shares by the CEO as a proportion of outstanding shares and gross and net sales of shares normalized by outstanding shares for executives identified as holding one of one of five senior positions in each year. CEOs could use earnings management to increase the share price of the company to sell their own shares. They could also use earnings management to transfer their stock options in money. CEOs with higher insider sales in the present year are more likely to have used earnings management in the prior year. For analysis they have used the modified Jones model to calculate the total accruals. Furthermore, the incentive ratio is used to measure the CEO

management to achieve their interests. The incentive ratio formula is:

$$\frac{\text{Increase in value of CEO stock and options for a 1\% increase in stock price}}{\text{Increase in value of CEO stock and options + annual salary + annual bonus}} \times 100$$

The findings of Bergstresser and Philippon (2005) are the same as the findings of Beneish and Vargus (2002), Collins and Hribar (2000) and Sloan (1996). These scientists also found positive evidence for equity incentives and earnings management.

§ 5.2 Cheng and Warfield (2005)

Cheng and Warfield (2005) examined the link between CEOs equity incentives, arising from stock based compensation and stock ownership, and earnings management. Equity incentive elements are: option grants, un-exercisable options, exercisable options, restricted stock grants, and stock ownership. They hypothesize that managers with high equity incentives are more likely to sell shares in the future. This motivates the managers to attempt to sell shares for the highest possible price. They could use earnings management to increase the value of the shares. To test the hypothesis they used stock based compensation and stock ownership data over 1993-2000 in Canada. The data is derived from Standard & Poor ExecuComp and is excluding financial institutions and utilities. The Jones Model (1991) is used for the measurement of accruals. *“They find that managers with high equity incentives are more likely to report earnings that meet or just beat analysts’ forecasts. They also find that managers with consistently high equity incentives are less likely to report large positive earnings surprises”.* Overall, stock based remuneration and ownership can lead to incentives for earnings management.

§ 5.3 Gao and Shrieves (2002)

This study finds a positive relation between the amounts of stock options and bonuses, and incentive of stock options and earnings management intensity, whereas salaries are negatively related. The contract design does influence earnings management. The CEOs will behave in an opportunistic fashion by exploiting timing of options embedded in the compensation contract. Current option grants, exercisable in-the-money stock options from prior grants and incentive intensity of stock option awards have a positive influence on earnings management intensity, while salary has a negative influence. To obtain executive compensation information they use Standard and Poor’s Execucomp database, which reports components of compensation for 1500 US firms between 1992-1999. The companies includes utilities,

insurance, financial and depository institutions are excluded. For accounting data to measure the accruals they used Standard and Poor's Compustat annual industrial files and market value information from CRSP database. For the measurement of incentive intensity they used the Incentive-Intensity of Stock Option Award and Incentive-Intensity of CEO Restricted Stock Grants. They use Kaplan-Zingables index value to measure the discretionary accruals. The definition of Teoh et al. (1998) is used for accruals.

§ 5.4 Guidry et al. (1998)

The study of Guidry et al. (1998) tests the bonus-maximization hypothesis that CEOs make discretionary accruals decisions to maximize their short term bonuses. To test the hypothesis the sample is split up in three portfolios. The portfolios are: a lower bound portfolio (LOW), a middle portfolio (MID) and an upper bound portfolio (UPP). They determine bonuses by comparing actual performance to target for EBIT, return on sales (ROS), and return on assets (RONA). The Healy model (1985) is used to measure the total accruals and the cross sectional modified Jones model (1991) is used for measuring the discretionary accruals. Business units of the U.S. division of large multinational conglomerates are used for this study. They found evidence that suggests that the business-unit managers manage earnings to maximize their short-term bonus plans. In relation to managers of the UPP and LOW portfolios, MID portfolio make relative managers more income-increasing discretionary accruals.

§ 5.5 Holthausen et al. (1995)

This study finds evidence that the CEOs manage earnings downwards when bonuses are at their maximum. The sample for this study consists of firms in the confidential compensation databases. These databases provide information about the executive compensation. These are provided by two different human resource-consulting firms. The data covers calendar years from 1982-1994 and 1987-1991. Compustat provides the sample for the firm observation to measure the accruals. The CEOs compensation is divided in three portfolios: below-the-lower-bound, above-the-upper-bound and inside. Accruals are measured by the modified Jones model (1991) and the Healy model (1985). There is no evidence that managers, which are classified as below the lower bound, manage earnings downwards.

§ 5.6 Huddart and Louis (2005)

Stock based compensation creates incentives for CEOs manage earnings. For this study the hypothesis is: The CEOs manage earnings to increase the stock price before selling stock. The unexpected accruals of firm's annual reports are used as proxy for earnings inflation. Using the cross-sectional modified Jones model (1991) they measured the earnings inflation. Compustat provides the data of firms between the years 1997-1999. Insider trading data is provided by Thompson Insider Filing Feed database. They found evidence that the high insider selling firms report significantly higher abnormal accruals in the preceding quarter than low insider selling firms. Moreover, the stock price declines during the ensuing correction period. Overall, high levels of stock compensation will provide CEOs with incentives to inflate stock prices through earnings management.

§ 5.7 Kadan and Yang (2006)

This study investigates the effects of grants of executive stock options and restricted stock on earnings management and insider trading during the vesting date of the grants. The investigated period is 1993-2004. The cross-sectional version of the modified Jones model (1991) is used to measure the discretionary accruals. All the data, which is used to calculate the discretionary accruals, are from the database of Compustat. The measurement of insider trading is split into two ways. The first is the dollar value of options exercised and scaled by firm equity. This data is provided by the ExecuComp database (SOPTXERC). This measurement does not include insider trading. Thus, insider trading and also net insider sales scaled by firm equity are also used. This data is provided by the Thomson Financial database. The empirical results show that the moneyness of the options and the high stock prices both have effect on earnings management and insider sales. Furthermore, there is a positive relation between insider sales and earnings management in the vesting years of the options.

§ 5.8 Kedia (2003)

This study investigates the effect of generating stock options on earnings management. The General Accounting Office (the Congress in the United States) identifies announcements of accounting restatements by 845 firms over the period 1997-2002. This list is used as basis for this study. The probit model and the OLS regression are used for this study. The compensation data is available for 224 firms of the 845 firms on ExecuComp. Here the year prior is compared to the current years, which are alleged manipulation. It is likely those years, which contain earnings management, will have high incentives.

“Kedia finds evidence that high pay for performance incentives arising from stock options significantly increase the probability of restatement”. Furthermore, there is evidence that large managerial ownership will mitigate the effect of stock options on the incentives to manage earnings.

§ 5.9 Lam (2005)

This study investigates the relationship between variable compensation and earnings management in the Netherlands. The AEX index between the years 2002-2005 is used as data for this study. The available firm years are divided into three portfolios: LOW, UPP, MID.

LOW contains firm years, in which the result is lower than what is stated in the bonus-plan contract of the manager. UPP contains firm years in which the earnings that are higher which leads to bonuses for the CEO. The MID contains firm years which the result is between the minimum and the maximum of the bonus. The modified Jones model (1991) is used to measure discretionary accruals. These discretionary accruals are the proxy for earnings management. The analysis of the relation between discretionary accruals and the portfolios are done with the variance analyze and the Chi2 test tests. Lam (2005) found no evidence between variable compensation and earnings management.

§ 5.10 Meek et al. (2007)

This study suggests a positive relationship between CEO stock option compensation and discretionary accruals. This implies that earnings management is more likely to occur where stock options are a larger part of CEO compensation. Furthermore, they also found that stock options exacerbate earnings management in companies with growth opportunities. In large companies the stock option incentive effect to manage earnings ought to be lower. This is because in relation to other companies, large companies have a lower degree of information asymmetry, stronger governance structures, external monitoring or political sensitivity. The study is estimated in the United States. The discretionary accruals are measured by the modified Jones model (1991) and the Kothari et al. (2005) performance-matched model. They used the ExecuComp database for CEO stock option compensation data. The OptionComp is the Black-Scholes value of annual CEO stock compensation as a percentage of total compensation. The data is from 1993-2001. The accounting information is obtained from Standard and Poor's Research Insight annual industrial years from 1992-2001. The finance industry and regulated industries, industries with missing data, industries with no stock option compensation and industries with more than ten observations in a two-digit industry code are eliminated.

§ 5.11 Shuto (2007)

This study investigates the relation between discretionary accounting choices and executive compensation. The study is related to Japanese companies. Shuto (2007) found evidence that discretionary accruals are positively and significantly related to executive compensation. This implies that managers use discretionary accruals to increase their compensations. The result is not extremely inefficient, because it also considers the perspective of efficient contracting. The sample selection is the period between 1991 and 2000. The data for earnings components and executive compensation are obtained from Nikkei-Zaimu Data and it is based on unconsolidated financial statements. The OLS regression is used for analyzing the relation executive compensation and discretionary accounting choices. The relation between income decreasing accounting choices and bonus is analyzed by the logistic regression. Discretionary accruals are measured by the CFO modified Jones model (Kasznik, 1999)

§ 5.12 Zhang et al. (2008)

This study found that CEOs who have more out-the-money options and lower stock ownership are more likely to manage earnings. The sample for this study is obtained from Compustat (executive compensation database) from 1996-2001 for executive compensation. The restatement database released by the General Accounting office is used for identify companies in the ExecuComp database who manipulated earnings. They investigate how stock based executive incentives led to earnings manipulation through comparing the restating companies and the non-restating companies.

§ 5.13 Conclusion

Prior studies use different methods. Some studies investigate the relation between variable compensation and discretionary accruals as proxy for earnings management. Other studies only investigate the relationship between stock options and earnings management. There are also studies that investigated in the relation of stock ownership and earnings management. Compensation plan maximization could be realized when CEOs increase or reduce earnings. The levels of exercised stock options also have influence on the level of earnings management. Insider sales could also be used as a measurement for earnings management. Cheng and Warfield (2005), Huddart and Louis (2005) and Kadan and Yang (2006) found evidence that in the period before the high insider sales consists more abnormal accruals. The compensation plan is an essential object for the companies, because the contract design could have effect on the level of earnings management. Overall, there is evidence that variable CEO remuneration leads to incentives in managerial behavior to manage earnings. Only the

study of Lam (2005) has not found evidence in the relation between compensation plan and earnings management. Furthermore, Meek et al. (2007) argued that growths companies are more likely to adopt earnings management. Large companies use lower level of earnings management than other companies. At last Cheng and Warfield (2005) have a difficult conclusion of the relation of stock-ownership and earnings management then Kedia (2003) and Zhang et al. (2008). In contrast to this study two other studies associate more stock ownership as positive for the level of earnings management. This chapter also answers the seventh sub question.

In this thesis the relationship between CEO variable remuneration and the level of earnings management in Europe is studied. To study this knowledge of Bergstresser and Phillippon (2006), Gao and Shrieves (2002) and Meek et al. (2007) is used. The incentive ratio is used to study the relation between CEO incentives and earnings management. CEO incentives are related to stock options and shares. The higher the change in stock options and shares the higher the CEO incentives. Discretionary accruals will be used as a proxy for earnings management. Bergstresser and Phillippon (2006) have found evidence for CEOs which are remunerated by more stock and option holdings are more using earnings management in the United States between the period of 1993-2000. The higher the change in stock options and shares the higher the CEO incentives. We also study the relationship between the amounts of stock options and bonuses with earnings management whereas base salaries are negatively related. The higher the amounts of stock options and bonuses the more earnings management is used. This is a relation between short term remuneration and earnings management. The base salaries are negatively related to earnings management. The higher the amount of the base salary of the total remuneration means a lower earnings management. Discretionary accruals will be used as a proxy of earnings management. Gao and Shrieves (2002) have found evidence for positive relation between the amounts of stock options and bonuses and earnings management, whereas base salaries are negatively related. Furthermore, we study the relationship between stock option remuneration and earnings management. Earnings management is more likely to occur where stock options are a part CEOs remuneration. Discretionary accruals are a proxy of earnings management. Meek et al. (2007) found evidence for a positive relation between stock option remuneration and earnings management for finance and regulated industries in the period of 1992-2001. Finally we study the relationship between Long Term Incentive Plans and earnings management. CEOs which remunerated with Long Term Incentive Plans are less likely to use earnings management. Cheng and Warfield (2005) associate Long Term Incentive Plans as stock ownership. They found evidence for a negative relationship between stock

ownership and earnings management for financial institutions and utilities in Canada between the period of 1993-2000.

I gained a better insight to the relationship between earnings management and CEO remunerations with the studies of Guidry et al. (1998), Holthausen et al. (1995), Huddart and Louis (2005), Kadan and Yang (2006), Kedia (2003), Lam (2005), Shuto (2007) and Zhang et al. (2008). For this study I used the studies of Bergstresser and Phillippon (2006), Gao and Shrieves (2002), Meek et al. (2007) and Cheng and Warfield (2005) for input for the research design.

6. Hypotheses

The previous chapter introduced the effect of variable remuneration and earnings management. In this chapter hypotheses will be stated to be tested to answer the research question. CEO compensation packages could be consists of different variable remunerations. Bonuses, stock options and Long Term Incentives Plans are all forms of CEO remuneration. Previous studies shows CEOs which are compensated by variable bonuses that are estimated by the results have more incentives to use earnings management to get a higher bonus. Furthermore, CEOs with stock options as variable remuneration have also more incentives to manage earnings. When the CEO shows higher earnings the share price of the company will rise. The stock options of the CEO will be in the money. In this situation the CEO will get his/her advantage by using earnings management. On the other hand, CEOs with Long Term Incentive Plans have no incentives to use earnings management. CEOs with Long Term Incentive Plans have ownership in the companies. They do not have incentives to use earnings management, because earnings management could damage the company when it reaches the newspapers. The CEOs do not want to be associated with earnings management. Previous studies are mostly studied in the United States. This study will be related to Europe. The United States is an Anglo Saxon country. Europe consists of Continental countries that have another corporate governance structures than Anglo Saxon countries, Furthermore, the sample of some prior studies are different with this study. The financial institutions and utilities and government institutions are not studied in this thesis whereas some prior studies did. This could lead to different results. The Euro-next 100 index companies will be used for this study. This research studies the relationship between CEO remuneration and earnings management in Europe. The research question is:

“What is the relationship between CEO variable remuneration and the level of earnings management in companies of the Euro-next 100 index for 1999-2009?”

The following hypotheses is used to test relation the between the different variable remunerations and earnings management.

§ 6.1 Hypothesis 1: There is a positive relationship between CEO equity incentives and earnings management.

The first hypothesis is that there is a positive relationship between earnings management and the incentives of CEOs. In this case companies where CEOs have higher incentives will perform higher discretionary accruals. Following Bergstresser and Philippon (2006), this hypothesis suggests that firms where CEOs potential total compensation is more closely tied to the value of stock and option holdings use more discretionary accruals. These CEOs are more likely to use aggressively discretionary components of earnings to affect the firm performance. The stock price will increase because the good firm performance where accruals are a large part of the firms' reported income. As Cheng and Warfield (2005) argued managers with high incentives are more likely to sell shares in the future. The CEOs will try to disclose an as good as possible firm performance to increase the stock price so they can earn more for their shares. As mentioned before CEO variable remuneration could lead to CEO incentives to use earnings management. This hypothesis shows the relation between CEO incentives and the level of earnings management. The output of this hypothesis will show whether or not CEO equity incentives will affect the level of earnings management. So it provides evidence whether or not CEO variable remuneration is related to earnings management.

§ 6.2 Hypothesis 2: There is a positive relationship between variable cash remuneration incentives and earnings management.

The second hypothesis is that there is a relationship between CEO bonuses and earnings management. In this case bonuses are positively related to discretionary accruals. Following Gao and Shrieves (2002) the basic salary is negatively related to discretionary accruals. The companies which uses compensation package perform higher discretionary accruals than CEO without bonuses in their compensation package. The level of discretionary accruals is determined by the level of bonuses in the compensation plan. As mentioned before variable bonuses as CEO remuneration could lead to earnings management. This hypothesis shows the relation between bonuses and earnings management. The output of this hypothesis will show whether or not variable bonuses will affect the level of earnings management used by CEOs. It provides which kind of CEO variable remuneration is or is not related to earnings management.

§ 6.3 Hypothesis 3: There is a positive relation between short term incentive plans and earnings management.

The third hypothesis is that short-term bonuses are positively related to earnings management. As mentioned before short-term bonuses are cash bonuses and stock options. In this case companies which paid short-term bonuses in the CEO compensation plan have higher discretionary accruals in comparison with other companies. The level of short-term bonuses as a part of the whole compensation plan will determine the level of discretionary accruals. Huddart and Louis (2005), Meek et al (2007) have found evidence for this relation. This hypothesis will show whether or not short-term bonuses will affect earnings management. It provides which kind of CEO variable remuneration is or is not related to earnings management.

§ 6.4 Hypothesis 4: There is a negative relationship between Long Term Incentive Plans and earnings management.

The fourth hypothesis is that there is a negative relationship between Long Term Incentive Plan and the extent of earnings management. A Long Term Incentive plan could be cash or equities. In this case CEO compensation plans with Long Term Incentive Plan will be negatively related to discretionary accruals. This plan is used by companies to align the interests of the principal and the agent on long term. The CEO is the agent and the shareholders (company) are the principal. The CEO will try to act as good as possible for the firm. When the stakeholders find out that a company uses earnings management, they could lose their trust in the company. Hence the company could face reputational damage. The CEO has long term interests and would not let this happen. So he will not use earnings management, because it is too risky. This means that companies which issued LTIP's in the CEO compensation plans will have lower or zero discretionary accruals. The output of this hypothesis will show whether or not LTIPs will affect earnings management negatively. It provides which kind of CEO variable remuneration is or is not related to earnings management.

§ 6.5 Hypothesis 5: There is a negative relationship between CEO stock ownership and earnings management.

The fifth hypothesis is that there is a negative relationship between stock ownership and earnings management. In the previous hypothesis it is mentioned that stock options are short-term bonuses. According to Zhang et al. (2008) CEOs who have more out-the money options and lower stock ownership are more likely to manage earnings. Cheng and Warfield (2005) mentioned that CEOs with

higher stock ownership are less likely to use earnings management. The assumption is that companies where CEOs have high stock ownership will have lower discretionary accruals. The output of this hypothesis will show whether or not stock ownership will affect earnings management negatively. CEOs which are remunerated with Long Term Incentive Plans and shares are not likely to use earnings management. When the CEOs have less stock ownership it could be more likely to use earnings management. This hypothesis provides evidence which kind of CEO variable remuneration is or is not related to earnings management.

The hypotheses all together provide evidence for the research question. Hypothesis 1 provides evidence whether or not CEO equity incentives will affect the level of earnings management. Equity incentives have to do with variable remuneration. When there is evidence that CEOs have incentives to use earnings management the question is which CEO remuneration could be incentive the CEOs to use earnings management. Hypothesis 2 provides evidence about CEO variable bonuses and earnings management. Hypothesis 3 provides evidence about short term variable remuneration and the level of earnings management. Hypothesis 4 provides evidence for Long Term Incentive Plan and the level of earnings management. The Long Term Incentive Plan is a variable remuneration based on long term. Hypothesis 5 provides evidence whether or not stock ownership is negatively related on earnings management. Variable remuneration based on stock ownership is also a based on long-term like LTIPs. Overall, the five hypotheses will show which form of CEO variable remuneration are related to the level of earnings management. With the output of these hypotheses it is possible to conclude which form of variable remuneration has a relationship with the level of earnings management.

7. Methodology

This section will present the methodology of this study. The research methods that are used to test the hypotheses will be explained in more detail. As mentioned before accruals will be used as proxy to measure earnings management. And in this thesis total accruals will be used. The specific accrual model is not proper for this thesis, due this model investigates several different accruals at a particular moment. In the literature the total accrual model is common used to investigate several accruals at different moments.

§ 7.1 Dependent variables

The dependent variable for this study is an estimation of earnings management. As mentioned before accruals will be used as proxy for earnings management. First the total accruals will be measured. The formula to define the total accruals is:

$$TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta ST Di_{i,t} - Dep_{i,t} / A_{i,t-1}$$

Where:

$\Delta CA_{i,t}$ = change in current assets;

$\Delta CL_{i,t}$ = change in current liabilities;

$\Delta Cash_{i,t}$ = change in cash and cash equivalents;

$\Delta ST Di_{i,t}$ = change in debt included in current liabilities;

$Dep_{i,t}$ = depreciation and amortization expense;

$A_{i,t-1}$ = total assets.

The total accruals can be divided into discretionary and non-discretionary accruals. For this study the discretionary accruals is relevant, because these accruals can be controlled by CEOs. In chapter 4 is argued that this study uses the modified Jones model to measure the non-discretionary accruals. This will also answer sub-question 8.

First the non-discretionary accruals have to be measured before calculating the discretionary accruals. The formula for the non- discretionary accruals is:

$$NDA_{t,i} = \beta_{1i} (1/A_{i,t-1}) + \beta_{2i} (\Delta REVI_{i,t} - \Delta RECI_{i,t}) + \beta_{3i} (PPE_{i,t}) + \xi_i$$

Where

- $\Delta REVI_{i,t}$** = revenues in year t less revenues in year $\tau-1$ scaled by total assets at $\tau-1$;
- $\Delta RECI_{i,t}$** = net receivables in year τ less net receivables in year $\tau-1$ scaled by total assets at $\tau-1$;
- $PPE_{i,t}$** = gross property plant and equipment in year t scaled by total assets at $\tau-1$;
- $A_{\tau-1}$** = Total assets at $\tau-1$;
- $\beta_1, \beta_2, \beta_3$** = firms specific parameters.

When the non-discretionary accruals are measured, the discretionary accruals can be estimated by the next formula:

$$DA_{i,t} = TA_{i,t} - NDA_{i,t}$$

§ 7.2 Independent variables

In this study the independent variables are measurements which are related to the compensation plan of CEOs . The independent variables are: base salary, bonus, stock options, shares and long term incentive plans.

- *Base salary (BS)*

The base salary of the CEO is the basic component of the compensation plan. The higher the base salary as part of the compensation plan, the lower CEO variable compensation. This means the lesser the discretionary accruals. According to Gao and Shrieves (2002) base salary is negative related to discretionary accruals.

- *Bonus (B)*

The definition of bonus is very broad and could be implemented in different ways. The definition for this study is the compensation of CEO when his/her targets are realized. The bonuses have short term characteristics and will be pay out in cash. According to Gao and Shrieves (2002), Guidry et al. (1998) and Lam (2005) the CEO bonus is positively related to discretionary accruals. The higher the bonus the more discretionary accruals. From now on variable cash remuneration is used as a definition for bonus.

- *Stock options (SO)*

As mentioned before CEOs are granted call stock options by companies to align the interests of the CEO and the company. The strike level of stock options which are granted by companies differs. In the money call options have a strike price which is lower than the current price of the shares. By exercising the call option a profit will be immediately cashed out. It is more common to grant CEOs out of the money options. The strike price of these options is higher than the current stock price. If the share price increase above the strike price, the stock option will be in the money and CEO will take a advantage in case of exercising the options. According to Bergstresser and Phillippon (2006), Gao and Shrieves (2002), Huddart and Louis (2005), Kadan and Yang (2006), Kedia (2003), Meek et al. (2007) and Zhang et al. (2008) stock options are positive related to discretionary accruals. The higher the stock options the more discretionary accruals.

- *Shares (S)*

When the company compensate the CEO with shares it will create incentives for the CEO to meet the companies' long term interests. Cheng and Warfield (2005) mentioned that stock ownership leads to incentives for earnings management. The stock holding of CEOs are positively related to discretionary accruals. The higher the shares holding the higher discretionary accruals.

- *Long Term Incentive Plan (LTIP)*

The Long term incentive plan is a compensation for the CEO on long term. The higher the Long term incentive plan the lower the discretionary accruals. LTIP could also be associated with ownership.

- *Incentive ratio*

The incentive ratio describes the value increase of a hypothetical CEOs total compensation package due to an increase of the share price of his or her company. The incentive ratio is per 100 basis points. Stock options and shares are part of the total bonus package. We assume stock options are in the money and have a delta of one. The formula of the incentive ratio is:

$$\text{Incentive ratio} = \frac{\text{Onept}}{(\text{Onept} + \text{base salary} + \text{Stock options})}$$

Where $\text{Onept} = \text{Shareprice company} \times (\text{total shares} + \text{Stockoptions})$

§ 7.3 Control variables

The following control variables are inputted into the model.

- Size(ln)

The size is the natural logarithm of the market value of assets. The size of the company has effect on discretionary accruals. Larger sized companies tend to be have lower discretionary accruals. Meek et al. (2007) argue that the quality and quantity is greater for large companies. These companies generate more information and have more interim disclosures. Furthermore, large companies are associated with stronger monitoring. However, the larger the company the more they are in the publicity. The penalties for being caught for managing earnings are likely to be higher for large companies than for small companies. The chance to be caught is higher for large companies, because there is a stronger monitoring mechanism from third parties. According to Kadan and Yang (2006) and Larcker and Richardson (2004) large companies tend to have less discretionary accruals. This is in line with Meek et al. (2007).

- EBIT

The EBIT is the earnings before tax and interest. This is a proxy for sales. Guidry et. al (1998) argues that EBIT is positive related to discretionary accruals. CEOs show higher earnings to realize their targets, so they can earn their bonuses.

- Debt to assets

According to Meek et al. (2007) and DeFond and Jiambalvo (1994) firms with more debt tend to engage in more earnings management. The debt ratio is a proxy of the total debt to total assets.

- Market to book value

Market to book value is the market value of the companies. The net assets are valued by the market. This is a proxy for growth opportunities. As mentioned before, companies with growth opportunities are exacerbate earnings management (Meek et al., 2007). They are less transparent and have higher opportunities for earnings management. Other studies such as Lewellen et al. (1987), Collins and Kothari (1989), Chung and Chareoenwong (1991), Smith and Watts (1992), Yermack (1995) and Guay (1999) have also used the market to book ratio as proxy for growth opportunities.

§ 7.4 Sample Selection

The sample of data for this study is obtained from Thomson Banker One and BoardEx. All the companies which were listed in the NYSE Euro next 100 index between 1999 and 2009 are used for this study. During this period 136 different companies were listed in the NYSE Euro next 100. Some of them do not exist anymore and were replaced by other companies in the index. There are many different reasons for companies for existing from the public market . Some companies went bankrupt, others merged. This study excluded the financial institutions (SICs between 6000 and 6999). This due to different motivations of manage earnings for these kind of companies (Burgstahler and Eames 2003). When these companies were filtered out there were 80 companies left. The executive compensation of CEOs in BoardEx database will be used as data for the pay for performance of a CEO.

§ 7.5 the test of the hypotheses

As mentioned before this study uses discretionary accruals as proxy for earnings management. The first step will be the determination of the total accruals of companies in the sample. The sample consist of listed companies in the NYSE Euro next index in the period 1999 and 2009. The period between 1999 and 2007 is also tested to show the impact of the financial crisis on earnings management. Financial institutions are excluded from the sample. Formula 7.1 describes the determination of total accruals.

$$7.1 \quad TA_{i,t} = \Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta ST Di_{i,t} - Dep_{i,t} / A_{i,t-1}$$

$\Delta CA_{i,t}$ = change in current assets;

$\Delta CL_{i,t}$ = change in current liabilities;

$\Delta Cash_{i,t}$ = change in cash and cash equivalents;

$\Delta ST Di_{i,t}$ = change in debt included in current liabilities;

$Dep_{i,t}$ = depreciation and amortization expense;

$A_{i,t-1}$ = total assets.

After the total accruals are determined we will define the non discretionary accruals. These are accruals which could not been influenced. The Modified Jones Model (7.2) is used to calculate the non discretionary accruals.

$$7.2 \quad NDA_t = \beta_1(1/A_{t-1}) + \beta_2(\Delta REV_t - \Delta REC_t) + \beta_3(PPE_t)$$

ΔREV_t = revenues in year t less revenues in year t-1 scaled by total assets at t-1;

ΔREC_t = net receivables in year t less net receivables in year t-1 scaled by total assets at t-1;

$PPE_{i,t}$ = gross property plant and equipment in year t scaled by total assets at t-1;

A_{t-1} = Total assets at t-1;

$\beta_1, \beta_2, \beta_3$ = firms specific parameters.

The firm specific parameters ($\beta_1, \beta_2, \beta_3$) will be estimated by an Ordinary Least Square (OLS) method. With the use of an OLS method unknown parameters could be estimated in the model. The parameters β_1, β_2

and β_3 of each firm individually will be estimated for the time period in the sample. The unknown parameters will be estimated with the linear regression formula 7.3.

$$7.3 \quad NDA_{t,i} = \beta_{1i} (1/A_{i,t-1}) + \beta_{2i} (\Delta REVI_{i,t} - \Delta RECI_{i,t}) + \beta_{3i} (PPE_{i,t}) + \xi_i$$

After the estimation of firms specific parameters β_{1i} , β_{2i} and β_{3i} , the non discretionary accruals can be determined by the modified Jones model. Formula 7.2 describes the modified Jones Model and the non discretionary accruals can be calculated.

We have described the process of determining the non discretionary accruals. The total accruals are calculated by the use of formula 7.1. Finally with the use of the results the discretionary accrual can be determined. The relationship between discretionary, non discretionary and total accruals is described in formula 7.4.

$$7.4 \quad DA_{i,t} = TA_{i,t} - NDA_{i,t}$$

In this thesis we are searching for the explanation of discretionary accruals. To find the relationship between the discretionary accruals and variable remuneration we use a regression model. In this regression model the discretionary accruals is the dependent variable. The remunerations variables are independent variables. The control variables are also independent variables. The regression formula to test the relationship is:

$$7.5 \quad DA_{i,t} = \alpha_0 + \alpha_1 X_{1,t} + \alpha_2 X_{2,t} + \alpha_3 X_{3,t} + \alpha_4 X_{4,t} + \alpha_5 X_{5,t} + \alpha_6 X_{6,t} + \alpha_7 X_{7,t} + \alpha_8 X_{8,t} + \alpha_9 X_{9,t} + \alpha_{10} X_{10,t} + \xi$$

Where:

- Y = discretionary accruals
- α_1 = base salary
- α_2 = variable cash remuneration
- α_3 = stock options
- α_4 = shares
- α_5 = Long Term Incentive Plan
- α_6 = ln (size)
- α_7 = sales

α_8	= debt/assets ratio
α_9	= market to book ratio
α_{10}	= Incentive ratio
ξ	= error term

The coefficients ($\alpha_1, \alpha_2, \alpha_3, \dots, \alpha_{10}$) of the independent variables shows the relationship between the independent variables and the dependent variable, discretionary accruals. The coefficient could be positive and it indicates a positive relationship between discretionary accruals and the independent variables. And a negative coefficient indicates the positive effect. The higher the coefficient the stronger the effect on the dependent variable. We use the P value to show the significance of the coefficient. The P value is significant when the value is < 10%. When the coefficient is significant it means the independent variable have an significant effect on the dependent variable. The R square shows the percentage of the population explained by the coefficient.

§ 7.5.1 The test of hypothesis 1

To test the relationship between CEO equity incentives and earnings management the incentive ratio is used. The incentive ratio describes the value increase of a hypothetical CEOs total compensation package due to an increase of the share price of his or her company. The incentive ratio is per 100 basis points. Stock options and shares are part of the total bonus package. The calculation of the incentive ratio is described in section 7.2.

The incentive ratio is determined per individual company and per year. In the regression we use stock options as a dummy variable. If CEO remuneration package consists stock options it will be numbered as "1" (YES). Otherwise as "0" (NO) if CEO remuneration package does not consists stock options. Other independent variables as stated in regression formula 7.5 are also tested.

§ 7.5.2 the test of hypothesis 2

To test the relationship between variable cash remuneration incentives and earnings management we use the incentive ratio. The incentive ratio describes the value increase of a hypothetical CEOs total compensation package due to an increase of the share price of his or her company. The incentive ratio is per 100 basis points. Stock options and shares are part of the total bonus package. The calculation of the incentive ratio is described in section 7.2.

The incentive ratio is determined per individual company and per year. In the regression we use bonus as a dummy variable. If CEO remuneration package consists bonuses, either cash or stock bonuses it will be numbered as "1" (YES). Otherwise as "0" (NO) if CEO remuneration package does not consists bonuses either cash or stock . Other independent variables as stated in regression formula 7.5 are also tested.

§ 7.5.3 the test of hypothesis 3

To test the relationship between variable short term incentive plan and earnings management variable cash remuneration and stock options of the CEO remuneration are used as dummy variables. If CEO remuneration package consists cash remuneration it will numbered as "1" (YES). On the other hand if CEO remuneration does not consists cash remuneration it will numbered as "0" (NO). The stock options will be tested by the same way as cash variable remuneration. Independent variables as stated in regression formula 7.5 are also tested.

§ 7.5.4 the test of hypothesis 4

To test the relationship between Long Term Incentive Plans and earnings management we use Long Term Incentive Plans as dummy variable. If CEO remuneration package consists Long Term Incentive Plans it will numbered as "1" (YES). if a CEO remuneration package does not consists a Long Term Incentive Plans it will numbered as "0" (NO). Independent variables as stated in regression formula 7.5 are also tested.

§ 7.5.5 the test of hypothesis 5

To test the relationship between stockownership and earnings management we use shares as dummy variable in the regression. If CEO remuneration package consists shares it will numbered as "1" (YES). Otherwise numbered as "0" if a CEO remuneration package does not consists shares. Independent variables as stated in regression formula 7.5 are also tested.

To test the hypothesis a regression analyses has been conducted with the statistical software package: SPSS.

8. Results

This section will show the results that are acquired from the research. First the descriptive statistics of the estimated discretionary accruals will be presented. Second, the relationship between the descriptive statistics of discretionary accruals and equity incentives of the CEOs will be discussed. Third, the relationship between the descriptive statistics of discretionary accruals and variable cash remuneration incentives of the CEOs will be discussed. Hereafter, the relationship between short term incentive plan and discretionary accruals will be discussed. Furthermore, the relationship between discretionary accruals and long term incentive plans will be discussed. Next, The relationship between discretionary accruals and stock ownership will be discussed. Until now we the relationship between discretionary accruals and the independent variables for 1999-2009 is discussed. Finally, the descriptive statistics of discretionary accruals by different SIC codes are analyzed to study which industry have stronger relationship with discretionary accruals. For this study a significance level of < 10% is chosen, because it is assumed that 10% is acceptable. It is hard to give an opinion about the relationship between variable remuneration and earnings management. Earnings management could be influenced by many other aspects. We reject the hypothesis with a reliability of 90%. This chapter gives an answer on sub question 9.

§ 8.1 Descriptive statistics of discretionary accruals

The descriptive statistics of discretionary accruals will be presented in the following tables.

Table 1.

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
DA	772	-1,47581	4,46474	,0592154	,01548577	,43027037
Valid N (listwise)	772					

Table 1a.

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
DA	613	-1,47581	4,46474	,0612149	,01720076	,42587069
Valid N (listwise)	613					

Table 2 discretionary accruals (1999-2009)

Table 2a discretionary accruals (1999-2007)

Statistics		
Discretionary Accruals		
N		772
Mean		0,05922
Percentiles	25	-0,10699
	50	0,01532
	75	0,18998

Statistics		
Discretionary Accruals		
N		613
Mean		0,06121
Percentiles	25	-0,10491
	50	0,02085
	75	0,19844

First, the total accruals will be analyzed. The minimum is – 147.58% and the maximum is 446.47% (table 1). On first sight these values are very extreme. They show that the discretionary accruals are very large for some firms. When analyzing the quarter percentiles, the median value and the mean, it can be concluded that these extreme values are outliers. The quarter percentiles are respectively –10.69% and 18.99% (table 2). The median value is 1.53% and the mean value of the discretionary accruals is 5.92% (table 2). The results are in line with previous research of Bergstresser (2006), Gao and Shrieves (2002), Holthausen et al. (1995) and Meek et al. (2007). The results are respectively 5.4%, 5.2%, 5.2% and 6.1%.

The positive discretionary accruals seem to be larger than the negative discretionary accruals. According to Gao and Shrieves (2002) this indicates on average discretionary accruals are income-increasing. The negative accruals are income decreasing. According to Holthausen et al. (1995) and Shuto (2007) CEOs will downward earnings when bonuses are already at their maximum. The standard deviation of 43.02%

(table 1) indicates that the discretionary accruals vary a lot across the firm and over time. Moreover, it can be concluded that the firms from the sample have discretionary accruals.

The credit crisis begun in 2007. This could be influenced the sample of the discretionary accruals between 1999-2009. We filtered 2008 and 2009 out the data sample. As we can see in table 1a the sample consist 613 observations. The observations are declined because 2008 and 2009 are excluded. Furthermore, the results in table 1a are almost consistent to the results of table 1. Table 2a show that the discretionary accruals have a mean value of 6,1%. Furthermore, the percentiles have change a little. We can conclude that the impact of the credit crisis on the sample of 1999-2009 is nihil. So the sample of 1999-2009 is used for this study.

§ 8.2 Results discretionary accruals and CEO equity incentives

To determine whether CEO equity incentives are positively related to discretionary accruals we use the incentive ratio of Bergstresser (2006). To study the relationship between CEO equity incentives and earnings management the coefficient of the incentive ratio of stock options is used. For this hypotheses the results of table 3, table 4 and table 4a are used.

In table 4 the regression model shows a positive incentive ratio coefficient of 0.128 and a p-value of 0.738 for CEO remuneration package without stock options. The coefficient implies a positive relationship between equity incentives and discretionary accruals, but the p-value is non-significant. Furthermore, the model shows a positive coefficient of 0.663 for debt asset ratio with a p-value of 0.074. The p value shows that the coefficient is significant. The coefficients of other independent variables are non- significant. The R-square is 0.066 (table 3) which means 6.6% of discretionary accruals are explained by the sample where CEOs do not have stock options in the remuneration package.

In table 4a the regression model shows a positive incentive ratio coefficient of 0.419 and a p-value of 0.345 for CEO remuneration packages with stock options. On first sight stock options are positively related to discretionary accruals, but the coefficient is non-significant. Furthermore, the model shows negative coefficients of -0.225 and -0.270 with a significant p-value of respectively 0.004 for base salary and 0.023 for size assets. Moreover, the model shows positive coefficients of variable cash remuneration (0.147), stockholdings (0.627) and sales (0.342). The p-value of the coefficients are respectively (0.004), (0.000) and (0.001). The coefficients of other independent variables are non-

significant. The R-square is 0.555 which means 55 % of the discretionary accruals are explained by the sample where CEOs do have stock options in the remuneration package.

This hypothesis is used. No evidence is found for a relationship between discretionary accruals and equity incentives, but there is some evidence for some relationships between the independent variables and discretionary accruals. There is a positive relationship between debt asset ratio and discretionary accruals in CEO remuneration packages without stock options. According to Meek et al. (2007), Watts and Zimmerman (1986) and DeFond and Jiambalvo (1994) firms with more debt tend to engage in more earnings management. Because of the low explanation power (6.6%) of the model we cannot do a reliable judgment about this relationship. Furthermore, we found a positive relationship between variable cash remuneration and discretionary accruals. According to Gao and Shrieves (2002), Guidry et al. (1998) and Lam (2005) CEO variable cash remuneration is positive related to discretionary accruals. There is also a positive relationship between stockholdings and discretionary accruals. According to Cheng and Warfield (2005) stock holding leads to incentives for earnings management. Finally, we have found a positive relationship between sales and discretionary accruals. Guidry et. al (1998) argues that sales (Earnings Before Income Taxes) is positive related to discretionary accruals. Here, the CEOs are remunerated by stock options. 55% of the discretionary accruals will be explained by the sample where CEOs do have stock options in the remuneration package. It is doubtful to do a judgment about these relationships.

Table 3. Output Regression Remuneration package with and without stock options.

Remuneration package	R	R Square	Adjusted R Square	Std. Error of the Estimate
without stockoptions (table 4)	,257 ^a	,066	-,005	,46550155
with stock options (table 4a)	,745 ^a	,555	,457	,29922478

Table 4. Output Regression Remuneration package without stock options.

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,173	,469	,370	,712
Basalary	,005	,067	,069	,945
Cash_Bonus	-,083	,053	-1,574	,118
Shares	-,022	,179	-,123	,902
LTIP	-,009	,010	-,874	,384
Sizeassets	-,028	,089	-,309	,758
Sales	-,052	,081	-,645	,520
Debt_assets	,663	,367	1,804	,074
Marketcap	,050	,084	,591	,555
Incentiveratio	,128	,381	,335	,738

Table 4a. Output Regression Remuneration package with stock options.

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,123	,815	,151	,881
Basalary	-,225	,075	-3,016	,004
Cash_Bonus	,147	,048	3,099	,004
Shares	,627	,115	5,429	,000
LTIP	,051	,058	,873	,388
Sizeassets	-,270	,115	-2,357	,023
Sales	,342	,095	3,612	,001
Debt_assets	-,093	,526	-,177	,860
Marketcap	-,079	,096	-,821	,416
Incentiveratio	,419	,438	,955	,345

§ 8.3 Results discretionary accruals and variable cash remuneration incentives

To determine whether CEO variable cash remuneration incentives are positively related to discretionary accruals we use the incentive ratio of Bergstresser (2006). To study the relationship between CEO variable cash remuneration incentives and earnings management we analyze the coefficient of the incentive ratio of variable cash. For this hypotheses we use the results of table 5, table 6 and table 6a.

In table 6 the regression model shows a positive incentive ratio coefficient of 0.55 and a p-value of 0.105 for CEO remuneration package without cash variable remuneration. The coefficient implies a positive

relationship between variable cash remuneration incentives and discretionary accruals, but the p-value is non-significant. Furthermore, the coefficients of stockholdings and sales are 0.473 and 0.164 and have a significant p-value of 0.000 and 0.025. This indicates a positive relationship between the independent variables and discretionary accruals. The coefficients of other independent variables are non-significant. The R-square is 0.293 (table 5) which means 29.3% of discretionary accruals are explained by this sample where CEOs do not have variable cash remuneration in their remuneration package.

In table 6a the regression model shows a negative incentive ratio coefficient of -0.34 with a p-value of 0.552. On first sight variable cash remuneration is negatively related to discretionary accruals, but the coefficient is non-significant. The coefficients of other independent variables are also non-significant. The R-square is 0.047 (table 5) which means 4.7% of the discretionary accruals are explained by this sample where CEOs do have variable cash remuneration in their remuneration package.

This hypothesis is rejected. No evidence is found for a relationship between discretionary accruals and variable cash remuneration incentives, but there is evidence that suggests relationships between independent variables and discretionary accruals. A positive relationship is found between stock holdings and discretionary accruals for CEOs do not have variable cash remuneration in their remuneration package. Cheng and Warfield (2005) mentioned that stock holdings leads to incentives for earnings management. There is also evidence for a positive relationship between sales and discretionary accruals of CEOs do have variable cash remuneration in their remuneration package. Guidry et. al (1998) argues that sales (Earnings Before Income Taxes) is positive related to discretionary accruals. The explanation power of the sample “CEOs do not have cash remuneration in their remuneration package” is 29.3%. One third of the discretionary accruals will be explained. On the basis of the data no reliable judgment can be made about these relationships.

Table 5. Output Regression Remuneration package with and without variable cash remuneration.

Remuneration package	R	R Square	Adjusted R Square	Std. Error of the Estimate
without variable cash remuneration (table 6)	,542 ^a	,293	,203	,34169205
with variable cash remuneration(table6a)	,217 ^a	,047	-,061	,51052184

Table 6 Output Regression Remuneration package without variable cash remuneration.

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,381	,486	,784	,435
Basesalary	-,069	,054	-1,287	,202
Stockoptions	-,062	,094	-,661	,511
Shares	,473	,118	3,998	,000
LTIP	-,030	,100	-,301	,765
Sizeassets	-,133	,087	-1,534	,129
Sales	,164	,072	2,283	,025
Debt_assets	,356	,376	,949	,346
Marketcap	-,086	,071	-1,214	,229
Incentiveratio	,550	,335	1,644	,105

Table 6a Output Regression Remuneration package with variable cash remuneration

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,063	,734	,086	,932
Basesalary	-,028	,110	-,257	,798
Cash_Bonus	-,080	,066	-1,204	,232
Stockoptions	,067	,127	,530	,597
Shares	,049	,239	,204	,839
LTIP	-,009	,011	-,752	,454
Sizeassets	,049	,136	,363	,718
Sales	-,057	,116	-,494	,622
Debt_assets	,409	,564	,726	,470
Marketcap	,016	,126	,123	,902
Incentiveratio	-,340	,570	-,597	,552

§ 8.4 Results discretionary accruals and short term incentive plan.

As discussed before (§3.4.2) variable cash remuneration and stock options are a part of a short term incentive plan. To determine whether CEO short term incentive plan is positively related to discretionary accruals we use the results of table 4a, table 6a and table 10a.

In table 6a the coefficient of variable cash remuneration is -0.08. The p-value is 0.232. On first sight the coefficient shows a negative relationship with discretionary accruals. When CEOs have stock options and variable cash remuneration the coefficient is 0.147 with a p- value of 0.004 (table 4a). The coefficient for CEOs which have variable cash, stock options, stockholdings remuneration is 1.453 with p- value of 0.049 (table 10a). The coefficients of other independent variables are non- significant. The R-square of

table 4a is 0.555 which means that 55,5% of the discretionary accruals will be explained. The R-square of table 10a is 0.815 which means that 81,5% of the discretionary accruals will be explained.

This hypothesis is accepted. Evidence is found for a positive relationship between short term incentive plan with variable cash remuneration, stock options and stock holdings, and discretionary accruals. Short term incentive plans with only variable cash remuneration and stock options are also positively related to discretionary accruals. Huddart and Louis (2005), Meek et al (2007) have also found evidence for this relationship. With explanation powers of 55,5% and 81,5% we can do a reliable judgment about the relationship.

§ 8.5 Results discretionary accruals and Long Term Incentive Plans

As discussed before (§3.4.2) variable cash remuneration, stock options and shares could be a part of a long term incentive plan. To determine whether CEO long term incentive plan is negatively related to discretionary accruals that are used in table 8 and 8a. The sample of long term incentive plans are from Board Ex database. Board Ex does not have specify the long term incentive plans.

Table 8 shows the coefficients of dependent variables without Long Term Incentive Plans. The coefficient of variable cash remuneration is 0.007. The p-value is 0.883. For stock option remuneration the coefficient is -0.015. The p-value is 0.869. Furthermore, the coefficient for shares remuneration the coefficient is 0.352 with a p-value of 0.011. The p-value shows that the coefficient of 0.352 is significant. The coefficients of other independent variables are non- significant. It can be concluded that remuneration packages without Long Term Incentive Plans with shares have a positive relationship with discretionary accruals. On the other hand, table 7 shows a R-square of 0.085 which means that 8,5% of the discretionary accruals will be explained by remuneration packages without Long Term Incentive Plans with shares.

Table 8a shows the coefficients of dependent variables with Long Term Incentive Plans. The coefficient of variable cash remuneration is -0.033. The p-value is 0.448. For stock option remuneration the coefficient is 0.101. The p-value is 0.204. Furthermore, the coefficient for shares remuneration is -0.059. The p-value is 0.638. On first sight, it can be seen that variable cash remuneration and shares in a Long Term Incentive Plan are negatively related to discretionary accruals, but the p-value shows a non-significant result. The coefficients of base salary (0.175) size assets (-0.148) have a significant p-value of 0.024 and 0.064 which indicates that the base salary has a positive relationship with discretionary

accruals and size assets has a negative relationship with discretionary accruals. The coefficients of other independent variables are non- significant.

This hypothesis is rejected. No evidence is found that Long Term Incentive Plans are negatively related to discretionary accruals, but there is evidence that suggest some relationships between independent variables and discretionary accruals. Evidence is found for a positive relationship between stock holding remuneration and discretionary accruals by CEOs which are remunerated without Long Term Incentive Plans. According to Cheng and Warfield (2005) stock holding leads to incentives for earnings management. No reliable judgment can be made about this relationship, because the low explanation power of 8.5%. Furthermore, Evidence is found for a positive relationship between base salary and discretionary accruals by CEOs which are remunerated by Long Term Incentive Plans. According to Gao and Shrieves (2002) base salary is negative related to discretionary accruals. Moreover, evidence is found for a negative relationship between the size of the company and discretionary accruals by CEOs which are remunerated by Long Term Incentive Plans. According to Kadan and Yang (2006) and Larcker and Richardson (2004) large companies tend to have less discretionary accruals. The R-square shows a explanation power of 47,8% which means 47,8% of the discretionary accruals will be explained. It is doubtful to do a judgment about these relationships.

Table 7 Output Regression Remuneration package with and without Long Term Incentive Plans.

Remuneration package	R	R Square	Adjusted R Square	Std. Error of the Estimate
without Long Term IncentivePlans(table 8)	,292 ^a	,085	,024	,48031152
with Long Term IncentivePlans(table8a)	,692 ^a	,478	,290	,16140047

Table 8 Output Regression Remuneration package without Long Term Incentive Plans.

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,160	,489	,328	,743
Basesalary	-,070	,062	-1,118	,265
Cash_Bonus	,007	,048	,148	,883
Stockoptions	-,015	,092	-,165	,869
Shares	,352	,137	2,567	,011
Sizeassets	-,089	,091	-,976	,331
Sales	,097	,081	1,197	,233
Debt_assets	,422	,406	1,038	,301
Marketcap	-,032	,081	-,391	,696
Incentiveratio	,288	,362	,796	,428

Table 8a Output Regression Remuneration package with Long Term Incentive Plans.

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,397	,477	,832	,413
Basesalary	,175	,073	2,410	,024
Cash_Bonus	-,033	,043	-,771	,448
Stockoptions	,101	,078	1,305	,204
Shares	-,059	,124	-,476	,638
Sizeassets	-,148	,076	-1,941	,064
Sales	,037	,067	,544	,591
Debt_assets	,042	,280	,152	,881
Marketcap	,060	,075	,809	,426
Incentiveratio	-,363	,375	-,968	,343

§ 8.6 Results discretionary accruals and CEO stockownership

To determine whether CEO stockownership remuneration incentives are negatively related to discretionary accruals, the incentive ratio of Bergstresser (2006) is used. To study the relationship between CEO variable stock ownership incentives and earnings management the coefficient of the incentive ratio of stockownership is analyzed. For this hypotheses the results of table 10 and table 10a are used.

In table 10 the regression model shows a positive incentive ratio coefficient of 0.102 and a p-value of 0.761 for remuneration package without stock holdings. The p-value shows that the coefficient is non-significant. The coefficients of other independent variables are non-significant. Furthermore, the R-Square 0.035 (3.5%) shows a low explanation power.

In table 10a the regression model shows a positive incentive ratio coefficient of 1.453. The p value is 0.049. The coefficient is a very high value. The p-value shows that the coefficient is significant. The R-square in table 9 shows a value of 0.815 which means that 81.5% of the discretionary accruals will be explained by remuneration package with stock holdings. This indicates that stockholdings are positively related to discretionary accruals. Furthermore, the regression model shows a negative coefficient of -0.479 for market to book value. The p-value is 0.026 which means that the coefficient is significant.

This hypothesis is rejected. No evidence is found that suggest a negative relationship between stock ownership and discretionary accruals. Evidence for a positive relationship between stockownership and discretionary accruals by CEOs which remunerated by stock holdings. According to Cheng and Warfield (2005) CEOs with higher stock ownership are less likely to use earnings management. In this study stock ownership is low. Furthermore, we also found evidence for a negative relationship between market to book value and discretionary accruals by CEOs which remunerated by stock holdings. According to Meek et al. (2007) companies with growth opportunities are exacerbate earnings management. The explanation power is 81,5% which means that 81,5% of the discretionary accruals will be explained. It is possible to do a reliable judgment about these relationships.

Table 9 Output Regression Remuneration package with and without stockholdings

Remuneration package	R	R Square	Adjusted R Square	Std. Error of the Estimate
without stockholdings	,188 ^a	,035	-,024	,45673783
with stockholdings	,903 ^a	,815	,675	,20464074

Table 10 Output Regression Remuneration package without stockholdings

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	,192	,451	,426	,670
Basesalary	-,036	,060	-,596	,552
Cash_Bonus	-,010	,042	-,242	,809
Stockoptions	-,048	,087	-,550	,583
LTIP	-,009	,012	-,811	,418
Sizeassets	-,064	,082	-,778	,438
Sales	,013	,075	,174	,862
Debt_assets	,445	,329	1,352	,178
Marketcap	,026	,072	,364	,716
Incentiveratio	,102	,335	,305	,761

Table 10a Output Regression Remuneration package with stockholdings

CEO Remuneration package	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	2,144	1,078	1,989	,070
Basesalary	-,103	,086	-1,204	,252
Cash_Bonus	-,219	,225	-,973	,350
Stockoptions	,124	,127	,973	,350
LTIP	,002	,010	,218	,831
Sizeassets	,059	,124	,481	,639
Sales	,218	,124	1,748	,106
Debt_assets	-,386	,991	-,390	,703
Marketcap	-,479	,189	-2,530	,026
Incentiveratio	1,453	,663	2,192	,049

§ 8.7 Results discretionary accruals and independent variables on yearly basis.

The relationship between independent variables and discretionary accruals is studied on yearly basis. No evidence is found for a relationship between independent variables and discretionary accruals in the years.

§ 8.8 Results discretionary accruals in different industries

The discretionary accruals in different industries are studied, in which the industries with SIC codes are specified. Evidence is found for wholesale and service industries. In table 12 (wholesale industries) is a positive coefficient of 0.524 for shares. The p-value is 0.026. The p-value shows that the coefficient is significant. The R-square is 0.395 (table 11) which means that 39,5% of the discretionary accruals of whole sale will be explained.

In table 13 (service industries) is a negative coefficient of -0.074 for variable cash remuneration. The p-value is 0.081. The p-value shows that the coefficient is significant.

There are no significant independent variables in other SIC industries. Evidence is found for a relationship between variable cash remuneration and discretionary accruals specific in wholesale industries. With a explanation power of 39,5% no reliable judgment can be made about the relationship. Furthermore, evidence is found for a relationship between variable cash remuneration and discretionary accruals specific in service industries. With a explanation power of 81,5% (table 9) we can do a reliable judgment about this relationship.

Table 11 Output Regression Remuneration package for wholesale and service industries

Remuneration package	R	R Square	Adjusted R Square	Std. Error of the Estimate
Wholesale industries	,628 ^a	,395	,306	,33077156
Service industries	,903 ^a	,815	,675	,20464074

Table 12 Output Regression Remuneration package for wholesale

(SIC CODE 5000-5999)	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	1,353	,558	2,425	,018
Basesalary	-,080	,065	-1,234	,221
Cash_Bonus	-,025	,084	-,300	,765
Stockoptions	,098	,120	,812	,420
Shares	,524	,230	2,278	,026
LTIP	-,091	,107	-,855	,396
Sizeassets	-,143	,088	-1,628	,108
Sales	-,075	,075	-,992	,325
Debt_assets	,534	,451	1,183	,241
Marketcap	,098	,094	1,039	,303
Incentiveratio	,034	,249	,136	,892

Table 12 Output Regression Remuneration package for service industries

(SIC CODE 7000-7999)	Unstandardized Coefficients	Std. Error	t	Sig.
(Constant)	-,245	,631	-,389	,699
Basesalary	,084	,070	1,211	,231
Cash_Bonus	-,074	,042	-1,781	,081
Stockoptions	-,031	,087	-,354	,725
LTIP	-,005	,016	-,305	,761
Sizeassets	-,036	,082	-,444	,659
Sales	-,053	,069	-,768	,446
Debt_assets	,670	,260	2,573	,013
Marketcap	,087	,087	,998	,323
Incentiveratio	-,059	,357	-,165	,869

9. Conclusion

In this chapter a summary of this study is presented. The results of this study are analyzed. On the basis of the results a conclusion will be presented in this chapter. Furthermore, the limitations of this study and the recommendation for further study will be discussed. This chapter gives an answer on sub question 10.

§ 9.1 Summary and conclusion

In this study we investigate whether a relationship exists between CEO variable remuneration and the level of earnings management in Europe. The central research question is:

“What is the relationship between CEO variable remuneration and the level of earnings management in companies of the Euro-next 100 index for 1999-2009?”

This study is related to European companies stated on the Euro-next 100. Several hypotheses have been formulated to provide a conclusion for the research question. Discretionary accruals are used as proxy for earnings management. Evidence is found that the overall discretionary accruals are positive. This indicates that the companies on the NYSE Euro next 100 have positive discretionary accruals. The total accruals can be divided into non-discretionary and discretionary accruals. The discretionary accruals could be influenced by CEOs. In other words, CEOs could use earnings management to maximize their own wealth. As mentioned before a significance level of 10% is chosen. If a significance of 5% would be chosen many results will be non significant.

CEOs could have different incentives for using earnings management. No evidence is found for a positive relationship between equity incentives and earnings management (§ 8.2). This is not in line with the results of Bergstresser and Phillipon (2006). They have found evidence between equity incentives and earnings management. The difference between the results of the study of Bergstresser and Phillipon (2006) on the one side and the research of this thesis on the other side could potentially be explained by Bergstresser and Phillipon (2006) who used all listed companies in the United States in their sample. The study of this thesis focuses on a different geographical research area which could lead to different results. Europe has another corporate governance structure than the United States. Moreover, the research sample of the study of Bergstresser and Phillipon (2006) contains more observations than the

sample of the study of this thesis. No evidence is found for a positive relationship between variable cash remuneration incentives and earnings management (§ 8.3).

On the other hand, evidence is found for a positive relationship between short term incentive plans and earnings management. Companies which remunerate CEOs with variable cash remuneration, stock options and stock holdings are more likely to use earnings management (§ 8.4). This is in line with the results of Huddart and Louis (2005), Meek et al (2007). They also found evidence for a relationship between short term incentive plans and earnings management.

The CEOs remunerated by short term incentive plans tend to have more incentives to use earnings management than CEOs which are not remunerated by short term incentive plans. CEOs manage earnings to report higher income or shift income of the companies between time periods. They disclose good results of the companies. Stakeholders have trust in the disclosures and want to invest in these companies. The demand of shares will increase which results in an increase of the share price of these companies. When the share price is higher than the strike price, the stock options will be in the money. Moreover, the value of the stockholdings of the CEOs will increase. Furthermore, the variable cash remuneration could be higher because of earnings management. In this way CEOs could maximize their own wealth. This is in line with the studies of Huddart and Louis (2005), Kadan and Yang (2006), Kedia (2003), Meek et al. (2007) and Bergstresser and Phillippon (2006).

Furthermore, no evidence is found for a negative relationship between Long Term Incentive Plans and earnings management (§ 8.5). Although in prior research Gao and Shrieves (2002) have found evidence for a negative relationship between Long Term Incentive Plans and earnings management. In Europe CEO are less remunerated with Long Term Incentive Plans than the United States. In Europe the emphasis for CEO remuneration is on Short Term Incentive Plans. This could be a reason for explaining why this study did not find evidence for a negative relationship between Long Term Incentive Plans and earnings management. Moreover, evidence is found for a positive relationship between base salary and earnings management for CEOs which are remunerated using Long Term Incentive Plans.

Moreover evidence is found for a positive relationship between stockownership and earnings management. (§ 8.6). According to Cheng and Warfield (2005) CEOs with higher stock ownership are less likely to use earnings management. If CEOs have low stockownership they are more likely to use earnings management. According to Palepu et al. (2007) Anglo Saxon countries have stronger stakeholders protection than Continental European countries. This could be a reason for the differences

between this study and the study of Cheng and Warfield (2005). In 2009 Continental European countries have introduced regulations that seek to guarantee stronger protection for stakeholders.

The size of the companies are negatively related to earnings management (§ 8.5). The size of the company is negatively related to earnings management. Larger companies have lower discretionary accruals than smaller companies to Kadan and Yang (2006) and Larcker and Richardson (2004). Large companies generate more information and have more interim disclosures. Furthermore, large companies are associated with stronger monitoring. However, the larger the company the more they are in publicity. If shareholders know large companies use earnings management it could damage the image of the companies. When companies use aggressive earnings management they could be caught, because they operate on the border of the grey area and the black area of earnings management. The black area is also associated with fraud. The penalties for being caught by manage earnings are likely to be higher for large companies than for small companies. The chance to be caught is higher for large companies, because they have a strong monitoring from third parties. This is in line with the study of Meek et al. (2007).

Furthermore evidence is found for a positive relationship between sales and discretionary accruals of CEOs that have variable cash remuneration in their remuneration package (§ 8.3). CEOs manage earnings to show higher sales to realize their targets to get their bonuses. This is in line with the study of Guidry et al. (1998).

In addition, evidence is found for a negative relationship between market to book value and discretionary accruals by CEOs which are not remunerated by stockholdings (§ 8.6). Market to book value is a proxy for growth opportunities of companies. CEOs which have no stockholdings have no incentives to use earnings management, because they do not have benefits if the share price rise. According to Meek et al. (2007) companies with growth opportunities exacerbate earnings management. Growth opportunity companies are negatively related to earnings management .

In the different industries evidence is found for a positive relationship between service industries which remunerated with bonuses and earnings management. Service industries are more driven by performance of the employees than other industries. The better the performance of employees the higher the results of those organizations. CEOs could use earnings management to show a better performance to earn their bonus.

In addition evidence suggests a positive relation between sales and earnings management. CEOs manage earnings to show higher sales to realize their targets to get their bonuses. This is in line with the study of Guidry et al. (1998). There is also evidence for a negatively relation between market value and earnings management.

In the study of Meek et al. (2007) companies with growth opportunities exacerbate earnings management. In contrast to the study of Meek et al. (2007) this study shows that growth opportunity companies do not exacerbate earnings management. In fact, growth opportunity companies are negatively related to earnings management. The differences in the governance structure between Anglo Saxon countries and Continental European countries could be a reason for this result. The investigation of Meek et al. (2007) is done in an Anglo Saxon country (United States), while this investigation is related to companies from the countries which use the European Continental model. In relation to Anglo Saxon countries the countries which use the European Continental model have stronger monitoring mechanisms. They have a two tier board. Because the stronger monitoring growth companies do not manage earnings, because the benefits of earnings management is not enough if there is a big chance to be caught and get a penalty. No evidence is found for a relationship between debt-asset ratio and earnings management.

To summarize and answer the research question it can be concluded that CEOs which are remunerated with short term variable remunerations are more likely to use earnings management than CEOs which are remunerated with other remunerations. There is no evidence for earnings management in the years. Large companies are tend to use less earnings management than smaller companies. CEOs of growth companies are not likely to use earnings management. The penalties to be caught are very high so that earnings management is less interesting.

§ 9.2 Limitations and Recommendation for further study

As mentioned before in this study it was investigated whether a relationship exists between CEO remuneration and earnings management. Evidence is found for a relationship between CEO short term remuneration and earnings management. One of the limitations of this study relates to the R-squares of the models. The explanation power of the results were mostly very low, which means that the explanations are not powerful to do judgments. Another limitation of this study is that discretionary accruals were used as proxy for earnings management. This could also be a limitation because earnings management could be effected by many different other aspects. It could be interesting to do an

additional study with a broader research area in Europe, because the population of the sample will be higher. A more extensive sample could result in a higher R-square which means the explanation power is higher. Then it will be better to make judgments of the results.

I. Overview of prior studies

1. Author (s)	2. Objective of the study	3. Sample	4. Methodology	5. Outcome
Bergstresser and Philippon (2006)	CEO financial incentives and earnings management	Compustat database, Executive Compensation database and Thomson Financial	Jones model and modified Jones model (1991), incentive ratio	They found evidence that more incentivized CEOs, whose overall compensation is more sensitive to share prices, lead companies with higher level of earnings management.
Cheng and Warfield (2005)	Equity incentives and earnings management	ExecuComp excluding SICs between 6000 and 6999 and utilities between 4400 and 5000, because managers in these industries have different motivations to manage earnings. Period: 1993-2000.	Regression analyses, Logit regression and the Jones model (1991).	They found that managers who predictably engage in earnings management sell more shares after actual earnings management. Furthermore, high equity incentive managers report more income increasing abnormal accruals. Overall, stock-based compensation and ownership can lead to incentives for earnings management.
Gao (2002)	Components of compensation and Earnings	ExecuComp database. Compensation for	Cross-sectional modified Jones model (1991),	They found strong evidence that compensation

	management behavior	CEOs of 1500 U.S. firms, including the S&P 500, S&P 400 MidCap, and S&P 600 SmallCap, 1992-1999.	Incentive-Intensity of Stock Option Award, Incentive-Intensity of CEO Restricted Stock Grants, Kaplan-Zingables KZ4 factor.	contract design does influence earnings management. Managers maximize their own expected compensation through utilize the discretionary accruals timing option.
Guidry et al. (1998)	Earnings- based bonus plans and earnings management.	Business units of the U.S division of a large multinational conglomerate which manufactures a wide range of products. 103, 135 and 115 independent business units operating during 1995, 1994 and 1993, respectively.	Healy model (1985) modified Jones model (1991), inventory reserve account model.	They found strong evidence that managers that have the greatest opportunity to manipulate earnings given the information asymmetry likely exist between business unit managers and upper management in the inventory valuation.
Holthausen et al. (1995)	Annual bonus schemes and manipulation of earnings	All firms in the confidential compensation databases provided by two different human resource consulting firms. 1982-1984 and 1987-1991.	Jones model and modified Jones model (1991). Healy model (1985)	Overall, they found evidence when the CEOs are at the upper bound of their bonus contracts in order to increase the present value of payments from those bonus plans, earnings manipulation will go downwards.
Huddart and Louis (2005)	Stock sales and earnings management	Thompson Insider Filing Feed database. 1996-1999.	Book to market ratio, regression models and the Jones model	They found evidence that stock price run up in this period are strongly positively

			(1991)	associated with earnings management and insider trading activities during this period. Moreover, there is evidence that the stock price declines during the ensuing correction period.
Kadan and Yang (2006)	Executive options and earnings management	Financial institutions (SIC codes between 6000 and 6999) and regulated utilities (SIC codes between 4900 and 4999) Discretionary accruals: Compustat database. Insider sales: Thomson Financial database, SOPTEXERC in ExecuComp database. 1993-2004.	Bayesian model, modified Jones model (1991)	They found a positive correlation between insider trading and earnings management. Moreover, they found evidence that moneyness of the options and the effect of high stock options are positive related to insider trading and earnings management.
Kedia (2003)	Stock options and earnings management	845 firms with financial statement restatements. 1997-2002. 224 firms from ExecuComp which contains compensation data.	Probit model and OLS regression	Pay for performance arising from stock options may give incentives to manage earnings. High pay for performance significantly increases the probability of restatement. For small equity ownership, there is

				significant positive effect of total incentives, stock and options, on probability of restatement.
Lam (2005)	Earnings management and variable compensation	AEX indices. 2002-2005	Healy model (1985) and the Modified Jones model (1991)	They find that managers do not manipulate earnings to effect their variable compensation.
Meek et al. (2007)	CEO stock option compensation and earnings management	ExecuComp Black-Scholes value of annual stock option awards of industrial firms. 1993-2001.	Modified Jones model (1991) and Kothari et al. (2005)	Stock option incentives that have effect to manage earnings are lower in large firms because of their lower information asymmetry, stronger governance structures, external monitoring or political sensitivity. There are mixed support for strong stock option incentive effect by growth firms.
Rost and Osterloh (2009)	The relation of CEO payment and firm performance	Sample=75 empirical studies with n=123,797 firms	Meta-analysis	They found evidence that Pay-for-performance has counterproductive effects
Shuto (2007)	Executive compensation and earnings management	The firms are listed on at least one of the eight stock exchanges in Japan from Nikkei-	OLS regression, logistic regression, Jones model, modified Jones model and	The writer find evidence that the use of discretionary accruals increases executive

		Zaimu Data. 1991-2000.	CFO Jones model (1991)	compensation. This result doesn't mean that it is not extremely inefficient. It can also consider from the perspective of efficient contracting.
Zhang et al. (2008)	Effects of stock based incentives on CEO earnings manipulation behaviors	2532 public companies listed in ExecuComp database. 1996-2001. Restatement database, the Financial Statement Restatement Database.	Comparing restating firms to non-restating firms could be able to investigate how stock-based executive incentives led to earnings manipulation	The writers found that when CEOs had more out of the money options and lower stock ownership are more likely to manipulate earnings.

II. References

- Aboody, D. and Krasznik, R., 2000. "CEO Stock Option Awards and the Timing of Corporate Voluntary Disclosures, *Journal of Accounting and Economics*. pp. 73-100.
- Arens A.A., Elder R.J., Beasley M.S., 2008, *Auditing and Assurance Services, an integrated approach*, Pearson Prentice Hall.
- Bauwhede van der H., 2003, *Resultaatsturing en kapitaalmarkten, een overzicht van de academische literatuur*, MAB : 196-204.
- Baysinger, Barry D., and Henry N. Butler. 1985. *The Role of Corporate Law in the Theory of the Firm*, forthcoming. *Journal of Law and Economics*.
- Bebchuk L.A., Fried J.M., 2003. *Executive Compensation as an Agency Problem*. *J Econ Perspect* 17: p.71–92
- Bebchuk L.A., Fried J.M., 2004. *Pay without Performance: The Unfulfilled Promise of Executive Compensation*. Harvard University Press, Cambridge
- Bebchuk, L. and Grinstein Y., 2005. *The Growth of Executive Pay*. *Oxford Review of Economic Policy* 21, 283-303.
- Beneish M., 2001, *Earnings management: A perspective*. *Managerial Finance*, 27(12): p.3-17.
- Beneish, M., Vargus, M., 2002. *Insider trading, earnings quality, and accrual mispricing*. *Accounting Review* 4, 755–791.
- Berle, Adolf A. and Gardiner C. Means. 1932. *The Modern Corporation and private property*. Macmillan, New York, NY.
- Bertrand M., Mullainathan S., 2000. *Agents with and without principals*, *Am Econ Rev* 90: 203–208.
- Bertrand M., Mullainathan S., 2001. *Are CEOs rewarded for luck? The ones without principals are* *Q J Econ* 116: 901–929
- Bergstresser, D. and Philippon, T., 2006. *CEO incentives and earnings management*. *Journal of Financial Economics* 80, 511-529.

- Boot A. and Wallage P., 2006, *Formele versus materiële naleving van de Code Tabaksblad*, Maandblad voor Accountancy en Bedrijfseconomie, vol. 80, nr. 5, pp. 206-215.
- Breton G. and Taffler R.J., 2005. *Creative Accounting and Investment Analyst Response*. Accounting and Business Research 25 (98), p.81-92.
- Brickley, J.A., Coles, J.L. and Terry, R.L., 1994. *Outside directors and the adoption of poison pills*. Journal of Financial Economics 35, p. 371-390.
- Burgstahler, L.D., and M.J. Eames. *Earnings management to avoid losses and earnings decreases: are analysts fooled?* Contemporary Accounting Research 20 (2): p.253-294.
- Cheng Q. and Warfield T., 2005, *Equity incentives and earnings management*, The accounting review, p. 1-55.
- Chung, K. and Chareoenwong, C., 1991, *Investment options, assets-in place, and risk of stocks*, Financial Management, Vol. 20, p.21-33.
- Collins, D., Hribar, P., 2000. *Earnings-based and accrual-based market anomalies: one effect or two?* Journal of Accounting and Economics 29, 101–123.
- Collins, D. and Kothari, S.P., 1989, *An analysis of the inter-temperol and cross-sectional determinants of earnings responses coefficients*, Journal of Accounting and Economics, Vol. 11, p. 143-81.
- Cornett, M.M., Marcus, A.J. and Tehranian H., 2008. *Corporate governance and pay-for performance: The impact of earnings management*. Journal of Financial Economics, p.357-373.
- Coase, R. (1937). *The Nature of the Firm*. Economica 4. pp. 386–405.
- Davidson R., Goodwin-Stewart J., Kent P., 2005. *Internal governance structures and earnings management*. Accounting and Finance 45, 241-267
- Deangelo L., 1986, *Accounting numbers as market valuation substitutes: A study of management buyouts f public stockholders*. The Accounting Review 61, p.400-420.
- Deangelo L., 1988, *Managerial competition, information costs, and corporate governance; The use of accounting performance measure in proxy contests*, urnal of Accounting and Economics 10, pp.3-36.

- Deegan, C., and J. Unerman. 2006. *Financial Accounting Theory*. European edition. McGraw-Hill Education Europe.
- Dechow, P.M. and Sloan, R.G., 1991. *Executive incentives and the horizon problem*. *Journal of Accounting and Economics* 14, 51-89.
- Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. *Detecting earnings management*. *The Accounting Review* 70, p.193-225.
- Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1996. *Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC*. *Contemporary Accounting Research* 14, p.1-36.
- DeFond, Mark L., and Jiambalvo J, 1994. *Debt covenant violation and manipulation of accruals*, *Journal of Accounting and Economics* 17, p. 145-176.
- Djankov S. et al., 2000. *The regulation of entry*, National Bureau of Economic research, p. 1-51.
- Eisenhardt, K.M., 1989. *Agency Theory: An assessment and review*, *Academy of Management Review*, Vol. 14, No. 1, pp. 57-74.
- Enriques L. and Volpin P., 2007, *Corporate Governance Reforms in Continental Europe*, *Journal of Economics Perspectives*, Vol. 21, nr. 1, pp. 117-140.
- Fama, Eugene F., 1980. *Agency Problems and the Theory of the Firm*. 88 *Journal of Political Economy* 288.
- Fisher, P.E. and Verrecchia R.E., 2000. *Reporting bias*, *The Accounting Review* 75, pp.229-245.
- Fox, H., 1980, *Top executive compensation*. The Conference Board, New York.
- Friendlan J.M., *Accounting choice of issuers of initial public offerings*, on temporary *Accounting Research*, Vol. 31. pp.1-31.
- Gao, P., Shrieves, R.E, *Earnings Management and Executive Compensation: a Case of Overdose of Option and Underdose Salary*.
- Guay, W.R., 1999, *The sensitivity of CEO wealth to equity risk: an analysis of the magnitude and determinants*, *Journal of Financial Economics*, Vol.53, p. 43-71.
- Guidry et al., 1998, *Earnings-based bonus plans and earnings management by business-unit managers*, *Journal of Accounting and Economics* 26, p. 114-142.

- Healy P.M., 1985. *The effect of bonus schemes on accounting decisions*. Journal of Accounting and Economics 7 1–3, pp. 85–107
- Healy P.M. and Wahlen, J.M., 1999. *A review of the earnings management literature and its implications for standard setting*. Accounting Horizons.
- Holthausen, R.W, et al., *Annual bonus schemes and manipulation of earnings*, Journal of Accounting and Economics, 1995, Vol. 19, pp.29-74.
- Hermalin, Benjamin E. and Michael S. Weisbach, 1988. *The determinants of board composition*. Rand Journal of Economics 19, 589-606
- Hoogendoorn M.N and Mertens G.M.H., 2001 , *Kwaliteit van externe financiële verslaggeving in Nederland*. Maandblad voor accountancy en bedrijfseconomie Vol. 10. Pp. 406-420.
- Holland, K. and Jackson, R.H.G, 1999. *Earnings management and deferred tax*. Accounting and Business Research, Vol. 34. oo. 101-123.
- Huddart S. and Louis H., 2005, *Managerial stock sales and earnings management during the 1990s stock market bubble*, Accounting Department,.
- Jensen M.C. and Meckling W.H., 1976. *Theory of the firm: Managerial behavior, agency costs, and ownership structure*. Journal of Financial economics, 3: p.305-360.
- Jensen, M., 1993. *The modern industrial revolution, exit, and the failure of internal systems*. Journal of Finance 48, p.831-880.
- Jones, J., 1991. *Earnings Management During Import Relief Investigations*. Journal of Accounting Research Supplement 26: p.1-31.
- Kadan O. and Yang J., 2006, *Executive stock options and earnings management: A Theoretical and Empirical Analysis*, John M. Olin School of Business, p. 1-44.
- Kasanen E., Kinnunen J. and Niskanen J., 1996. *Dividend-based earnings management: Empirical evidence from Finland*, Journal of Accounting and Economics vol. 22, p.283-312..
- Kasznik, R. 1999. *On the association between voluntary disclosure and earnings management*, Journal of Accounting Research, 37, pp. 57-81.
- Kedia S., 2003, *Do executive stock options generate incentives for earnings management? Evidence from accounting restatements*, Harvard Business School & Ohio State University, p. 1-41.

- Klein, A., 2002. *Audit committee, board of director characteristics, and earnings management*. Journal of Accounting Economics 33, p.375-400.
- Kothari S.P., Leone A.J., Wasley C.E., 2005, *Performance Matched Discretionary Accrual Measures*, Journal of Accounting and Economics, 39, p. 163-197.
- Lam, C.K.S, 2005, *Earnings management in Nederland*, Rijksuniversiteit Groningen, p 1-46.
- Larcker, D.F. , and Richardson, S.A., 2004, *Fees paid to audit firms, accrual choices, and corporate governance*, Journal of Accounting Research 42, 625-658.
- Lev, B and Ohlson J.A., 1983, *Market-Based Empirical Research in Accounting: A Review, Interpretation, and extension*, Journal of Accounting Research 20 supplement, p.249
- Lewellen, W. Loderer, C. and Martin, K. ,1987, *Executive compensation contracts and executive incentive problems: an empirical analysis*, Journal of Accounting Research, Vol. 25, Supplement, p. 85-125.
- Meek et al., 2007, *Evidence on factors affecting the relationship between CEO stock option compensation and earnings management*, Accounting and Finance, Vol.6 No.3, p. 304-318.
- McNicols M.F., 2000, *Do firms use restructuring charge reversals to meet earnings targets*, The Accounting Review, 77 (2), pp.397-413.
- Mehran, H., 1995. *Executive compensation structure, ownership, and firm performance*. Journal of Financial Economics 38, 163–184.
- Murphy, K.J and Zimmerman, 1993, *Financial performance surrounding ceo turnover*,Journal of Accounting and Economics, Vol. 16. pp. 273-316.
- McConnel, J.J., Servaes, H., 1990. *Additional evidence on equity ownership and corporate value*. Journal of Financial Economics 27, p.595-612.
- Palepu, Healy, Bernard and Peek. "*Business Analysis and Valuation; IFRS- edition (text only version)*", Thomson, 2007.
- Palia, D., 2001. *The endogeneity of managerial compensation in firm valuation: a solution*. Review of Financial Studies 14, 735–764.

- Perry S. and Williams T., 1994. *Earnings management preceding management buyout offers*, Journal of Accounting and Economics, 1994, Vol. 18, pp. 157-179.
- Perry T., Zenner M., 2000. *CEO compensation in the 1990s: Shareholder alignment or shareholder expropriation?*, Forthcoming The Wake Forest Law Review, 1-37.
- Piazza, K., 2006, *Transparenz der Toplöhne nimmt zu*, Handelszeitung 21, 9.
- Praag B., 2001. Earnings management: empirical evidence on value relevance and income smoothing. Proefschrift Universiteit van Amsterdam, Tinbergen Institute, Research series no. 251.
- Ronen, J and Yaari V., *Earnings management. Emerging Insights in Theory, Practice and Research*. Florida, 2008.
- Rooijen J.G. van. 2003, *Ahold versus Heineken winstbeleid en winststuring van Nederlandse beursgenoteerde ondernemingen*. Hollands Glorie. Vol. 11 pp.5-11
- Rost K. and Osterloh M., 2009. *Management Fashion Pay-for-performance for CEOs*. Schmalenbach Business Review 61, April: 119-149.
- Schipper, K., 1989. *Earnings management*. Accounting Horizons 3 4, pp. 91–102
- Shuto A., 2007, *Executive compensation and earnings management: empirical evidence from Japan*, Journal of International Accounting, Auditing and Taxation, p. 1-26.
- Storero J.K., Stephenson T., 2009, 'Special Report', *Employee benefit plan review*, Aspen Publishers Inc, January, p. 24-28
- Smith, C.W. and Watts, R.L., 1992, *The investment opportunity set and corporate financing, dividend, and compensation policies*, Journal of Financial Economics, Vol. 32, p. 263-92.
- Warfield, T.D., Wild, J.J., Wild, K.L., 1995. *Managerial ownership, accounting choices, and informativeness of earnings*. Journal of Accounting and Economics 20. p.61-91.
- Yermack, D., 1996. *Higher market valuation of companies with small board of directors*. Journal of Financial Economics 40, p. 185-211.
- Shleifer, Andrei and Robert W. Vishny, 1988. *Value maximization and the acquisition process*, Journal of Economic Literature 2, 7-20.

- Security and Exchange Commission, 2009. <http://sec.gov/rules/proposed/2009/33-9052.pdf>
- Sloan, R., 1996. *Do stock prices fully reflect information in accruals and cash flows about future earnings?* Accounting Review 71, 289–316.
- Teoh S.H., Welch I. and Wong T.J., 1995. *Earnings management and the underperformance of seasoned equity offering*, Journal of Financial Economics, 50: 63-99.
- Teoh S.H. et al., 1998a. *Earnings management and the long –run market performance of initial public offerings*. Journal of Finance, Vol. 53. pp. 1935-1974.
- Vanderbouwhede H., 2003, Resultaatsturing en kapitaalmarkten, Maandblad voor accountancy en bedrijfseconomie, 5, p. 196-204
- Meulen, van der S. et al, 2007, Attribute differences between US GAAP and IFRS earnings: an exploratory study, KULeuven.
- Watts R.L. and Zimmerman J.L., 1978, *Towards a positive theory of the determination of accounting standards*, Accounting review, 53, p. 112-134
- Watts R.L. and Zimmerman J.L., 1986, Positive Accounting Theory, Englewood Clifff, New Jersey: Prentice-Hall Inc., p. 7
- Xie B., Davidson W.N., DaDalt P.J., 2003. *Earnings management and corporate governance: the role of the board and the audit committee*. Journal of Corporate Finance 9, p.295-316.
- Xiong Y., 2005, *Earnings management and its measurement: a theoretical perspective*, Journal of American Academy of Business, vol. 9, no. 1, pp. 214-219.
- Yermack, D., 1995, *Do corporations ward CEO stock options effectively?*, Journal of Financial Economics, Vol.39, p.281-308.
- Zhang et al., 2008, *CEOs on the edge: earnings manipulation and stock-based incentive misalignment*, Academy of Management Journal, Vol.51, no.2, p.241-258.