



**Erasmus University Rotterdam**

**Erasmus School of Economics**

Auditing Accounting & Control

---

***The earnings expectations of the capital market and real earnings manipulation***

*The association between the earnings expectations of the capital market and the use of real earnings manipulation*

---

**Student:** Santushia I. Faria

**Student number:** 372581

**Supervisor:** G. Renfrum MSc. MBA

**Co-reader:** Prof. Dr. D. Veenman

Rotterdam, may 2016

## Abstract

---

The objective of this study is to examine whether U.S. listed companies are influenced by the earnings expectations of the capital market to engage into real earnings manipulation for the period 2010 to 2014. To examine this association, a sample of 41 companies which is equal to 205 firm-years, is drawn. To measure the expectations of the capital market, the consensus analysts' EPS forecasts serve as a proxy and to measure real earnings manipulation, the estimation models applied by Cohen et al. (2008) are used. The findings of this study indicate that there is a negative association between the earnings expectations of the capital market and real earnings manipulation. This means that high earnings expectations of the capital market, lead to lower use of real earnings manipulation by management. These findings could be useful for researchers, standard setters, auditors, capital market participants in the sense that they can control for the capital market incentives to make use of real earnings manipulation.

**Key words:** earnings expectations of the capital market, financial analysts, analysts' EPS forecasts, real earnings manipulation, meet or beat capital market expectations

## Preface

---

To complete the master study in Accounting, Auditing and Control at the Erasmus University of Economics in Rotterdam, it is required to write a thesis. The subject of this thesis is about the association between the earnings expectations of the capital market and real earnings manipulation. Writing this thesis has not been possible without the support of my supervisor, co-readers, family and friends.

Especially I would like to thank my supervisor Mr. G. Renfrum MSc. MBA and co-readers Mr. Prof. Dr. D. Veenman and Mr. R. Van der Wal RA for their guidance and support. I also would like to thank my parents Astrid Winter, Rudy Faria, Elsiglo - and Wilma Vrij for their support, motivation and empowerment. Furthermore I would like to thank my sisters and brothers Stefany , Pricilla, Franklyn and Laurence. Finally I want to thank a very important person in my life, my husband, Elsiglo Vrij who always stood by me, supported me and made me believe that I can achieve this goal.

# Table of contents

---

Abstract .....	2
Preface .....	3
1 Introduction .....	8
1.1 Background information .....	8
1.2 Problem definition and research question .....	8
1.3 Relevance of the problem definition .....	12
1.4 Methodology .....	13
1.5 Limitations .....	14
1.6 Structure .....	14
2 The earnings expectations of the capital market and real earnings manipulation .....	16
2.1 Introduction .....	16
2.2 Financial accounting .....	16
2.3 Financial accounting theories related to earnings management .....	17
2.3.1 The agency theory .....	17
2.3.2 The Positive Accounting Theory (PAT) .....	19
2.4 The earnings expectations of the capital market .....	22
2.4.1 The capital market .....	22
2.4.2 Analyst forecasts .....	24
2.5 Real earnings manipulation .....	29
2.5.1 Real earnings manipulation methods .....	29
2.5.2 Motivations behind real earnings management .....	32
2.6 Summary .....	36

3	Literature review .....	38
3.1	Introduction .....	38
3.3	Real earnings manipulation and future stock return.....	40
3.4	Earnings management to meet or beat analysts' forecasts.....	41
3.5	Summary and critical reflection .....	42
4	Hypothesis development .....	44
4.1	Introduction .....	44
4.2	Development of the hypotheses .....	44
4.2.1	Development hypothesis for main research.....	44
4.2.2	Development hypothesis for additional research.....	46
4.3	Summary .....	47
5	Research design.....	48
5.1	Introduction .....	48
5.2	Qualitative and Quantitative research .....	48
5.3	Measurement of concepts and control variables .....	49
5.3.1	Measurement of theoretical concepts of the main research.....	49
5.3.2	Measurement of theoretical concepts of the additional research.....	53
5.3.3	Measurement of control variables.....	54
5.4	Regression models and Libby boxes.....	55
5.4.1	Regression models .....	55
5.4.2	Libby boxes.....	57
5.5	Sample selection.....	59
5.6	Summary .....	62
6	Research results and analyses.....	63

6.1	Introduction .....	63
6.2	The coefficients of the estimation models for the proxy real earnings management.....	63
6.3	Descriptive statistics.....	66
6.3.1	The tests of normality .....	68
6.4	Regression results of hypothesis 1 en 2 .....	69
6.4.1	Regression results of hypothesis 1 .....	69
6.4.2	Regression results of hypothesis 2.....	71
6.4.3	Multicollinearity and autocorrelation for hypothesis 1.....	73
6.4.4	Multicollinearity and autocorrelation for hypothesis 2.....	74
6.5	Pearson correlation results .....	74
6.6	Robustness check .....	78
6.7	Summary .....	78
7	Analyses of the study findings and previous research .....	80
7.1	Introduction .....	80
7.2	The differences and similarities hypothesis 1 .....	80
7.3	Difference and similarities hypothesis 2 .....	81
7.4	Summary .....	81
8	Conclusions .....	83
8.1	Introduction .....	83
8.2	General conclusion.....	83
8.3	Research limitations .....	85
8.4	Suggestions for future research.....	86
References	.....	87

Appendix A	Selected companies name, Global Company Key, CUSIP-code and Official Ticker symbol .....	92
Appendix B	Overview of previous academic literature .....	93
Appendix C	Descriptive statistics and test of normality.....	97
Appendix D	R-square tests and Analysis of Variance normal CFO, Production costs and Discretionary Expenses.....	99
Appendix E	Regression results, multicollinearity, autocorrelation, Pearson correlation and Robustness checks.....	104
Appendix F	Compustat data items for estimation models and control variables.....	109

# 1 Introduction

---

## 1.1 Background information

In the past decade an increasing trend of financial corporate scandals could be noticed (Jensen, 2004), because management of the companies has taken business decisions which have destroyed the value of their companies. Examples of these financial corporate scandals are the cases of the companies: Enron, Nortel, Worldcom, eToys, etc. According to Jensen (2004) the value destruction of these companies happens due to the fact that managers find themselves in a difficult situation when the equity of their company becomes overvalued by the capital market. With regard to equity overvaluation Jensen (2004, p.1) states that *“The equity of a company is overvalued when the stock price of the company is higher than its underlying value”* and this means that *“the company will not be able to deliver, except by pure luck, to justify its value”* (Jensen 2004, p.1). Because of the difficult situation in which managers find themselves, they take wrong business decisions, such as earnings management to perform to this overvaluation, which leads to the value destruction of the company. According to the study of Lee (2007) about managers engaging into earnings management just to meet or analysts’ forecasts, it is stated that: *“there is an increased interest among corporations to meet or beat analysts’ expectations”* (Lee, p.1). The study done by Graham, Harvey and Rajgopal (2005) where 401 CFO’s are interviewed to determine which factors influence decisions about reported earnings and disclosures support this statement of Lee (2007). The results of this study show that 73.5% of the CFO’s agree that the earnings per share (EPS) analysts’ forecasts for the current quarter are an important benchmark for the company when quarterly earnings are reported. According to the results of the same study, managers of companies are willing to offer the value of their company and use a combination of accrual and real earnings management methods to make sure that they meet earnings benchmarks. With other words meet their earnings targets.

## 1.2 Problem definition and research question

Prior research by Jensen (2004) and Graham et al. (2005) have shown that managers of companies are willing to offer the value of their firm just to meet the earnings expectations of the



capital market. Managers are afraid of not meeting the expectations of the capital market, because they are afraid of being punished by the market. When management fails to meet the earnings expectations of the market (in case of negative earnings surprises), the share price of the company decreases (Jensen 2004). An example which the study of Jensen (2004) uses is that when a firm's reported earnings beat the quarterly analysts' forecasts, the stock price of the company increases with an average of 5.5%. But when the firm has a negative earnings surprise, the stock price drops with an average of -5,5%. Because of this managers can take wrong decisions, such as engaging into earnings management. Enomoto et al. (2012, p.2) defines earnings management as: *"the choice made by a manager of accounting methods or real transactions to affect earnings to achieve a specific reported earnings objective"*. Earnings management can be divided into accrual based earnings management and real earnings manipulation or real earnings management. Earnings are managed accrual based when management makes use of accounting methods within the Generally Accepted Accounting Principles (GAAP) to conceal the true economic performance of the company (Gunny 2010). An example is under-estimating the provision for a bad debt costs, the delay of removing an asset from the balance sheet and the opportunistic use of accounting choices. Real earnings manipulation has to do with the engagement of management into activities that change the timing or structuring of operation, investment and financing business transaction with the incentive to influence accounting earnings numbers (Gunny 2010). Examples of real earnings manipulation are the decrease of discretionary expenses (R&D, Selling, General costs, etc.), the increase of sales discounts, reduction of capital investments, etc. (Enomoto et al. 2012).

Managers of companies engage into earnings management to meet the earnings expectations of the capital market, so that the capital market can give them a gratification, by increasing the stock price of the company (Jensen 2004). According to Nichols and Wahlen (2004) there is an association between the earnings and stock return of a company. These researchers make use of the 3 theoretical relations with regard to the association between earnings and stock prices which are developed by Beaver (1998, p.2) and have stated that: *"the current period earnings provide information to predict future earnings, which provide information to develop expectations about future dividends, which provide information to determine share value, which presents the present*

*value of the expected future dividends*". This gives an explanation about the reason why investors, managers, boards of directors, analysts, etc. find accounting earnings numbers so important. The earnings of a company are also called "*the net income of a company*" and reflects the accounting measure of the performance of a company. Another definition for earnings is that it is an accrual accounting measure which is the result (profit or loss) from the business transactions of a firm during for example a year. The capital market uses earnings information to forecast future earnings, to develop expectations about future dividends and to determine stock prices (Nichols and Wahlen 2004).

The Capital market is a financial market where money supplied by savers and financial institutions (banks, credit unions, insurance companies, etc.) is channeled to borrowers and investors through financial instruments such as bonds, notes or shares (Securities)<sup>1</sup>. The earnings expectations of the capital market, which are equal to the forecasted future earnings of a firm can be assessed by investors, financial analysts and credit rating agencies. Previous studies have examined the association between earnings management and meeting or beating analysts' forecasts and found evidence that management makes use of earnings management activities to meet analyst expectations. Examples are research done by Athanasakou et al. (2006), Lin et al. (2006) and Lee (2007). But this study examines another association. What if earnings management is also influenced by the earnings expectations of the capital market? The above mentioned prior studies are focused on whether management of companies engages into earnings management to meet or beat analysts' forecasts. This thesis focuses on the earnings expectations which are assessed by financial analysts' and pays attention to the consensus analysts' earnings forecasts to measure the earnings expectations of the capital market. The assumption is made that the forecasts are done accurately by the financial analysts. Also in most research consensus analysts' earnings forecasts are often used as measurement for the earnings expectations of the capital market (Nichols and Wahlen 2004).

This study examines whether management of companies is influenced by the earnings expectations of the capital market (analysts' earnings forecasts) to engage into earnings

---

<sup>1</sup> <http://www.businessdictionary.com/definition/capital-market.html>

management. In this case management has capital market incentives like meeting or beating analysts' forecast with the objective of receiving a high firm valuation.

With regard to earnings management, this study focuses on real earnings manipulation instead of accrual based earnings management, because real earnings manipulation has a direct effect on the cash flow of a company while accrual based earnings management does not. Accrual based earnings management has to do with the management of accruals (Roychowdhury 2003, 2006; Gunny 2010). Furthermore Enomoto et al. (2012) states that real earnings manipulation is more costly because it has a negative effect on the future value of the firm. Based on these statements, it is very interesting to examine if management of companies is willing to engage into activities which may have a negative effect on future value of the firm and whether they do this just to meet the expectations of the capital market. It is expected that the earnings expectations of the capital market have an impact on the engagement in real earnings manipulation and that companies make use of real earnings manipulation to meet or beat the expectations of the capital market. By examining the use of real activities manipulation methods by management, this thesis contributes to existing literature of real earnings management.

To examine whether the earnings expectations of the capital market have an influence on managers engaging into earnings management, the following research question is formulated:

***“Is there an association between the earnings expectations of the capital market and the use of real earnings manipulation?”***

To answer this research question the following sub questions are formulated:

1. What relevant accounting theories are related to real earnings manipulation?
2. What is meant with the earnings expectations of the capital market and why are earnings expectations important for the capital market?
3. What is real earnings manipulation and what are the incentives for managers to engage into real earnings manipulation?
4. Do the earnings expectations of the capital market have a positive impact on real earnings manipulation?

Having answered the above main research question, additional research is done to answer the question that if companies meet or beat capital market earnings expectations, they have engaged into real earnings manipulation. Therefore the additional research question is:

***“Do companies that meet or beat capital market earnings expectations have engaged into real earnings manipulation?”***

In this thesis the focus is on U.S. listed companies. According to a study done by Brown and Higgins (2001), managers of U.S. companies manage earnings surprises relatively more than managers of 12 other countries (Non-US companies). The cause is the difference between the corporate governance and legal environment system of the U.S. and other countries (Non-U.S. companies). In this study Brown and Higgins (2001) state that because of the information asymmetry between the shareholders and managers, investors are not aware of the options that increase long term value for the firm. This triggers them to focus more on current-term results. Also according to Shleifer and Vishny (1997) the ownership of most U.S. companies is widely distributed, so there is more information asymmetry between U.S. companies and their shareholders. Because investors of U.S. companies pay more attention on current-term earnings, managers of US companies have capital market incentives to meet short-term results. The study done by Brown and Higgins (2001) was done in the year 2001 and to examine whether U.S. companies are still triggered by the capital market to meet earnings targets, U.S. listed companies are used to carry out this study. Based on the results of this study, the earnings expectations of the capital market have a negative impact on the use of real earnings manipulation for U.S. listed companies. With regard to the additional research, U.S. listed companies that meet or beat analyst forecasts have not made use of real earnings manipulation to meet or beat these forecasts. This means that in the years 2010 to 2014 management of U.S. listed are not influenced by the capital market to engage into real earnings manipulation.

### **1.3 Relevance of the problem definition**

Based on what previous studies have stated, it can be concluded that the capital market has a major role in determining the stock price of a company and that this factor might have an influence on the internal organization of a company, with other words management decisions

with regard to meeting earnings targets. There has been an increase in financial scandals in the twenty first century, because management of companies has engaged into fraud or earnings management, so it is necessary that this problem is not only viewed from the perspective of the management but also from the perspective of the capital market.

The insights which this study gives can be used by researchers, auditors, standard setters, capital market participants or investors to solve this problem of managers engaging into real earnings management to meet expectations of the capital market. Auditors and standard setters can introduce accounting standards which restrain the decisions of managers to deviate from normal business transactions. For investors it will be interesting to know that they also contribute to the earnings management game by punishing companies if they do not meet or beat earnings targets. They do this by decreasing the companies' stock price drastically. The capital market participants will learn that there is no gain when a company sacrifices its value to meet earnings targets.

Furthermore this study contributes to existing research based on capital market earnings expectations that triggers management to engage into earnings management just to meet these expectations. Specifically it contributes to research with regard to real earnings management and analysts' forecasts and gives empirical evidence on how these two concepts are associated with each other. Also archival data (data from 2010 to 2014) is used to gather empirical evidence on this association.

## **1.4 Methodology**

This study is a quantitative research and to carry out this study, literature study is used to understand the theoretical basis of the concepts such as the expectations of the capital market and real earnings management. Also financial accounting theories and previous research which are relevant for this study are discussed. Based on this information hypotheses are developed to predict associations between the concepts. These hypotheses are tested statistically.

To measure the concept real earnings management the proxies abnormal CFO, abnormal production costs and abnormal discretionary expenses are used. There is evidence found about the construct validity of these proxies by studies done by Zang (2006) and Gunny (2005). For

the expectations of the capital market, the earnings per share analysts' consensus forecasts are used as measurement.

Annual financial data for U.S. listed companies are chosen from the Compustat North America database for the period 2010 to 2014 to measure real earnings manipulation. Also data about analysts' Earnings Per Share forecasts are gathered from the Institutional Broker's Estimate System (I/B/E/S) database for the same period to measure the expectations of the capital market. Furthermore statistical analyses, such as descriptive statistics and regression analyses are carried out to draw conclusions and provide information about the association between the expectations of the capital market and real earnings management.

## **1.5 Limitations**

This study also has a few limitations. First of all, this study only examines real earnings manipulation which differs from the other studies which also examine accrual based earnings management. Furthermore U.S. listed companies are studied and the findings are only applicable to these category of companies. The sample period is also limited to 2010 to 2014 which will give an indication of companies' earnings management behavior and focus on meeting or beating expectations of the capital market in recent years.

## **1.6 Structure**

To answer the research question, sub questions and additional research question, this thesis has the following structure:

**Chapter 2:** Because this study is related to financial accounting research, an overview of the related financial accounting theories which are related to this study is given in this chapter. Relevant theories for earnings management and capital market theories are discussed. This chapter gives an answer to the following sub questions: *“What relevant accounting theories are related to real earnings manipulation?”*, *“What is meant with the earnings expectations of the capital market and why are earnings expectations important for the capital market?”* and *“What is real earnings management and what are the incentives for managers to engage into real earnings management?”*

**Chapter 3:** This chapter discusses the analysis of previous research which contributes to the examination of the relation between the expectations of the capital market and real earnings manipulation. In this chapter the similarities and differences of previous studies' findings are described. Finally a critical reflection of the previous studies is added.

**Chapter 4:** This chapter contains the development of the hypotheses that are tested in order to answer the research question. These hypotheses are developed and based on the prior studies discussed in chapter 3.

**Chapter 5 :** Elaborates on the research design of this study, where the methodology to carry out this research is described. Hereby the variables of interest to measure the theoretical concepts and estimation models are mapped. Additionally the sample selection method and sample size are discussed.

**Chapter 6:** The results of the statistical analyses such as descriptive statistics and regression analyses are discussed. The sub question and additional research question: *“Do the earnings expectations of the capital market have a positive impact on real earnings manipulation?”* and *“Do companies that meet or beat capital market earnings expectations have engaged into real earnings manipulation?”* are answered based on these analyses.

**Chapter 7:** The results of chapter 6 are analyzed and compared to prior research findings in this chapter. Through this analysis, the conclusions with regard to the research question are drawn.

**Chapter 8:** Summarizes and concludes the study by presenting the main findings and contributions of this study taking into account the limitations. In addition this chapter ends with suggestions for future research areas with regard to this topic.

The next chapter describes the literature of relevant accounting theories and the theoretical concepts related to this study.

## **2 The earnings expectations of the capital market and real earnings manipulation**

---

### **2.1 Introduction**

This chapter gives a brief literature overview of real earnings management and the expectations of the capital market and therefore answers the following sub questions: “*What relevant accounting theories are related to real earnings manipulation?*”, “*What is meant with the earnings expectations of the capital market and why are earnings expectations important for the capital market?*” and “*What is real earnings management and what are the incentives for managers to engage into real earnings management?*”. To answer these questions, the second paragraph discusses the definition of financial accounting. Subsequently the third paragraph elaborates on relevant financial accounting theories. These theories discuss the background of accounting practices such as earnings management and to get an understanding of the basis of accounting methods or practices such as earnings management. The fourth paragraph gives an overview about the capital market, the role of financial analysts within the capital market, their earnings forecasts and the reasons of companies to meet or beat analysts’ forecasts. In paragraph five a brief literature overview is given about the definition of real earnings management, the different kind of real earnings management methods. Furthermore the capital market incentives to engage into earnings management and the specific motivations for managers to engage into real earnings manipulation are discussed. The final paragraph gives a summary of this chapter.

### **2.2 Financial accounting**

The topic of this thesis is based on financial accounting. Financial accounting has to do with the process of collecting and processing financial information to support the internal and external parties of the organization to make decisions (Deegan 2009). These parties are for example investors, lenders, suppliers, employees, customers, governments, etc. With other words, financial accounting has to do with the production of financial information by managers for the internal and external parties of the organization.



In the process of providing financial information to the stakeholders of the company, managers make use of different accounting methods or practices. For example the valuation of an asset on the historical costs or actual costs. Financial accounting theories aim to explain, predict, prescribe or give an understanding of the basis of the use of these accounting methods or practices (Deegan 2009). To give a theoretical explanation of why managers make use of earnings management and how the capital market system works, the related accounting theories are discussed.

## **2.3 Financial accounting theories related to earnings management**

The accounting theories which are related to earnings management and are discussed in this paragraph are:

1. The agency theory
2. The positive accounting theory

These two theories are discussed because they explain best what the motivations are for managers to make use of opportunistic accounting methods or to engage into earnings manipulation.

### **2.3.1 The agency theory**

The agency theory is based on the relationship between the shareholders (principals) and the managers (agents) of a company. A relationship which can create uncertainty due to information asymmetries. The agency relationship is defined by Jensen and Meckling (1976, p.308) as:

*“A contract under which one or more (principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent”*. According to the agency theory, a well-functioning firm is a firm where the agency costs are minimized. The agency costs are costs which are tied to the relationship between the principal and agent. If mechanisms are not put in place to make an agent pay for actions he has undertaken and which have an impact on the owners (principals) of the firm, this agent will have an incentive to benefit from this and use information for personal reasons at the cost of the principals.

An important starting point of the agency theory are the incentives problems of managers (Deegan 2009).

According to Lambert (2001), models of the agency theory are based on the philosophy that it is important that the examination of incentive problems and their solution takes place in the economic setting where the incentive problem really exists.

Further Lambert (2001) states that reasons for conflicts of interest are:

1. the agent is not motivated to perform;
2. the agent can shift resources for own consumption or use;
3. the agent is not really concerned about the effects of his current actions because he does not expect to work a long period for the firm or the agent is concerned about how his actions will affect the assessment of others about his skills, which will have an impact on his future compensation and
4. the agent wants to avoid risks for himself.

According to the agency theory the owners of companies assume that agents are motivated by self-interest and expect that the manager will undertake activities for their personal benefit. This could be disadvantageous to the economic welfare of the owners. In case contractual mechanisms are absent to restrict agents to act in own interest, the agents are paid a lower salary by the principals. The reason for this is to anticipate on the self-interest actions of the agent. The lower salary then compensates for the opportunistic actions of the agent. If the assumption is taken that managers will choose for a higher salary, this is an incentive for them to agree to sign contracts that will minimize the possibility to undertake actions that will be disadvantageous for the owners of the company. In this case managers will have reasons to produce information to show the owners that they are acting in a correct manner (Deegan 2009).

The agency theory allows accounting researchers to take conflicts of interest, incentive problems and mechanisms to control for incentive problems into account when developing models. This is very important because the motivation behind accounting and auditing is based on the control for incentive problems (Deegan 2009).

With regard to the topic of this thesis, which focuses on real earnings management, managers have incentives to choose an accounting method to manage earnings and be able to meet the expectations of the capital market. In this case the prediction is made that managers have capital market incentives to manage earnings. The assumption which is made in this study, is that

managers are not triggered by the incentive of self-interest to undertake opportunistic actions. They are triggered by capital market incentives such as meeting analysts' forecasts for annual earnings or prevent negative earnings.

### **2.3.2 The Positive Accounting Theory (PAT)**

The positive accounting theory is developed by the study of Watts and Zimmerman (1986). According to Watts and Zimmerman (1986), the positive accounting theory is concerned with the explanation and prediction of which accounting methods will be used by firms' managers. The development of the positive accounting theory is based on previous research like the agency theory and the Efficient Markets Hypothesis (EMH) (Deegan 2009). In contrast to the agency theory, the positive accounting theory is based on the assumption that the actions which individuals undertake are a result of self-interest and this means that individuals will always undertake actions that are profitable for them. The agency theory is more focused on the principal-agent relationship, a relationship which creates information asymmetry and results into uncertainty from the side of the principal. The EMH implies that capital markets are efficient and unbiased when it comes to information that is publicly available. The assumption is made that there is much competition within the capital market and when new information about a firm is released, this information is immediately incorporated in the stock price of the firm. It is also expected that the stock price of a company reflects information from different sources and that managers cannot change accounting methods opportunistically to manipulate the stock price. If the change in accounting methods affects the cash flows of firm, the capital market will response to this. In addition it is stated that if managers produce false disclosures which are in contrast with other information and if the capital market is efficient, the market will not rely on these disclosures anymore (Deegan 2009).

Watts and Zimmerman (1990) identified three important hypothesis which are used in the PAT. These are: the bonus plan hypothesis, the debt hypothesis and the political cost hypothesis. These hypotheses explain and predict whether the use of a certain accounting method is supported or not supported by an organization. Below a short description is given of these hypotheses:

#### ***1. The bonus plan hypothesis or management compensation hypothesis***

The bonus plan hypothesis predicts that managers whose income is related to the income of the firm, will make use of accounting methods that will increase the current earnings of the firm. The increase of the earnings causes an increase in the bonus of the managers. Healy (1985) found evidence that when bonus schemes were related to the accounting income numbers of the company, managers would make use of accounting methods to increase that bonus. Furthermore it is also illustrated by Healy (1985) that managers act in another way when they find themselves in a situation where the profits of the company did not meet the minimum level according to the bonus scheme. In this case managers will make use of accounting methods which will decrease accounting income in that period, but will lead to higher income in the future periods. In these future periods the company's income can be so high that it exceeds target level for which the bonus would be paid (Watts and Zimmerman 1990).

## ***2. The debt/equity hypothesis***

The debt/equity hypothesis predicts that the higher the debt to equity ratio, the higher the chance that management will make use of accounting methods that will increase the income of the firm. Managers make use of income increasing accounting methods because the more it is probable that managers will use accounting methods to magnify the income of the firm. The explanation for this is that when the debt to equity ratio is high, the company is more tied to the compulsions in the debt agreements or contracts. When the compulsions are tight, there is a greater probability that the firm will violate the contract or create costs resulting from not fulfilling obligations. In case of a high debt to equity ratio managers will make use income increasing accounting methods to prevent contract violation and non-fulfillment of obligations (Watts and Zimmerman 1990).

## ***3. The political cost hypothesis***

The political cost hypothesis implies that there is a greater probability that managers of larger firms make more use of accounting methods that decrease the income of their firm than smaller firms. In this hypothesis the firm size is used as a proxy variable for political attention. The assumption on which this hypothesis is based, is that if managers think that the company is scrutinized by politicians, this could stimulate them to undertake actions (make use of accounting

methods or practices) that will decrease the income of the company. By decreasing the earnings or income of the company, management reduces the possibility that external parties will blame the company for making high profits at the expense employees (give the employees low salaries) or consumers ( selling products for high prices) (Watts and Zimmerman 1990).

The PAT identifies 3 basic reasons why managers could engage into accounting practices to meet a certain objective. These are: when the bonus of management is related to the performance of the company, a high debt to equity ratio and when the influence of politics is high. According to this study managers make use of accounting methods, in this case the real earnings manipulation method, to meet analysts' earnings forecasts which is a capital market incentive (Healy and Wahlen 1999) ; Dechow and Skinner 2000). A difference with my study is the PAT does not make predictions about the association between capital market incentives and the use of accounting methods opportunistically. The PAT also relies on the efficient markets hypothesis and assumes that the capital market is efficient and that the share price of a company reflects all publicly available information of the firm. Thus according to the EMH, management cannot manipulate the share price by the change of accounting methods. Because this would be already known by the capital market. The capital market gathers information from different sources and if management has announced false earnings numbers which are in contrast with other sources, the capital market will not believe in those numbers anymore and will not pay attention to the future numbers of the firm. This is criticized, because there are studies done (also recent studies) where it is shown that managers have capital market incentives to use accounting methods opportunistically. In the articles of Healy and Wahlen (1999) and Dechow and Skinner (2000), a summary is given about previous research that examines capital market incentives and the management of earnings. Examples of recent studies are Athanasakou (2006), Lin et al. (2006), Lee (2007) and Irani and Oesch (2014). The findings of these studies show evidence that managers have capital market incentives to make use of earnings management activities. This study also intends to give evidence that managers have capital market incentives to make use of accounting activities in an opportunistic manner.

Based on the discussed theories” the agency” and “the PAT” it can be concluded that management of companies always have an objective to engage into accounting practices or make use of certain accounting methods. Whether it has to do with accounting activities that will increase or decrease the earnings of the company, they always have an objective, incentive or reason. These theories also explain why management of companies might engage into earnings management activities.

In the next paragraph a brief overview is given about the topics” the earnings expectations of the capital market” and “ real earnings manipulation”.

## **2.4 The earnings expectations of the capital market**

Earnings expectations of the capital market are based on external assessments of financial analysts in the form of analysts’ earnings forecasts. Before a brief description will be given of the analysts forecasts, a short overview is given about the capital market and its function. Furthermore the earnings expectations of the capital market are defined, the factors which influence the expectations, the role of an analyst within the capital market and the incentives for managers to meet analysts’ expectations.

### **2.4.1 The capital market**

The capital market is a financial market which works as a channel for the demand and supply of debt and equity capital <sup>2</sup>. It plays an important role in channeling financial resources (money) from savers, banks or insurance companies to borrowers or investors that need capital through financial instruments such as bonds, notes, shares, etc. (Palepu et al. 2008). The capital market consists of 3 major markets <sup>3</sup>, which are:

**1. The stock market:** is the place where the stocks of publicly listed companies are traded <sup>4</sup>. This market is divided in 2 markets:

---

<sup>2</sup> <http://www.businessdictionary.com/definition/capital-market.html>

<sup>3</sup> <http://www.businessdictionary.com/definition/capital-market.html>

<sup>4</sup> <http://economictimes.indiatimes.com/definition/stock-market>

- **The primary market:** where shares of a company are traded for the first time publicly to raise capital. This is also called Initial Public Offering (IPO).
- **The secondary market:** after the company has sold the new shares in the primary market, the shares are traded in the secondary market. In this case investors buy shares from each other on a price they both have agreed upon.

**2. The bond market or debt market:** a place where debt financial instruments such as government and corporate bonds are traded. Also packaged loan products that are sold to investors are traded in this market<sup>5</sup>.

**3. The money market:** a market where financial instruments that are highly liquid with maturities of less than 90 days to one year, are traded. These are for example bankers' acceptances, certificates of deposit, commercial papers, etc. Also government securities with maturities less than three years are traded in this market. These are for example treasury bills, foreign exchange, etc. This market is also seen as a network of bank, institutional investors and money dealers who borrow and lend to each other for short-term purposes<sup>6</sup>.

Intermediaries add value to the capital market by assisting investors to make the right investment decisions. Because there is an (information gap) between investors and companies, investors do not have enough information or expertise to distinguish the good investment decisions from the bad ones. Also companies usually do not have the knowledge to raise capital directly from investors. There is where intermediaries come in to help both parties in making these decisions (Palepu et al. 2008).

There are 2 types of intermediaries in the capital markets which are:

**1. Financial intermediaries** such as: venture capital firms, banks, collective investment funds, pension funds and insurance companies which are focused on collecting/generating funds from

---

<sup>5</sup> <http://www.businessdictionary.com/definition/debt-market.html>

<sup>6</sup> <http://www.businessdictionary.com/definition/money-market.html>

individual investors and analyzing different investment opportunities to make investment decisions.

**2. Information intermediaries** such as: auditors, financial analysts, credit rating agencies and the financial press, which are focused on providing information to investors with regard to the quality of different business investment opportunities (Palepu et al. 2008).

This thesis will focus on the financial analysts as intermediaries who provide investors of companies with information about the future earnings or prospects of the company.

### **2.4.2 Analyst forecasts**

According to most research, analysts' forecasts are used as measurement for the expectations of investors with regard to earnings per share (EPS) of a company (Bradshaw et al. 2009; Nichols and Wahlen 2004). This indicates that investors rely on analysts' forecasts to base their expectations on. The forecasts of a company's earnings are made by the financial analysts. In the second paragraph the role of financial analysts is discussed.

#### **2.4.2.1 The role of financial analysts**

A financial analyst, also called a security analyst or an investment analyst, plays an important role in the capital market. This person gathers, processes and distributes information to the capital market and functions as an information intermediary. By functioning as an information intermediary, the analyst also helps to reduce information asymmetry between the managers and owners of the company. Financial analysts produce research reports with information that helps investors or institutional investors to assess expectations about the future performance of firms. So information that is provided by analysts in the form of earnings per share forecasts, can have a significant effect on the investment decisions of investors. In addition analysts' forecasts are also important for accounting researchers who use these forecasts as a proxy or measurement for the expectations of the capital market. Furthermore it is also important for researchers and investors that the forecasts are accurate, so that investors can make the right investment decisions and that accounting researchers can generate accurate proxies to measure the expectations of the capital market (Klettke 2013).



There are two types of financial analysts in the capital market: a buy-side analyst and a sell-side analyst (Lin et al. 2012).

#### Buy-side analysts

A buy-side analyst works for institutions that buy and sell public securities, such as mutual fund companies, insurance companies, hedge funds, etc. (Palepu et al. 2008; Lin et al. 2012). Buy-side analysts are most of the time in charge of a group companies within a particular industry and are responsible for studying the industry, talking to the management of companies, making earnings forecasts, doing valuation analysis and rating the stock prices of the companies by advising which stocks to buy or to sell. These buy-side analysts then have to persuade the portfolio managers within their company to follow their advice. Also buy-side analysts do not publish their research. Portfolio managers are in fact the money managers in a company and have the ultimate responsibility to buy or sell stocks (Palepu et al. 2008).

#### Sell-side analysts

A sell-side analyst works most of the time in an investment bank or a brokerage house. An important function of a sell-side analyst is to publish research about the future prospects of public companies (Palepu et al. 2008; Lin et al. 2012). This analyst follows about 15 to 30 companies in a certain industry and his job includes having conversations and forming a relationship with management of companies, following developments in the industries in which the companies operate and giving advices whether to buy or sell the stocks of companies. These recommendations can have a very high influence on the investors. For example if a very good analyst has forecasted a decrease in the stock price of a company, the market reacts in the same way by decreasing the stock price of the company. This can happen on the same day. Usually sell-side analysts communicate with buy-side analysts and portfolio managers to sell their recommendations. In addition they give support to the buy-side analysts by providing them with information before the company becomes a public company (Palepu et al. 2008).

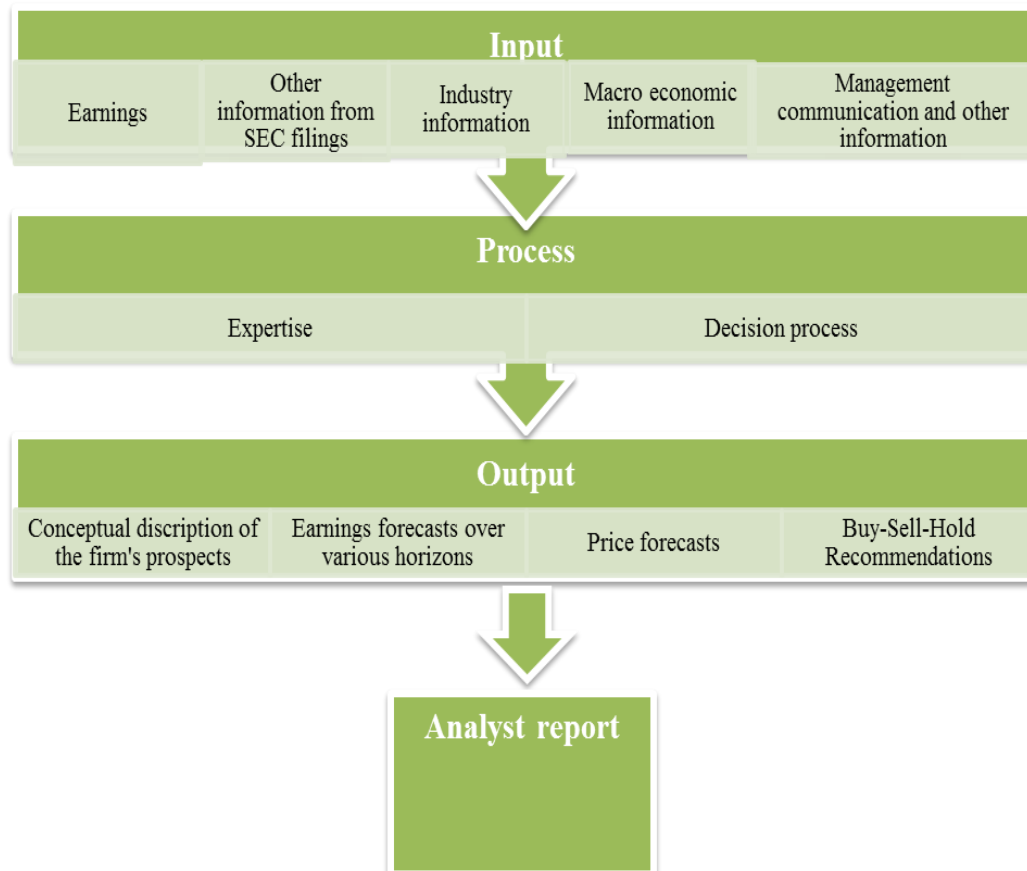
#### **2.4.2.2 The forecast process**

The forecast process of financial analysts has to do with the strategies and information analysts use to make earnings forecasts and the factors which affect their forecast decisions and stock

recommendations (Lin et al. 2012). The provision of stock recommendations to investors is the ultimate objective of the forecast process. The stock recommendations have to do with buying, selling or holding stocks of companies. Earnings forecasts aim to help investors evaluate the expected future return of stocks (Lin et al. 2012).

In the figure below an overview is given about the forecast process of analysts.

**Figure 1. The analyst forecast process (Ramnath et al., 2008)**



The figure above indicates that the analyst gathers earnings information about the company from different sources such as earnings, other information from Security Exchange Commission (SEC) filings such as periodic financial reports, industry information, macro-economic information and information from conference calls and management communications. The analyst then uses his expertise to process and analyze this information. According to Lin et al. (2012), where research about analyst forecasts is reviewed, the decision process of an analyst is referred to as a black box and hereby further research is required to examine this process. Researchers make this statement because it has not been possible to examine precisely how the analyst processes and analyzes information (Lin et al. 2012).

There is already research done about the forecast decision process, but the studies were limited to fully explain the decision process of analysts. After analyzing the obtained information from companies, analysts produce earnings forecasts, target price forecasts, stock recommendations together with qualitative reports which describe the future outlook of the companies. Investors use this output of the analyst assessments to make investment decisions that affect the stock prices (Ramnath et al. 2008).

#### **2.4.2.4 Reasons for beating analysts' forecasts to beat earnings expectations**

This paragraph elaborates on the incentives of managers to beat earnings expectations. There are different capital market incentives and managerial incentives for companies to beat analysts' forecasts just to meet earnings expectations (Lee 2007). These are:

##### **1. A market gratification for beating earnings expectations**

The stock market gives firms that beat or exceed earnings expectations a gratification (Lee 2007). According to Bartov et al. (2002), firms which have met or beaten earnings expectations receive a market gratification of 2.3% for every return per quarter. In addition these firms get a 0.5% return gratification for every 1% in earnings surprise. Also firms that beat analysts' forecasts get an additional 3.4% returns gratification than firms that do not meet analysts' forecasts.

##### **2. Maximize the present value of managers' compensation or stock options**

Managers have the incentive to beat earnings expectations to maximize their bonuses or compensation (Lee 2007).

Managers know that exceeding earnings expectations leads to higher stock prices compared to just meeting expectations and their bonuses or compensation is usually related to the performance of the stock price (Lee 2007). In this case they will have the incentive to beat expectations to have a higher compensation or bonus.

### **3. Obtain a high share price during equity issuance or stock sale on personal account**

Managers of companies have a reason to report estimates of future earnings of their company to decrease the expectations of analysts before the earnings announcement date and thereafter beat these decreased expectations at the earnings announcement date. This is also called "forecast guidance" (Athanasakou et al. 2006; Lin et al. 2006; Lee 2007). The objective to use this accounting tool is to get the highest share price when equity is issued or stock is sold on management's personal account (Richardson et al. 2004).

### **4. Receive additional market gratification for having a record of beating expectations**

Another reason why managers of companies find it important to beat earnings expectation is that companies may get an additional market gratification for having a record of constantly beating analysts' expectations (Kasznik and Mc Nichols 2001). Other studies have also found that the capital market punishes those companies which break their record in beating earnings expectations (Barth et al. 1999).

Financial analysts are important intermediaries for the equity markets, which help investors to make the right investment decisions based on the forecasts of companies' future earnings. There are many factors which influence the forecasts process of the analysts or which the analyst has to take into account in the forecasting process like the earnings of the company, the industry sector in which the company operates, macro-economic factors, etc. As already discussed, the expectations of the investors are reflected in the analysts' forecasts, because they base their investment decisions on the expectations of the analysts. These expectations of earnings give insight into the future dividends of the investors, which determines the share price of the company. This has influence on the performance of the managers of the companies.

## **2.5 Real earnings manipulation**

As mentioned before real earnings manipulation is an earnings management method. To get a better understanding of real earnings manipulation, the definition of earnings management is discussed first. There are many definitions for earnings management, but the definition which is applicable to this thesis is that given by Enomoto et al. (2012, p.2) based on Scott (2011): *“Earnings management is the choice which is made by the manager of making use of accounting methods or real transactions to affect earnings to achieve a specific reported earnings objective”*. For real earnings manipulation or real earnings management there are also many definitions, but the definition which fits this thesis is that of Gunny (2010, p. 855): *“Real earnings management occurs when managers undertake actions that change the timing and structuring of an operation, investment and or financing transaction in an effort to influence the output of an accounting system”*.

Real earnings manipulation is also called real earnings management, real activities manipulation or earnings management through real activities. In this thesis these designations are used to refer to real earnings manipulation.

Real earnings management can reduce the value of a firm because actions which are taken in the current period to increase the earnings of the firm, may have a negative effect on the firm’s cash flow in the future (Roychowdhury 2006).

In the next paragraph the different kinds of real earnings manipulation methods are described and how they influence the value of the firm by means of the effect on the cash flow.

### **2.5.1 Real earnings manipulation methods**

There are several real earnings manipulation methods that have been identified by prior researchers such as Roychowdhury (2003, 2006), Cohen (2008), Gunny (2010), Zang (2012) and others to manage earnings through deviations from normal business activities. These real earnings manipulation methods can be divided in (Xu et al. 2007) :

1. Earnings manipulation through operational activities (earnings management through operational activities)
2. Earnings manipulation through investing activities (earnings management through investing activities)

3. Earnings manipulation through financing activities (earnings management through financing activities)

### **Ad 1. Earnings management through operational activities**

Firms could manage earnings through operational activities when management of companies engage into activities that deviate from operating activities, such as the acceleration of sales through sale price discounts or generous credit terms for customers, the reporting of lower cost of goods sold through overproduction and a decrease in discretionary expenses (Roychowdhury 2003, 2006).

Below a brief overview is given about the mentioned earnings management methods through operational activities.

#### **Manipulation of sales**

Sales are manipulated when managers of companies are trying to increase sales during the current year with the objective to increase reported earnings to meet certain targets. They accelerate sales from the next fiscal year into the current year by increasing price discounts, dropping selling prices and give more generous credit terms to customers. This results in an increase of current earnings, because of positive sales margins. The increased sales numbers can likely disappear when the firm goes back in using the old selling prices, which has a negative impact on the cash flow of operations (CFO). Because the firm re-uses the old selling prices, this causes a decline in the future cash inflows. The price discounts and generous credit terms are thus temporary. The management of sales leads to unusually low cash flows of operations and thus abnormal low CFO (Roychowdhury 2006; Gunny 2010).

#### **Overproduction**

In the case of overproduction, managers might produce more goods than is needed. This with the objective to manage earnings upwards. When more goods or units are produced, the fixed overhead production costs are spread over a larger number of goods or units, which reduces the fixed cost per good or unit. This leads to a decrease in the Costs of Goods Sold (COGS) and an

increase in earnings because of an increase in the operations margins. On the other side there are holding costs over the overproduced units which are not covered by the sales of the same period, which results in lower cash flow of operations given a normal sales level. Also the additional production of inventories results in higher production costs relative to sales. Thus overproduction leads to abnormal low CFO and abnormal high production costs (Roychowdhury 2006; Cohen 2008).

### **Reduction of discretionary expenses**

Firms can also manipulate earnings by reducing discretionary expenses. Discretionary expenses are for example advertising expenses, research and development expenses (R&D) and selling, general and administrative expenses (SG&A). Firms can choose to decrease the level of these discretionary expenses only to boost earnings to meet targets. If these are generally in the form of cash, decreasing these costs, results in lower cash outflows and this will have a positive effect on the Cash Flow of Operations (CFO) in the current period. Management of these costs leads to abnormal low discretionary expenses (Roychowdhury 2006; Cohen 2008).

### **Ad 2. Earnings management through investment activities**

Earnings management through investment activities happens when management structures business transactions such as business acquisitions, leases, equity investments, etc. with the objective to increase the earnings of the company. This is also called the manipulation of earnings through the classification of business transactions. Transactions such as business acquisitions, leases, equity investments are mostly used for the classification manipulation method (Dye 2002; Xu et al. 2007). Firms make use of acquisition transactions to manage earnings by making use of the pooling-of-interests method. The pooling-of-interest method is an accounting method which is used to record merger and acquisition transactions. When using this method, the net income of the buying company may be high, because according to this method, the earnings of the acquired company may be included with that of the buyer company in the year in which transaction takes place (Ayers et al. 2002). Furthermore companies make use of equity investments of 20% or more to change their investment positions to obtain higher earnings and improve financial positions (Comiskey and Mulford 1986). Companies also managed earnings through lease transactions by switching from financial lease to operational

lease around the adoption of SFAS No.13. The SFAS No.13 is an accounting principle that requires that all financial leases should be capitalized and must be recognized as assets and as debt on the balance sheet (Imhof and Thomas 1988).

### **Ad 3. Earnings management through financing activities**

Earnings could also be managed through financing activities. These financing activities are: stock repurchases, stock options in compensation and the use of financial instruments (Xu et al. 2007). The repurchase of stocks drops the number of outstanding shares of the company and this can result in an increase in the earnings per share. According to Hibrar et al. (2007), the repurchase of shares is used as a good instrument to manage the earnings per share of the company. Companies make use of stock options for employee compensation when the earnings of the firm are below the earnings target and when they make use of other accounting choices to increase earnings (Matsunaga 1995). Stock options are used as a compensation to employees and are seen as less expensive than cash- or stock compensation. Previous research has also shown evidence that stock options are used by companies as a tool to uphold high earnings levels and to meet analysts' earnings forecasts (Xu et al. 2007). In addition firms make use of financial instruments such as hedge accounting and debts to avoid earnings decreases. They make use of these methods to reduce the volatility of the Cashflow from Operating activities or earnings (Hand 1989; Pincus and Rajgopal 2002).

### **2.5.2 Motivations behind real earnings manipulation**

Management of firms engages into earnings management because of several motives or incentives, such as capital market incentives or motivations, managerial compensation, regulatory motivations, etc. (Healy and Wahlen 1999; Wensheng and Jie 2002). These motives are also applicable for real earnings manipulation and accrual based earnings management, because these are earnings management methods. In addition this study focuses especially on capital market incentives to engage into earnings management, because it examines the association between the expectations of the capital market and the use of real earnings activities to meet those expectations. Meeting earnings expectations is one of the capital market incentives to manage earnings as stated by Healy and Wahlen (1999) and Dechow and Skinner (2000). This



thesis focuses hereby on the stock side of the capital market. Though there are specific motivations for managers to engage into real earnings manipulation, a short description is given first about the capital market incentives for earnings management in general. Finally the specific motivations for real earnings manipulation are discussed.

### **2.5.2.1 Capital market incentives to engage into earnings management**

Financial information of companies is used by investors or financial analysts to determine the value of the stocks of these companies. This can trigger the managers of companies to engage into earnings management just to influence the performance of the short-term stock price of the company.

Capital market incentives to manage earnings are probably high in periods where capital market transactions are taking place and when there is a difference between the earnings performance of the company and the expectations of investors or financial analysts (Healy and Wahlen 1999).

Examples of capital market transactions are:

**1. Equity Issuance**, which has to do with an offer of the company to the general public to buy new issued stock<sup>7</sup>. In this case managers make use of earnings management to increase earnings in periods just before the issuance of equity takes place (Teoh et al. 1998b).

**2. Valuation in management buyouts**, which has to do with the purchase of a firm or one of its divisions by management in times when the firm or its division is under threat of closure<sup>8</sup>. Managers make use of earnings management tools to decrease earnings in the period before a management buyout takes place (DeAngelo 1988; Perry and Williams 1994).

Furthermore management of firms engages into earnings management to meet the expectations of financial analysts' forecasts. Management engages into these actions just not to miss the analysts' forecasts or expectations (Burgstager and Eames 1998).

---

<sup>7</sup><http://www.businessdictionary.com/definition/equity-offering.html>

<sup>8</sup> <http://www.businessdictionary.com/definition/management-buy-out-MBO.html>

Another capital market incentive is meeting simple benchmarks, because meeting these benchmarks has influence on the valuation of share prices by the capital market. When there is a continuous growth in the earnings of a firm, the shares of the firm are priced at a premium compared to other firms. Firms get an increased premium which depends on the length of the string of increased earnings. The premium decreases when the string vanishes (Barth et al. 1999). In addition the stock price response is large to negative earnings surprises for firms with growth stock. Even when growth firms report very small earnings relative to analysts' expectations, they suffer a disproportionately large reduction in their stock price (Skinner and Sloan 2000).

### **2.5.2.2 Motivations behind real earnings manipulation**

There are specific reasons or incentives for managers to engage into real earnings manipulation. These are based on previous research. Also there are incentives for managers to engage into real earnings manipulation instead of accrual earnings manipulation. These reasons or incentives are based on the benefits of real earnings manipulation compared to accrual earnings manipulation. Below the incentives to engage into real earnings manipulation are discussed.

#### **1. Capital market incentives**

The link between the accounting numbers of a company and the response of the stock market to this information can trigger management of companies to make use of real earnings manipulation activities (Sellami 2015). There are three capital market incentives identified by Sellami (2015) for the use real earnings manipulation activities. These are:

- Meeting earnings targets
- Smoothing earnings
- Making use of specific situations of the stock market.

With respect to the first incentive, managers engage into real earnings manipulation to meet or beat earnings targets or to meet analyst forecasts. Managers make use of real earnings manipulation just to not report earnings losses or decreases (Burgstahler and Dichev 1997; Thomas and Zhang 2002; Roychowdhury 2006; Gunny 2010; Eldenburg et al. 2011). The second incentive which has to do with earnings smoothing, which is used to engage into real earnings

manipulation by the sale of assets to minimize variations in earnings (Bartov et al. 1993). Furthermore real earnings manipulation is also used in certain stock market situations, such as seasoned equity offerings (SEO) (Cohen and Zarowin 2010).

## **2. Opportunistic incentives**

The use of real earnings manipulation by management also has to do with personal interests. Two kind of opportunistic incentives for engaging into real earnings manipulation are identified by Sellami (2015), which are: contractual incentives and personal incentives. Contractual incentives are based on the agency relationship between the managers (agents) and the stakeholders (principals) of the company. There are factors which explain the “*politico-contractual theory*” (Sellami 2015). These include increasing the wealth of the managers, decreasing the cost of debt and decreasing the political costs. With regard to these factors, there’s only research done on the association between real earnings manipulation and minimizing the cost of debt (Haw et al. 1991; Bartov 1993; Kim et al. 2010; Zamri et al. 2013). Furthermore managers are motivated by personal reasons to make use of real earnings manipulation. The explanation for this is that management wants to have a good reputation towards the stakeholders of the company (Sellami 2015). There is evidence shown by Seybert (2010) that management capitalizes research and development costs which is seen as overinvestment. This used as a tool to make sure that management gets a good reputation.

## **3. Benefits compared to accrual earnings manipulations**

There are several benefits to manage earnings via real activities instead of managing earnings via accounting techniques (accrual based earnings management). This can also determine the strategy of management to make use of real earnings manipulation. The first advantage of real earnings manipulation is that it has a direct effect on the cash flows of the company and by making use of this method, a company with high leverage can obtain cash and pay its liabilities. On the other side, accrual based earnings management is not really flexible. It only has influence on the earnings of the company (Sellami 2015).

The second advantage or benefit is that real earnings manipulation is difficult to detect by auditors, because it is presented in an appropriate way in the financial statements of the company

(Schipper 1989). On the other side accrual based earnings management is detected easily because it is more based on accounting decisions that management takes. To detect real earnings manipulation, a higher level of audit quality is required (Chi et al. 2011).

Furthermore real earnings manipulation helps to prevent litigation risks. Management moved from accrual earnings manipulation to real earnings manipulation after the adoption of SOX, because the litigation risk increased after the adoption of SOX (Cohen et al. 2008). Accrual based earnings management is more costly than real based earnings management because a company cannot be held legally responsible for real earnings manipulation as long as the result of this earnings management method is presented in the financial statements as it has to (Xu et al. 2007).

In this paragraph an overview is given about the capital market incentives to engage into earnings management in general and real earnings manipulation. Prior studies have shown evidence that companies have capital market incentives to engage into real earnings manipulation. The next paragraph gives a summary of what has been discussed in this chapter.

## **2.6 Summary**

In this chapter an overview is given about different accounting theories which are related to the concepts of this thesis. The agency theory focuses on the principal-agent relationship and states that in this relationship, the principal has delegated decision making authority to the agent. If there aren't any mechanisms in place to make the agent pay for the actions which have an influence on the principal, the agent will have incentives to benefit from this and use confidential information for their personal gain at the expense of the principal. It is assumed that agents are driven by self-interest and that principals anticipate to this by putting contractual mechanisms in place. If these are not in place, the principals pay the agents a lower salary. This is non-other than a compensation for the self-serving activities of the agents. The positive accounting theory explains and predicts why managers of companies choose a particular accounting method in preference of others and that there are relationships between different individuals who provide resources to an organization. It explains the role of accounting in these relationships. This theory is distracted from the agency theory and the Efficient Market Hypothesis.

In the remaining paragraphs of this chapter, the meaning and aspects of the capital market system, the expectations of the capital market which are operationalized as analysts' forecasts are discussed. Furthermore the role of financial analysts, the analyst forecast process and the reasons to beat analysts' forecasts are discussed.

The different forms of real earnings manipulation and motivation to engage into real earnings manipulation is elaborated on.

The next chapter gives a review of the previous research with regard to these concepts discussed is used as an input for the hypothesis development of this research.

## **3 Literature review**

---

### **3.1 Introduction**

In this chapter an overview is given about prior studies with regard to the expectations of the capital market (analysts' forecasts) and real earnings manipulation. By giving an overview of the different prior studies regarding these concepts, insight is gained about the way the researchers carried out their studies in terms of their hypotheses, samples, measurements and findings. Also the differences en similarities with regard to their research methodology and findings are discussed. These previous accounting empirical studies are used as the basis to examine the association between the expectations of the capital market and real earnings manipulation. A few of the prior studies examined the use of real earnings manipulation methods by managers of companies. Hereby studies of Roychowdhury (2003, 2006), Cohen et al. (2008), Gunny (2010) and Zang (2012) are discussed. Other studies examined the use of the real earnings manipulation method and future stock return (Li 2010; Francis et al. 2014). Also prior research focused specifically on the association between earnings management and meeting or beating analysts' forecasts (Athanasakou et al. 2006; Lin et al. 2006; Lee 2007; Irani and Oesch 2014). This chapter is based on the different subjects mentioned above. So in paragraph two, prior studies with regard to the existence or use of real earnings manipulation by companies will be discussed. In paragraph three an oversight about previous research regarding the association between real earnings manipulation and the future stock return of the company is discussed. Subsequently in paragraph four the association between earnings management and meeting or beating analysts' forecasts is discussed. The last paragraph, which is paragraph five, gives a summary and critical reflection of the studies discussed.

### **3.2 The existence of real earnings manipulation**

There are previous studies done about the engagement into real earnings manipulation by management of companies. Roychowdhury (2003), who examined earnings management through real activities found that companies make use of real activities based earnings management to prevent the reporting of earnings losses. Also the results of this study indicate

that firms that report small earnings engage into real earnings manipulation through unusually low Cashflows from Operations (CFO), unusually high production costs and unusually low discretionary expenses to report earnings that are greater than zero. A second study done by Roychowdhury (2006) about managers engaging into real earnings manipulation activities to avoid the reporting of annual losses, has shown consistent with the previous study that firms which engage into real earnings manipulation report small positive earnings and also report small positive forecast errors. This result indicates that these firms try to avoid negative forecast errors. The results of this study also show that firms which engage into real earnings manipulation report abnormal low CFO, abnormal high production costs and abnormal low discretionary expenses.

In another study done by Cohen et al. (2008), it is examined whether accrual based earnings management or real earnings manipulation is used in the period before the adoption of SOX and in the period after the adoption of the Sarbanes Oxley Act (SOX). The findings of this study indicate that the use of accrual based earnings management has decreased after the adoption of SOX, while the use of real earnings manipulation has increased after the adoption of SOX. The researchers also state that the reason for the change in earnings management methods is the increased alertness of investors, regulators and auditors by after the adoption of SOX. This study is more or less based on the trade-off between accrual based earnings manipulation and real earnings manipulation before and after the introduction of SOX. Another study with regard to the existence of real earnings manipulation is the study of Gunny (2010), which examined the association between real earnings manipulation and the future performance of firms which have just met earnings benchmarks. According to the results of this study, firms who engage into real earnings manipulation just to meet earnings benchmarks have a better future performance than firms which do not make use of real earnings manipulation activities and do not meet earnings benchmarks. Furthermore it is shown that firms who engage into real earnings manipulation are firms who have met their benchmarks.

There is a study which extends research about the trade-off between real- and accrual based earnings manipulation by looking at the costs associated with these earnings management methods. This is the study of Zang (2012). This researcher found that the trade-off between real- and accrual based earnings manipulation is based on the costs and the timing of these earnings

manipulation methods. First, the use of the real earnings manipulation method by companies decreases when the costs such as the competitive status in the industry, the financial health, the level of monitoring by institutional owners and tax expenses of this method are higher. An example of these costs is a lower competitive position in the industry, having a less healthy financial position, being more monitored by institutional investors and other stakeholders. Secondly, the level of accrual based earnings management at the fiscal year-end is based on the result or outcome of real earnings manipulation. Thus management adjusts their accrual earnings management activities at the end of the fiscal year depending on the results of their real earnings manipulation activities. Consistent with the study of Cohen et al. (2008) this study shows evidence that the use of real earnings manipulation methods increases when there is more alertness from regulators and auditors present and less flexibility in the use of accounting practices.

The studies of Roychowdhury (2003, 2006), Gunny (2010) also imply that managers of companies engage into real earnings manipulation activities to meet certain targets such as prevent the reporting of earnings losses, meet earnings benchmarks, prevent high levels of negative earnings surprises.

### **3.3 Real earnings manipulation and future stock return**

Li (2010) and Francis et. al. (2014) focused on the reaction of the capital market on firms engaging into real earnings manipulation. They found that engaging into real earnings manipulation has influence on the stock price of the company. Li (2010) indicates that if investors find out that management of companies are engaging into real earnings manipulation, this will decrease the stock price of the company. If investors fail to recognize real earnings manipulation activities in a company, it is possible that investors overprice or underprice the stocks of a company. This study focuses only on two earnings management measures which are cash flow from operations and production costs. Francis et al. (2014) has shown that there is strong evidence that abnormal real business operations have an influence on the crash risk level of a company's stock price. Both studies have shown that the capital market (investors) reacts negatively to companies which engage into real earnings manipulation. In contrast the study of Gunny (2010) implies that the use of real earnings manipulation results in a higher future



operating performance. But this study is limited to future operating performance and does not examine the future stock price performance of firm.

### **3.4 Earnings management to meet or beat analysts' forecasts**

Athanasakou et al. (2006), Lin et al. (2006) and Lee (2007) show that management of companies use earnings management methods to meet or beat analysts' forecasts. Athanaskou et al. (2006) and Lin et al. (2006) introduce other earnings management methods like classification shifting of core expenses to income increasing non-recurring items and positive abnormal working capital accruals. They also include forecast guidance as a factor which can have influence on meeting or beating earnings targets. The difference is that Lin et al. (2006) has included real earnings manipulation in their study, but Athanasakou et al. (2006) did not. Athanasakou et al. (2006) has found that U.K. firms make more use of forecast guidance, classification shifting to meet or beat analysts' forecasts than accrual based earnings management (abnormal working capital accruals). Lin et al. (2006) found that abnormal discretionary expenses increase the probability of meeting or beating analyst forecasts and that abnormal CFO and production costs decrease the probability of meeting or beating analyst forecasts. Lee (2007) measured earnings management with discretionary accruals and found that firms that just meet earnings expectations manage earnings upwards to meet analysts' forecasts, because these firms face much pressure to meet earnings expectations. Also this researcher states that managing earnings to meet earnings expectations, does not mean that these firms will have lower future earnings and stock price performance. This because the capital market accepts that firms which have just met earnings forecasts and have managed earnings upward to meet these forecasts are not fully financially healthy and tried hard to meet the forecasts, so the capital market rewards these firms. This conclusion of Lee (2007) is in contrast with the studies of Li (2010) and Francis et al. (2014) who have found that engaging into real earnings manipulation causes a negative reaction of the capital market on the stocks of the company. Lastly the study of Irani and Oesch (2014) examines an interesting relationship which has to do with the impact of security analysts on the incentives of managers to engage into earnings management. In this case the researchers intend to examine whether analysts coverage has an impact on the earnings management strategy of a company. The researchers found that managers of companies prefer to make use of real earnings manipulation instead of accrual based earnings management when

there is analysts' coverage. This study also has some similarities with the study of Cohen et al. (2008), where managers of companies choose to engage into real earnings manipulation instead of accrual based earnings management after the adoption of SOX. The results of these studies indicate that when regulation is present or when the company is being followed critically, the real earnings manipulation method is chosen by managers to meet earnings targets. Furthermore the study of Irani and Oesch (2014) has shown that security analysts also have a pressure on managers of companies to meet earnings expectations.

### **3.5 Summary and critical reflection**

In the paragraphs above previous research about real earnings manipulation and analyst forecasts is discussed. There is evidence found on the use of real earnings manipulation by management of companies for different reasons, such as prevent earnings losses, to meet earnings benchmarks and others. (Roychowdhury 2003, 2006; Gunny 2010). With regard to the trade-off between real earnings manipulation and accrual based earnings manipulation, management chooses to increase the use of real earnings manipulation when the costs of this method are low in terms of a high financial position, a good competitive status in the industry and lower monitoring from owners. Also the use of this method increases because this method is harder to detect (Cohen et al. 2008; Zang 2012). Other prior studies found evidence between the use of earnings manipulation and meeting or beating analyst forecasts (Athanasakou et al. 2006; Lin et al. 2006; Lee 2007). These studies are analyzed by discussing the similarities and differences between them. This research examines the association between real earnings manipulation and the expectations of the capital market. It is important that relevant studies about this topic exist to show that there is research done about the association between these two concepts (Athanasakou 2006; Lin 2006; Lee 2007; Irani and Oesch 2014). The inferences of previous research about this association can be used as a basis for the predictions of this research.

More knowledge is added to accounting research by examining another aspect which are the expectations of financial or security analysts' forecasts instead of meeting or beating analysts' forecasts. Previous studies examined the relation between real earnings manipulation and the expectations of the capital market in the context of management engaging into real based earnings manipulation to meet or beat analysts' forecasts. This study examines whether the analysts' forecasts influence earnings management activities of management. So, the relation

between real earnings manipulation and the expectations from the capital market are examined from another perspective.

Most of the studies which are discussed, show evidence about the use of the real earnings manipulation method (Roychowdhury 2003, 2006; Cohen et al. 2008; Gunny 2010; Zang 2012). These studies introduce suspect-firm years as an independent variable in their regression models. This variable is introduced to measure firms who are more likely to engage into real earnings manipulation and also to make sure that the estimation models capture real activities manipulation. These are firms which report earnings just right of zero. These assumptions are based on the study of Burgstahler and Dichev (1997) which states that firms who report earnings just above zero, are firms which have engaged into earnings management to avoid earnings losses. Mostly firms in the interval with earnings greater than or equal to zero but less than 0.005 or 0.01 are marked as suspect firm-years by the researchers (Roychowdhury 2003, 2006; Cohen et al. 2008; Gunny 2010).

The disadvantage of the use of suspect firm-years for these intervals which these researchers confirm for themselves are: (1) Not all the firms that report earnings just greater than zero may have engaged into real earnings manipulation activities and (2) There may be firms included in the interval which have managed their earnings with the objective to decrease them, only to make sure that they meet earnings targets in the future (Roychowdhury 2003, 2006). These two problems indicate that the firms in the interval are not fully represent the sample of suspect firm-years or firms which more likely make use of real earnings manipulation and this may affect the results of the study negatively. To overcome this shortcoming, this study does not make use of this variable.

The brief summary of the different subjects and findings of the studies elaborated on in this chapter is presented in appendix B.

The next chapter elaborates on the hypotheses based on the prior studies discussed in this chapter.

## **4 Hypothesis development**

---

### **4.1 Introduction**

Based on the previous studies discussed in chapter 3, hypotheses are formulated. This chapter elaborates on the hypotheses which are formulated to predict associations between the concepts discussed in this study. In the second paragraph the hypotheses of the main and additional research are discussed and the last paragraph gives a summary of this chapter.

### **4.2 Development of the hypotheses**

#### **4.2.1 Development hypothesis for main research**

##### **Hypothesis 1**

The first hypothesis concerns the association between the expectations of the capital market and real earnings manipulation. Athanasakou et al. (2006) and Lin et al. (2006) examined this association but also included factors like forecasts guidance and other earnings management tools like positive abnormal working capital accruals and classification shifting. The study of Athanasakou et al. (2006) found that management of UK firms engages into forecast guidance and classification shifting to meet or beat analysts' forecasts. Furthermore this study found that there is no evidence about a positive association between positive abnormal working capital and meeting or beating analysts' forecasts.

Lin et al. (2006) included the real activities manipulation method in their research and found that the use of the real earnings manipulation method, abnormal discretionary expenses, increases the chance of meeting or beating analysts' forecasts for 3% and that the use of the other real earnings manipulation tools such as overproduction (abnormal production costs) and negative abnormal cash flows decrease the probability (3% respectively 6%) to meet or beat analysts' forecasts. The explanation for this is that the increase in sales numbers and overproduction results in a negative CFO, which is not effective for meeting or beating analysts' forecasts.

In contrast Lee (2007) examined the association between the same concepts, but used meet analyst forecasts as an independent variable and earnings management through discretionary accruals as the dependent variable. This study examined whether management of companies engages into accrual based earnings management to meet or beat analysts' forecasts. Lee (2007) found a positive association between firms that meet analyst forecasts and earnings management. The reason for this is that management of companies have strong incentives to meet or beat analysts' forecasts. Consistent with Lee (2007), Irani and Oesch (2014) found that security analysts have an impact on management's incentives to make use of earnings management. When the number of analyst that follow a company decreases, management of these firms reduce the use of real earnings manipulation activities and increase the use of accrual based activities. They found a positive association between analyst coverage and real earnings manipulation. It can be concluded that this study gives insight in the influence of security analysts on the earnings management behavior of managers.

Studies done by Roychowdhury (2003, 2006), Gunny (2010) and others show evidence that management of companies engage into real earnings manipulation for different kind of reasons or incentives, such as avoiding earnings losses and meeting earnings benchmarks. The findings of these researchers indicate that management of companies try to meet or beat analysts' expectations, which also reflect the expectations of the capital market. Trying do so, management makes use of real earnings manipulation to meet these expectations. Most of these studies examine these associations from the side of management and that management of companies is willing to sacrifice the value of the firm by engaging into real earnings manipulation to meet certain earnings expectations (Graham et al. 2005). This study examines this association from the side of the capital market which also can have an influence on management in the sense that it might trigger management to engage into earnings management activities. According to Lee (2007), if companies do not meet or beat the earnings expectations of the capital market, they get punished by the capital market which means a reduction in the stock price of the firm. This study examines whether the expectations of the capital market triggers management to engage into earnings management but by making use of real earnings manipulation, so whether the expectations of the capital market create a certain pressure for management to engage into earnings management. Consistent with Irani and Oesch (2014) it is

examined whether the financial analysts have influence on the earnings management behavior of managers. Based on these studies it can be concluded that the earnings expectations of the capital market assessed by financial analysts, triggers management of companies to engage into real earnings manipulation to meet these expectations. It is expected that there is a positive association between these two concepts. This means that, the higher the earnings expectations of the capital market, the more management of companies engages into real earnings manipulation. Therefore the following hypothesis is formulated:

***H1: There is a positive association between the earnings expectations of the capital market and real earnings manipulation***

#### **4.2.2 Development hypothesis for additional research**

##### **Hypothesis 2**

Formulating the first hypothesis, it is predicted that the expectations of the capital market have a positive impact on the engagement into real earnings manipulation by companies. This indicates that management of companies are influenced by the capital market to make use of real earnings manipulation just to meet or beat the expectations of the market. Therefore, it is expected that companies which have met or beaten the expectations of the market, have made use of real earnings manipulation. According to the studies of Athanasakou et al. (2006), Lee (2007), Lin et al. (2006) management of companies engages into earnings management activities to meet or beat analysts' forecasts. Athanasakou et al. (2006) and Lin (2006) have examined this association, but the concept meet or beat analyst forecast is used as the dependent variable and the earnings manipulation methods as the independent variables.

In contrast Lee (2007) examined the association between these two concepts, but examined that companies which have just met earnings expectations, have managed their earnings to meet these expectations. This study was only done for the discretionary accruals as an earnings management method. Furthermore Irani and Oesch (2014) found that management of companies engage into real activities earnings management to meet expectations when the company is followed by

analysts. Consistent with the study of Lee (2007), this study examines whether companies which have met or beaten earnings expectations of analysts have managed their earnings, but through real earnings manipulation. In this case the earnings expectations of analysts also refer to the expectations of the capital market. A positive association is expected between meeting or beating capital market expectations and the use of the real earnings manipulation method by management. Therefore the second hypothesis is:

***H2: There is a positive association between meeting or beating the expectations of the capital market and real earnings manipulation.***

### **4.3 Summary**

This chapter gives an overview of the hypotheses that will be tested for this study. Hypothesis 1 refers to the association between the expectations of the capital market and real earnings manipulation, which refers to the main research. Hypothesis 2 refers to the association between meeting or beating the expectations of the capital market and the use of real earnings manipulation and has to do with the additional analysis.

In the next chapter the research design of this study will be discussed.

## **5 Research design**

---

### **5.1 Introduction**

This chapter discusses the research methodology of this study. First in paragraph 2 the research type of this study will be discussed. Secondly, in paragraph 3 the measurements of the theoretical concepts and control variables of the main and additional analyses will be discussed. The data and sample selection method are described in paragraph 4. Based on the hypotheses discussed in chapter 4, the regression models to test these hypothesis are discussed in paragraph 5. In addition the Libby boxes that give an overview of the operationalization of the concepts are discussed in this paragraph. Finally this chapter ends with a summary.

### **5.2 Qualitative and Quantitative research**

Qualitative research has to do with the examination and interpretation of observations which are not numeric with the objective to discover the meanings and models of relationships . An example is the field research and this research type is based on the observation of a social aspect in its natural setting. Furthermore this type of research gives the possibility to observe the social phenomenon as complete as possible and gives researchers the opportunity to get a deeply and fully understanding of social aspects. The data analysis of qualitative research is nonnumeric (Babbie 2010).

Quantitative research on the other side is based on the representing and processing of observations numerically with the objective to describe and explain relationships between social aspects. In quantitative research data is always quantified and coded in numbers (e.g. the age of people and the sex of people). It is also possible to carry out statistical analysis for quantitative data and make inferences about the distribution of observations or relations between observations (Babbie 2010).

A big difference between these two research types is that qualitative research is more subjective, because the researcher gathers data from a specific or identifiable individual or organization to



examine the individual or organization. While quantitative research is more objective because it is easier to conceal the identification of the research subjects when collecting and processing the data (Babbie 2010).

The research type of this thesis is based on quantitative research, because the gathered observations are coded into numerical values and also statistical analyses are carried out to draw conclusions about the observations of the theoretical concepts in question. Furthermore this research is based on archival research where data about theories of the concepts in question is collected from accounting journals and financial data is collected from data bases to make analyses about the earnings management behavior of U.S. listed companies.

### **5.3 Measurement of concepts and control variables**

In this paragraph, the measurements of the theoretical concepts and control variables are discussed. To examine the predicted associations, the theoretical concepts need to be operationalized or measured. The theoretical concepts are the expectations of the capital market, meet or beat capital market expectations and real earnings manipulation. The control variables are the growth opportunities, size, performance and leverage of the firms.

#### **5.3.1 Measurement of theoretical concepts of the main research**

##### **Earnings expectations of the capital market**

Analysts' EPS forecasts is frequently used by researchers and parties within the capital market to proxy for the earnings expectations of the capital market (Nichols and Wahlen 2004; Bradshaw et al. 2009). In this study, also the annual consensus analysts' forecast of the company's Earnings Per Share (EPS) is used as the proxy for the expectations of the capital market. The consensus Analyst EPS forecasts are gathered from the I/B/E/S database. The consensus EPS forecasts (mean forecasts) which are calculated in the month February with forecast period end date of 31th of the month December for each fiscal year are used. The calculated forecasts in the month January are excluded because in the database all the forecasts calculated in January refer to previous year. The date on which the forecasts are calculated is called the statistical forecast period and the forecast period end date refers to the date to which the forecasts refer to. In this

case the forecasts at year-end refer to the forecasts for the fiscal year. As signaled before, this study assumes that the analysts' forecasts are made in the beginning of the year and that management of companies reacts on these forecasts by engaging into real earnings manipulation to meet these forecasts at the end of the year when they must report the financial statements.

### **Real earnings manipulation (REM)**

To measure the concept real earnings manipulation, several steps are taken. These steps are:

1. Identification of the proxies that are used to measure real earning manipulation.
2. Explain the estimation models to measure the proxies.
3. Determine the calculation of the total real earnings manipulation proxy.

#### **Step 1**

With regard to the first step, three proxies which were used in the study of Cohen et al. (2008) which refers to the study of Roychowdhury (2006) are used. According to the study of Cohen et al. (2008) the three proxies to measure real earnings manipulation are:

1. Cashflow from operations (abnormal levels of CFO).
2. Production costs (abnormal production costs).
3. Discretionary expenses (abnormal discretionary accruals).

According to Cohen et al. (2008) there are 3 manipulation methods which have an impact on the above mentioned proxies, these are:

1. Increasing sales revenues through sales discounts or flexible credit conditions (also called sales manipulation).
2. Increase of the production of goods that causes lower costs of goods sold (also called overproduction).
3. Reduction of discretionary expenses such as advertising expense, research and development expenses (R&D) and selling general and administrative expenses (SG&A).

## Step 2

To calculate the abnormal CFO, - production costs and abnormal discretionary expenses first the normal levels of these elements have to be determined. Consistent with Cohen et al. (2008) the model by Dechow et al. (1998) is used to calculate the normal levels. *The abnormal level of CFO or the abnormal CFO is equal to the actual CFO less the normal level of CFO (Abnormal CFO = Actual CFO – Normal level of CFO).* The normal levels CFO, production costs and discretionary expenses will be estimated using the following estimation models:

### Normal level of CFO

The normal level CFO is defined as a linear function of the sales and change in sales during the year and will be estimated by the following model:

$$\frac{CFO_{it}}{Assets_{i,t-1}} = b1_t \frac{1}{Assets_{i,t-1}} + b2 \frac{Sales_{it}}{Assets_{i,t-1}} + b3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it}, \quad (1)$$

Where  $CFO_{it}$  = cash flow from operations of firm i in year t.

$Assets_{i,t-1}$  = total assets of firm i in year t lagged by one period.

$\Delta Sales_{it}$  = change of sales of firm i during year t.

### Normal level of production costs

Production costs are defined as the sum of COGS and change in inventory during the year. Thus the normal level of production costs is equal to sum of the normal level of COGS and inventory change.

Another option to determine the normal level of production costs is to combine the estimation models of normal level of COGS and the normal level of inventory change and make these to one estimation model. Below the estimation models are discussed to determine the normal level of the production costs.

The COGS are estimated by the model:

$$\frac{COGS_{it}}{Assets_{i,t-1}} = b1_t + \frac{1}{Assets_{i,t-1}} + b2 \frac{Sales_{it}}{Assets_{i,t-1}} + \epsilon_{it}, \quad (2)$$

Where  $COGS_{it}$  = cost of goods sold of firm i in year t.

For the estimation of the inventory growth the following model is used:

$$\frac{\Delta INV_{it}}{Assets_{i,t-1}} = b1_t + \frac{1}{Assets_{i,t-1}} + b2 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + b3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \epsilon_{it}, \quad (3)$$

Where  $\Delta INV_{it}$  = the change in inventory of firm i during year t.

The complete model to estimate the normal level of production costs by using equation (2) and (3):

$$\frac{Prod_{it}}{Assets_{i,t-1}} = b1_t + \frac{1}{Assets_{i,t-1}} + b2 \frac{Sales_{it}}{Assets_{i,t-1}} + b3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + b4 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \epsilon_{it} \quad (4)$$

Where  $Prod_{it}$  = production costs of firm i in year t calculated by the sum of COGS and the change in inventory during year t

*Abnormal level of production costs: actual production costs- normal level of production costs*

#### Normal level of discretionary expenses

The model to estimate the normal level of discretionary expenses:

$$\frac{DiscExp_{it}}{Assets_{i,t-1}} = b1_t + \frac{1}{Assets_{i,t-1}} + b2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \epsilon_{it} \quad (5)$$

Where  $DiscExp_{it}$  = discretionary expenses of firm i in year t, which is equal to: Advertising expenses + Research & Development expenses (R&D)+ Selling General & Administrative Expenses (SG&A)

*Abnormal level of discretionary expenses = actual discretionary expenses - normal level of discretionary expenses*

The database items that are used to calculate the dependent and independent variables in the estimation models are presented in appendix C.

### **Step 3**

As already discussed, there are 3 proxies to measure real earnings manipulation. These proxies are abnormal cash flow from operations (ABN\_CFO), abnormal production costs (ABN\_PROD) and abnormal discretionary expenses (ABN\_DISC). Consistent with Cohen et al. (2008), the real earnings manipulation proxy is equal to sum of 3 proxies discussed above. This variable will also be referred to as REM.

### **5.3.2 Measurement of theoretical concepts of the additional research**

#### **Meet or beat capital market expectations**

As discussed earlier, the analyst forecasts of a company reflect the capital market expectations of the company. The concept “*meeting or beating capital market earnings expectations*” is based on the same concept used by the studies of Athanasakou et al. (2006), Lin et al. (2006) and Lee (2007) which is “*meet or beat analysts’ EPS forecasts*” and is measured by the variable  $MBE\_forecasts_{it}$ . This variable is calculated by the earnings surprise. When the earnings surprise of the company is equal to or above zero, this means that the company has met or beaten the analysts’ forecasts. The earnings surprise is zero when the actual earnings per share of the company is equal to the predicted or forecasted earnings per share. Also the earnings surprise is calculated by the difference between the actual earnings per share of the company and the forecasted earnings per share, scaled by the share price of the company (Nichols and Wahlen 2004). The share prices of the companies are collected from the CRSP database. For this study the variable  $MBE\_forecasts_{it}$  is an indicator variable which is equal to 1 when the earnings surprise of the company  $i$  in year  $t$  is equal or greater than 0 and equal to 0 otherwise.

### 5.3.3 Measurement of control variables

A control variable is also called an extraneous variable that is held constant in a statistical analysis by including it as an explanatory variable in a multivariate regression model (Smith 2011). The control variable is included because it is possibly correlated with the independent variable or dependent variable or with both. In this study control variables will also be included and these are factors which can influence the variation of the level of Real earnings manipulation apart from the independent variable. By including the control variables also the possibility of the occurrence of endogeneity is eliminated. The database items that are used to calculate the control variables are presented in appendix C. The control variables are:

**1. Growth opportunities of the firm:** the market to book ratio of firm  $i$  in year  $t$  ( $MTB_{it}$ ) will be used to control for firm growth opportunities. The market to book financial ratio which is used to determine a company's value. It is calculated by comparing the company's market value against its book value. According to Skinner and Sloan (2002) and Lee (2007) firms with growth opportunities are punished more by the stock market when they miss earnings targets, so these firms have incentives to manage earnings to meet earnings targets. This is also consistent with the studies of Roychowdhury (2003, 2006) and Gunny (2010). The MTB-ratio is calculated by the sum of the closed share price of the firm in year  $t$  and the common outstanding shares in year  $t$  divided by the common equity in year  $t$ . A positive association between the MTB-ratio and real earnings manipulation is expected. With other words a positive association between the growth opportunities and the real earnings manipulation.

**2. Firm Size:** the natural logarithm of the assets in year  $t$  will be used as to measure the firm size. The natural logarithm is used to eliminate heteroscedasticity. This study controls for this variable, because it expected that the firm size is associated with real earnings manipulation. The explanation for this is that it is expected that the greater the size of the firm, the more the firm has incentives to engage into earnings manipulation. In the studies of Roychowdhury (2003, 2006), Lee (2007) and Gunny (2010) firm size is also used as control variable.

**3. Firm performance:** this study controls for the performance of the company which may be associated with real earnings manipulation. The proxy to measure this concept will be the Return on Assets (ROA). This is calculated by the income before extra-ordinary items in year  $t$  divided

by the total assets in year t. According to Zang (2012) companies make less use of real earnings manipulation when the firm does not have a strong financial position. This variable is also included to control for abnormal values which may have measurement errors that are correlated with the performance of the firm (Roychowdury 2006).

**4. Leverage of the firm:** the financial position of the firm can also have an influence on earnings management. The leverage of the firm is measured by the debt-to-equity ratio, which is calculated by dividing the total debt of year t by the total assets of year t. According to a study of Sundgren (2007), there is a positive association between leverage and the use of earnings increasing accounting methods. This means that companies with high leverage are more likely to engage into earnings management. So is also used a control variable.

All the Compustat data items used for the variables in the estimation models and control variables are discussed in Appendix F.

The next chapter discusses the regression models to test the hypotheses and gives a visualization of the predicted associations through Libby boxes.

## 5.4 Regression models and Libby boxes

This paragraph gives an overview of the regression models which are used to test the formulated hypotheses. There 2 regression models and these refer to the 2 hypotheses discussed in chapter 4. In addition also an overview is given about the Libby boxes that refer to hypothesis 1 and 2.

### 5.4.1 Regression models

#### Regression model 1:

$$\begin{aligned}
 REM_{it} = & \beta_0 + \beta_1 * EPS\ forecast_{it} + \beta_2 * \text{Growth opportunities}_{it} + \beta_3 * (Size)_{it} \\
 & + \beta_4 * (Performance)_{it} + \beta_5 * (Leverage)_{it} + \epsilon_{it}
 \end{aligned}
 \tag{1}$$

Where,

**REM<sub>it</sub>** = Real earnings manipulation variable, which is equal to the sum of the Abnormal CFO, Abnormal Production costs and Abnormal Discretionary Expenses

**EPS forecast<sub>it</sub>** = EPS analyst forecast of firm i in year t

**Growth opportunities<sub>it</sub>** = Market to book ratio of firm i in year t

**Size<sub>it</sub>** = Natural logarithm of the total Assets of firm i in year t

**Performance<sub>it</sub>** = ROA of firm i in year t

**Leverage<sub>it</sub>** = Debt Ratio of firm i in year t

**ε<sub>it</sub>** = the error term, the residual for firm i in year t

This regression model refers to hypothesis 1 and to test this hypothesis the multiple linear regression analysis is used. The multiple regression analysis is a statistical analysis which is used to test associations between more independent variables and one dependent variable. As already mentioned, the sum of the 3 proxies will be used to measure Real Earnings Manipulation (REM). This proxy serves as the dependent variable in this regression model. The Earnings Per Share forecasts of the companies will serve as the independent variable.

**Regression model 2:**

$REM_{it} = \beta_0 + \beta_1 * MBE\_forecasts_{it} + \beta_2 * (Growth\ opportunities)_{it} + \beta_3 * (Size)_{it} + \beta_4 * (Performance)_{it} + \beta_5 * (Leverage)_{it} + \epsilon_{it} \quad (2)$
--

Where,

**MBE\_forecasts<sub>it</sub>** = dummy variable “meet or beat analyst EPS forecasts” which is equal to 0 when earnings surprise <0 and equal to 1 when earnings surprise ≥0

This regression model refers to hypothesis 2 and refers to the additional research. To test this hypothesis the multiple linear regression analyses is used, where REM<sub>it</sub> is the dependent variable and MBE\_forecasts<sub>it</sub> is the independent variable. It is expected that the more management meets or beats the earnings expectations of the capital market, the more the company has made



use of real earnings manipulation. In this regression model the same control variables from regression model 1 are used.

#### **5.4.2 Libby boxes**

In the figures 2.1 en 2.2 below, Libby boxes are presented. Libby boxes give a sketch of the causal relation between the concepts which will be examined in this study with their measurements or operationalization. The Libby boxes descend from the Predictive Validity Framework of Libby (1981) which contains 4 boxes which present the theoretical concepts and the measurements of these concepts. There are 5 links between these boxes and these links are pictured by the arrows. This framework also gives insight into the internal and external validity aspects of the research design (Libby et al. 2002).

Figure 2.1 presents the Libby boxes for hypothesis 1, where the first link (link 1) reflects the causal relation between the concepts earnings expectations of the capital market (independent variable) and real earnings manipulation (dependent variable). Link 2 en 3 captures the operationalization's or measurements of the expectations of the capital market which are the analyst consensus Earnings per Share forecasts and real earnings manipulation. The operationalization of real earnings manipulation is the real earnings manipulation proxy. Link 4 reflects the causal relation between the measurements of the concepts and link 5 reflects the effect of other factors such as the firm size, growth opportunities, performance and leverage on real earnings manipulation.

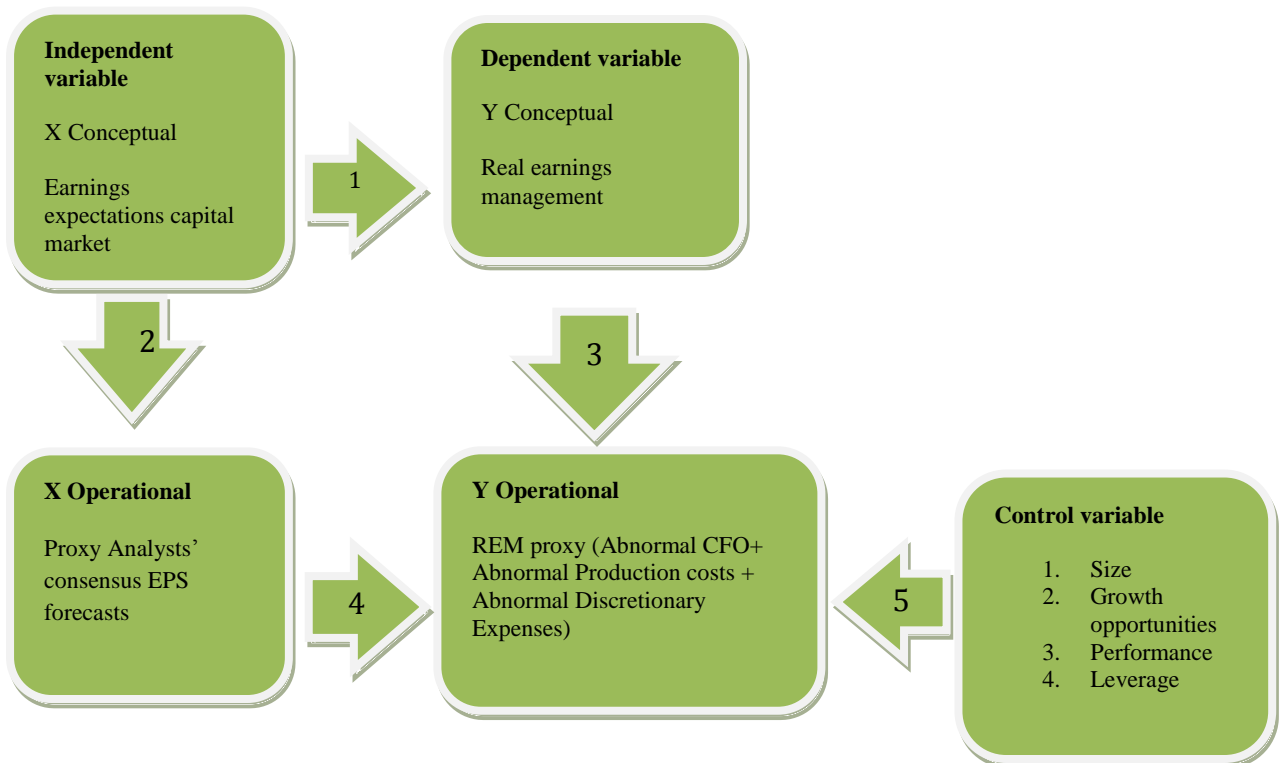
For hypothesis 2, the same explanation for the boxes and links is valid. Only for hypothesis 2 the independent variable is meet or beat analyst forecasts and the dependent variable is real earnings manipulation. The control variables are also the same as hypothesis 1.

With regard to internal and external validity, the internal validity has to do with the extent to which it is assured that the effects of the dependent variable are explained by the independent variable (Libby et al. 2002). This the case when other factors which may have influence on the relation between the independent and dependent variables are controlled by including them in the regression models for testing the relation. The internal validity of this research is high because the factors such as firm size, growth opportunities, performance and leverage are controlled for

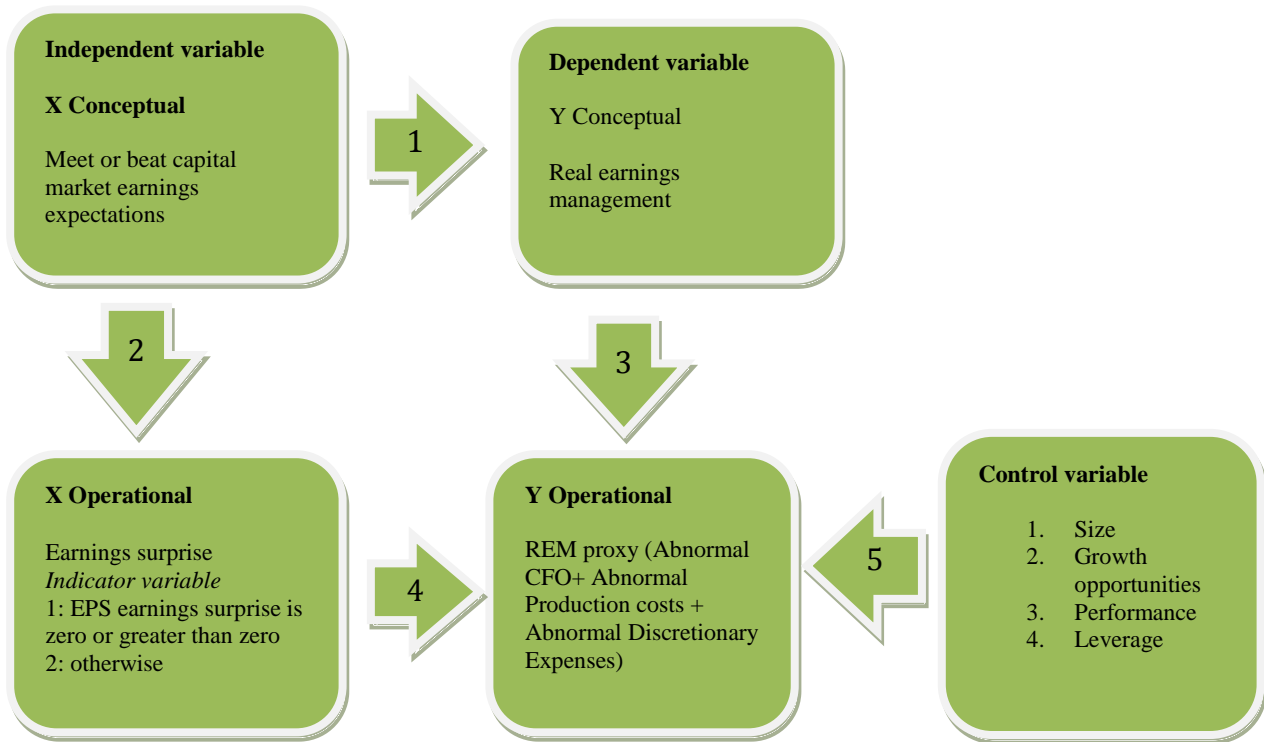
to test the causal relation between the expectations of the capital market and real earnings manipulation.

The external validity refers to how good the results of this study can be generalized to the real world (Smith 2011). In this case, the results cannot be used for other research, because the study is done specifically for U.S. listed companies. The model of Dechow (1998) which is used to estimate the normal levels of the real earnings manipulation proxies is applicable to other research. This indicates that the external validity of this research is high.

**Figure 2.1 Libby box for hypothesis 1**



**Figure 2.2 Libby box for hypothesis 2**



## 5.5 Sample selection

In addition empirical research is done by choosing a sample of U.S. listed companies. As already discussed in the introduction of this thesis, U.S. listed companies are chosen for this study to examine whether U.S. listed companies are still triggered by the capital market to meet earnings targets. These companies have more capital market incentives to meet short term targets, because investors of these companies are more focused on short-term earnings performance. This is the case because of the substantial information asymmetry at U.S. companies, which makes that investors are not aware of the options which increase the long-term value of the firm (Brown and Higgins 2001).

A sample of 205 firm-years is drawn to draw a conclusion about the population U.S. listed companies. The sample period spans from 2010 to 2014. Consistent with the study of Lee (2007) where it is stated that companies started to give importance to meet or beat analysts' expectations from the year 1994. Lee (2007) used a sample period of 1994 to 2003 and also found evidence

that there is an increasing trend in meeting or beating analysts' forecasts. For this study a more recent sample period is chosen to examine whether companies are focused on meeting analysts forecasts. To choose this sample, the "Compustat North America" database is used. First of all, all the U.S. listed companies which are registered in the Compustat North America database and have all the financial data which is needed, belong to the initial sample. Secondly the companies with missing data, companies in regulated industries (SIC codes between 4400 and 5000), banks and financial institutions (SIC codes between 6000-6500) and companies with financial data values less than USD 1 are excluded from this sample.

Furthermore the same companies are used to gather analyst forecast data from the Institutional Broker's Estimate System (I/B/E/S) database. An important criteria to gather forecast data for this study is that the forecasts are made in the beginning of the year, because the assumption is made that the forecasts should be known in advance by management to engage into real earnings manipulation during the fiscal year. By knowing in advance what the forecast of the fiscal year are, management has an incentive to meet this target. As in accordance with this study management has capital market incentives to engage into real earnings manipulation. Also according to Roychowdhury (2006) and Zang (2012) real earnings manipulation has to take place during the fiscal year, because it has to do with the change of the timing and structuring of normal business activities and changing the business activities can only happen during the fiscal year. So the Earnings Per Share forecasts which are calculated in February of every year are used for this study to predict the real earnings management behavior of management during the year. It was not possible to use the forecasts made in January, because the forecasts of January from the I/B/E/S database are based on the forecasts of the prior year (e.g. the forecast made in January 2010 refers to the fiscal year-end December 2009). Financial data is also collected for the fiscal years 2008 and 2009 from the Compustat database because the data of these fiscal years is also needed to calculate the estimation models to measure real earnings manipulation. Taking all these requirements into account, the final sample consists of 41 companies and 205 firm-years.

### **Table 1. Sample selection**

<b>Criteria</b>	<b>Number of Companies</b>	<b>Firm-years</b>
<b>Initial sample</b>	12180	
<b>Eliminated:</b>		
Firms with SIC codes between 4400 and 5000 and SIC codes between 6000 and 6500	2247	
Missing values (blanks)	8098	
Companies with financial data which has values < USD 1 (except for income before extra-ordinary items, inventory change, Operating Activities Net Cashflow (CFO))	1272	
Companies which lack data for the fiscal period 2009 through 2014	397	
Selected Compustat companies which are not available in the I/B/E/S database	24	
I/B/E/S companies with missing values	24	
Companies lacking EPS forecasts per december 31 for fiscal year 2009 to 2014	45	
Companies lacking EPS forecasts per December 31 from FY 2010 to 2014 calculated in february of every year	32	
<b>Final sample containing financial data and analyst forecast data.</b>	<b>41</b>	<b>205</b>

## **5.6 Summary**

This chapter elaborates on the research design of this study which has an archival character. In the research design, the measurements of the theoretical concepts used in this study are described. These are the earnings expectations of the capital market, real earnings manipulation and meeting or beating the expectations of the capital market. The expectations of the capital market are measured by the analysts' consensus EPS forecasts and real earnings management is measured by sum of the abnormal CFO, abnormal production costs and the abnormal discretionary expenses. Meet or beat analysts' forecasts is measured by the company's earnings surprise of zero and greater than zero. Furthermore the control variables which may have an effect on the dependent and independent variables of interest are also discussed. These control variables are firm growth, firm size, firm performance and leverage and are also included in the regression models to test the hypotheses. The sample and data selection method of this study are also discussed. The initial sample consisted of 12180 companies and the final of 41 companies, because of elimination criteria applied.

After discussing the research design, the data and sample selection method, statistical analyses are executed in the software Statistical Package for Social Sciences (SPSS). In the next chapter the results of statistical analyses are presented and analyzed.

## 6 Research results and analyses

---

### 6.1 Introduction

This chapter answers the main research question: *“Is there an association between the earnings expectations of the capital market and the use of real earnings manipulation?”* and the additional research question: *“Do companies that meet or beat capital market earnings expectations have engaged into real earnings manipulation?”*.

Subsequently the sub question: *“Do the earnings expectations of the capital market have a positive impact on real earnings manipulation?”*. After analyzing the collected data in the Statistical Package for Social Science (SPSS) software, the results or findings of this study are presented in this chapter. Paragraph one discusses the coefficients of the estimation models of the proxy real earnings manipulation. Paragraph two elaborates on the results of the descriptive statistics of the dependent and independent variables used in the regression models and paragraph three provides the results of the regression analyses and the Pearson correlation tests based on the formulated hypotheses. Also the multicollinearity and autocorrelation tests for the hypotheses are discussed in paragraph 3. Finally, paragraph 4 closes this chapter with a summary of the overall results.

### 6.2 The coefficients of the estimation models for the proxy real earnings manipulation

As mentioned before in chapter 5, there are estimation models used to calculate the proxy real earnings manipulation (REM) and that the REM proxy is the sum of the 3 proxies ABN\_CFO, ABN\_PROD and ABN\_DISCR. With these estimation models the normal levels of the 3 proxies is calculated. To calculate the normal levels of these proxies, the coefficients of their estimation models need to be determined. In the tables below the coefficients of the estimation models for the 3 proxies are presented.

**Table 2.1** Coefficients CFO proxy

Independent variables	Coefficients	t-Statistic	Sig. (p-value)
-----------------------	--------------	-------------	----------------

<b>(Constant)</b>	.112	7.890	.000*
<b>1/A t-1</b>	-8.582	-2.158	.032*
<b>Sales/A t-1</b>	.019	1.187	.237
<b>Change in Sales t/Assets t-1</b>	.246	5.129	.000*
<b>R-Square</b>	<b>.253</b>		
<b>Adjusted R-Square</b>	<b>.241</b>		
Dependent Variable: CFO/A t-1 Significant at $\alpha = 0.05$ (2-tailed)			

In table 2.1 the coefficients of the proxy CFO are presented. It can be inferred from table 2.1 that all the coefficients are significant except for the coefficient of the variable Sales/At-1. This indicates that there is no relation between the sales and the dependent variable CFO. Therefore this variable will be removed from this estimation model. The adjusted R-square for this regression model is 0.241 which means that 24.1% of the variation in the CFO is explained by the regression model. By filling in the remaining coefficients in the estimation model for the normal CFO (equation 1), the estimation looks like this:

$$NormalCFO = 0.112 - 8.582 \frac{1}{Assets_{i,t-1}} + 0.246 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

The abnormal CFO is then the outcome of the actual CFO minus the normal CFO (ABN\_CFO = Actual CFO- Normal CFO).

**Table 2.2      Coefficients Production costs proxy**

<b>Independent variables</b>	<b>Coefficients</b>	<b>t-Statistic</b>	<b>Sig.(p-value)</b>
<b>(Constant)</b>	-.248	-9.845	.000*
<b>1/A t-1</b>	4.526	.643	.521
<b>Sales/At-1</b>	.790	28.170	.000*



<b>Change in Sales t/A t-1</b>	-0.613	-7.201	.000*
<b>Change in Sales t-1/A t-1</b>	-.256	-3.662	.000*
<b>R-Square</b>	.841		
<b>Adjusted R-Square</b>	.838		
Dependent Variable: Production costs/At-1 Significant at $\alpha = 0.05$ (2-tailed)			

Table 2.2 presents the coefficients of the proxy production costs. Also most of the variables in the regression model to calculate the normal production costs are significant (sales, change in sales and change in sales lagged by one period). The adjusted R-square for this regression model is 0.838, which means that 83.8% of the variation in the production costs is explained by the model and that there is a strong relation. Therefore the estimation model to calculate the normal production costs is:

$$NormalPROD = -0.248 + 0.790 \frac{Sales_{it}}{Assets_{it-1}} - 0.613 \frac{\Delta Sales_{it}}{Assets_{it-1}} - 0.256 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \epsilon_{it} \quad (4)$$

The abnormal production costs are calculated by the actual production costs minus the normal production costs (ABN\_PROD = Actual PROD - NormalPROD)

**Table 2.3 Coefficients Discretionary expenses proxy**

Independent variables	Coefficients	t-Statistic	Sig.(p-value)
<b>(Constant)</b>	.156	4.768	.000*
<b>1/A t-1</b>	44.595	4.800	.000*
<b>Sales t-1/At-1</b>	.246	7.342	.000*
<b>R square</b>	<b>.298</b>		

<b>Adjusted R-Square</b>	<b>.291</b>		
Dependent Variable: Dcretionary exp/A t-1 Significant at $\alpha = 0.05$ (2-tailed)			

From table 2.3 it can be inferred that all the coefficients for the discretionary expenses proxy are significant and that only 29.1% of the variation in the discretionary expenses is explained by the model. Which does not show a strong association with the dependent variable. The estimation model to calculate the normal discretionary expenses is:

$$\text{NormalDISCR} = 0.156 + 44.595 + \frac{1}{\text{Assets}_{it-1}} + 0.246 \frac{\text{Sales}_{it-1}}{\text{Assets}_{it-1}} + \varepsilon_{it} \quad (5)$$

The abnormal discretionary expenses is calculated by the actual discretionary expenses minus the normal discretionary expenses (ABN\_DISCR = actual DISCR- normal DISCR).

### 6.3 Descriptive statistics

**Table 2.4 Descriptive statistics of the variables of interest**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
<b>Analyst EPS forecast</b>	205	-2.41	17.85	2.8187	2.57352
<b>Real earnings manipulation proxy</b>	205	-.1209	.2056	.016373	.1006354
<b>Abnormal CFO</b>	205	-.2921	.3083	.018372	.0744557
<b>Abnormal Production costs</b>	205	-.3286	.4655	.002486	.1301591
<b>Abnormal Discretionary Expenses</b>	205	-.3091	.6622	.000000	.1766695
<b>Growth opportunities</b>	205	.0392	3.4681	.214399	.3348552
<b>Size</b>	205	2.0614	5.2901	3.863129	.6951028
<b>Performance</b>	205	-.2669	.3748	.081325	.0711236
<b>Leverage</b>	205	.0023	.5590	.228945	.1254260

Valid N (listwise)	205				
-----------------------	-----	--	--	--	--

**Table 2.5 Frequency firm-years meet or beat analyst EPS forecast**

MBE_forecasts					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Otherwise	78	38.0	38.0	38.0
	Meeting or beating analyst EPS forecasts	127	62.0	62.0	100.0
	Total	205	100.0	100.0	

The table (2.4) above presents the descriptive statistics of all the variables included in the regression models to test the hypothesis 1 and 2. The variable Analyst EPS forecasts has a mean of 2.81, which means that the average analyst EPS forecast for the period 2010 to 2014 is 2.6 for a company.

From the table 2.5 it can be inferred that the more than half of the firm-years have met or beaten analyst forecasts (62%).

The variables Real earnings manipulation proxy (REM), Abnormal CFO (ABN\_CFO), Abnormal Production costs (ABN\_PROD) and Abnormal Discretionary Expenses (ABN\_DISCR) have a mean of respectively 0.016373, 0.018372, 0.002486 and 0.000000. As according to Roychowdhury (2003, 2006), Cohen (2008) and Gunny (2010) companies which engage into real earnings manipulation engage into abnormally low CFO, abnormally high production costs and abnormally low discretionary expenses. The descriptive statistics of these 3 variables show the opposite, except for the abnormal production costs. This variable has a positive mean, which indicates that overall the companies engage into abnormal Production costs. The mean of the Abnormal CFO and Abnormal Discretionary expenses is positive instead of negative. Furthermore, the standard deviations of the variables are relatively close to zero. Only except for the variable analyst EPS forecast which has a higher standard deviation than the rest of the

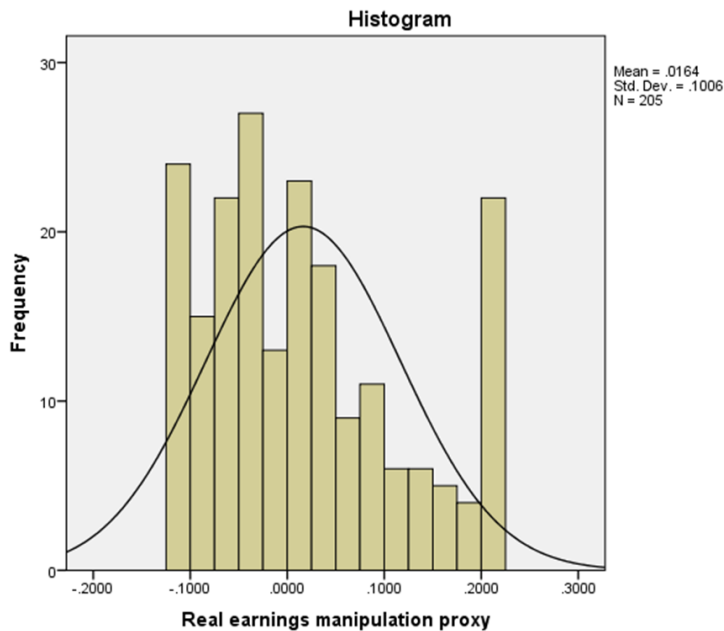
variables. In the next sub paragraph the method used to winzorise the dependent variables is discussed.

### 6.3.1 The tests of normality

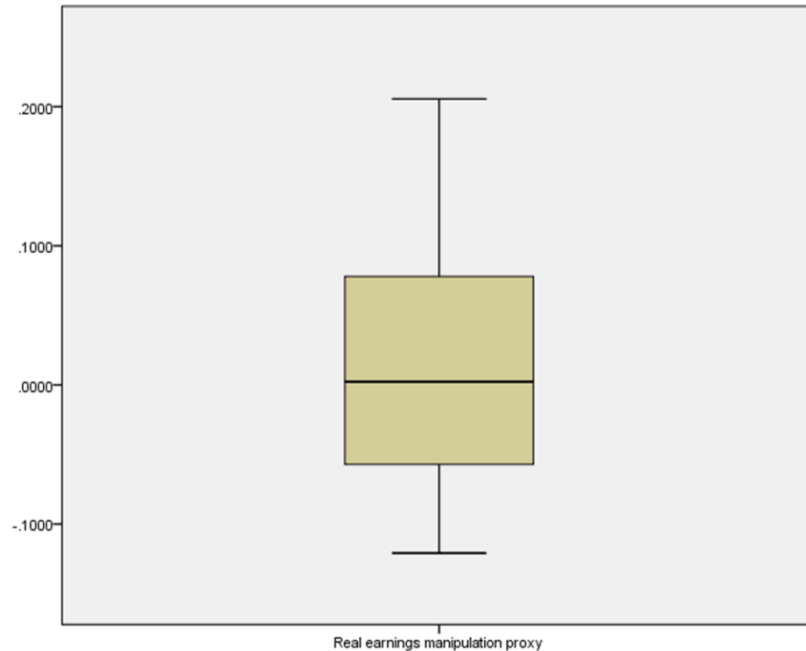
For the dependent variables of interest which did not have a normal distribution, winzorisation is applied to eliminate extreme values or outliers that may have an influence on the results of this study. In this case, the proxy Real earnings manipulation is used as a dependent variable in both regression models, so only this variable is winzorised. Based on the 10<sup>th</sup> and 90<sup>th</sup> percentile of the data, this variable is winzorised.

The tests of normality (Kolmogorov-Smirnov and Shapiro-Wilk test) is also executed to test the normality of this variable. Table 3.10 in Appendix C, shows evidence that this variable is not normally distributed ( $p\text{-value} = 0.000$ ). But based on its histogram and boxplot, the inference can be made that the distribution has improved and that all outliers have been removed from the data. The histogram and boxplot is presented in figure 3 and 4 below. Based on the improved distribution, the data will be analyzed further.

**Figure 3. Histogram of the proxy Real earnings management**



**Figure 4. Boxplot of the proxy Real earnings management**



## 6.4 Regression results of hypothesis 1 en 2

Regression analyses are carried out to test hypothesis 1 and 2. The results of these regression analyses are presented in this paragraph. Along with the regression analyses the Pearson correlation test, multicollinearity and autocorrelation tests will be carried out to test whether independent variables are strongly correlated with each other or whether the residuals are correlated with each other.

### 6.4.1 Regression results of hypothesis 1

Hypothesis 1 tests whether the earnings expectations of the capital market have an impact on the use of real earnings manipulation. Below the results of the regression analyses to test this hypothesis are presented.

**Table 3.1 Regression analysis model hypothesis 1**

Independent variables		Coefficients(B)	t-statistic	p-value
<b>1</b>	(Constant)	.061	1.469	.143
	Analyst EPS forecast	-.008	-2.485	.014

	Growth opportunities	.017	.797	.426
	Size	.002	.143	.886
	Performance	.144	1.424	.156
	Leverage	-.197	-3.427	.001
<b>R-Square</b>		.107		
<b>Adjusted R-Square</b>		.084		
a. Dependent Variable: Real earnings manipulation proxy b. Independent Variable: Analyst EPS forecast, Control variables: Growth opportunities, Size, Performance and Leverage c. All coefficients are significant at $\alpha=5\%$				

Based on the table 3.1 above, the Adjusted R-square for this regression model is 0.084 which means that only 8.4% of the variation in the engagement of REM is explained by the analyst EPS forecast (earnings expectations of the capital market), which is not a strong causal relation. The R-square is a measure which is used to determine how successful the independent variables explain the dependent variable (Moore et al. 2009). The adjusted R-square is a better measure to determine the predictive power of a model (Field 2009).

The regression analysis of hypothesis 1 presented by table 3.1 shows that the association between analyst EPS forecasts and real earnings management is significant at a significant level of 5%. The p-value is 0.014 with a t-statistic of -2.485. But this relation is negative ( $\beta = -0.008$ ) which means that high expectations of the capital market, lead to a decrease in the use of real earnings manipulation by management of U.S. listed companies.

The variance analysis test (ANOVA) is presented in Appendix E table 3.14. This table shows that the overall model is significant with an F-value of 4.750 and p-value of 0.000. This means that the overall regression model predicts the outcome variable Real earnings manipulation well.

For the association between the *control variables* and the dependent variable real earnings management, the results are:

- **The growth opportunities:** There is a no significant relation between the growth opportunities of the firm and real earnings manipulation ( $p\text{-value} = 0.426$ ). Also the coefficient of this variables is positive ( $\beta=0.017$ ), which indicates that the higher the growth opportunities of the firm, the higher the engagement into real earnings manipulation by management. Only this relation is not significant.
- **Size:** the coefficient of this variable is not significant ( $p\text{-value} = 0.886$ ). It was expected that the relation between these two variables was positive and indeed the tests have shown that the relation is positive ( $\beta=0.002$ ). Only this association is not significant.
- **Performance:** the results show that there is a positive relation with real earnings management ( $\beta=0.144$ ), but this relation is not significant ( $p\text{-value} =0.156$ ).
- **Leverage:** the leverage of the firm has a negative impact on real earnings manipulation and this association is significant ( $p\text{-value}= 0.001$ ). The coefficient of this variable is negative ( $\beta=-0.197$ ) and indicates that the higher the leverage of the firm, the lesser management engages into real earnings manipulation. This result is the opposite of what was expected, because a positive relation was expected.

## 6.4.2 Regression results of hypothesis 2

**Table 3.2 Regression analysis model hypothesis 2**

Independent variables		Coefficients (B)	t-statistic	p-value
1	(Constant)	.095	2.193	.029
	MBE_forecasts	-.014	-.935	.351

Growth opportunities	.027	1.231	.220
Size	-.009	-.850	.397
Performance	.108	1.065	.288
Leverage	-.212	-3.628	.000
<b>R-Square</b>	.083		
<b>Adjusted R-Square</b>	.060		
a. Dependent Variable: Real earnings manipulation proxy b. Independent Variable: MBE_forecast, Control variable: Growth opportunities, Size, Performance and Leverage c. All coefficients are significant at $\alpha=5\%$			

Hypothesis 2 tests whether management of companies that meet or beat analyst EPS forecasts, have made use of real earnings manipulation. Below the results of the analyses done to test this hypothesis are presented.

To test this hypothesis, also a regression test is carried out. Table 3.2 presents the regression results and shows that the adjusted R-square for this model is only 6%, which indicates that only 6% of the variation in Real earnings manipulation is explained by whether the firm has met or beaten analyst forecasts. The other 94% of the variation is not explained by the model. From this table it can also be inferred that the association between meeting or beating analyst forecasts and real earnings manipulation is not significant and negative ( $\beta=-0.014$ ,  $p\text{-value}=0.351$ ). The negative association indicates that the more companies meet or beat analyst forecasts, the lesser they have engaged into real earnings manipulation.

The analysis of variance from table 3.17 in appendix E shows that the overall model is significant ( $p\text{-value}=0.000$ ).

For the association between the control variables and the dependent variable real earnings management, the results are:

- **The growth opportunities:** There is a no significant relation between the growth opportunities of the firm and meeting or beating analyst forecasts ( $p\text{-value}=0.220$ ). Also



the coefficient of this variable is positive ( $\beta=0.027$ ), which indicates that the higher the growth opportunities of the firm, the more the companies engage into real earnings manipulation. Only this relation is not significant.

- **Size:** the coefficient of this variable is negative and not significant ( $\beta=-0.009$ ,  $p\text{-value} = 0.397$ ). It was expected that the relation between these two variables was positive, but the test has shown that the relation is negative. This means that the greater the size of the company, the lesser companies make use of the real earnings management method. This is the opposite of what was expected.
- **Performance:** the results show that there is a positive relation with ( $\beta=0.288$ ) with real earnings manipulation and this relation is not significant ( $p\text{-value} = 0.108$ ). The positive relation indicates that the higher the performance of the company, the more the company engages into real earnings manipulation.
- **Leverage:** the leverage of the firm has a negative impact on engaging into real earnings manipulation and this association is significant ( $p\text{-value} = 0.000$ ). The coefficient of this variable is negative ( $\beta=-0.212$ ) and indicates that the higher the leverage of the firm, the lesser companies engage into real earnings manipulation. This results is the opposite of what was expected.

### 6.4.3 Multicollinearity and autocorrelation for hypothesis 1

To identify whether independent variables are strongly correlated with each other, the collinearity test is carried out. Based on the VIF and Tolerance measures, it is determined whether the independent variables are correlated with each other. The VIF measures whether an independent variable is strongly correlated with other independent variables in the model. The VIF-value may not exceed 10 and the Tolerance must be greater than 0.2 (Field 2009). In the case of the collinearity test for hypothesis 1 (appendix E table 3.15), the VIF values are below 10 and the Tolerance values are greater than 0.2. This means that the independent variables are not highly correlated with each other and there is no sign of collinearity in this regression model.

To test whether there is a sign of autocorrelation in the model, the Durban-Watson test is used. The results of this test are presented in table 3.16. There is autocorrelation in the model when residuals are correlated with each other. According to Field (2009) the value of the Durban-Watson test varies between 0 and 4. A value of 2 means that there is no autocorrelation. The Durban-Watson value in table is 0.934 and is less than 1. This indicates that the residuals are correlated with each other, which questions the significance of the model. Although there is a sign of autocorrelation, the multicollinearity test has shown that there is no correlation between independent variables. The R-square and Adjusted R-square also show a low predictive power of the model (10.7% respectively 8.4%). Despite these shortcomings it can be concluded that this model is overall significant, based on the analysis of variance.

#### **6.4.4 Multicollinearity and autocorrelation for hypothesis 2**

For hypothesis 2 also a collinearity test is carried out. From table 3.18 in Appendix E it can be inferred that the VIF values are below 10 and the Tolerance values are greater than 0.2. This indicates that the independent variables of this regression are not correlated with each other and that there is no sign of collinearity in the model.

For this hypothesis also the autocorrelation test is carried out to test whether the residuals are correlated with each other. From table 3.19 in appendix E, it can be inferred that the value of the Durban-Watson test is low (less than 1), which means that the residuals are correlated with each other. Although its value is low and questions the significance of the model, the overall model is still significant based on the analysis of variance.

#### **6.5 Pearson correlation results**

The Pearson correlation results are presented in appendix E table 3.20. The Pearson correlation test measures the linear relation between two continuous variables. With the correlation coefficient  $r$  it is measured whether the relation is linear. The criterium for coefficient is  $-1 < r < 1$ . Furthermore this coefficient explains the strength and direction of the relation. If  $r$  is equal to zero, there is no linear relation between the variables (Moore et al. 2009).

Table 3.9 presents the correlation between the dependent and independent variables. The focus is on the variables of interest from regression model 1 en 2. In addition a few remarkable correlations are discussed.

#### Pearson correlations regression model 1

- The variable Analyst EPS forecasts is negatively correlated with the variable REM ( $r = -0.213$ ). Also this correlation is significant ( $p\text{-value} = 0.002$ ) but not strong. This means that if the analyst forecasts (expectations of the capital market) increase, the engagement into real earnings manipulation decreases. Furthermore the analyst EPS forecast is also negatively and significantly correlated with the variable Abnormal Discretionary Expenses ( $r = -0.218$ ,  $p\text{-value} = 0.002$ ). There is no significant association with the other real earnings manipulation proxies (Abnormal CFO and Abnormal Production costs).
- The variable analyst EPS forecasts has a correlation with all the control variables (Growth opportunities, Size, Performance and Leverage). With the Size, Performance and Leverage it has a positively significant correlation ( $r = 0.451, 0.303$  respectively  $0.171$ ) and with the variable Growth opportunities it has a negatively significant correlation ( $r = -0.241$ ). This result also implies that the independent variables of regression model 1 are correlated with each other, but that does not mean that there is a sign of multicollinearity. An important requirement for multicollinearity is that the variables must be highly correlated (a correlation coefficient above 0.80 or 0.90). In this situation this is not the case.
- The Abnormal CFO, Abnormal Production costs and Abnormal Discretionary Expenses are significantly correlated with the real earnings manipulation proxy. Furthermore this correlation is positive, negative respectively positive ( $r = 0.416, -0.167, 0.676$ ), which means that whenever the Abnormal CFO and Abnormal Discretionary Expenses increase, Real earnings management also increases. With regard to the Abnormal Production costs, if the Abnormal Production costs increase, real earnings manipulation decreases.

#### Correlations control variables

- The variable Growth opportunities is not significantly correlated with the variable Real earnings management ( $r = 0.064$ ,  $p\text{-value} = 0.364$ ). The correlation is positive.
- There is no correlation between the size of the company and the engagement into real earnings manipulation ( $p\text{-value}=0.055$ ). In this case the correlation is negative ( $r=-0.134$ ).
- The performance of the company is not significantly correlated with the use of the real earnings manipulation method by management ( $r=0.006$ ,  $p\text{-value}=0.929$ ).
- The leverage of the company is negatively correlated with the use of the real earnings management method ( $r=-0.256$ ). Also this correlation is significant ( $p\text{-value}=0.000$ ). This means that the higher the leverage of the firm, the lesser management engages into real earnings manipulation.

#### Pearson correlations regression model 2

- The variable Meet or beat analyst forecast has no significant correlation with the variable real earnings management manipulation ( $p\text{-value}= 0.911$ ) and also this correlation is negative ( $r= -0.008$ ). This is in accordance with the regression results which test this association.
- The variable Meet or beat analyst forecasts is not significantly correlated with the control variables. So, there is no sign of collinearity between these independent variables.
- The variable Meet or beat analyst forecasts is significantly positive correlated with the variable Abnormal Production costs ( $r=0.179$ ,  $p\text{-value}=0.010$ ). This indicates that the more companies have met or beaten analyst forecasts, the more they have engaged into Abnormal Production costs.

#### Correlations control variables

- With regard to the correlations between the variable Real earnings manipulation and the control variables, the results are the same as for regression model 1.

#### Other remarks

- The variable Manufacturing industry is negatively significant correlated with the variable Real earnings manipulation ( $r=-0.375$ ,  $p\text{-value}=0.000$ ), which indicates that the more companies are from a manufacturing industry, the lesser they engage into real earnings manipulation.

## 6.6 Robustness check

A robustness check is added to the analysis of the first hypothesis (first regression model) to examine whether the results of this hypothesis will change if another variable is added in the regression model. It will be examined whether the explanatory power of the earnings expectations of the capital market will still be significant. For this test, the variable manufacturing industry is added to the regression model 1 as a control variable.

Therefore the following regression model is used:

### Regression model 3:

$$REM_{it} = \beta_0 + \beta_1 * \text{Analyst EPS forecast}_{it} + \beta_2 * (\text{Growth opportunities})_{it} + \beta_3 * (\text{Size})_{it} + \beta_4 * (\text{MFI})_{it} + \beta_5 * (\text{Performance})_{it} + \beta_6 * (\text{Leverage})_{it} + \epsilon_{it} \quad (3)$$

The results of this model are presented in Appendix E , table 3.21 and 3.22.

The regression results show that although a fifth variable is added to the model as an independent variable, the independent variable analyst EPS forecast is still significantly associated with the engagement into real earnings management ( $p\text{-value}=0.000$ ). This association is also negative, as it was before ( $\beta=-0.011$ ). Only the value of this coefficient has changed. Furthermore the overall model is also significant ( $F\text{-value}=10.363$ ,  $p\text{-value}=0.000$ ). The explanatory power of the model is also higher than it was without the inclusion of the variable manufacturing industry (Adjusted R-square =21.6%), which indicates that this model predicts the variable real earnings management relatively better than the prior model (model 1).

## 6.7 Summary

This chapter discusses the results and analyses of the tested hypotheses for this study. To test these hypotheses, descriptive statistics and multiple regression analyses are carried out. The results of the descriptive analyses have shown that the mean Abnormal CFO has no negative value, but a positive value and indicates that de CFO for these companies is not abnormally low. Secondly the value of the mean for the Abnormal Production costs is positive and that of the Abnormal Discretionary Expenses is also positive. This information indicates that there is only a sign of the engagement into Abnormal Production costs. In addition the results of the regression

analyses have shown that high expectations of the capital market, lead to a lower use of real earnings manipulation for U.S. listed companies. Furthermore there is no significant relation between meeting or beating capital market expectations and the use of real earnings manipulation. Other statistical analysis such as the collinearity tests and Durban-Watson tests are carried out to examine whether the independent variables in the models are strongly correlated with each other and whether the residuals of dependent variables are correlated with each other. The collinearity analyses have shown that the independent variables in the models are not strongly correlated, but the Durban-Watson tests have shown that the residuals are positively correlated with each other. Finally a robustness check is done on the first regression model to examine whether the inclusion of another variable influences the results of this regression analysis. The results of this robustness check have shown that the expectations of the capital market are still significantly associated with the engagement into real earnings management and this association is still negative.

## **7 Analyses of the study findings and previous research**

---

### **7.1 Introduction**

This chapter discusses the analyses of the differences and similarities between the main findings of study and that of previous research. The findings are based on the results in chapter 6. In the second paragraph the differences and similarities are discussed for hypothesis 1 and in the third paragraph for hypothesis 2. The last paragraph gives a summary of this chapter.

### **7.2 The differences and similarities hypothesis 1**

At first the association which this study examines differs from the previous studies, in the way that this study examines the association between the earnings expectations of the capital market and real earnings manipulation. Studies of Athanasakou et al. (2006), Lin et al. (2006) and Lee (2007) focused on earnings management and meeting or beating analyst forecasts, while this study has focused on the analyst earnings forecasts or expectations and real earnings manipulation. With regard to real earnings manipulation and meeting or beating analyst expectations, Lin et al. (2006) only found a positive association between the use of abnormal discretionary expenses and the probability of meeting or beating analyst forecasts. For abnormal CFO and abnormal production costs a negative association is found. There are not much studies done on the association between the concepts real earnings manipulation and analyst forecasts. With regard to the findings of the first hypothesis there are no direct similarities with the findings of the prior studies. But there are similarities in terms of the incentives to engage into real earnings manipulation, which are capital market incentives.

Irani and Oesch (2014) has found that firms which have an increase in analyst coverage, engage more into real earnings manipulation than accrual based earnings manipulation. Irani and Oesch (2014) examined the influence of analyst coverage and not the influence of analyst EPS forecasts. More importantly their study found that financial analysts have an influence on management's earnings management strategy and that companies face pressure from financial analysts to manage earnings via real earnings real business activities.



This study has a similarity with the study of Irani and Oesch (2014) in terms that it examines whether financial analysts pressure management of companies to make use of the real earnings management strategy to meet or beat analyst earnings forecasts. The findings of the first hypothesis which show that the expectations of the capital market have a negative impact on real earnings manipulation cannot be really compared with the findings of the study of Irani and Oesch (2014), but both studies examine whether capital market expectations have an influence on earnings management and predict that there is a positive relation. The study of Irani and Oesch (2014) examines the influence of the expectations of the capital market as the number of analysts which follow a company and the other examines the influence of the capital market as the analyst EPS forecasts or earnings expectations of the analysts. Regardless, it can be concluded that the findings of this study are in contrast with that of Irani and Oesch (2014). This study finds a negative association and the study of Irani and Oesch (2014) a positive association.

### **7.3 Difference and similarities hypothesis 2**

The results of the second hypothesis also cannot be compared to the studies of Athanasakou et al. (2006) and Lin et al. (2006) because the variable meeting or beating analyst forecasts is used as the dependent variable in these studies. They examined the impact of the use of earnings management methods on meeting or beating analyst forecasts. The results of this study has a similarity with that of Lee (2007), which examines whether companies who meet analyst forecasts and thus meet capital market expectations, manage their earnings upwards. But Lee (2007) only examined discretionary accruals as earnings management method. Lee (2007) found a significant positive relation between these two concepts, but this study has found an insignificant negative association between companies which meet or beat capital market expectations and the use of earnings management. In this case the use of real earnings manipulation method.

### **7.4 Summary**

This chapter elaborates on the differences and similarities between this study and previous research. A precise comparison cannot be made with the previous studies, because these studies have examined the influence of the earnings expectations of the capital market in terms of meeting or beating capital market expectations. In contrast this study specifically studied the

earnings expectations of the capital market. Previous research has shown that firms have capital market incentives to engage into earnings management, but with regard to real earnings manipulation only Lin et al. (2006) provides evidence that companies make use of discretionary expenses to meet or beat capital market expectations. This study has shown that U.S. companies do not have capital market incentives to engage into real earnings manipulation.

## 8 Conclusions

---

### 8.1 Introduction

Based on the results and analyses of the tested hypotheses in the previous chapters, a conclusion will be drawn which will give an answer to the main research question and additional research question. Paragraph 2 gives a recap of the research questions and the formulated hypotheses and draws a conclusion based on the findings. In paragraph 3 the limitations of this study are discussed and in paragraph 4 the suggestions for future research.

### 8.2 General conclusion

This study examined the association between the earnings expectations of the capital market and real earnings manipulation for U.S. listed companies over the period 2010 to 2014. To examine this association, the following main research question is formulated:

***“Is there an association between the earnings expectations of the capital market and the use of real earnings manipulation?”***

To answer this question, the following hypotheses is formulated:

#### **1. Hypothesis 1**

***There is a positive association between the earnings expectations of the capital market and the use of real earnings manipulation***

For the additional research, the following question is formulated:

#### **2. Hypothesis 2**

***There is a positive association between meeting or beating the expectations of the capital market and the use of real earnings manipulation***

The findings of the first hypothesis which refer to the main research question indicate that the earnings expectations of the capital market have a negative impact on the use of real earnings manipulation, while a positive impact was expected. Based on prior research, management engages into earnings management to meet capital market earnings expectations. The findings of this research imply that high expectations or analyst forecasts cause lower use of the real earnings manipulation and that management of U.S. listed companies is not triggered by the capital market expectations to make use of real earnings manipulation. Instead the earnings expectations constrain the use of the real earnings manipulation method. The probable explanation for this outcome is that real earnings manipulation is costly and it has a direct impact on the cashflow of the company, which has negative influences for the value of the firm (Zang 2012). So companies do not choose to make use of this method to meet earnings expectations.

Regarding the additional research question, meeting or beating capital market expectations does not mean that companies have made use of real earnings manipulation. Based on the study of Lee (2007) a positive impact is shown between meeting capital market expectations and the use of earnings management. Although 62% of the firm-years have met or beaten their forecasts, that does not mean that these firms have made use of real earnings manipulation to meet or beat these forecasts. The explanation for opposite results of this research is probably due to some research limitations. These are discussed in the next paragraph.

In addition a high leverage does not stimulate the use of the real earnings manipulation method, instead it decreases the use of this method.

This study contributes to existing accounting research with regard to capital market incentives to engage into real earnings management. Especially with regard to U.S. listed companies. It gives evidence on whether management of U.S. companies is triggered by the expectations of the capital market to make use of real activities to manage earnings with objective to meet or beat earnings expectations of the capital market. Secondly this study also gives insight into trend of the focus on meeting earnings by U.S. companies in recent years and that these companies are not influenced by the capital market to engage into real earnings manipulation. This study is one of the unique studies which has examined specifically the influence of the earnings expectations of the capital market on the use of real earnings management and gives us new insights about the

influence of the capital market on U.S. listed companies. It can be concluded that the capital market does not influence management of U.S. companies positively to engage into real earnings management, although a positive influence was expected. Some research limitations or shortcomings may have caused this result. In the next paragraph the research limitations and future suggestions for future research are discussed.

### **8.3 Research limitations**

As already mentioned, this study has some limitations. First of all, the sample of firm-years is small (205) due to elimination criteria and data availability of the two databases (Compustat North America and I/B/E/S). A larger sample could give better estimations about the use of real earnings manipulation and the association between the earnings expectations of the capital market and the use of real earnings manipulation.

The second limitation is that only 8.4% of variation in real earnings manipulation is explained by the analyst EPS expectations. This means that 91.6% of the variation is not explained by the model and that there may be other variables which have a negative impact on real earnings manipulation and are not included in the model. By adding manufacturing industries in the same model, indeed the explanatory power of model increases to 21.6% (see paragraph 6.6). So there may be a sign of omitted variables which are excluded from the model. Another limitation is that most prior studies about real earnings manipulation make use of suspect firm-years to capture the effect of real earnings manipulation, but this study examined all the selected firm-years to study the use of real earnings manipulation. This method of suspect firm-years is not used, because with this method the sample would not be aselect.

In addition the exclusion of the effect of the period over which this study is done (2010 to 2014) to measure real earnings management could also be a limitation. This period is the period after the financial crises of the U.S. which happened in the period 2008. The effect of the post-financial crises period is not included in this research, because the study is done about this period to give an indication of the use of the real earnings management method in the recent years. But the effect of this period could influence the outcome.

#### **8.4 Suggestions for future research**

This research gives insights about the influence of the expectations of the capital market which is reflected by analyst forecasts on the earnings management behavior of U.S. listed companies. Also this study gives insights on whether management of companies are pressured by these expectations to engage into real earnings manipulation, but this study does not examine whether there really is a pressure to meet or beat earnings expectations. It would be interesting to examine whether the pressure of financial analysts have an impact on earnings management. Another suggestion for future research is to examine the association between the earnings expectations of the capital market and accrual based earnings management. Furthermore it would also be interesting to study the trade-off between accrual based and real based earnings management with regard to analyst earnings expectations or capital market expectations.

The assumption is also made by previous research that real earnings manipulation has to occur during the year and not at year-end, because it has to with the deviation from normal business transactions. So, the decision to deviate from normal business activities has to be taken during the year but it is not known in which period of the year. This is also a suggestion for future research to examine in which period of the year management is more likely to engage into real earnings manipulation.

## References

---

- Athanasakou, V. S. (2006). Earnings management or forecasts guidance to meet analyst expectations. *The University of Manchester*, 1-41.
- Ayers, B. L. (2002). Do firms purchase the pooling method? *Review of Accounting studies* 7 (1), 5-32.
- Babbie, E. (2010). *The Practice of Social Research* (twelfth ed.). Nelson Education Ltd.
- Barth, M. E. (1999). Market rewards associated with patterns of increasing earnings. *Journal of Accounting Research* 37 (2), 387-413.
- Bartov, E. (1993). The timing of asset sales and earnings manipulation. *The Accounting Review* 68 (4), 840-855.
- Bartov, E. G. (2002). The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics* 33, 173-204.
- Beaver, W. (1998). *Financial Reporting: An Accounting Revolution* (third ed.). Upper Saddle, NJ: Prentice Hall.
- Bradshaw M.T., D. M. (2009). A re-examination of Analysts' superiority over time-series forecasts. 1-39.
- Brown, L. a. (2001). Managing earnings surprises in the U.S. verses 12 other countries. *Journal of Accounting and Public Policy* 20, 373-398.
- Burgstahler, D. a. (1997). Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24 (1), 99-126.
- Burgstahler, D. a. (1998). Management of Earnings and Analyst forecasts. *Working paper, University of Washington*.
- Chi, W. L. (2011). Is enhanced audit quality associated with greater REM. *Accounting Horizons* 25 (2), 315-335.
- Cohen, D. a. (2010). Accrual-based and real earnings management around seasoned equity offerings. *Journal of Accounting and Economics* 50(1), 2-19.
- Cohen, D. D. (2008). Real and Accrual-Based earnings management in Pre-and Post-Sarbanes-Oxley periods. *The Accounting Review* Vol.83, No.3, 757-787.

- Comiskey, E. a. (1986). Investment decisions and equity accounting standards. *The Accounting Review* 61 (3), 519-525.
- DeAngelo, L. (1988). Managerial competition, information costs and corporate governance: The use of accounting performance measures in proxy contests. *Journal of Accounting and Economics* 10, 3-36.
- Dechow, P. a. (2000). Earnings Management: Reconciling the Views of Accounting Academics, Practitioners and Regulators. *Accounting Horizons* 14 (2), 235-250.
- Deegan, C. (2009). *Financial Accounting Theory* (third ed.). McGraw-Hill Australia Pty Ltd.
- Dye, R. (2002). Classifications manipulation and Nash accounting standards. *Journal of Accounting Research* 40(4), 1125-1162.
- Eldenburg, K. G. (2011). Earnings management through real activities manipulation: Evidence from non-profit hospital. *The Accounting Review* 86 (5), 1605-1630.
- Enomoto, M. K. (2012). Accrual-based and Real earnings management: An International Comparison for Investor Protection. *Discussion Paper Series*, 1-30.
- Field, A. (2009). *Discovering Statistics Using SPSS* (third ed.). SAGE Publications Asia-Pacific Pte Ltd.
- Francis, B. H. (2014). Abnormal Real operations, real earnings management and subsequent crashes in stock prices. *Bank of Finland Research discussion papers*, 1-48.
- Graham, J. R. (2005). The economic implications of Corporate financial reporting. *Journal of Accounting and Economics* 40, 3-73.
- Gunny, K. (2005). What are the consequences of Real Earnings Management? *Working paper, University of Colorado*.
- Gunny, K. (2010). The relation between Earnings Management using Real activities Manipulation and Future Performance: Evidence from meeting earnings Benchmarks. *Contemporary Accounting Research Vol. 27 No.3*, 855-888.
- Hand, J. (1989). Did firms take debt-equity swaps for an accounting paper profit or true financial gain? *The Accounting Review* 64 (4), 587-623.
- Haw, I. J. (1991). Overfunded defined benefit pension plan settlements without asset reversion. *Journal of Accounting and Economics* 14, 295-320.
- Healy, P. (1985). The Effect of Bonus Schemes on Accounting Desicions. *Journal of Accounting and Economics* 7, 85-107.



- Healy, P. a. (1999). A Review of Earnings management Literature and Its Implications for Standard Setting. *Accounting Horizons* 13 (4), 365-383.
- Hibrar, P. J. (2006). Stock repurchases as an earnings management device. *Journal of Accounting and Economics* 41 (1-2), 3-27.
- Imhoff, E. a. (1988). Economic consequences of Accounting standards: the lease disclosure rule change. *Journal of Accounting and Economics* 10(4), 277-310.
- Jensen, M. (2004). Agency Costs of Overvalued Equity. *Finance Working paper no.39/2004*, 1-10.
- Jensen, M. a. (1976). Theory of the firm: Managerial Behaviour, Agency Costs and Ownership Structure. *Journal of Financial Accounting* 3 (4), 305-360.
- Kasnik, R. a. (2002). Does meeting earnings expectations matter? Evidence from analyst forecast revisions and share prices. *Journal of Accounting Research* 40(3), 727-759.
- Kim, B. L. (2010). Debt covenant slacks and REM. *Working paper, George Mason University*.
- Klettke, T. (2013). *New Determinants of Analysts' Earnings forecast Accuracy*. Springer Gabler.
- Lambert, R. (2001). Contracting Theory and Accounting. *Journal of Accounting and Economics* 32, 3-87.
- Lee, J. (2007). Earnings management to just meet analyst forecast. *North Western University*, 1-41.
- Li, X. (2010). Real earnings management and subsequent stock returns. *Working paper, Boston College*.
- Lin, S. R. (2006). Earnings Management and Guidance for meeting or beating Analysts' Earnings forecasts. *California State University*, 1-47.
- Lin, Y. H. (2012). Beyond Bias and Accuracy:A Review of Analysts' Forecast Process. 71-83.
- Masahiro Enomoto, F. K. (2012). Accrual-Based and Real Earnings managment: An international Comparison for investor Protection. *Kobe University*.
- Matsunaga, S. (1995). The effect of Financial Reporting costs on the use of employee stock options. *The Accounting Review* 70 (1), 1-26.
- Moore D.S., G. P. (2009). *The Practice of Business Statistics* (second ed.). W.H. Freeman and Company.

- Nichols, D. W. (2004). How do earnings numbers relate to Stock Returns? A Review of Classic Accounting Research with updated evidence. *Accounting Horizons Vol.18 No.4*, 263-286.
- Palepu, K. H. (2010). *Business Analysis and Valuation* (IFRS ed.). Cengage Learning EMEA.
- Perry, S. W. (1994). Earnings management preceding management buyout offers. *Journal of Accounting and Economics 18*, 157-179.
- Pincus, M. R. (2002). The interaction between accrual management and hedging: Evidence from oil and gas firms. *The Accounting Review 77 (1)*, 127-160.
- Ramnath, S. R. (2008). The Financial Analyst Forecasting Literature: A taxonomy with suggestions for future research. *International Journal of Forecasting 24*, 34-75.
- Richardson, S. T. (2004). The walk-down to beatable analyst forecasts: the role of equity issuance and insider trading incentives. *Contemporary Accounting Research 21(4)*, 885-924.
- Roychowdhury, S. (2003). Management of Earnings through the manipulation of Real activities that affect Cash Flow from Operations. *Sloan School of Management*, 1-54.
- Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics 42*, 335-370.
- Schipper, K. (1989). Commentary on Earnings Management. *Accounting Horizons 3*, 91-102.
- Scott, W. (2011). *Financial Accounting Theory* (sixth ed.). Prentice Hall.
- Sellami, M. (2015). Incentives and Constraints of Real earnings management: The Literature Review. *International Journal of Finance and Accounting 4 (4)*, 206-213.
- Seybert, S. (2010). R&D capitalization and reputation-driven REM. *The Accounting Review 85 (2)*, 671-693.
- Shleifer, A. a. (1997). A Survey of Corporate Governance. *Journal of Finance 52 (2)*, 737-783.
- Skinner, D. a. (2000). Earnings surprises, Growth expectations, and Stock Returns or Don't let an Earnings Torpedo sink your portfolio. *University of Michigan Business school*, 1-58.
- Smith, M. (2011). *Research Methods in Accounting* (second ed.). SAGE Publications Ltd.
- Sundgren, S. (2007). Earnings management in Public and Private companies: Evidence from Finland. 35-63.
- Teoh, S. W. (1998b). Earnings Management and the long-term market performance of initial public offerings. *Journal of Finance 53*, 1935-1974.

- Thomas, J. a. (2002). Inventory changes and future return. *Review of Accounting studies* 7, 163-187.
- Watts, R. Z. (1986). Positive Accounting Theory. *Englewood Cliffs: NJ-Prentice-Hall*.
- Watts, R. Z. (1990). Positive Accounting Theory: a ten-year perspective. *The Accounting Review* 65, 131-156.
- Wensheng, S. J. (2002). Analysis on factors influencing Managers' Earnings Management Intentions. 477-482.
- Xu, R. T. (2007). Review of Earnings management Literature. *Journal of Accounting Literature* 26, 195-228.
- Zamri, N. R. (2013). The impact of leverage on real earnings management. *Procedia Economics and Finance* 7, 86-95.
- Zang, A. (2006). Evidence on the Tradeoff between real earnings manipulation and accrual manipulation. *Working paper*.
- Zang, A. (2012). Evidence on the trade-off between Real activities manipulation and Accrual-Based earnings management. *The Accounting Review Vol.87, No.2, 675-703*.

## Appendix A Selected companies name, Global Company Key, CUSIP-code and Official Ticker symbol

Sample U.S. listed companies			
Company Name	Global Company Key	CUSIP-code	Official Ticker Symbol
AOL INC	183920	00184X10	AOL
ALTRIA GROUP INC	8543	02209S10	MO
BRISTOL-MYERS SQ	2403	11012210	BMY
BRUNSWICK CP	2444	11704310	BC
CADENCE DES SYS	13421	12738710	CDNS
COLGATE PALMOLVE	3170	19416210	CL
DIEBOLD INC	3946	25365110	DBD
DOVER CP	4058	26000310	DOV
EMC CP MASS	12053	26864810	EMC
GILEAD SCIENCES	24856	37555810	GILD
GLAXOSMITHKLINE	5180	37733W 10	GSK
HANESBRANDS INC	175319	41034510	HBI
HARLEY-DAVIDSON	12389	41282210	HOG
HASBRO INC.	5518	41805610	HAS
IAC/INTERACTIVE	26061	44919P50	IACI
IDEXX LABS INC	24197	45168D10	IDXX
ILL TOOL WORKS	5878	45230810	ITW
ILLUMINA INC	138205	45232710	ILMN
INTEL CP	6008	45814010	INTC
INTL BUS MACH	6066	45920010	IBM
JOHNSON & JOHNSN	6266	47816010	JNJ
KVH INDUSTRIES	62549	48273810	KVHI
KELLOGG CO	6375	48783610	K
KIMBERLY CLARK	6435	49436810	KMB
LEXMARK INTL INC	61552	52977110	LXK
LITTELFUSE INC	25747	53700810	LFUS
MATTEL INC	7116	57708110	MAT
NETFLIX INC.	147579	64110L10	NFLX
NETSUITE INC	179084	64118Q10	N
NEWELL RUBBER	7875	65122910	NWL
PPG INDS	8247	69350610	PPG
PEPSICO INC	8479	71344810	PEP
PFIZER INC	8530	71708110	PFE
POLARIS INDS INC	14311	73106810	PII
RACKSPACE HOSTIN	179925	75008610	RAX
SANDISK CORP	61513	80004C10	SNDK
SHERWIN-WMS	9667	82434810	SHW
SKECHERS USA INC	121142	83056610	SKX
AO SMITH	9771	83186520	AOS
SNAP-ON INC	9778	83303410	SNA
STMICROELECTRONI	31142	86101210	STM

## Appendix B Overview of previous academic literature

Roychowdhury 2003			
Study	Sample	Methodology	Findings
Earnings management through real activities which has an effect on the Cashflow from Operations	21758 firm-years over the period 1987 to 2001 for all companies available in the Compustat financial data database	The estimation models of Dechow et al. (1998) to measure real earnings management (Abnormal CFO+Abnormal Production costs+ Abnormal Discretionary Expenses)	Management of companies engages into abnormally low CFO, abnormally high production costs and abnormally low discretionary expenses to report earnings above zero. Furthermore firms from manufacturing industries engage into overproduction to increase earnings.
Athanasakou et al. 2006			
Study	Sample	Methodology	Findings
The engagement into earnings management or forecast guidance by UK-firms to meet analysts' expectations	3980 firm-year observations of UK listed companies over the period 1994 to 2002 from the I/B/E/S and Data stream database	<p>1. Meet or beat analyst forecast is measured by the proxy Meet or beat analyst forecasts (MBE), which is a dummy variable. This variable is equal to 1 if the company's earnings surprise is zero or positive and equal to 0 when the earnings surprise is less than zero</p> <p>2. Forecast guidance is measured by the proxy Downward-guided forecasts (DOWN) which is measured by the negative value for unexpected forecast (UEF)</p> <p>3. Accrual earnings management is measured by the proxy Positive Abnormal Working Capital (POSAWCA) by using the cross-sectional modified Jones model</p> <p>4. Classification shifting is measured by the positive association between</p>	Companies engage into downward forecast guidance, classification shifting to meet analysts' expectations. There is no evidence found of a positive relation between companies engaging into accrual based earnings management and meeting analysts' forecasts.

		unexpected core earnings (UCE) and total income increasing non-recurring items (TRNI)	
<b>Lin et al. 2006</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
The engagement into earnings management and forecast guidance to meet or beat analyst forecasts	32251 quarter observations from the Compustat financial data-, I/B/E/S- and CRSP database for the period 1993 to 2004	<p>1. Meet or beat analyst forecast is measured by the proxy Meet or beat analyst forecasts (MBE), which is a dummy variable. This variable is equal to 1 if the company's earnings surprise is zero or positive and equal to 0 when the earnings surprise is less than zero</p> <p>2. Forecast guidance is measured by the proxy Downwards forecast guidance (DOWN) which is measured by the Unexpected Earnings Forecast (UEF). This is a dummy variable which is equal to 1 if UEF is negative and is equal to zero when UEF is positive.</p> <p>3. Accrual based earnings management is measured by the modified Jones model.</p> <p>4. Real earnings manipulation is measured by the proxies Abnormal selling, General and Administrative Expenses (SGA), Abnormal Production costs and Abnormal CFO.</p> <p>Abnormal SGA is estimated by the model of Gunny (2005) and the Abnormal Production costs and CFO are estimated by the model of Dechow et al. (1998).</p> <p>5. Classification shifting is measured by 2 criteria:</p>	Management of companies make use of classification shifting and forecast guidance to meet or beat analyst forecasts. They make use of discretionary accruals to a lesser extent and the use of Abnormal production costs and CFO is not effective to meet or beat analyst forecasts.

		<ul style="list-style-type: none"><li>• Street earnings &gt; GAAP earnings before extra ordinary items</li><li>• Abnormal street earnings &gt;0</li></ul>	
--	--	---	--

<b>Roychowdhury 2006</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
The use of real activities manipulation to prevent the reporting of earnings losses.	21758 firm-years from the Compustat financial data database over the period 1987-2001	The Dechow et al. (1998) model	There is a negative association between institutional ownership and real earnings manipulation. Furthermore management of companies engages into real earnings manipulation to avoid negative earnings surprises and that firms which report small positive earnings and small positive earnings surprises engage into real earnings manipulation.
<b>Lee 2007</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
The management of earnings to meet analyst forecasts given that meeting these targets has high importance for management of companies	Firm-quarters from the first call-, Compustat financial data- and CRSP database for the period 1994 to 2003	<ol style="list-style-type: none"> <li>1. Earnings management is measured through discretionary accruals by using the modified Jones model.</li> <li>2. Meet analyst forecasts is measured with a dummy variable which is equal to 1, when the analyst earnings are equal to the actual earnings and equal to 0 otherwise.</li> </ol>	Firms have managed earnings to meet analyst earnings expectations and these firms do not have a low performance in the future, because they are rewarded by the capital market.
<b>Cohen et al. 2008</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
The prevalence of accrual based and real earnings management in the period	87217 firm-years over the period 1997 to 2005 from the Compustat financial data	The modified Jones model to estimate discretionary accruals and the Dechow et	The level of accrual based earnings management decreased after the adoption



before the adoption of Sarbanes-Oxly Act (SOX) and after the adoption of SOX	database	al. (1998) model to measure real earnings management.	of SOX, while the level of real earnings management increased after the adoption of SOX. In the period before the adoption of SOX, the use of accrual based earnings management has increased.
<b>Gunny 2010</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
Real earnings manipulation and future performance to meet earnings benchmarks	All firms available in the Compustat financial data database from the period 1988 to 2002	Real earnings management is measured by the Dechow et al. (1998) model, Prior research by Berger (1993) , Roychowdhury (2006), Bartov (2003), Herrmann et al. (2003)	The use of real earnings manipulation is positively associated with meeting earnings benchmarks and firms which engage into real earnings manipulation to meet earnings benchmarks have a better future performance than firms which do not.
<b>Li 2010</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
Real earnings manipulation and future stock return	The sample is divided in 2 parts: 9587 firms representing 1014947 firm- month observations from the period 1995 through 2008 for abnormal production costs. 2. 7861 firms representing 628849 firm-month observations from the period 1995 through 2008 for abnormal CFO	The model by Dechow et al. (1998) is used to measure the abnormal CFO and abnormal production costs	There is a negatively significant association between the engagement into abnormal production costs and the future stock return of a firm. Also there is a positively significant relation between abnormal CFO and the future stock return of the firm. This is the case when investors did not detect real earnings manipulation activities of the firm.
<b>Francis et al. 2014</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
The impact of the abnormal business operations of a firm the future crash risk of the stockprice of the firm	40037, 42404, 44731-firm-years from the Compustat financial data and CRSP database over the period	The dechow et al. (1998) model is used to measure real earnings manipulation. Also the addition of a few	Firms which make use of real earnings manipulation have the probability that the their stockprice will crash.

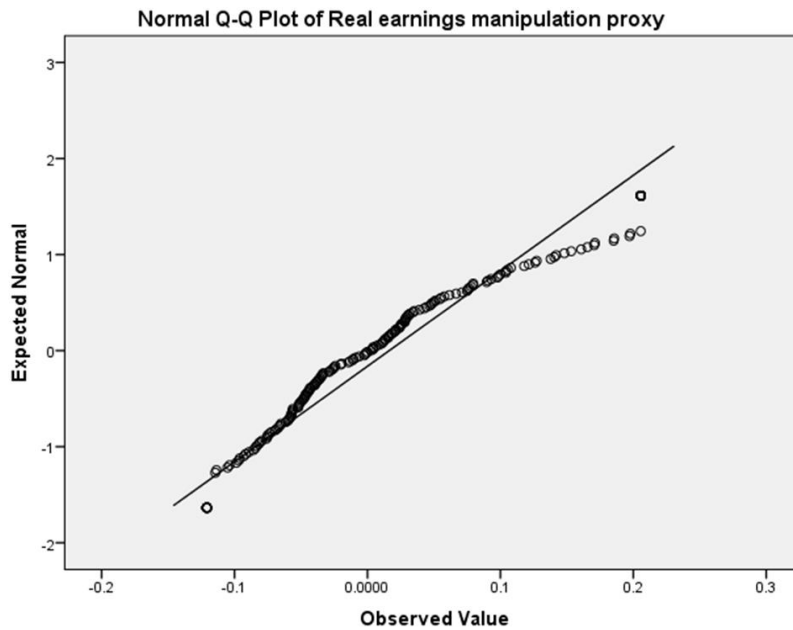
	1994 to 2009.	variables (firm size, marginal benefit of the investment for every new unit, internal funds) used by Gunny (2010).	
<b>Irani and Oesch 2014</b>			
<b>Study</b>	<b>Sample</b>	<b>Methodology</b>	<b>Findings</b>
The impact of security analysts on the engagement into accrual based and real based earnings management	60758 firm-years for U.S. listed companies from the Compustat financial data-, CRSP- and I/B/E/S database	To measure accrual based earnings management the modified Jones model is used and to measure real earnings management the model of Dechow et al. (1998) is used. The experiment research design is used for this study.	When the analysts' coverage of the firm decreases, the use of the real earnings manipulation method decreases and the use of the accrual based earnings management method increases.

## Appendix C Descriptive statistics and test of normality

**Table 3.3** Frequency of firm-years from manufacturing industries

Manufacturing Industry					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Otherwise	35	17.1	17.1	17.1
	Manufacturing Industry	170	82.9	82.9	100.0
	Total	205	100.0	100.0	

**Figure 5.** Normal Q-Q plot Real earnings manipulation proxy



**Table 3.4**                      **Test of Normality**

<b>Tests of Normality</b>						
	<b>Kolmogorov-Smirnov<sup>a</sup></b>			<b>Shapiro-Wilk</b>		
	<b>Statistic</b>	<b>df</b>	<b>Sig.</b>	<b>Statistic</b>	<b>df</b>	<b>Sig.</b>
Real earnings manipulation proxy	.098	205	.000	.921	205	.000

a. Lilliefors Significance Correction

## Appendix D R-square tests and Analysis of Variance normal CFO, Production costs and Discretionary Expenses

**Table 3.5 R-square test Normal CFO**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.503 <sup>a</sup>	.253	.241	.0745062

a. Predictors: (Constant), Change in Sales t/Assets t-1, 1/A t-1, Sales/A t-1

**Table 3.6 Analysis of Variance Normal CFO**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.377	3	.126	22.646	.000 <sup>b</sup>
	Residual	1.116	201	.006		
	Total	1.493	204			

a. Dependent Variable: CFO/A t-1  
b. Predictors: (Constant), Change in Sales t/Assets t-1, 1/A t-1, Sales/A t-1

**Table 3.7 Regression analysis Normal CFO**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.112	.014		7.890	.000
	1/A t-1	-8.582	3.978	-.135	-2.158	.032
	Sales/A t-1	.019	.016	.101	1.187	.237
	Change in Sales t/Assets t-1	.246	.048	.440	5.129	.000

a. Dependent Variable: CFO/A t-1

**Table 3.8 R-square test Normal Production costs**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.917 <sup>a</sup>	.841	.838	.1313102
a. Predictors: (Constant), Change in Sales t-1/A t-1, 1/A t-1, Sales/A t-1, Change in Sales t/A t-1				

**Table 3.9 Analysis of Variance Normal Production costs**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.281	4	4.570	265.057	.000 <sup>b</sup>
	Residual	3.448	200	.017		
	Total	21.729	204			
a. Dependent Variable: Production costs/At-1						
b. Predictors: (Constant), Change in Sales t-1/A t-1, 1/A t-1, Sales/A t-1, Change in Sales t/A t-1						

**Table 3.10 Regression analysis Normal Production costs**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.248	.025		-9.845	.000
	1/A t-1	4.526	7.044	.019	.643	.521
	Sales/A t-1	.790	.028	1.119	28.170	.000
	Change in Sales t/A t-1	-.613	.085	-.287	-7.201	.000
	Change in Sales t-1/A t-1	-.256	.070	-.111	-3.662	.000
a. Dependent Variable: Production costs/At-1						

**Table 3.11 R-square test Abnormal discretionary expenses**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.546 <sup>a</sup>	.298	.291	.1775419
a. Predictors: (Constant), Sales t-1/A t-1, 1/Assets t-1				

**Table 3.12 Analysis of Variance Normal discretionary expenses**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.701	2	1.351	42.851	.000 <sup>b</sup>
	Residual	6.367	202	.032		
	Total	9.069	204			
a. Dependent Variable: Dcretionary exp/A t-1						
b. Predictors: (Constant), Sales t-1/A t-1, 1/Assets t-1						

**Table 3.13 Regression analysis Normal discretionary expenses**

Coefficients <sup>a</sup>						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.156	.033		4.768	.000
	1/Assets t-1	44.595	9.290	.285	4.800	.000
	Sales t-1/A t-1	.246	.034	.436	7.342	.000
a. Dependent Variable: Dcretionary exp/A t-1						

## Appendix E Regression results, multicollinearity, autocorrelation, Pearson correlation and Robustness checks

**Table 3.14 Analysis of variance regression model 1**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.220	5	.044	4.750	.000 <sup>b</sup>
	Residual	1.846	199	.009		
	Total	2.066	204			
a. Dependent Variable: Real earnings manipulation proxy b. Predictors: Analyst EPS forcecast, Growth opportunities, Size, Performance and Leverage						

**Table 3.15 Multicollinearity analysis regression model 1**

Collinearity Statistics		
	Tolerance	VIF
Analyst EPS forcecast	.742	1.348
Growth opportunities	.882	1.134
Size	.711	1.407
Performance	.885	1.130
Leverage	.878	1.138
a. Dependent Variable: Real earnings manipulation proxy b. Independent Variable: Analyst EPS forecast c. Control Variable: Growth opportunities, Size, Performance and Leverage		

**Table 3.16 Autocorrelation analysis regression model 1**

Durban-Watson test						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Durbin-Watson
1	.327 <sup>a</sup>	.107	.084	.0963073	.107	.934
a. Predictors: Analyst EPS forcecast, Growth opportunities, Size, Performance , Leverage b. Dependent Variable: Real earnings manipulation proxy						



**Table 3.17 Analysis of Variance regression model 2**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.171	5	.034	3.599	.004 <sup>b</sup>
	Residual	1.895	199	.010		
	Total	2.066	204			

a. Dependent Variable: Real earnings manipulation proxy  
b. Predictors: MBE\_forecasts , Growth opportunities, Size, Performance and Leverage

**Table 3.18 Multicollinearity analysis regression model 2**

Collinearity Statistics		
	Tolerance	VIF
MBE_forecasts	.943	1.060
Growth opportunities	.895	1.117
Size	.797	1.254
Performance	.898	1.113
Leverage	.870	1.150

a. Dependent Variable: Real earnings manipulation proxy  
b. Independent Variable: MBE\_forecast  
c. Control Variable: Growth opportunities, Size, Performance and Leverage

**Table 3.19 Autocorrelation analysis regression model 2**

Durban-Watson test						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Durbin-Watson
1	.288 <sup>a</sup>	.083	.060	.0975757	.083	.896

a. Predictors: MBE\_forecasts , Growth opportunities, Size, Performance and Leverage  
b. Dependent Variable: Real earnings manipulation proxy

**Table 3.20 Pearson correlation analysis**

Correlations												
		Analyst EPS forecast	MBE_forec asts	Real earnings manipulation proxy	Abnormal CFO	Abnormal Production costs	Abnormal Discretionary Expenses	Growth opportunities	Size	Performance	Leverage	Manufacturing Industry
Analyst EPS forecast	Pearson Correlation	1	-.047	-.213**	.106	.048	-.218**	-.241**	.451**	.303**	.171*	-.022
	Sig (2- tailed)		.504	.002	.130	.495	.002	.000	.000	.000	.014	.756
	N	205	205	205	205	205	205	205	205	205	205	205
MBE_forecasts	Pearson Correlation	-.047	1	-.008	-.081	.179*	-.096	.078	-.131	.111	-.127	-.035
	Sig (2- tailed)	.504		.911	.246	.010	.172	.264	.060	.112	.069	.617
	N	205	205	205	205	205	205	205	205	205	205	205
Real earnings manipulation proxy	Pearson Correlation	-.213**	-.008	1	.416**	-.167*	.676**	.064	-.134	.006	-.256**	-.375**
	Sig (2- tailed)	.002	.911		.000	.017	.000	.364	.055	.929	.000	.000
	N	205	205	205	205	205	205	205	205	205	205	205
Abnormal CFO	Pearson Correlation	.106	-.081	.416**	1	-.305**	.099	-.040	.063	.389**	-.061	-.085
	Sig (2- tailed)	.130	.246	.000		.000	.160	.566	.373	.000	.382	.223
	N	205	205	205	205	205	205	205	205	205	205	205
Abnormal Production costs	Pearson Correlation	.048	.179*	-.167*	-.305**	1	-.694**	-.019	-.108	-.036	.022	.309**
	Sig (2- tailed)	.495	.010	.017	.000		.000	.782	.123	.609	.755	.000
	N	205	205	205	205	205	205	205	205	205	205	205
Abnormal Discretionary Expenses	Pearson Correlation	-.218**	-.096	.676**	.099	-.694**	1	.136	-.070	-.134	-.128	-.475**
	Sig (2- tailed)	.002	.172	.000	.160	.000		.052	.319	.055	.067	.000
	N	205	205	205	205	205	205	205	205	205	205	205
Growth opportunities	Pearson Correlation	-.241**	.078	.064	-.040	-.019	.136	1	-.248**	-.133	.096	-.122
	Sig (2- tailed)	.000	.264	.364	.566	.782	.052		.000	.056	.172	.080
	N	205	205	205	205	205	205	205	205	205	205	205
Size	Pearson Correlation	.451**	-.131	-.134	.063	-.108	-.070	-.248**	1	.257**	.289**	.216**
	Sig (2- tailed)	.000	.060	.055	.373	.123	.319	.000		.000	.000	.002
	N	205	205	205	205	205	205	205	205	205	205	205
Performance	Pearson Correlation	.303**	.111	.006	.389**	-.036	-.134	-.133	.257**	1	.130	.228**
	Sig (2- tailed)	.000	.112	.929	.000	.609	.055	.056	.000		.063	.001
	N	205	205	205	205	205	205	205	205	205	205	205
Leverage	Pearson Correlation	.171*	-.127	-.256**	-.061	.022	-.128	.096	.289**	.130	1	.271**
	Sig (2- tailed)	.014	.069	.000	.382	.755	.067	.172	.000	.063		.000
	N	205	205	205	205	205	205	205	205	205	205	205
Manufacturing Industry	Pearson Correlation	-.022	-.035	-.375**	-.085	.309**	-.475**	-.122	.216**	.228**	.271**	1
	Sig (2- tailed)	.756	.617	.000	.223	.000	.000	.080	.002	.001	.000	
	N	205	205	205	205	205	205	205	205	205	205	205

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

## Robustness check

**Table 3.21 Regression results robustness check**

Model		Coefficients (B)	t-statistic	p-value
1	(Constant)	.099	2.542	.012
	EPS forecast	-.011	-3.885	.000
	Growth opportunities	.001	.045	.964
	Size	.011	1.026	.306
	Manufacturing Industry	-.107	-5.868	.000
	Performance	.260	2.727	.007
	Leverage	-.116	-2.122	.035
<b>R-Square</b>		.239		
<b>Adjusted R-Square</b>		.216		
a. Dependent Variable: Real earnings manipulation proxy b. Independent Variable: Analyst EPS forecast, Control Variable: Growth opportunities, Size, Manufacturing Industry, Performance and Leverage c. All coefficients are significant at $\alpha=5\%$				

**Table 3.22 Analysis of Variance robustness check**

ANOVA <sup>a</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.494	6	.082	10.363	.000 <sup>b</sup>
	Residual	1.572	198	.008		
	Total	2.066	204			
a. Dependent Variable: Real earnings manipulation proxy b. Predictors: Analyst EPS forecast, , Growth opportunities, Size, Manufacturing Industry, Performance and Leverage						

## Appendix F      Compustat data items for estimation models and control variables

### Estimation models

#### Normal level of CFO

$CFO_{it}$  = cash flow from operations of firm  $i$  in year  $t$  (Compustat data item OANCF)

Assets  $i_{t-1}$  = total assets of firm  $i$  in year  $t$  lagged by one period (Compustat data item Assets Total (AT))

$\Delta Sales_{it}$  = change of sales of firm  $i$  during year  $t$  (Compustat data item SALE)

#### Normal level of production costs

$COGS_{it}$  = cost of goods sold of firm  $i$  in year  $t$  (Compustat data item COGS)

$\Delta INV_{it}$  = the change in inventory of firm  $i$  during year  $t$  (Compustat data item INVCH)

$Prod_{it}$  = production costs of firm  $i$  in year  $t$  (Compustat item COGS + INVCH)

#### Normal level of discretionary expenses

$DiscExp_{it}$  = discretionary expenses of firm  $i$  in year  $t$  (Compustat data items XAD + XRD + XSGA)

### Control variables

- 1. Growth opportunities of the firm:** the market to book ratio of firm  $i$  in year  $t$  ( $MTB_{it}$ ), equal to (Compustat data item  $PRCC\_F_t + CSHO_t$ )/ Compustat data item  $CEQ_t$ .
- 2. Firm size:** the natural logarithm of the assets in year  $t$  (Compustat data item Assets Total (AT))
- 3. Firm performance:** Return on Assets (ROA) in year  $t$ , equal to (Compustat data item  $IB_t$ )/ Compustat data item  $AT_t$ .
- 4. Leverage of the firm:** the debt-to-equity ratio in year  $t$ , equal to (Compustat data item Debt Total)/ Compustat data item  $AT_t$ .