

Are CEO changes related to earnings management?



Master's thesis

Student: Stefan Verkerk (362141sv)
Course: Master's thesis Accounting and Finance (FEM11066)
Degree programme: Economics and Business
Exam programme: Accounting and Finance
University: Erasmus School of Economics
Erasmus University Rotterdam
Supervisor: dr. C.D. Knoops
Co-reader: ?
Place & date: Zwijndrecht, September 27th 2012

EXECUTIVE SUMMARY

This study investigates the relation between CEO changes and earnings management. In the last decade, the CEO tenure decreased and the role of the CEO has grown more complex, intense, and is more difficult to sustain. Therefore, I predict that the contemporary CEO has less time to prove himself and therefore will manage earnings opportunistically surrounding a CEO change.

The investigated sample consists of 50 large European non-financial firms, which are listed on the FTSE Eurotop 100 index. This study focuses on earnings management by accruals, whereby the accruals are measured with the Modified Jones model with the performance adjustment of Kothari, Leone, & Wasley (2005).

I examine the amount of discretionary accruals for the year before, the year of, and the year after the CEO change. The outcomes show a significant positive amount of discretionary accruals in every observed year.

Consistent with my hypothesis, the results indicate that CEO's of large European firms do manage earnings upwards in the last year of their tenure. Contrary to my expectations, the results do not indicate big bath accounting by appointed CEO's. Although the discretionary accruals in the year of the CEO change are significant lower than in T-1, the discretionary accruals are still positive. I argue that this is mainly due to the fact that the appointed CEO do not completely control the accounting decisions in the year of the CEO change. On the one hand, the departing CEO still controls the accounting decision in the first periods of T0 before his resignation, on the other hand the CFO also influences the accounting decisions, because financial reporting is his primary responsibility.

TABLE OF CONTENTS

1.	INTRODUCTION	4
2.	THEORETICAL BACKGROUND	7
§2.1	Positive Accounting Theory	7
§2.2	Earnings management	9
§2.2.1	How important are earnings?	9
§2.2.2	What is earnings management?	9
§2.2.3	Should we care about earnings management?	10
§2.2.4	Incentives for earnings management.....	11
§2.2.5	Types of earnings management	13
§2.2.6	Earnings management techniques.....	15
§2.2.7	Detecting earnings management	19
§2.3	CEO tenure	25
§2.3.1	Outgoing CEO's.....	25
§2.3.2	Incoming CEO's.....	26
§2.3.3	Length of the CEO's tenure	27
§2.4	Institutional setting	28
§2.5	Summary	29
3.	LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT	31
§3.1	Earnings management at the end of the CEO's tenure.....	31
§3.2	Earnings management at the begin of the CEO's tenure	37
§3.3	Hypothesis development	43
§3.4	Summary	44
4.	RESEARCH DESIGN	46
§4.1	Research method	46
§4.2	Sample selection	49
§4.2.1	Exclusion of firms	49
§4.2.2	Descriptive statistics.....	51
§4.3	Summary	54
5.	RESULTS AND ANALYSIS	56
§5.1	Results.....	56
§5.2	Analysis	58
§5.3	Limitations and implications for future research.....	61
§5.4	Summary	63
6.	CONCLUSION	65
	REFERENCE LIST	67
	APPENDIX A OVERVIEW USED LITERATURE FOR LITERATURE STUDY	70
	APPENDIX B INFORMATION SAMPLE FIRMS	76
	APPENDIX C INFORMATION EXCLUDED FIRMS	78
	APPENDIX D FINANCIAL ITEMS SAMPLE FIRMS	80
	APPENDIX E FIRM-SPECIFIC COEFFICIENTS SAMPLE FIRMS	84
	APPENDIX F ACCRUALS SAMPLE FIRMS	86

1. INTRODUCTION

The primary role of financial accounting is to provide stakeholders relevant, accurate and timely financial information of the firm. European public listed (and many other organizations) firms are required to disclose their financial statements. Investors and other stakeholders rely on this available data to assess the firms' plans, performances and the performances of the corporate management (Baskerville, 2011, p. 1; Palepu, Healy, & Peek, 2010, p. 3). European firms, which are stock-listed are required to prepare their financial statements according to IFRS. This principle-based accounting standard gives management of a firm a certain degree of flexibility when making accounting choices and estimation decisions. This flexibility gives management the opportunity to manage earnings.

Due to several reporting scandals (e.g. Enron, WorldCom, Parmalat and Ahold) and given the importance of earnings, it is not surprising that "earnings management has become one of the main issues documented by academics, regulators and the financial press in the last decade" (Mora & Sabater, 2008, p. 201).

The chief executive officer (CEO) of a firm is the highest-ranked corporate officer, and has an important role in generating the financial statements. It is interesting to investigate the reporting behaviour of this executive, because the role and tenure of the CEO evolves over time. The studies of Booz & Company Inc. (2010; 2011) show that the average CEO tenure has dropped to 6.6 years (2010), where tenures of 10 to 15 years were not unusual in the latter half of the 20th century. With a CEO turnover of 15%, Europe has one of the world's highest turnovers. So, the contemporary CEO has less time to prove himself. Furthermore, the role of the CEO has grown more complex and intense, and the job of the CEO is more difficult to sustain (Favaro, Karlsson, & Neilson, 2011, p. 7).

So both earnings management and the reporting behaviour of CEO's are topics that are of interest during the last decade. Because of the developments in the field of the CEO tenure and the possibility to manage earnings, the relationship between those two is very interesting to investigate. Based on the opportunistic perspective of the Positive Accounting Theory, it can be argued that CEO's are driven by self-interest and therefore will manage earnings surrounding a CEO change. Important factors in this case are the reputational and compensation concerns of the CEO. Because CEO's and shareholders have different decision-making horizons, CEO's want to

build up or protect their reputation through the records of their firms' performance. Furthermore, the accounting numbers are used in the compensation contracts to reward the manager.

Research question

The above trend has brought me to the following research question: Are CEO changes related to earnings management?

Hereby, I focus on the phenomena's short-termism and big bath accounting in the relation to the average decreasing of the CEO tenure. Based on theory and the literature review, I predict that CEO's are myopically, and therefore have incentives to manage earnings upwards in the last year of their tenure. Furthermore, I hypothesize that CEO's tend to take an earnings bath in the first years of their tenure. In the year of appointment, CEO's will manage earnings downward so they can blame their predecessor for underperforming and create a better starting position for their future (financial) performance.

Research approach

Earnings management is measured with accruals. Accruals arise, because there are differences between the timing of cash flows and the timing of the recognition of transactions. The part of accruals that are managed are called discretionary accruals, and are used as a proxy for earnings management (Ronen & Yaari, 2008, pp. 371-372). In this study, the discretionary accruals are estimated for the year before, the year of, and the year after the CEO change. This is done with the Modified Jones model with the performance adjustment of Kothari, Leone, & Wasley (2005). This model has proved to be the strongest model to detect accrual based earnings management.

This study focuses on European CEO changes. The sample consists of large, non-financial firms which are listed on the FTSE Eurotop 100 index at December 30th, 2011. The final sample consists of 50 firms, of which the last CEO change is observed.

Relevance

This paper complements the existing literature on earnings management and CEO changes in several important ways. First of all, where prior researches focus primarily on U.S. and Australian samples, I investigate a European sample of large listed firms (FTSE Eurotop 100 index). Second, I investigate the development of the decreasing CEO tenure in the last decade on earnings management. Most of the related prior researches investigated the 70's, 80's and 90's. I examine

the last CEO changes of the sample firms, which took place in the last decade. Finally, I used the performance adjusted Modified Jones model of Kothari, Leone, & Wasley (2005). According to the developers, this is a better and more reliable earnings management detecting model than the widely used Modified Jones model. Prior related researches used weaker models, most of the time the Modified Jones model without the performance adjustment of Kothari, Leone, & Wasley (2005).

Structure of the paper

The remainder of this study is organized as follows. In chapter 2, the relevant theoretical background is discussed. Furthermore, different aspects of earnings management, like the definition, incentives, techniques, types and detecting models are discussed.

The literature study is elaborated in chapter 3. After an extensive literature review, the hypotheses for this thesis are developed.

In chapter 4, the research design is the central topic. The research method is explained step by step, where after the selection of the sample and the descriptive statistics of the sample are displayed.

The results are presented in chapter 5, followed by an analysis of these outcomes. Finally, a conclusion is drawn in chapter 6.

2. THEORETICAL BACKGROUND

In this chapter, I discuss the relevant theoretical background for my study. First, I introduce in §2.1 the Positive Accounting Theory, which is an underlying theory of earnings management. In §2.2, I discuss the different sides of the earnings management topic. I define earnings management and notice the importance of earnings and earnings management. Furthermore, I give a comprehensive overview of earnings management types, incentives and techniques. Finally, I briefly discuss the different models for detecting earnings management.

In §2.3, I document some theory in case of earnings management by incoming and outgoing CEO's. Furthermore, I notice some factors that influence the length of the CEO's tenure.

The institutional setting is discussed in §2.4 and the summary of this chapter is given in §2.5. The institutional setting covers the context in which my study takes place. This is necessary to interpret the results and compare my results with previous research.

§2.1 Positive Accounting Theory

An underlying theory of earnings management is the Positive Accounting Theory. This theory is among others developed by Watts & Zimmerman (1986, p. 7), who state that Positive Accounting Theory "is concerned with explaining accounting practice. It is designed to explain and predict which firms will and which firms will not use a particular method (...) but it says nothing as to which method a firm should use". The managers' choice for a particular method can be driven by opportunistic or efficiency considerations. Based on Watts & Zimmerman (1986) and Deegan & Unerman (2006), I will discuss in this section both perspectives as well as the assumptions of the Positive Accounting Theory.

As Deegan & Unerman (2006, pp. 207, 220-221) state, the opportunistic perspective is based on the assumption that all individuals' action is driven by self-interest. Moreover, managers will always act in an opportunistic manner, and therefore will select a particular accounting method which increases their welfare.

Within the efficiency perspective of the Positive Accounting Theory, the objective of a manager is to minimize the agency costs of the firm. Furthermore, managers will choose for a particular method which best reflects the underlying (economic) performance of the firm. When doing this, it is argued that stakeholders will not need additional information from other sources, which will save agency costs. Accounting choices can be based on different organizational characteristics and

the nature of the firms' business. The choice for a particular asset depreciation rule is an example of this.

In practice, it is often difficult to determine if an accounting choice was driven by efficiency and/or an opportunistic motivation.

The development of the Positive Accounting Theory is heavily reliant on assumptions about the efficient market hypothesis (EMH) and the agency theory.

The assumption of the EMH is that capital markets react in an efficient and unbiased manner to publicly available information. So, newly released public information is expected to be quickly impounded into security prices. The EHM assumes that security prices will not change when information – like accounting numbers – become public, if this information is already anticipated by the market (Deegan & Unerman, 2006, p. 210). Therefore, making profit by trading on basis of information is impossible in an efficient market (Watts & Zimmerman, 1986, p. 17). Because security prices reflect all publicly available information in an efficient market, managers cannot manipulate security prices by changing accounting methods when they behave in an opportunistic manner.

According to Deegan & Unerman (2006 pp. 213-214), the agency theory provides a necessary explanation of managers' choice of particular accounting methods. The agency theory focuses on the relationship between principals (the shareholders) and agents (the managers). The agency theory deals with the difficulties of various information asymmetries (e.g. potential moral hazard, conflicts of interest) that arise when a principal hires an agent. A firm wants to minimize the agency costs, which occurs in this relationship. A mechanism to align this is a contractual arrangement between the principals and an agent, which reduces the ability that the manager will undertake activities which are based on self-interest and detrimental to the interests of the principals. Accounting information is used in such contractual arrangements.

§2.2 Earnings management

§2.2.1 How important are earnings?

The purpose of accounting is to provide information which can be used by internal and external decision makers. In general, accounting information is important because it has the role of informativeness and stewardship (Ronen & Yaari, 2008, p. 6). Accounting information is widely used by stakeholders, because they have an interest in the financial performance of the firm. Earnings are the most important items in financial statements, because these reflect the extend of the value-added activities of the firm (McKee, 2005, p. 1). The capital market, regulators, shareholders and other stakeholders have different interests in the firm, but they are all focused on earnings. This is because the earnings have an important role in their decision making process (in relation to the firm). Furthermore, earnings are not only a summary statistic of a firm's financial performance, but they are also often used in contracts and to determine the value of the firm (Vander Bauwhede & Willekens, 2003, p. 200).

Managers make accounting choices and estimations and understand the importance of earnings. Therefore they (can) manage earnings in several ways, for several reasons.

§2.2.2 What is earnings management?

One of the most commonly used definitions of earnings management is the one of Schipper (1989, p. 92), who defined earnings management as:

“a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process)”.

Another often-cited definition of earnings management is the one of Healy & Wahlen (1998, p. 368). They used the following definition in their review of the earnings management literature:

“Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers”.

Both definitions are based on the assumption that managers will behave in their own interest. The terms “private gain” (Schipper, 1989) and “mislead” (Healy & Wahlen, 1998) emphasize the

opportunistic characteristic of earnings management. As I described in §2.1, earnings management has also an efficiency perspective, which is not emphasized in these definitions. Therefore, Ronen & Yaari (2008, p. 25) make a classification of earnings management definitions. They classify the different definitions of earnings management as white, gray, or black. They state that “beneficial (white) earnings management enhances the transparency of reports; the pernicious (black) involves outright misrepresentation and fraud; the gray is manipulation of reports within the boundaries of compliance with bright-line standards, which could be either opportunistic or efficiency enhancing”.

Based on this previous information, we can conclude that there is no standard, universally accepted definition for earnings management. In my study on the relation between earnings management and the CEO tenure, I will focus on the opportunistic perspective of earnings management. This is because I want to test if CEO’s are driven by self-interest (e.g. compensation and reputation) and therefore engage into earnings management at the beginning and end of their tenure.

§2.2.3 Should we care about earnings management?

Despite earnings management has a bad connotation, it does not have to be bad.

On the one hand, financial statements should reflect a true and fair view of the performance and financial position of the firm. Earnings management reduces the transparency, because it obscures the “true” earnings of the firm (McKee, 2005, p. 5). From this perspective, it can be argued that the flexibility in accounting choices for the management should be minimized.

On the other hand, managers can use their reporting judgment in favor of the financial statement users (efficiency perspective). For example, managers can make the financial reports more informative by disclosing more or differently than standard setters require. Furthermore, Arya, Glover & Sunder (2003, p. 111) refute that earnings management reduces the transparency of financial statements. They state that “different people know different things and nobody knows everything. In such an environment, a managed earnings stream can convey more information than an unmanaged earnings stream”.

Another factor is discussed by Levitt (1998), former chairman of the Securities and Exchange Commission. He emphasized the self-regulation of the disclosing firm, and states that “If a company fails to provide meaningful disclosure to investors about where it has been, where it is

and where it is going, a damaging pattern ensues". Furthermore, he said that the flexibility in the accounting principles allows the firm to keep pace with business innovations.

The conclusion of this section can be that we should care about earnings management, but the extent of this will always be a matter of opinion. In my opinion – when you take the gray definition of Ronen & Yaari (2008, p. 25) into account – earnings management is not bad when managers choose for accounting and disclosure policies that make it easier for financial statement users to understand the true underlying (economic) performance and picture of the firm. When managers have other incentives to manage earnings, the financial reports do not reflect the "true" earnings and performance of the firm and therefore can be classified as bad. In other words, I find the opportunistic perspective of earnings management not allowed and the efficiency perspective acceptable, when earnings management is in favor of the firm and her stakeholders. Nevertheless, the problem is that it is hard to determine which accounting numbers are managed and from which perspective.

§2.2.4 Incentives for earnings management

The objective and direction of earnings management vary depending on the incentives that managers face. Healy & Wahlen (1999) make a distinction between capital market, contractual and regulatory incentives. Other reasons for earnings management which I will discuss in this section are the tax planning purposes and stakeholder and competitive considerations.

Capital market incentives

Investors and financial analysts use the disclosed accounting information to help value the firm's shares. This can create an incentive for managers to manage earnings in a way so they can influence the short-term share price performance. When a firm is overvalued, the firm looks more profitable, which will make investors more willing to invest money in the firm (Fong, 2006, p. 85).

Another capital market incentive for earnings management is to report the firm's earnings to meet the expectations of financial analysts or to meet the public forecasts of the management itself. Several studies find that earnings are managed upwards to meet the forecasts of the analysts (Healy & Wahlen, 1998, p. 371). Furthermore, Kasznik (1999) finds that managers make income-increasing accounting decisions when the earnings otherwise did not meet their own public forecast of earnings.

Healy & Wahlen (1999, p. 371) also document that managers have incentives to understate earnings prior to a management buyout, and overstate earnings prior to seasoned equity offers, initial public offers, and stock-financial acquisitions.

Nevertheless, Healy & Wahlen (1999, p. 377) conclude that there is conflicting evidence on whether earnings management – which appear due to capital market motivations – influences the share price.

Contractual incentives

A firm can be defined as a nexus of contracts (Jensen & Meckling, 1976). Accounting information is also used in the contractual relations between a firm and many of her stakeholders. The accounting information helps to monitor and regulate the contractual relations. Healy & Wahlen (1999, p. 375-377) make a distinction between management compensation contracts and lending contracts. Accounting numbers, like reported earnings, are used in management compensation contracts to reward the manager. Furthermore, the job security of the manager is often tied to reported earnings. Therefore, managers will manage the earnings to maximize their income through equity based compensation. This behaviour belongs to the opportunistic perspective of earnings management. Lending contracts can be classified under the efficiency perspective. Lending contracts include accounting-based covenants, which impose high costs if the firm violates these covenants. Managers want to avoid these costs, and will therefore manage earnings in a way that the firm will achieve the contractual obligations.

Healy & Wahlen (1999, p. 377) find only little evidence on whether the contractual motivations induce earnings management.

Regulatory incentives

Healy & Wahlen (1999, p. 377-379) explain industry-specific, anti-trust and several other regulations. Some industries face regulatory monitoring that is explicitly tied to accounting data. For example, banks need to comply with the leverage, capital and liquidity requirements of the Basel III accords. Managers will manage earnings in a way that the firm will meet the minimum requirements of the specific industry regulation.

In other situations, managers want to manage earnings downwards. For example, firms that are vulnerable to an anti-trust investigation have to prevent infringements of competition laws. Managers of such firms can manage earnings downwards to reduce the risk of investigation and intervention by anti-trust regulators. Furthermore, firms which are seeking for subsidy or protection by the government have incentives to be less profitable.

Tax planning incentives

Profitable firms should pay tax over the taxable amount. By managing earnings downwards, firms can defer tax payments (e.g. by aggressively recognize losses). Chen, Dhaliwal, & Trombley (2007, p. 5) explain that tax planning is possible, because there are different revenue and expense recognition rules for financial reporting and tax reporting. Differences in depreciation and depletion methods are other results of differences in financial and tax reporting rules.

Stakeholder considerations

Palepu, Healy, & Peek (2010, p. 98) document that managers may influence the perception of important stakeholders in the firm, like labour groups, suppliers and customers. For example, managers may have an incentive to manage earnings to improve the firm's negotiating position with respect to labour unions. In the period prior to labour union contract negotiations firms want to manage earnings downward, because a decline in profitability of the firm places pressure on the labour union to make concessions in the negotiation. Otherwise, labour unions will use healthy financial performance for demanding wage increases.

Bova (1998) finds evidence that unionized firms are more likely to (just) miss analysts estimates compared to non-unionized firms. Nevertheless, he finds that the missed estimates did not arise due to earnings management.

Competitive considerations

Because firms fear of giving away proprietary information about their businesses, competition also influences a firm's reporting choices. Palepu, Healy, & Peek (2010, p. 98) give a few examples of how firms competition considerations influences a firm's reporting choices. First, firm's may be careful with disaggregated disclosure of business segments and do not disclose information about their margins by product line.

Furthermore, the firm can induce that their industry is less profitable, which will encourage new entrants. By making profit-decreasing accounting choices, firms can keep away new entrants, who may consider to enter the market to make money.

§2.2.5 Types of earnings management

All listed firms in the European Union are required to report according to the International Financial Reporting Standards (IFRS). IFRS is a set of accounting standards that is becoming the European standard for the preparation of public company financial statements. In 2005, IFRS is

mandatory adopted in the European Union to harmonize the different accounting standards across the European countries. The literature (e.g. Vander Bauwhede & Willekens, 2003, pp. 203-204; Badertscher, 2011, pp. 1497-1498) describes two categories of earnings management, namely within-GAAP and non-GAAP earnings management. In this section, I will discuss these two categories.

The first category is called within-GAAP earnings management. Hereby, a distinction can be made between accrual based earnings management and real transaction management. Accrual based earnings management (AM) consists of techniques whereby the management exploiting the flexibility of the accounting standards. The regulators give this flexibility to the firms, so they can report as closely as possible to the economic reality. Management should make accounting choices which are within the framework of the accounting standards. Examples of such choices are the choices between various valuation and depreciation techniques. Furthermore, management should deal with some estimations and judgments, like the useful life of an asset and the amount of bad debts.

In case of real transaction management (RTM), earnings are managed by real transactions. The reported earnings are changed by changing the timing of an operating, investing or financing decision. The timing of asset disposals, R&D and maintenance expenses are examples of RTM.

When management of a firm violates the flexibility of the accounting principles, we call it non-GAAP earnings management. Non-GAAP earnings management can be considered as fraud, which is illegal. Accelerating revenues and delaying expenses (when these are not real transactions) are typical examples of non-GAAP earnings management. Because IFRS exists of principle-based accounting standards, the regulations can be interpreted differently. Therefore, the boundary between within and non-GAAP earnings management is often difficult to determine.

Costs and benefits of earnings management

Badertscher (2011, pp. 1497-1498) describes the costs and benefits of each type of earnings management. He documents that managing earnings by accruals within-GAAP is a popular choice. This is because it can be completed at period-end and it does not affect cash flows. The downside of managing earnings by accruals is that there are restrictions in the ability to continue with this form of earnings management. This is due to the reversing nature of accruals. When a manager wants to manage the current year's earnings, he should overcome the potential reversal of last year's accruals earnings management.

Managers choose for non-GAAP instead of within-GAAP earnings management, because non-GAAP earnings management is less likely to be detected by stakeholders. When firms engage in non-GAAP earnings management, the earnings can be managed by large amounts. Furthermore, non-GAAP earnings management may be less costly as RTM, but when the market discovers the manipulation, this category of earnings management will have capital market consequences and will result in reputational damage.

The advantage of RTM is that such activities will not be scrutinized by auditors. A disadvantage is that real transactions affect cash flows and that such transactions can be suboptimal and therefore potentially destroy long-term firm value.

§2.2.6 Earnings management techniques

IFRS is a principle-based accounting approach, which creates flexibility for certain accounting choices and estimation decisions. Because of the presence of this flexibility, management has the opportunity to manage earnings when they prepare the financial reports. By using one or more earnings management techniques, management can exercise a strategy to increase, decrease or smooth earnings. In this section, I describe the most common earnings management techniques, which are discussed by Palepu, Healy, & Peek (2010, chapter 4). Depending on the incentives and strategy of the manager, he or she can distort earnings – to some extent – by under or overstate assets, liabilities and equity.

Depreciation and amortization of non-current assets

Non-current assets decrease in value over time, and therefore firms should systematically depreciate the book values of these assets. According to Palepu, Healy, & Peek (2010, p. 149). management should make estimations regarding the useful life, salvage value, and amortization schedules for depreciating non-current assets. When management makes optimistic estimations, the assets and earnings will be overstated. Managers can understate non-current assets, when they depreciate the assets more rapidly than justifiable, given the assets' economic usefulness.

The issue of overstate or understate non-currents assets occurs mainly for firms in heavy asset businesses, like the airline and utility industry.

Impairment of assets

Under IFRS, intangible assets with indefinite lives are subjected to annual impairment tests. Trademarks and goodwill are examples of intangible assets with indefinite useful lives. An asset

should be impaired when its fair value falls below its book value. The accounting rules require in such a case that the asset should be written down to its fair value. The write-offs are charged in the income statement, and therefore affect earnings. Managers can use their reporting judgment to delay or accelerate impairment charges (Palepu, Healy, & Peek, 2010, p. 161).

Leased assets

Depending on certain conditions, a firm has to record its leased assets under the operating method or the finance method. When using the operating method, firms can keep the leased assets off balance, because they recognize the expense in the period in which it occurs. In contrast, when using the finance method, the firm records the asset as a liability on its balance sheet, and then deducts this liability with the depreciation and interest costs.

International accounting rules include criteria for using one of these types, but Palepu, Healy, & Peek (2010, pp. 151-152) classify this criteria as “broadly defined and inconclusive”. This gives management the opportunity to understate (when using the operating method) or overstate (finance method) leased assets.

The timing of revenue recognition

According to IAS 18, revenues should be recognized when it is probable that future economic benefits will flow to the firm and these benefits can be measured reliably.¹ The revenue recognition requirements of IAS 18 still leave a playing field whereby managers can boost the firm’s earnings, by accelerating of revenues in a particular period. In contrast, it is also possible to delay earnings, when managers have for example an incentive to take a big bath.

¹ IAS 18 describes when revenues will be recognized:

Revenues from the sale of goods shall be recognized when all the following conditions have been satisfied:

- (a) the entity has transferred to the buyer the significant risks and rewards of ownership of the goods;
- (b) the entity retains neither continuing managerial involvement to the degree usually associated with ownership nor effective control over the goods sold;
- (c) the amount of revenue can be measured reliably;
- (d) it is probable that the economic benefits associated with the transaction will flow to the entity; and
- (e) the costs incurred or to be incurred in respect of the transaction can be measured reliably.

Revenues associated with rendering of services shall be recognized by reference to the stage of completion of the transaction at the balance sheet date. The outcome of a transaction can be estimated reliably when all the following conditions are satisfied:

- (a) the amount of revenue can be measured reliably;
- (b) it is probable that the economic benefits associated with the transaction will flow to the entity;
- (c) the stage of completion of the transaction at the balance sheet date can be measured reliably; and
- (d) the costs incurred for the transaction and the costs to complete the transaction can be measured reliably.

Estimation allowances

When closing the books, management should make estimations regarding expected customer defaults on trade receivables and loans. The same occurs for inventory obsolescence. Managers can overstate earnings by underestimating the value of these allowances. The other way around, managers can understate earnings by overestimating the value of these allowances (Palepu, Healy, & Peek, 2010, p. 163).

Post-employment benefit obligations

IAS 19 requires that firms estimate the value of post-employment commitments, like pension healthcare, and life insurance plans. A lot of firms transferred such obligations to institutions, like a pension fund. In such cases the firm's obligation is limited to its annual obligation to contribute to the employees' pension funds. When firms do not have such contribution plan (transfer of post-employment benefit obligations), they should recognize the obligations on their balance sheet. The firm's obligations are calculated as the present value of the future expected payouts under the plans. The estimation of these obligations is subjective, because the extend of these obligations depends on things like forecasts of future wages and expected lives of retirees. Furthermore, the accounting rules allow that shocks to plan obligations – that occur because of actuarial gains or losses – are smoothed over time rather than reflected immediately. So, because of the accounting rules and the subjective character of post-employment benefit obligations managers can manipulate earnings (Palepu, Healy, & Peek, 2010, pp. 170, 171).

Inventory cost determination

Another example of the flexibility in accounting choices is discussed by Mulford & Comiskey (2002, pp. 20-22). They document, that firms can manage the reporting earnings by changing the inventory cost determination method. The most common inventory cost determination methods are first-in, first-out (FIFO), last-in, first-out (LIFO),² and the weighted average cost method.² Under IFRS, the LIFO is not allowed to determine the cost of inventory.³ Management is relatively free in

² Klaassen, Hoogendoorn, & Vergoossen (2008, pp. 180-181) describe the three most important inventory cost determination methods as follows: FIFO assumes that the first products placed in inventory are the first sold. As a result, at balance date, the left inventory is valued at the costs of the most recent purchased products. In contrast, LIFO assumes that the first products placed in inventory are the first sold. Therefore, at balance date, the left inventory is valued at the costs of the oldest (present) purchased products. Under the weighted average cost method, it is assumed that the cost of inventory is based on the weighted average cost of all products available for sale during the accounting period. The weighted average cost method prices items in the inventory on the basis of the average cost of all similar goods available during the period.

³ LIFO results in lower earnings, because it is established to ensure that the cost of sold goods are calculated (as much as possible) on basis of current market value of the products sold. Nevertheless, this result in an unrealistic low inventory valuation. When using LIFO, a firm reports lower earnings, which results in paying less taxes (a temporary

their choice between FIFO and the weighted average cost method. Nevertheless, changing between those methods is limited by rules. According to IAS 8, such a change is only allowed if it results in reliable and more relevant information about the effects of transaction on the firm's financial position, financial performance or cash flows. Furthermore, the firm should disclose the reason why applying the new accounting policy provides reliable and more relevant information.

For each of the types, a change in inventory costs will have different impact on the income statement and balance sheet. In case of inflation, FIFO leads to lower costs of sold goods, which result in higher reported earnings. Depending on the development of the purchase price of the goods, the average cost method can result in lower (inflation) or higher (deflation) reported earnings and inventory valuation, compared with FIFO.

Because the choice of cost determination method influences earnings and the inventory valuation, the choice also have an impact on the financial ratios.

Real transactions

As I mentioned in §2.2.5, firms can also manage earnings by real transactions. Zang (2012, p. 676) defines a real transaction as "a purposeful action to alter reported earnings in a particular direction, which is achieved by changing the timing or structuring of an operation, investment or financing transaction, and which has suboptimal business consequences".

Roychowdhury (2006, p. 340) makes a distinction between sales manipulation, reduction of discretionary expenditures, and overproduction as examples of real transactions. According to Roychowdhury (2006), sales can be manipulated by accelerating the timing of sales by offering price discounts or more lenient credit terms. This will boost current year earnings, but may have a negative effects on future period's cash flows, because costumers will expect the same conditions in the future. Furthermore, firms can increase earnings by reducing discretionary expenditures, like spending's on research & development, advertising, and maintenance. Because such costs are generally expensed when they occurred, managers will save costs, especially when these expenses do not immediately generate revenues. Finally, manufacturing firms can lower the fixed costs of their products by produce more than necessary. This is because the fixed overhead costs can be attributed to more products. The lower reported costs of goods results in better operating numbers and margins.

difference in the tax obligation). The arisen LIFO reserve (the difference between inventory valued on the FIFO method and the LIFO method) reflects the deferred taxable income.

The IASB eliminated the LIFO method, because the method leads to a reduction in tax burden and the valuation of the inventory does not represent a faithful view (IASB, IAS2, p. B801). The LIFO method is still allowed under U.S. GAAP.

§2.2.7 Detecting earnings management

It is not easy to detect earnings management. Outsiders can only use disclosed information to detect earnings management and therefore it is hard to find out which (part) of the earnings are managed and which are not. Nevertheless, there are many methods developed by researchers to detect earnings management. The use of accrual-based models to detect earnings management is widespread. In this section I will briefly discuss six alternative accrual-based models for detecting earnings management. These six models are general representations of those that have been used extensively in the earnings management literature. Finally, I will describe in general how real transaction management can be detected.

The explanation of accrual-based models is based on the descriptions of Dechow, Sloan, & Sweeney (1995) and Jans & Lybaert (2007). First of all, I will start this section by define accruals.

Accruals

Total accruals are the difference between net income and cash flows from operating activities. Accruals arise, because there are differences between the timing of cash flows and the timing of the recognition of transactions. This is for example due to the fact that revenues are recognized before cash is received and expenses are recognized before the cash outflow. The researches on accruals management make a distinction between discretionary accruals, the earnings which are managed, and non-discretionary accruals, which arise from transitions that are "normal" for the firm (Ronen & Yaari, 2008, pp. 371-372).

In general, accrual-based models consist of three steps. The total accruals are estimated in step one. In step two, the non-discretionary accruals are estimated, which can be done with a time-series or cross-sectional analysis. Finally, in step three, the difference between the total accruals and the non-discretionary accruals results in the discretionary accruals. The estimated discretionary accruals are used as a proxy for earnings management.

In case of step 1, total accruals can be calculated using the direct or indirect method (Hribar & Collins, 2002). With the direct method a balance sheet approach is used to determine the accruals. Hereby, total accruals are the change in non-cash working capital less total depreciation and amortisation expenses for the current period. With using the indirect method, the accruals are estimated from the income and cash flow statement, and are defined as the difference between

Income before extraordinary items & discontinued operations and net cash flow from operations. To control for potential scale bias, all variables are scaled by lagged total assets ($TA_{i,t-1}$).

Direct method:

$$TAC_{i,t} = \frac{\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta CASH_{i,t} + \Delta STDEBT_{i,t} - DEP_{i,t}}{TA_{i,t-1}}$$

Indirect method:

$$TAC_{i,t} = \frac{EXBI_{i,t}}{TA_{i,t-1}} - \frac{CFO_{i,t}}{TA_{i,t-1}}$$

Where:

- $TAC_{i,t}$ = Total accruals for firm *i* in year *t*, scaled by lagged total assets
- $\Delta CA_{i,t}$ = The change in current assets for firm *i* in year *t*
- $\Delta CL_{i,t}$ = The change in current liabilities for firm *i* in year *t*
- $\Delta CASH_{i,t}$ = The change in cash and cash equivalents for firm *i* in year *t*
- $\Delta STDEBT_{i,t}$ = The change in short term debt for firm *i* in year *t*
- $DEP_{i,t}$ = Depreciation and amortization expense for firm *i* in year *t*
- $TA_{i,t-1}$ = Total assets for firm *i* in year *t-1*
- $EXBI_{i,t}$ = Income before extraordinary items and discontinued operations for firm *i* in year *t*
- CFO = Net cash flow from operating activities for firm *i* in year *t*

There are several models developed to estimate the non-discretionary accruals (step 2). In this section, six accrual-based models are discussed, namely:

- a) the Healy model;
- b) the DeAngelo model;
- c) the Jones model;
- d) the Modified Jones model;
- e) the Modified Jones model including a performance-matching model; and
- f) the Industry model.

Ad A The Healy model

Healy (1985) was the first one who estimates deviations from normal levels of accruals to detect earnings management. He predicts that systematic earnings management occurs in every period,

and therefor assumes that non-discretionary accruals are equal to total accruals during the estimation period. So only the discretionary accruals can differ each period. To estimate the discretionary accruals, he compared mean total accruals (scaled by lagged total assets) with the expected accruals. The expected accruals are based on the mean total accruals of the previous years (most of the time 5 years). The difference between those two reflects the managed earnings.

A shortcoming of this model is that Healy assumes that there are no discretionary accruals in the period before the estimation period. In practice, the change of the economic circumstances will have impact on the non-discretionary accruals.

$$NDA_{i,t} = \frac{\sum_{i,t} TAC_{i,t}}{T_{i,t}}$$

Where: $NDA_{i,t}$ = Non-discretionary accruals for firm i in year t

$TAC_{i,t}$ = Total accruals scaled by lagged total assets for firm i in year t

$T_{i,t}$ = A year subscript indicating a year in the event period

Ad B The DeAngelo model

As well as Healy (1985), DeAngelo (1986) assumes that non-discretionary accruals are equal to total accruals during the estimation period. Therefore, she also compares mean total accruals (scaled by lagged total assets) with the expected accruals to estimate the non-discretionary accruals. But in contrast with Healy (1985), DeAngelo (1986) based the expected accruals on the total accruals of the previous year, and not on mean of the previous years.

Because DeAngelo (1986) also assumes that non-discretionary accruals are constant over time, the same disadvantages as the Healy model occur for this model.

$$NDA_{i,t} = TAC_{i,t-1}$$

Where: $NDA_{i,t}$ = Non-discretionary accruals for firm i in year t

$TAC_{i,t-1}$ = Total accruals scaled by lagged total assets for firm i in year $t-1$

Ad C The Jones model

In contrast with Healy and DeAngelo, Jones assumes that non-discretionary accruals are not constant but variable over time. Jones (1991) uses changes in revenues and period gross plant, property, and equipment to explain the change in non-discretionary accruals. The variables are scaled by lagged total assets. The difference between the total accruals and the non-discretionary accruals leaves the discretionary accruals.

While Jones (1991) made a revolutionary adjustment by controlling for the economic environment of the firm, this model is criticized. The main criticism is that all revenue changes in this model are assumed to be non-discretionary, because Jones does not take into account any manipulation of revenues. So, a revenue manipulation will be incorrectly considered to the expected accruals instead of discretionary accruals. This will give a distorted picture of the outcomes of the model.

$$NDA_{i,t} = \beta_1 \left(\frac{1}{TA_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t}}{TA_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right)$$

Where $NDA_{i,t}$ = Non-discretionary accruals for firm i in year t scaled by lagged total assets
 $TA_{i,t-1}$ = Total assets for firm i in year t-1
 $\Delta REV_{i,t}$ = The change in revenues for firm i in year t
 $PPE_{i,t}$ = The gross property, plant and equipment for firm i in year t
 $\beta_1, \beta_2, \beta_3, \beta_4$ = Firm-specific coefficients

Ad D The Modified Jones model

To eliminate the shortcoming of the Jones model, Dechow, Sloan, & Sweeney (1995) made an adjustment to the Jones model which results in the Modified Jones model. Dechow, Sloan, & Sweeney (1995) split up the revenues in a discretionary and non-discretionary accruals part. In the Modified Jones model it is assumed that all changes in sales on credit is a result of earnings management. Therefore, the non-discretionary part of the revenues can be estimated by subtracting the change in accounts receivables from the change in revenue.

$$NDA_{i,t} = \beta_1 \left(\frac{1}{TA_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right)$$

Where $\Delta REC_{i,t}$ = The change in net accounts receivables for firm i in year t

Ad E The Modified Jones model including a performance adjustment

There are several researchers who improved the Modified Jones model to reduce the errors in the results of the model. Nowadays, the extension of the Modified Jones model by Kothari, Leone, & Wasley (2005) is widespread used to measure discretionary accruals. Their motivation to improve the Modified Jones model was to address the problem of the influence of the firm's contemporaneous and past performance on the estimated discretionary accruals. Kothari, Leone, & Wasley (2005) address this problem by adding the current year return on assets to the Modified Jones model. They include return on assets, because prior research shows that return on assets controls for the effect of performance, and is better than matching with other variables. Performance matching implies that the discretionary accrual measure is adjusted by the corresponding discretionary accrual of a firm that match on the basis of industry and return on assets.

The results of the study of Kothari, Leone, & Wasley (2005) indicate that the performance related discretionary accruals measures are better and more reliable to detect earnings management.

$$NDA_{i,t} = \beta_1 \left(\frac{1}{TA_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \beta_4 ROA_{i,t}$$

Where: $ROA_{i,t}$ = Return on assets for firm i in year t

Ad F The Industry model

As the name implies, the Industry model is a cross-sectional variant of the earnings management detecting models. Dechow & Sloan (1991) developed the Industry model which assumes – as well as the Jones model – that non-discretionary accruals are not constant over time. With using the Industry model you do not look at the firm-specific determinants for non-discretionary accruals, but you look at the median value of the industry. This is because, Dechow & Sloan (1991) assume that “the variation in the determinants of non-discretionary accruals are common across firms in the same industry” (Dechow, Sloan, & Sweeney, 1995, p. 199). Because the Industry Model only removes variation in non-discretionary accruals that are common across firms in the same industry, the model does not take into account the firm-specific circumstances, which influence the accruals.

$$NDA_{i,t} = \gamma_1 + \gamma_2 \text{Median}_i(TA_t)$$

Where: γ_1, γ_2 = Industry specific factors

$\text{Median}_t(\text{TA}_t)$ = The median value of total accruals scaled by lagged assets for all non-sample firms in the same 2-digit SIC code

Detecting real transaction management

As I document in §2.2.6, Roychowdhury (2006, p. 340) distinguishes real transactions in sales manipulation, reduction of discretionary expenditures, and overproduction. Most of the real transaction management detection models calculated the normal level of each real transaction as the residual from the relevant estimation model. Based on Fazeli & Rasouli (2011, p. 31) and Roychowdhury (2006, p. 344-345), I describe here in general the models which can detect earnings management by real transactions.

To determine the abnormal level of sales, the cash flow from operations is used. The difference between the actual and normal level of cash flow from operations reflects the abnormal level of sales. The normal level of cash flow from operations can be determined by a cross-sectional regression.

The abnormal level of discretionary expenses can be calculated as the difference between the actual discretionary expenses and the expected discretionary expenses. The expected discretionary expenses are obtained by the corresponding industry-year model. The same occurs for the abnormal level of production costs, whereby abnormal production costs are the difference between actual production costs and the expected production costs.

$$CFO_{i,t} = \beta_0 + \beta_1 \frac{1}{TA_{i,t-1}} + \beta_2 \frac{S_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{TA_{i,t-1}} + \varepsilon_{i,t}$$

$$Prod_{i,t} = \beta_0 + \beta_1 \frac{1}{TA_{i,t-1}} + \beta_2 \frac{S_{i,t}}{TA_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{TA_{i,t-1}} + \beta_4 \frac{\Delta S_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{i,t}$$

$$Disex_{i,t} = \beta_0 + \beta_1 \frac{1}{TA_{i,t-1}} + \beta_2 \frac{S_{i,t-1}}{TA_{i,t-1}} + \varepsilon_{i,t}$$

Where: $CFO_{i,t}$ = Cash flow from operations for firm i in year t-1 scaled by lagged total assets

$Prod_{i,t}$ = Production costs for firm i in year t-1 scaled by lagged total assets; estimated as the cost of goods sold + the change in inventory

$Disex_{i,t}$ = Discretionary expenses for firm i in year t-1 scaled by lagged total assets

$TA_{i,t-1}$ = Total assets for firm i in year t-1

$S_{i,t}$ = Sales for firm i in year t

$\Delta S_{i,t}$ = The change in sales for firm i in year t

$\Delta S_{i,t-1}$ = The change in sales for firm i in year $t-1$

$\epsilon_{i,t}$ = Error term for firm i in year t

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ = Firm-specific coefficients

The detection models for real transaction management are also criticized. The proxies of the real transaction management detection models are still subject of discussion, and the research on real transaction management is constrained by limited disclosure of the necessary financial information in the annual reports of the firms (Wells, 2002, p. 174).

§2.3 CEO tenure

In case of a CEO turnover, there are two independent earnings management issues. The first one is about how the predecessor manages earnings, and the second one is related to earnings management by the successor. In §2.3.1 and §2.3.2, I discuss the factors that influence managerial behaviour at the beginning and end of the CEO's tenure. The issues that are related to the length of the CEO's tenure are discussed in §2.3.1.

§2.3.1 Outgoing CEO's

Each CEO change is unique. Nevertheless, all CEO changes can be classified as routine or non-routine. Among other, Pourciau (1993, p. 318) and Ronen & Yaari (2008, pp. 93-94) discuss both types of CEO changes. When a CEO change is classified as routine, the change is peaceful and caused by a well-planned, structured process. In all other cases the departure can be classified as non-routine, because the change is unplanned, due to the inadequate opportunity to select and groom a successor.

Routine changes typically caused by the retirement of the CEO. In such situations, the successor is often selected a few years before the incumbent CEO retires. During this period the incumbent CEO and his successor work together, which reduces the incentives and opportunities for earnings management.

A non-routine CEO change is mainly caused by poor performance. When a firm underperforms, mostly, the board gives the manager some time to improve himself. The CEO may seize this threat to engage into earnings management to avoid or delay the resignation.

Horizon problem/Short termism

CEO's and shareholders have different decision-making horizons. The career concerns of CEO's span their entire working career. Reputation is an important factor in this case. Therefore, CEO's want to build up or protect their reputation through the records of their firms' performance. Reputation might trigger to behave myopically and sacrifice shareholders' value. Short-termism of CEO's will lead to management behaviour that results in increasing short-term earnings at the expense of the long-run value of the firm (Ronen & Yaari, 2008, pp. 67-68). For example, CEO's can decide to invest in a project which produces immediate results, instead of investing in a project which would generate greater benefit to the firm in the long run.

Reputation is not the only factor of the horizon problem. Another aspect is the contractual compensation motivations of the CEO. When CEO's expect that they will leave the firm in the near future, they have incentives to influence their short-term compensation. CEO's will boost their compensation by reject or delay investments which have a positive net-present-value (Dechow & Sloan, 1991, p. 54).

So, the horizon problem can give a CEO an incentive to manage earnings in a way that it boosts their reputation and compensation. Prior literature suggests that including equity compensation in compensation contracts will mitigate managerial myopia.

§2.3.2 Incoming CEO's

Incoming CEO's tend to take an earnings bath in the early years of their tenure. By managing earnings downward in the first year of their tenure, CEO's want to "clean up" their balance sheet so they can continue with a "clean sheet". CEO's have several reasons to engage in this earnings management technique in the first year of their tenure. Wells (2002, p. 172) appoints three reasons: First, the first year of an incoming CEO is typically a partial (reporting) year. The compensation contract of the CEO is expected to come into operation in the first full reporting year (the second year). This removes the contractual motivation of the new CEO for the first year of his tenure, because the reporting earnings do not influence his wealth. Second, an incoming CEO cannot be hold responsible for the past performance. Therefore, the successor can blame his predecessor for disappointing results in his first year. Third, by managing earnings downward in

the first year, the new CEO can create a better starting position for his future (financial) performance.

§2.3.3 Length of the CEO's tenure

Each year, researchers of Booz & Company Inc. investigate information about CEO succession among the world's largest 2,500 public companies. They found that the average CEO tenure of departing CEO's has dropped in the last decade from 8.1 years in 2000, to 6.6 years in 2010. In the latter half of the 20th century, tenures of 10 to 15 years were not unusual. Favaro, Karlsson, & Neilson (2010, p. 7) concluded that in the last decade "the CEO's role has grown exponentially more complex and intense" and that the job of the CEO is more difficult to sustain. So, compared to the past, the contemporary CEO has less time to prove himself, which gives him (more) incentives to engage into earnings management.

Furthermore, Favaro, Karlsson, & Neilson (2010; 2011) find that CEO's were older when they were appointed (52.2 years in 2010 versus 50.2 in 2000). In case of selecting a new CEO, in four out of five times, boards choose for an insider (appointed from within the company). The researchers found that insiders tend to perform better and are less likely to be dismissed. They find that insiders are on average two years longer CEO than outsiders (7.9 years versus 6.0 years).

Favaro, Karlsson, & Neilson (2011) also document significant differences among categories of companies.⁴ The holding category has the longest CEO tenure, followed by strategic and active management. The operationally company has the shortest CEO tenure and in this category the CEO's are much more likely to depart during their first four years of their tenure, compared with the three other categories. So, the more hands-on the CEO should operate, the shorter their tenure is.

Zhang (2009) states that CEO's plan to continue on their jobs and therefore care about building up and protect their reputation. A long tenure indicates that the CEO performed well, because he

⁴ Favaro, Karlsson, & Neilson (2011, p. 5) define the four different corporate models as follows:

- Holding company: Managing its subsidiary operations; add value through strong portfolio management.
- Strategic management company: Offers guidance and leadership on strategic direction and provides expectations of performance for its group of related businesses.
- Active management company: Oversee more tightly linked businesses and advice on operational issues.
- Highly operationally involved company: Senior management plays an active role in day-today business decision making.

survived previous dismissal decisions by the board of directors. This helps the CEO to establish his reputation. When CEO's have a good reputation they will be less concerned with reputation building and more concerned with reputation protection. Consistent with this, Zhang (2009) found that long-tenured CEO's report earnings less aggressively compared with short-tenured CEO's.

Another important factor in this case is the level of narcissism of the CEO. Research shows that "narcissism is a necessary element for effective leadership but also an addictive drug with the potential danger of an addictive overdose which may result into destructive behavior" (Rijsenbilt, 2011, p. 122). Rijsenbilt (2011) investigated the influence of the CEO's narcissistic personality on the organization and its performance. She concludes that CEO's with a moderate level of narcissism show higher financial performances compared with CEO's who have a very low or very high level of CEO narcissism. Because the financial performance of the firm is an important factor to assess the CEO, I assume that a certain degree of narcissism is necessary for the CEO to continue his job.

§2.4 Institutional setting

In my research, I focus on large, listed European companies. To interpret the results and compare my results with previous research, it is necessary to describe the institutional setting. Because the richness of diversity in Europe, I will not describe the institutional setting of every European country. In this section, I will discuss the institutional setting of Europe as a whole, and compare this with the U.S. setting for the earnings management topic. I discuss the differences between Europe and the U.S., because U.S. is the most researched region and Europe is my subject of investigation.

Difference between accounting standards

Accounting standards and rules limits a manager's ability to misuse accounting judgment to manage earnings. Listed firms in the EU, and many other countries, are required to report according to the principles-based International Financial Reporting Standards. In contrast, U.S. firms should report according to U.S. GAAP, which is a rules-based accounting standard.

With using a post experimental survey and in-depth interviews, Van Beest (2011) investigates in what extend principles-based and rules-based accounting standards induce earnings management. In case of earnings management through accounting decisions, the results of Van Beest (2011, p. 213) suggest that principles-based accounting standards induce earnings management more

strongly than rules-based accounting standards. Contrary, he finds that in case of earnings management through transactions, rules-based standards induce more earnings management than principles-based accounting standards. Nevertheless, Van Beest (2011, p. 213) finds no significant influence of the type of accounting standards on the level of earnings management. Therefore, he concludes that rules-based or principles-based accounting standards cannot reduce the level of earnings management more than the other type.

So these results suggest that the flexibility in accounting choices for European firms do not necessarily result in a higher level of earnings management than their U.S. counterparts. But compared with the U.S. setting, the European setting seems to induce more earnings management through accounting decisions and less through transactions.

Difference in legal liability

Within as well as outside Europe, the strictness of legal liability regimes varies across countries. The U.S. has a very strict regime whereby investors can hold managers liable for their losses if it is caused by misleading disclosures. In such environment managers will be discouraged to manage earnings. European countries have less strict legal liability regimes, but the degree of strictness differs per country (Palepu, Healy, & Peek, 2010, p. 94).

Difference between equity-based compensation

As mentioned before, accounting numbers are used in management compensation contracts to reward the manager. The reported earnings of a firm influence the CEO's equity-based compensation. On average, European CEO's have another composition of their compensation package, than their U.S. counterparts. The compensation package of U.S. CEO's exists of much more stock and option grants, compared with European CEO's. Conyon, Fernandes, Ferreira, Matos, & Murphy (2010, p. 118) find that U.S. CEO's receive more than half of their compensation in the form of stocks and options, while this is only about a tenth for European CEO's. So, based on their personal wealth, European CEO's have less interest in earnings than U.S. CEO's.

§2.5 Summary

In this chapter, I present the theoretical background regarding the relations between earnings management and the CEO's tenure. I described that managers' accounting choices can be driven by an opportunistic or an efficiency perspective, whereby it is difficult to determine which

perspective is the case. A firm's accounting information is widely used, whereby earnings have an important role in the decision making process of shareholders, regulators and capital markets.

Furthermore, I document that managers face a number of incentives to manage reported earnings. Depending on the incentives and strategy of the CEO, he or she can manage earnings to increase, decrease, or smooth earnings. The CEO can distort earnings by under or overstate assets, liabilities and equity. The earnings can be managed by real transaction or by using the flexibility in the accounting principles.

The different decision-making horizons of CEO's and shareholders will lead to managerial behaviour that is myopically. The horizon problem can give a CEO an incentive to manage earnings in a way that it boosts their reputation and compensation. Furthermore, CEO's have several reasons to take an earnings bath in the early years of their tenure, so they can "clean up" their balance sheet and can continue with a "clean sheet".

Finally, the institutional setting of the U.S. and Europe (as a whole) is compared. I describe that the differences between the accounting standards, legal liability and equity-based compensation contribute to the difference between the earnings management behaviour of managers In the U.S. and Europe.

3. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

After discussing the theoretical background in chapter 2, I review in this chapter the relevant literature. An overview of the used literature is given in appendix A. In §3.1, I review the literature in case of earnings management at the end of the CEO's tenure. The literature about earnings management in the beginning of the CEO's tenure is discussed in §3.2. This review consists partly of the same studies, which I reviewed in §3.1. Therefore, I explain in this section the models and methods not again in §3.1, if I discussed them in the previous section.

Based on theory and the literature review, I developed two hypotheses in §3.3. The chapter is summarized in §3.4.

§3.1 Earnings management at the end of the CEO's tenure

Pourciau (1993) investigates the relation between non-routine executive changes and discretionary accounting choices. She was inspired by previous researches which document a strong association between large discretionary write-offs and executive turnover. She suggests that a non-routine executive change provides incentives and opportunities to manage earnings, and therefore predicts that executives manage earnings upward in the final year of their tenure (T-1). Pourciau (1993, p. 320) defines a non-routine top executive change as "one in which the company does not have adequate opportunity to select and groom a successor". A forced resignation is an example of this.

To find evidence for her hypotheses, Pourciau (1993) used a sample of U.S. firms in the period 1985-1988. She finds 1,083 top executive changes, whereof 73 changes were classified as non-routine. For these 73 changes, Pourciau (1993) examined the year before (T-1), the year after (T+1), and the year of the CEO change (T0). To detect earnings management, she used a random walk model with the measures unexpected earnings, accruals, cash flows, and special items. To control for firm size and performance, Pourciau (1993) scaled each measure by current-year sales.

Pourciau (1993) hypothesizes that unexpected earnings are positive and unexpected accruals increase income in the year prior to the top executive change. Contrary to her expectations, she finds accruals and large write-offs, which result in decreased earnings in the year before the executive change (see table 1). Striking is that Pourciau (1993) finds positive unexpected accruals in the year T-2. She assumes that top executives do not consider resignation, because the actual non-routine executive change is quite low. Therefore, executives suppose that

they continue their job and therefore do not use earnings management techniques to increase earnings. Instead of that, executives manage earnings to maximize their future compensation.

Table 1 | Results empirical tests Pourciau (1993, p. 332)

T-1	Unexpected earnings	Unexpected accruals	Unexpected cash flows	Unexpected special items
Predicted sign	+	+	?	?
Mean	0.169	-0.206	0.528	-0.057
(p-value)	(0.264)	(0.641)	(0.287)	(0.079)
Median	-0.022	-0.066	0.020	0.000
(p-value)	(0.896)	(0.927)	(0.785)	(0.057)
n	59	43	43	66

Note: P-values are one-tailed for test with specified expected signs, and two-tailed for test with no expectation.

Most studies about CEO turnover in the 70's and 80's focus on only one single financial variable. Murphy & Zimmerman (1993) investigate eight financial variables, because they find that single variable studies "ignore the implications of concurrent changes in related financial variables". The variables are research & development, advertising, capital expenditures, accounting accruals, accounting earnings, sales, assets, and stock prices.

The primary objective of the study of Murphy & Zimmerman (1993) is "to estimate the extent to which changes in potentially discretionary variables are explained by poor economic performance rather than by direct managerial discretion". For each variable, Murphy & Zimmerman (1993) analyze the performance for the five years before, the five years after and the year of the CEO change (T-5 through T+5).

Murphy & Zimmerman (1993) did their investigation for the largest 500 U.S. firms (Forbes 500) in the period 1971 through 1989. With using the Forbes annual surveys of executive compensation, they identified 1,630 executive changes, which result in a final sample of 1,063 executives changes in 599 firms. The final sample is smaller, because Murphy & Zimmerman (1993), among others, excluded CEO changes which are associated with bankruptcies, takeovers, and going-private transactions.

Within their model, Murphy & Zimmerman (1993) control for firm performance and endogenous CEO turnover. For each the researchers omit 1% in the top or bottom of the observations to control for the effects of outliers. Furthermore, they construct growth rates that are adjusted for contemporaneous market factors to control for market-wide movements. Finally, Murphy & Zimmerman (1993) control for firm performance by using simultaneous equations (ordinary least squares and two-stage least squares).

For the variables research & development, advertising, capital expenditures, and accruals, Murphy & Zimmerman (1993) find some evidence that these variables are lower in the year before and the year of the CEO change (T-1, T0), compared with the years T-5 through T-2. Nevertheless, the decline in research & development, advertising, and capital expenditures are a result of firm performance, and not an effect of managerial discretion in accounting choices. So, Murphy & Zimmerman (1993) cannot confirm their hypothesis that outgoing CEO's covering up the firm's performance by using their managerial discretion in accounting choices.

Wells (2002) criticized the methods of Pourciau (1993) and Murphy & Zimmerman (1993). He finds the classification methods of prior research mechanistic, which would reduce the power of the earnings management tests. With using the Modified Jones model, Wells (2002) investigates earnings management surrounding CEO changes for Australian firms. He also provides evidence on implicit (indirect) uses of accounting information, instead of only explicit (direct) motivations for earnings management.

Wells (2002) was the first who focuses on another country then the U.S. He confined his research to the 100 largest Australian Securities Exchange listed firms (based on market capitalization). Wells (2002) finds 91 CEO changes in the period from 30 June 1984 to 30 June 1994. This result in a final sample of 65 CEO changes, reported by 42 firms.

As table 2 shows, the positive unexpected accruals (mean 0,165954) in the year before the CEO change (T-1) indicate income increasing earnings management in case of non-routine CEO changes. In contrast, routine CEO changes report income decreasing unexpected accruals (mean -0,027557). Nevertheless, both results are insignificant, and therefore Wells (2002) was not able to find support for income increasing earnings management through accruals by outgoing CEO's. He suggests that the insignificant results are due to the possible errors in the estimation of unexpected accruals.

Table 2 | Unexpected accruals empirical tests Wells (2002, p. 184)

		Predicted sign	Full sample (n = 65)	Routine (n = 40)	Predicted sign	Non-routine (n = 25)	Difference
T-1	Mean	+	0.046870	-0.027557	+	0.165954	0.193510
	Median	+	-0.019314	-0.008523	+	-0.020384	-0.011861

A study of Guan, Wright, & Leikam (2005) extends the study of Pourciau (1993). They find that the results of the studies of Pourciau (1993) and Murphy & Zimmerman (1993) are influenced by the broad definition of non-routine CEO changes. Pourciau (1993) classifies a CEO change as

routine if the change was planned and for Murphy & Zimmerman (1993) only a retirement-related change is seen as routine. All other CEO changes are classified as non-routine. Guan, Wright, & Leikam (2005) suggest that the non-routine CEO change definitions involve dismissals which were not forced. Therefore, they make a subsample of CEO changes which can be classified as a forced dismissal. The reason for such change must be a forced resignation and/or a poor performance.

The study of Guan, Wright, & Leikam (2005) covered all CEO changes which were reported in the Wall Street Journal Index in the period 1990 to 1998. Guan, Wright, & Leikam (2005) came to a final sample of 172 CEO changes which met Pourciau's (1993) definition of a non-routine change. Then they divided the sample into a group of forced (94 firms) and non-forced CEO dismissals (78 firms). Furthermore, they identified a control group consisting of firms who not experience a CEO change.

To measure discretionary accruals, Guan, Wright, & Leikam (2005) used the Modified Jones model and the cross-sectional estimation method. They find this as "a more refined accrual estimation model as compared to a random walk model used in Pourciau (1993)". Within their model, Guan, Wright, & Leikam (2005) investigate four financial variables (total assets, return on assets, return on equity and cash flows from operations) for a period of T-2 through T0. They do their tests for the subsample (forced dismissal group) as well as the total sample (non-routine group), and compare these results with the control sample. For none of the four variables the researchers found significant differences between the (sub)sample and control sample.

Instead of Pourciau (1993), the results of Guan, Wright, & Leikam (2005) support the notion that outgoing CEO's who manage earnings upward when they face resignation. For both the forced dismissal group and non-routine executive changes they find positive discretionary accruals in the year before the CEO change (see table 3). Nevertheless, only the forced dismissal group show significant larger results than the control group. Based on these results Guan, Wright, & Leikam (2005) suggest that the broad definition of non-routine CEO changes of Pourciau (1993) is the reasons of why Pourciau (1993) was not able to find evidence for the cover-up theory.

Table 3 | Discretionary accruals empirical tests Guan, Wright, & Leikam (2005, p. 74)

Discretionary accruals in year T-2	Mean	Std. dev	Min.	Q1	Median	Q3	Max.
Non-routine executive turnover	-0.002	0.140	-0.407	-0.072	-0.004	0.049	0.786
Control sample	0.014	0.110	-0.282	-0.036	-0.001	0.048	0.621
P-value test of difference (n = 165)	-0.240				0.154		
Forced dismissals	0.015	0.153	-0.322	-0.033	-0.004	0.061	0.732
Control sample	0.011	0.109	-0.282	-0.038	0.005	0.060	0.352
P-value test of differences (n = 90)	0.828				0.567		

Discretionary accruals in year T-1	Mean	Std. dev	Min.	Q1	Median	Q3	Max.
Non-routine executive turnover	0.004	0.117	-0.598	-0.058	-0.002	0.057	0.392
Control sample	-0.009	0.196	-1.524	-0.066	-0.007	0.041	1.668
P-value test of difference (n = 172)	0.450				0.660		
Forced dismissals	0.028 ***	0.092	-0.218	-0.035	0.007 **	0.074	0.320
Control sample	-0.011	0.138	-1.344	-0.075	-0.008	0.045	0.288
P-value test of differences (n = 94)	0.029				0.022		

***, ** Significant at 0.01 and 0.05 level, respectively, two-tailed test

Factors that influence managerial incentives for short-termism

Narayanan (1985) investigates with a game theoretical model several factors that influence managerial incentives for short-termism. He argues that managers might make decisions which result in short-term profits at the expense of the long-term interests of the firm. This can only occur when managers have some private information which is unavailable to investors.

The results of Narayanan's study (1985, p. 1470) indicate that the incentives for short-termism reduce when managers have more experience and have long-term contracts. Furthermore, he finds that when a firm has risky cash flows, the manager will have fewer tendencies to make suboptimal decisions. The wage policy of the firm is another factor that can reduce earnings management. Compensation contracts that are based on long-term firm performance reduce short-term managerial incentives, but cannot totally eliminate it.

Another factor which may influence earnings management is the tenure of the CEO. As I document in §2.3, Zhang (2009) examines the relation between earnings quality and the tenure of the CEO. He was inspired by previous research that document that managers' discretionary accounting choices are affected by managerial incentives to build and protect their reputation.

Within his study, Zhang (2009) compares tenures among different CEO's and also the different stages of a CEO's tenure. He examines U.S. firms in the period 1993 to 2006. Zhang (2009, p. 2) defines aggressive reporting of earnings as "smaller asymmetric timeliness of loss recognition and as high discretionary accruals". To measure this, he uses the Basu and Ball & Shivakumar model. To measure discretionary accruals, Zhang (2009) uses a combination of the models of Jones (1991) and Dechow & Dichev (2002).

Zhang (2009) finds that long-tenured CEO's report earnings less aggressively compared with short-tenured CEO's. The results show that short-tenured CEO's recognizing losses in a more timely manner. Moreover, Zhang (2009) shows lower discretionary accruals in case of short-tenured CEO's. This is because Zhang (2009, p. 23) argues that "long-tenured CEO's care more

about protecting their reputation with higher quality reporting, while short-tenured CEO's care more about establishing their reputation with more aggressive reporting".

For a subsample of CEO's who have a tenure of at least six years, Zhang (2009) finds evidence for a timelier recognition of losses in the second half of the CEO's tenure, than in the first half. Furthermore, long-tenured CEO's report more aggressively in the last year of their tenure. According to Zhang (2009), this occurs because of the reduction in reputational concerns in the last year of a CEO's tenure.

Antia, Pantzalis, & Park (2010) tested the effects of the difference between the CEO's decision horizon and shareholders' investment horizons. Because the decision horizon of a CEO is limited to his tenure, the researchers expect that CEO's have a preference for investments that provide short-term results, which is at the expense of long-term firm value. Within their study, Antia, Pantzalis, & Park (2010) investigate if shorter CEO horizon is associated with more agency costs, lower market valuation and higher levels of information risk.

The study covers S&P 500 firms and includes 1,135 observations in the period from 1996 through 2003. Antia, Pantzalis, & Park (2010) estimate the CEO's decision horizon with the CEO's expected tenure. The expected tenure is measured with the relative age and current tenure of the CEO.⁵ The decision horizon measure is an industry-adjusted measure, because the age and tenure of the CEO are compared with the industries median. When a CEO is older and/or has been in his position for a longer time than the industries median, Antia, Pantzalis, & Park (2010) expect a shorter CEO tenure, which indicate a shorter decision horizon.

Antia, Pantzalis, & Park (2010) measure agency costs by free cash flows (standardized by total assets) for firms with poor growth opportunities. This is because the notion that CEO's may use an excess of free cash flows to invest in projects that result in short-term results. This will be especially the case for firms with low growth, because they have generally substantial free cash flows. The researchers find highly significant results for a positive association between short CEO decision horizons and agency costs. The results indicate that the agency cost will increase 1.2% if the CEO's decision horizon decreases with one standard deviation.

⁵ $DH_{i,t} = (TENURE_{ind,t} - TENURE_{i,t}) + (AGE_{ind,t} - AGE_{i,t})$

Where: $DH_{i,t}$ = The CEO decision horizon of firm i in year t

$TENURE_{ind,t}$ = Industry median CEO tenure

$TENURE_{i,t}$ = The number of years the CEO has held that position

$AGE_{ind,t}$ = Industry median CEO age

$AGE_{i,t}$ = The age of the CEO who work for firm i in year t

According to Antia, Pantzalis, & Park (2010), “information risk arises when some investors have more and better information than other about a firm’s prospects”. To measure information risk, the researchers estimate the quality of earnings and the information asymmetry between investors. The results are consistent with their hypothesis and indicate that a shorter CEO horizon is associated with higher levels of information risk.

Because it turns out that the CEO’s decision horizon is negatively related with agency costs and information risk, Antia, Pantzalis, & Park (2010) expect that firm performance is better when a firm’s CEO has a long decision horizon. The results show an increase in Tobin’s Q by 1.59 points, when the difference between the CEO’s tenure and age with the industry median is ten year. This indicates that a longer decision horizon leads to better firm performance, which results in higher market valuation.

§3.2 Earnings management at the begin of the CEO’s tenure

In her study, Pourciau (1993) also investigates the discretionary accounting choices of the CEO’s who were appointed after a non-routine CEO change. The results of the empirical tests confirm her hypotheses. She predicts that executives manage earnings downward in the first year of their tenure (T0) and increase earnings in the following year (T+1). In the year of the executive change, Pourciau (1993) documents that unexpected earnings and write-offs result in decreased earnings (see table 4). In the year after the executive change (T+1) the reverse takes place, because the unexpected earnings (mean 0,653) and accruals (mean 1,540) are positive. Nevertheless, the results are not statistically significant in general. This is probably caused by cross-sectional correlation in the variables, due to the small sample size, the small sample period, and the limited number of industries (Pourciau, 1993, p. 331). So, it is doubtful if her findings are a result of earnings management or firm performance.

Table 4 | Unexpected accruals empirical tests Pourciau (1993, p. 332)

T0	Unexpected earnings	Unexpected accruals	Unexpected cash flows	Unexpected special items
Predicted sign	-	-	?	-
Mean	-0.230	0.870	-1.120	-0.066 **
(p-value)	(0.309)	(0.773)	(0.352)	(0.004)
Median	-0.046 **	-0.075 **	-0.004	0.000 **
(p-value)	(0.020)	(0.019)	(0.579)	(0.001)
n	64	50	50	71

T+1	Unexpected earnings	Unexpected accruals	Unexpected cash flows	Unexpected special items
Predicted sign	+	+	?	?
Mean	0.653	1.540 **	-0.796	-0.012
(p-value)	(0.121)	(0.040)	(0.169)	(0.146)
Median	0.064 **	0.172 **	-0.030	0.000
(p-value)	(0.001)	(0.002)	(0.282)	(0.109)
n	53	46	46	54

** Significant at the 0.05 level

Note: P-values are one-tailed for test with specified expected signs, and two-tailed for test with no expectation.

Murphy & Zimmerman (1993) find only partly evidence for incoming CEO's who take a big bath. For their large U.S. sample, they find significant negative accruals for non-routine CEO changes in the year of the CEO change, but the accruals remain negative in the first years after the CEO change. So, the negative accruals in year T0 are not followed by an increase in accruals in year T+1, which would indicate big bath accounting.

Also, Wells (2002) finds only some support for big bath accounting for his Australian sample. The results are shown in table 6. In case of non-routine CEO changes, he still was able to find negative unexpected accruals due to abnormal and extraordinary items⁶ in the year of the CEO change (T0). For the full sample and the routine CEO change part, the unexpected accruals are positive in T0. In the year after the CEO change, Wells (2002) also documents income decreasing unexpected accruals for both the routine and non-routine CEO changes. Furthermore, the unexpected accruals are still negative in the second full period of the CEO (T+2). So, Wells (2002) results are inconsistent with his expectation that incoming CEO's will manage earnings upwards in the first full years of their tenure. Furthermore, the results are nearly all insignificant.

Table 5 | Unexpected accruals empirical tests Wells (2002, p. 184)

	Predicted sign	Full sample (n = 65)	Routine (n = 40)	Predicted sign	Non-routine (n = 25)	Difference	
T0	Mean	-	0.015596	0.054195	-	-0.046162	-0.100357
	Median	-	-0.011650	0.006206	-	-0.028421	-0.034627
T+1	Mean	+	-0.044117	-0.028674	+	-0.068826	-0.040152
	Median	+	-0.036505 *	-0.017608	+	-0.065588	-0.047980
T+2	Mean	+	-0.057302	-0.035767	+	-0.091009	-0.055242
	Median	+	-0.014805	-0.007324	+	-0.016343	-0.009019

⁶ Wells (2002, p. 175) defines abnormal items as items "which are considered abnormal by reason of their size and effect on the operating profit or loss after income tax for the financial year". Extraordinary items means "items of revenue and expense which are attributable to transactions or other events of a type that are outside the ordinary operations of the company or economic entity and are not of a recurring nature".

* Significant at 0.10 level, respectively, two-tailed test

With using a less broad definition of non-routine CEO changes, Guan, Wright, & Leikam (2005) were able to find significant negative discretionary accruals in the year of the CEO change. As table 6 shows, this occurs for the non-routine sample as well as the forced dismissal group. Moreover, the discretionary accruals of both groups are significantly lower than these of the control sample. Unfortunately, Guan, Wright, & Leikam (2005) did not investigate the discretionary accruals in the years after the CEO change. So, we cannot observe a reversal of the accruals in the years after the CEO change, which would indicate big bath accounting.

Table 6 | Discretionary accruals empirical tests Guan, Wright, & Leikam (2005, p. 74)

Discretionary accruals in year T0	Mean	Std. dev	Min.	Q1	Median	Q3	Max.
Non-routine executive turnover	-0.059 ***	0.155	-0.782	-0.114	-0.041 ***	0.010	0.694
Control sample	-0.014	0.150	-0.667	-0.077	-0.010	0.029	0.775
P-value test of difference (n = 169)	0.007				0.012		
Forced dismissals	-0.060 ***	0.142	-0.782	-0.110	-0.050 ***	0.090	0.371
Control sample	-0.017	0.132	-0.539	-0.078	-0.012	0.048	0.634
P-value test of differences (n = 91)	0.032				0.020		

*** Significant at 0.01 level, respec

Factors that influence managerial incentives for big bath accounting

In §2.2.6 we saw that managers can use their reporting judgment to delay or accelerate impairment charges. Because goodwill impairments have a high level of subjectivity, annual impairment tests can be used to manage earnings. Višnevská (2010) investigates the relation between the extent of goodwill impairments and the CEO tenure. She predicts that the tenure and employment background of the CEO and CFO (hired from inside or outside the firm) are associated with the magnitude of the goodwill impairments. Višnevská (2010, p. 141) suggests that internal-hired CEO's will manage earnings less, because they "are more personally invested in previously taken strategic acquisition decisions, and thus would lack a fresh perspective".

Višnevská (2010) hypothesizes that shorter CEO tenures and shorter employment by the same firm will lead to relatively higher goodwill impairment charges. To test her hypotheses, she used a multivariate regression model. Besides the variables to test the effect of executive tenure (CEO tenure, CFO tenure), Višnevská (2010) includes two dummy variables (CEO internal, CFO internal) to test the difference of the impact of the executive prior employment background. The dummy variables are coded 0 – and are considered to be an external-hire – if the CEO/CFO of the firm was employed by the firm for two years or less. In the other cases the variable was code 1

and is considered to be an internal-hire. Furthermore, Višnevskáá (2010) includes the control variables EBITDA, net income after tax, company size, and leverage to control for the economic condition of the firms.

The sample consists of 116 observations, reported by 58 major European firms (FTSE Eurotop 100 index). Višnevskáá (2010) examined the period 2006 and 2007 and collected the necessary data by hand out of the annual reports. She observed goodwill impairments in 37% of the cases and classified 67% of the CEO changes as an internal hire. In contrast to her expectations, she finds a positive association between goodwill impairment charges and the CEO tenure. Moreover, Višnevskáá (2010) finds that internal-hired CEO's report relatively higher goodwill impairment charges compared with CEO's who are hired from outside the firm. Both results are significant at the 5% level. In case of CFO changes, Višnevskáá (2010) was not able to establish significant associations between goodwill impairment charges and the employment background and tenure of the CFO.

Another interesting topic in this area is the effect of board characteristics on earnings management. Mather & Ramsay (2006) examine if corporate governance mechanisms mitigate earnings management incentives of opportunistic CEO's at the beginning of their tenure. This was the first study on this topic, which they did for Australian firms in the period 1990 through 1999. The regression model (ordinary least squares) includes four board characteristics, five control variables and two dummy variables, which indicate the reason of the CEO change (resignation or retirement).⁷ The boards characteristics reflect the board size, the proportion of independent directors, the shares hold by executives, and if the CEO also chairs the board. This is because "theory as well as prior research supports the view that characteristics such as larger boards, greater extent of independent directors, larger proportion of inside director shareholdings and CEO non-duality (board characteristics associated with strong corporate governance) are likely to mitigate such earnings management behaviour around CEO changes" (Mather & Ramsay, 2006, p. 82). The control variables which are included are cash flows from operation, leverage, size of assets, contemporaneous profitability, and lagged profitability.

⁷ $UA = RESIGN + (\beta_1CFO + \beta_2LEV + \beta_3SIZE + \beta_4CONTEMPNP + \beta_5LAGGEDNP + \beta_6BOARDSIZE + \beta_7PROPIND + \beta_8DUAL + \beta_9EXECSHAR) * RESIGN + RETIRE + (\beta_{10}CFO + \beta_{11}LEV + \beta_{12}SIZE + \beta_{13}CONTEMPNP + \beta_{14}LAGGEDNP + \beta_{15}BOARDSIZE + \beta_{16}PROPIND + \beta_{17}DUAL + \beta_{18}EXECSHAR) * RETIRE$

Where: UA = Unexpected accruals; RESIGN = A forced CEO change; RETIRE = A planned CEO change; CFO = Cash flow from operation; LEV = Leverage; SIZE = Total assets; CONTEMPNP = Contemporaneous profitability; LAGGEDNP = Lagged profitability; BOARDSIZE = Number of members on firm's board of directors; PROPIND = Proportion of independent director; DUAL = CEO duality (set 1 if there was CEO duality, 0 otherwise); EXECSHAR = Executive shareholding

To measure earnings management, Mather & Ramsay (2006) use unexpected accruals. The unexpected accruals are tested for all sample firms in the period of the CEO change (T0) and the year thereafter (T+1). They find 87 CEO changes, whereof 27 firms are classified as retirements and 60 as resignations.

The model of Mather & Ramsay (2006) shows a high explanatory power and is strongly significant. In the year of the CEO change, the unexpected accruals are negative for the resignation sample and positive for the retirement sample (both significant). This confirms with Mather & Ramsay's (2006) expectation that income decreasing earnings management takes place in the year of the CEO's resignation. Nevertheless, Mather & Ramsay (2006) do not observe a reversal in the year after the CEO's resignation (T+1). In contrast, the retirement sample shows evidence for significant positive unexpected accruals in the year after the CEO change. So, Mather & Ramsay (2006) document income decreasing earnings management in T0, but they do not observe a reversal in the year after a non-retirement related CEO change, which would indicate big bath accounting.

Mather & Ramsay (2006) find some evidence for mitigating earnings management by strong corporate governance mechanisms. For the year of the CEO change, they find that larger boards and a higher proportion of independent directors reduce the negative unexpected accruals significantly. Nevertheless, for the period after the CEO change (T+1), Mather & Ramsay (2006) find no evidence. For CEO retirements, none of the examined board characteristics influences earnings management significantly in T0. The results for T+1 indicates that a higher proportion of executive shareholdings reduce positive earnings management in the year after the CEO change.

Another mechanism to create a big bath is the use of the deferred tax valuation allowance. This occurs because many special charges are deductible in future years and not in the year where the charge is taken. Christensen, Paik, & Stice (2008) examine if managers use a deferred tax valuation allowance to make a big bath even bigger. Standard setters' provisions are fairly explicit, but leave a substantial discretion to determine the necessary and, if so, the amount of the deferred tax valuation allowance. Christensen, Paik, & Stice (2008) identify firms that report large restructuring charges or write-offs and examine whether these firms manage earnings by using the deferred tax valuation allowance reversal in the two years following the year of the large negative special charge.

Christensen, Paik, & Stice (2008) include firms in their sample if the reported special charges exceeding 10% of their total assets during the years 1996 through 1998. The final sample

consists of 444 U.S. firms. They use a valuation allowance prediction model to test if firms create “a larger-than-expected valuation allowance”.

The results of Christensen, Paik, & Stice (2008) do not provide any evidence for subsequent reversals of valuation allowances in the two years following the year of the large negative special charge. So, managers do not use the deferred tax valuation allowance as an additional element in big bath accounting. Nevertheless, Christensen, Paik, & Stice (2008) find a small number of firms that appear to have used this earnings management mechanism to meet or beat analysts' forecasts.

Concurrent senior management appointments also influence earnings management by incoming CEO's. Wilson & Wang (2010) find that a CEO change which is accompanied with a change of the chairperson is associated with significant income-decreasing earnings management in year of appointment. They do not find evidence for a same association in case of a concurrent CEO and CFO changes.

The research covers non-financial Australian Stock Exchange listed firms in the period 1999 to 2007. Wilson & Wang (2010) measured earnings management with the Modified Jones model with the adjustment for performance of Kothari, Leone, & Wasley (2005). In 4,740 firm years, they found 527 CEO appointments, whereof 186 were contemporaneous CEO and chairperson appointments.

The earnings management behaviour of managers is also, at least partially, motivated by their compensation. Said (2005) investigates the relation between the structure of the CEO's compensation and the extent and form of earnings management. She assumes that as total, bonus-based and stock-based compensation increase, the incentives for earnings management also increase.

To test her assumption, Said (2005) uses an American sample with 3,938 firm years for the period 1992 through 1998. To capture earnings management behaviour, she used the cross-sectional version of the Jones model. The results indicate that managers manipulate earnings significant in order to maximize their bonus and stock-based compensation. Furthermore, she finds that when the bonus-based component increases in the structure of the compensation, managers will smooth income. Contrary, managers smooth less earnings as the stock-based compensation decreases in the compensation structure.

§3.3 Hypothesis development

Hypothesis 1

In the literature review in §3.1 we saw that Pourciau (1993) and Murphy & Zimmerman (1993) were not able to find evidence for income increasing earnings management by outgoing CEO's. Murphy & Zimmerman (1993) document lower expenditures on potentially discretionary variables in year T-1. Nevertheless, these outcomes were a result of firm performance, and not an effect of managerial discretion in accounting choices. Pourciau (1993) even finds income decreasing earnings management in the year before the CEO change.

Wells (2002) and Guan, Wright, & Leikam (2005) criticized the methods and broad definitions of Pourciau (1993) and Murphy & Zimmerman (1993). In case of non-routine CEO changes, Wells (2002) documents insignificant results for income increasing earnings management. Moreover, Guan, Wright, & Leikam (2005) find significant results for the cover-up theory for a forced dismissal group.

So, we can conclude that the results of previous studies are not conclusive. But we can argue that using a less broad definition of a non-routine CEO change and a more refined accrual estimation model are important factors in measuring earnings management by outgoing CEO's.

In the theoretical part of this study, we saw that CEO's have possibilities and incentives to manage earnings upwards in the last year of their tenure. I explained that CEO's are myopically, because of their reputational and compensation concerns. Because the average CEO tenure decreased overtime, I predict that contemporary CEO's have less time to prove himself and therefore have incentives to manage earnings upwards in the last year of their tenure.

H1 CEO's manage earnings upwards in the last year of their tenure.

Hypothesis 2

In the literature review in §3.2 we find only partly evidence for big bath accounting by incoming CEO's. For example, Murphy & Zimmerman (1993), Wells (2002), Guan, Wright, & Leikam (2005), and Mather & Ramsay (2006) document income decreasing earnings management in the year of a non-routine CEO change, but do not observe a reversal of the accruals in the first full year after the CEO change (T+1). Only Pourciau finds income decreasing unexpected accruals in T0 and income increasing unexpected accruals in T+1. Nevertheless, these results are insignificant and are probably a result of firm performance.

These results suggest that CEO's manage earnings downward in their appointment year to blame their predecessors for underperforming and create a better starting position for their future (financial) performance. The lack of evidence for the reversal of earnings in the first full year of the CEO's tenure (T+1) suggests that the reversal takes possibly place in a later phase of the CEO's tenure. Because the average CEO tenure decreased overtime, I predict that contemporary CEO's have less time to prove himself and therefore have incentives to manage earnings upwards in the first full year of their tenure (T+1).

H2 CEO's take a big bath in the early years of their tenure.

§3.4 Summary

In this chapter, I review the relevant literature for my study. A summary of these studies is displayed in appendix A. I also review researches about factors that influence managerial incentives regarding short-termism and big bath accounting.

Table 7 shows for each study if it displayed evidence for some form of earnings management surrounding a CEO change.

Table 7 | Overview of evidence in case of earnings management surrounding CEO changes

Study	Indications for earnings management	Significance
Pourciau, S. (1993)	Yes	Insignificant
Murphy, K.J., & Zimmerman, J.L. (1993)	No	
Wells, P. (2002)	Yes	Insignificant
Guan, L., Wright, C.J., & Leikam, S.L. (2005)	Yes	Significant
Narayanan, M.P. (1985)	Yes	Not empirical
Zhang, W. (2009)	Yes	Significant
Antia, M., Pantzalis, C., & Park, J.C. (2010)	Yes	Significant
Višnevská, O. (2010)	Yes	Significant
Mather, P., & Ramsay, A. (2006)	Yes	Significant
Christensen, T.E., Paik, G.H., & Stice, E.K. (2008)	No	
Wilson, M., & Wang, L.W. (2010)	Yes	Significant
Said, A.A. (2005)	Yes	Significant

Based on the theoretical part and the literature study, I predict that contemporary CEO's have less time to prove himself and therefore have incentives to manage earnings upwards in the last year

of their tenure and manage earnings upwards in the first full year after their appointment as CEO.

The following two hypotheses are tested in this study:

H1 CEO's manage earnings upwards in the last year of their tenure.

H2 CEO's take a big bath in the early years of their tenure.

4. RESEARCH DESIGN

The central topic of this chapter is the research design of this study. In §4.1, the research method is explained step by step. The selection of the sample is illustrated in §4.2. Subsequently, the descriptive statistics of the sample are reported in §4.2.2. Finally, in §4.3, this chapter is summarized.

§4.1 Research method

As mentioned in chapter 2, earnings can be managed by accruals or real transactions. This study will focus on earnings management by accruals. Real transaction management will not be investigated.

The main reason for this choice is that accrual-based models have already proved themselves in detecting earnings management, while the proxies of the real transaction management detection models are still subject of discussion. Furthermore, the research on real transaction management is constrained by limited disclosure of the necessary financial information in the annual reports of the firms (Wells, 2002, p. 174).

Earnings management is measured with the Modified Jones model with the performance adjustment of Kothari, Leone, & Wasley (2005). This is because prior scientific literature argues that the Modified Jones model might be the strongest accrual-based earnings management detecting model. Furthermore, Kothari, Leone, & Wasley (2005) find evidence that the Modified Jones model with their performance adjustment, is the best measure of discretionary accruals across a wide range of circumstances.

The discretionary accruals are estimated as the difference between total accruals and the non-discretionary accruals, which can be explained by fundamental firm-specific factors. The discretionary accruals are used as a proxy for earnings management and are calculated for the year before, the year after and the year of the CEO change. In this section, the three steps of the model are discussed.

Step 1: Estimation of total accruals

Following Wilson & Wang (2010) and Said (2005), the total accruals are estimated with the indirect method (see §2.2.7). This is because Hribar & Collins (2002) demonstrate that the indirect method is a better estimation model, because the frequency and magnitude of errors in the direct method can be substantial.

With using the indirect method, the total accruals are estimated from the income and cash flow statement, and are defined as the difference between Income before extraordinary items & discontinued operations and net cash flow from operations.

$$TAC_{i,t} = \frac{EXBI_{i,t}}{TA_{i,t-1}} - \frac{CFO_{i,t}}{TA_{i,t-1}}$$

Where:⁸

- $TAC_{i,t}$ = Total accruals for firm i in year t , scaled by lagged total assets
- $EXBI_{i,t}$ = Income before extraordinary items and discontinued operations for firm i in year t
- CFO = Net cash flow from operating activities for firm i in year t
- $TA_{i,t-1}$ = Total assets for firm i in year $t-1$

Step 2: Estimation of non-discretionary accruals

The non-discretionary accruals are estimated with time-series. First, for every firm the total accruals are calculated for the 11 years before the year of the CEO change through one year after (T-11 through T+1). The coefficients are calculated with the formula below.

$$TAC_{i,t} = \beta_1 \left(\frac{1}{TA_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \beta_4 ROA_{i,t} + \varepsilon_{i,t}$$

⁸ The following Thomson ONE Banker data items are used:

Formula item	Data item	Source code
Income before extraordinary items and discontinued operations	TF.IncomeBefExtrItemsAndPfdDiv	1551
Net cash flow from operating activities	TF.NetCashFlowOperatingCFStmnt	4860
Total assets	TF.TotalAssets	2999
Total revenues	TF.Sales	1001
Net accounts receivables	WS.NetTradeReceivables	18297
Gross property, plant and equipment	TF.TotalPropPlantEquipGross	2301
Return on assets	TF.ReturnOnAssets	8326

Where: $\Delta REV_{i,t}$ = The change in revenues for firm i in year t
 $\Delta REC_{i,t}$ = The change in net accounts receivables for firm i in year t
 $PPE_{i,t}$ = The gross property, plant and equipment for firm i in year t
 $ROA_{i,t}$ = Return on assets for firm i in year t
 $\varepsilon_{i,t}$ = Error term for firm i in year t
 $\beta_1, \beta_2, \beta_3, \beta_4$ = Firm-specific coefficients

By calculating the total accruals for every period, the coefficients $\beta_1, \beta_2, \beta_3,$ and β_4 can be determined with a linear regression using SPSS. Per item of the formula one firm-specific coefficient is determined for the period T-11 through T+1. I choose to determine one coefficient for the whole period, instead of one per period (T-1, T0, and T+1), because I assume that a determination of one coefficient per item for the whole period is representative and works more efficient for this study.

When the data is available for less than 11 years before t, a shorter period is used, with a minimum of 7 years before the year of the CEO change. The coefficients are used in the formula below to estimate the non-discretionary accruals for firm i in year t.

$$NDA_{i,t} = \beta_1 \left(\frac{1}{TA_{i,t-1}} \right) + \beta_2 \left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}} \right) + \beta_3 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) + \beta_4 ROA_{i,t}$$

Where: $NDA_{i,t}$ = Non-discretionary accruals for firm i in year t, scaled by lagged total assets

When calculating the non-discretionary accruals, a possible CEO change in the period over which the accruals are calculated is not taken into account. The same occurs for the economic circumstances during these years.

Step 3: Estimation of discretionary accruals

Subsequently the discretionary accruals for firm i in year t can be estimated by subtracting the non-discretionary accruals from the total accruals.

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

Where: $DA_{i,t}$ = Discretionary accruals for firm i in year t, scaled by lagged total assets

§4.2 Sample selection

The study investigates the CEO changes of the largest European (non-financials) firms. The sample consists of firms which are included in the FTSE Eurotop 100 index at December 30th, 2011. The FTSE Eurotop 100 index represents the 100 largest European companies by market value (FTSE, 2011).⁹ The index-listed firms and the corresponding SEDOL codes¹⁰ are obtained from FTSE Client Services. The corresponding ISIN numbers¹¹ of the involved firms are observed with CompuStat. The necessary financial information of the firms is subsequently obtained from Thomson ONE Banker.¹²

The date of the last (penultimate) CEO change is observed with database BoardEx. The data is obtained in the first two weeks of July 2012. To be sure of the correct year of change, the official website of the relevant firm is examined.

The last CEO changes of these FTSE Eurotop 100 index listed firms are subject of the study. In case of 6 sample firms (final sample), not the last CEO change, but the penultimate CEO change is observed. This is because the last CEO change takes place after December 31st, 2010. The last available financial information is from the reporting year 2011. Because earnings management is – among others – investigated in the year after the CEO change, only CEO changes which have taken place before 2011 can be included in the sample.

§4.2.1 Exclusion of firms

Due to several circumstances not all FTSE Eurotop 100 index listed firms are included in the sample of this study. The final sample consists of 50 firms. The reason of exclusion of these 50 firms is explained in this section. An overview is given in table 8.

⁹ The annual review of the FTSE Eurotop 100 index constituents takes place in June. The FTSE Europe, Middle East & Africa Regional Committee rank the eligible firms by full market value. When a firm rises to the 90th position or above, the firm will be inserted into the index. If a firm falls to 111th position or below, the firm will be deleted. Only public listed firms in one of the following countries are eligible for inclusion in the index: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom (FTSE, 2011).

¹⁰ SEDOL is the abbreviation of Stock Exchange Daily Official List. The SEDOLs are seven characters in length (alphanumeric), and are security identifiers, primarily used for listed issues outside North America (Wharton Research Data Services, 2012).

¹¹ ISIN is the abbreviation of International Securities Identification Number. The ISIN number consist of twelve characters, and is constructed from three parts, knowing a two letter country code, a nine character alpha-numeric national security identifier, and a single check digit (Association of National Numbering Agencies, 2012).

¹² Because the data is adjusted/standardized by Thomson ONE Banker (for the purpose of comparison), the data does not correspond with the underlying financial reports of the sample firms.

In appendix B, an overview of the sample firms is included. Furthermore, an overview of the excluded firms is given in appendix C.

Table 8 | Selection of sample

	Number of firms
FTSE Eurotop 100 index	100
A) Banks & Insurers	23
B) CEO change associated with a merger	2
C) Double inclusion of firms	1
D) No CEO change	1
E) Not all necessary data available	23
Excluded firms	50
Final sample	50

Ad A Exclusion of financials

23 of the 100 firms are excluded from the sample, because they are financials. Banks, insurers and other financial firms are excluded, because they are subject to specific accounting standards. The assets and liabilities of financials are valued against fair value and therefore the volatility of markets is directly represented in the firm's accounts. Normally, unrealized gains and losses are taken into the profit and loss account. The described accrual-based models are not suitable to detect earnings management with such representation.

Ad B Exclusion of CEO changes which are associated with a merger

Two firms are excluded from the sample, because the last CEO change is associated with a merger. The appointed CEO still holds the position of CEO. This applies for:

- ArcelorMittal, which is formed in 2006 by a merger between Arcelor and Mittal Steel. Lakshmi Mittal (former CEO Mittal Steel) was appointed as CEO of ArcelorMittal after the merger, and still holds this position.
- GDF Suez, which is formed in 2008 by a merger between Gaz de France and Suez. Gérard Mestrallet (former CEO Suez) was appointed as CEO of GDF Suez after the merger, and still holds this position.

Ad C Double inclusion of firms

Unilever is a dual-listed company consisting of Unilever NV and Unilever PLC. Both listings are incorporated into the FTSE Eurotop 100 index. To avoid a double observation, Unilever PLC is excluded from the sample.

Ad D No CEO change

Compagnie Financière Richemont SA is excluded from the sample because there has been no change in CEO since the founding of the firm in 1988. Johann Rupert, the founder of the firm, is nowadays still the CEO of the firm, although there is a deputy CEO appointed since April 2010.

Ad E Not all necessary data available

Because earnings management is estimated with time-series, the data items of the model should be available for at least eight years before the year of the CEO change. Not for every firm all the necessary financial data is available, for such a long period. This is the case for 23 firms in the sample. In several cases, the CEO change takes place before the first year that all necessary financial data is available. In other cases, there are firms whose necessary data is not available for seven years or longer before the CEO change. This is particularly the case for the firms whose last CEO change took place before 2001. Because the IASC made the reporting of cash flow statements mandatory since 1994, most firms only report cash flow from operations after 1994 (Epstein & Jermakowicz, 2008, p. 105). Spanish firms were even not required to include a cash flow statement in their annual report prior to the adoption of IFRS in 2005 (Pijper, 2008, p. 5). Therefore, no Spanish firms can be included in the sample.

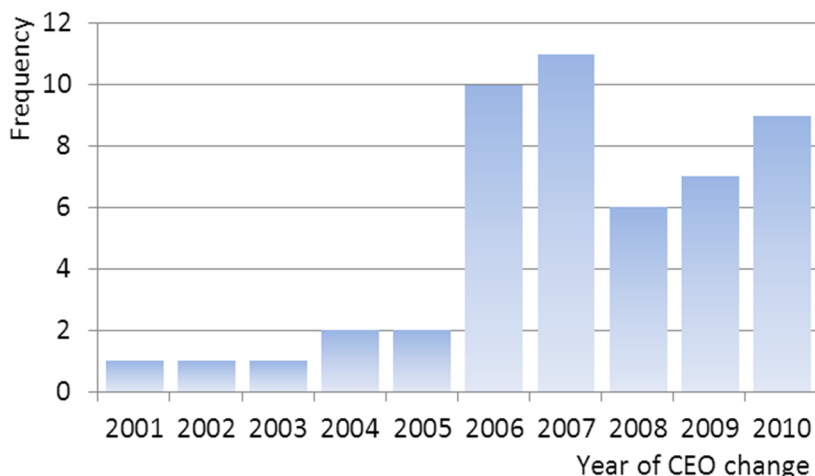
§4.2.2 Descriptive statistics

An overview of the sample firms is included in appendix B. The descriptive statistics are documented in this section.

The investigated CEO changes took place in the period 2001 through 2010. 86.0% of the changes took place in the period 2006 through 2010.

Table 9 | Distribution of sample across year of CEO change

Year of CEO change	Frequency	Percentage
2001	1	2%
2002	1	2%
2003	1	2%
2004	2	4%
2005	2	4%
2006	10	20%
2007	11	22%
2008	6	12%
2009	7	14%
2010	9	18%



The largest economies in Europe are represented with the most firms in the sample. 31 of the 50 firms (62%) are English, German or French of origin. The operating industry of the firms is a lot more diversified. The largest represented industries in the sample are the Telecommunication Services, Oil & Gas, and the Pharmaceutical & Biotechnology industry.

Table 10 | Distribution of sample across industry and countries

Industry	Frequency	Percentage
Telecommunication services	6	12%
Oil & gas	5	10%
Pharmaceuticals & biotechnology	5	10%
Electricity	4	8%
Automobiles & parts	3	6%
Chemicals	3	6%
Clothing, leisure & personal products	3	6%
Diversified industrials	3	6%
Mining	3	6%
Beverages	2	4%
Construction & building materials	2	4%
Electronic & electrical equipment	2	4%
Food Producers & processors	2	4%
Software & computer services	2	4%
Tobacco	2	4%
Engineering & machinery	1	2%
Food & drug retailers	1	2%
Utilities	1	2%

Country	Frequency	Percentage
England	12	24%
Germany	10	20%
France	9	18%
Switzerland	6	12%
Sweden	4	8%
Netherlands	3	6%
Finland	2	4%
Italy	2	4%
Belgium	1	2%
Norway	1	2%

That the sample mainly consists of large firms is also reflected by the number of employees of the observed firms. The mean number of employees is 114,915, with a standard deviation of 88,590 employees. On the basis of employees, Fortum OYJ is with 10,585 employees the smallest firm in the sample. With more than 471,000 employees, Carrefour has by far the most employees.

Figure 11 | Distribution of sample across number of employees¹³

Number of employees	Frequency	Percentage
< 50.000	8	16%
50.001 < 100.000	21	43%
100.001 < 150.000	10	20%
150.001 < 200.000	5	10%
200.001 < 300.000	2	4%
300.001 < 400.000	2	4%
400.001 >	1	2%

Table 12 reports the financial descriptive statistics of the sample surrounding the year of the CEO change. This presentation makes the descriptives more consistent and comparable with other studies, instead of reporting the descriptives for a specific year.

A lot of firms in the sample report in their local currency. In this study all amounts are converted into Euro's. The amounts are converted by Thomson ONE Banker using proxy rates.

The financial items are reported per firm in appendix D.

Table 12 | Financial descriptive statistics (All amounts are in millions of euro's)

T-1	EXBI	CFO	TA	REV	REC	PPE	ROA
Mean	3,371	6,557	59,983	44,229	7,574	41,364	9.62
Standard deviation	3,957	5,548	55,209	48,204	10,677	48,522	7.51
Minimum	-10,963	808	4,860	5,636	194	1,653	-4.70
Median	2,106	4,767	36,731	28,834	5,188	20,403	7.77
Maximum	14,754	24,458	198,904	257,368	68,696	204,458	33.70

T0	EXBI	CFO	TA	REV	REC	PPE	ROA
Mean	2,481	6,579	64,548	45,380	7,728	43,396	7.72
Standard deviation	5,863	4,947	58,134	47,310	9,884	52,604	7.41
Minimum	-31,412	825	5,062	5,435	190	1,762	-15.64
Median	2,160	5,042	40,882	30,490	5,301	21,568	7.26
Maximum	13,181	17,686	238,815	224,756	59,693	231,783	31.79

T+1	EXBI	CFO	TA	REV	REC	PPE	ROA
Mean	3,170	6,888	66,144	49,662	7,446	43,229	8.10
Standard deviation	4,195	5,264	58,711	57,330	7,463	51,109	6.76
Minimum	-7,267	1,035	6,348	6,296	247	1,960	-8.18
Median	2,150	4,911	45,742	31,875	5,251	22,629	7.53
Maximum	19,121	19,800	238,434	279,388	33,004	213,598	33.59

The table shows a remarkable difference between the earnings before extraordinary items and the cash flow from operations. Such difference can arise, because cash flow from operations (CFO)

¹³ The information about the number of employees was not available for National Grid PLC.

only represents how much cash a firm generates from the operations of its business, whereas income before extraordinary items (EXBI) is based on accrual accounting and takes items into account like depreciations. The big difference can be caused by big expenses of these large firms on investments and finance activities, which lower the profits.

When looking at the minimum amounts of the financial items, it is surprising that the amounts are quite low compared with the mean and maximum of the items. Furthermore, in a lot of cases the standard deviation is larger than the mean. Because the sample consists of only FTSE Eurotop 100 index-listed firms, I would expect a smaller distribution of the amounts.

The mean and median return on assets indicates that the firms in the sample are quite asset-heavy firms. Striking is that the ROA in the year of the CEO change is substantially lower than the year before and after the CEO change. This is due to the lower earnings in T0, which is on average €0.9 billion lower than in T-1. Consistent with hypothesis two, this could be caused by earnings management. Therefore, this study about earnings management surrounding CEO changes is justified.

§4.3 Summary

The research design of my study was the subject of this chapter. I argued why I choose to measure earnings management with accruals and why I choose to measure the discretionary accruals with the Modified Jones model with the performance adjustment of Kothari, Leone, & Wasley (2005). Hereby, the total accruals are defined as the difference between Income before extraordinary items & discontinued operations and net cash flow from operations. The non-discretionary accruals are estimated using time-series analysis. Subsequently, the discretionary accruals are estimated by subtracting the non-discretionary accruals from the total accruals.

Furthermore, I document how the sample is selected. The last CEO changes of the FTSE Eurotop 100 index listed firms are subject of this study. 50 firms are excluded from the sample for different reasons. Not only financial firms are excluded but there are also firms which had no CEO change or whereof not all necessary financial data was available. The necessary financial information of the firms is obtained with Thomson ONE Banker and the date of the last CEO change is observed with database BoardEx.

The final sample mainly consists of large firm. On average, the firms operate with 114,915 employees and generate revenues of more than €44 billion and have total assets of around €60 billion.

5. RESULTS AND ANALYSIS

In this chapter the results of this empirical study are presented. The results are discussed in §5.1. Based on these outcomes the hypotheses are accepted or rejected. Subsequently, in §5.2, an analysis of the results is made. Furthermore, the limitations of this study are discussed in §5.3, as well as the implications for future research. Finally, the chapter is summarized in §5.4.

§5.1 Results

In order to estimate the non-discretionary accruals, the firm-specific coefficients are determined (see step 2 in §4.1). An overview of the firm-specific coefficients per firm is included in appendix E. Table 13 reports the descriptives of these firm-specific coefficients.

The table shows that – on average – β_4 (return on assets) has the largest impact on the model, followed by β_3 (gross property, plant and equipment). This justified the choice to use the performance adjustment of Kothari, Leone, & Wasley (2005) in the model.

Furthermore, it is striking that there are large differences between the coefficients of different firms. This is reflected by the standard deviation and the low minimums and the large maximums.

Table 13 | Descriptive statistics firm-specific coefficients

	β_1	β_2	β_3	β_4
Mean	-0.096	0.010	-0.259	0.514
Standard deviation	0.718	0.450	0.770	0.582
Minimum	-1.940	-0.724	-2.115	-1.145
Median	0.054	-0.001	-0.262	0.510
Maximum	1.011	1.835	1.612	1.852

An overview of the total, non-discretionary, and discretionary accruals per firm is enclosed in appendix F. The descriptive statistics hereof are given in table 14. Because all accruals have acceptable values, potential outliers are not taken into account.

On average, the total accruals (TAC) as well as the non-discretionary accruals (NDA) are negative surrounding the CEO change. This results in a positive amount of discretionary accruals (DA) for the observed years. For all three types of accruals, there are no major differences over time. Nevertheless, the discretionary accruals in T-1 are more than three times as large as these in T0. Logically, also in the case of accruals, the big mutual differences are reflected in the table.

Table 14 | Descriptive statistics accruals

T-1	TAC	NDA	DA
Mean	-0.0451	-0.0788	0.0338
Standard deviation	0.0539	0.4496	0.4327
Minimum	-0.1353	-1.0624	-1.1054
Median	-0.0511	-0.1020	0.0812
Maximum	0.2291	1.0385	1.0618

T0	TAC	NDA	DA
Mean	-0.0618	-0.0724	0.0106
Standard deviation	0.0432	0.4188	0.4200
Minimum	-0.2549	-1.0805	-1.1120
Median	-0.0571	-0.0962	0.0261
Maximum	0.0724	1.0256	1.0350

T+1	TAC	NDA	DA
Mean	-0.0540	-0.0781	0.0242
Standard deviation	0.0358	0.4174	0.4133
Minimum	-0.1470	-1.0173	-1.0913
Median	-0.0478	-0.0582	0.0200
Maximum	0.0130	1.0488	0.9748

A Wilcoxon signed ranks test is conducted to test the differences between the discretionary accruals of T-1, T0 and T+1. Based on the outcomes in table 15, I conclude that there is significant evidence for the existence of difference between the discretionary accruals in the year before the CEO change and the year of the CEO change (T0; T-1). For 37 of the 50 cases, the discretionary accruals are lower in T0 compared with T-1.

For the comparison between T+1; T0 and T+1; T-1, there is significance evidence for the non-existence of difference between the discretionary accruals.

Table 15 | Wilcoxon signed ranks test for discretionary accruals

	N	Mean rank	Sum of ranks
T0; T-1	Negative ranks 37 (a)	23.860	883.000
	Positive ranks 13 (b)	30.150	392.000
T+1; T0	Negative ranks 26 (c)	24.080	626.000
	Positive ranks 24 (d)	27.040	649.000
T+1; T-1	Negative ranks 27 (e)	27.560	744.000
	Positive ranks 23 (f)	23.090	531.000

Note: (a) T0 < T-1 (c) T+1 < T0 (e) T+1 < T-1
 (b) T0 > T-1 (d) T+1 > T0 (f) T+1 > T-1

	Z-statistic	Signif. (2-tailed)
T0; T-1	-2.370 (g)	0.018
T+1; T0	-0.111 (f)	0.912
T+1; T-1	-1.028 (g)	0.304

(g) Based on positive ranks
 (f) Based on negative ranks

A one-sample t-test is made to test the hypotheses. An overview of the outcomes is given in table 16. Based on these outcomes, the conclusions can be made with regard to the hypotheses.

In the first hypothesis, I predict that CEO's manage earnings upwards in the last year of their tenure. This is the case for 29 of the 50 sample firms. The mean discretionary accruals (DA) in the year before the CEO change (T-1) is 0.0338, which is significant positive. This is confirming the hypothesis, and emphasizes that CEO's act myopically.

In the second hypothesis, I assume that CEO's take a big bath in the early years of their tenure. The outcomes do not indicate evidence for this, and therefore hypothesis two should be rejected. For as well as the year of the CEO change as the year thereafter, the discretionary accruals are significant positive. For 24 firms there are negative discretionary accruals observed in T0. Nevertheless, only in the case of the Vodafone Group PLC a reversal in T+1 is observed.

Furthermore, the Wilcoxon signed ranks test (table 17) indicates that there is no difference in the level of accruals in the year of and the year after the CEO change.

Nevertheless, it can be argued that the discretionary accruals in the year of the CEO change are lower than in T-1. So, the CEO change indeed seems to have influence on the level of earnings management.

Table 16 | Overview outcomes discretionary accruals

	N	df	Mean	Standard deviation	Standard error mean	t-statistic	Significance (2-tailed)	95% Confidence interval	
								lower	upper
T-1	50	49	0.0338	0.4327	0.0612	0.5520	0.5835	-0.0892	0.1568
T0	50	49	0.0106	0.4200	0.0594	0.1787	0.8589	-0.1088	0.1300
T+1	50	49	0.0242	0.4133	0.0584	0.4133	0.6812	-0.0933	0.1416

§5.2 Analysis

The results in the previous section indicate that CEO's manage earnings upwards in the years surrounding a CEO change. So, there is a relation between earnings management and the CEO change for a European setting. The principle-based accounting standards in Europe does not prevent earnings management, which is consistent with the notion of Van Beest (2011; see §2.4).

The significant outcomes also justified that it was a good choice to use the Modified Jones model with the performance adjustment of Kothari, Leone, & Wasley (2005) to detect earnings management.

Hypothesis 1

In this study, the discretionary accruals are significant positive in the year before the CEO change. These results indicate that CEO's do consider resignation, and therefore manage earnings upwards. As well as this study, two other reviewed studies were able to find positive accruals in the year of the CEO change. Guan, Wright, & Leikam (2005) find for their forced dismissal group a significant mean discretionary accrual of 0.028 in T-1. They used the cross-sectional variant of the Modified Jones model and investigated U.S. firms in the 90's. Wells (2002) also used the Modified Jones model and divided the sample in a routine and non-routine CEO change group. For his Australian sample in the period 1984 through 1994, Wells (2002) finds – in case of non-routine CEO changes – positive unexpected accruals (mean 0.165954) in the year before the CEO change. Nevertheless, his results were insignificant.

Contrary, Pourciau (1993) finds accruals that result in decreased earnings in the year before the CEO change. Nevertheless, her results are insignificant. Pourciau (1993, p. 333) suggests that the reason for this is that the actual non-routine executive change is quite low, and therefore, CEO's do not consider resignation, and therefore do not use earnings management techniques to increase earnings.

When taking the outcomes of prior researches into account, it can be argued that it does matter to make a distinction between routine and forced CEO resignations. Nevertheless, my results are significant without making such a distinction. I conclude from this that CEO's of large European firms are myopically, probably because of their reputational and compensation concerns, and therefore manage earnings upwards in the last year of their tenure.

When looking at the descriptives of the firms in the different samples of Wells (2002), Guan, Wright, & Leikam (2005) and my study¹⁴, it is clear that my sample consists of very much larger firms than the others. It can be argued that larger firms appoint more experienced managers, which have a good reputation. The results of my study indicate that this does not result in less opportunistically behaviour of CEO's, because the earnings are still managed. This is contrary to the outcomes of several reviewed studies. For example, Zhang (2009) argues that when CEO's have a good reputation, they will be less concerned with reputation building, and therefore will less

¹⁴ The mean total assets are:

Wells (2002):	\$2,602 billion in 1994
Guan, Wright, & Leikam (2005):	\$1,594 billion in T0 for the forced CEO dismissal sample
This study:	€64,548 billion in T0

manage earnings in an opportunistically way. Furthermore, Narayanan's (1985, p. 1470) results indicate that the incentives for short-termism reduce when managers have more experience.

Hypothesis 2

The results of this study do not indicate big bath accounting by incoming CEO's. For as well as the year of the CEO change as the first full year after the CEO change, the discretionary accruals are significantly positive. Nevertheless, it can be stated that the discretionary accruals are lower in the year of the CEO change than in the year therefor and after.

Contrary to my expectation, the discretionary accruals are positive in T0. A reason for this could be that the appointed CEO does not completely control the accounting decisions in the year of the CEO change. In this study, T0 is defined as the year of the CEO change, without any restrictions regarding the period in the year the change takes place. It is conceivable that the departing CEO has influence on the accounting decisions in the first periods of T0, which inextricably influence the accounting decisions in the rest of the year. For the incoming CEO, it is then perhaps no longer possible to influence the sign of earnings management, but only the level of it.

Because financial reporting is the primary responsibility of the CFO, it could be argued that the CFO has more influence on the reported earnings than the CEO. A study of Jiang, Petroni, & Wang (2010) supports this intuition. Their results indicate that the equity incentives of the CFO have more impact on earnings management compared with the CEO.

Another reason may be related to the reputation of the CEO. Because the sample of this study consists of the largest European firms, the function of the appointed CEO is generally the highest one he ever had. In the last decade, 73% of the departing CEO's of European large firms were insiders (Favaro, Karlsson, & Neilson, 2010, p. 5). Furthermore, the appointed CEO will be more in the spotlights than ever before. The CEO has the responsibility to be "visible" for their stakeholders. This will increase the pressure and intensity on him. Moreover, in §2.3.3 we saw that the job of the CEO is more difficult to sustain.

Based on these three reputational concerns, it can be argued that CEO's expect that they have such a short period to prove themselves, that they already manage earnings upwards in the first year of their tenure. The compensation motivation (see §2.3.3) will strengthen this perception.

When taking the reviewed studies into account, it can also be argued that it does matter to make a distinction between forced and routine CEO changes. For example, Wells (2002) finds negative

discretionary accruals in T0 in case of non-routine CEO changes. On the other hand, he finds positive unexpected accruals for the routine CEO change part. The same occurs for the study of Mather & Ramsay (2006), whereby the unexpected accruals are significant negative for the resignation sample and positive for the retirement sample. Nevertheless, both studies do not observe a reversal of accruals in the year after the CEO change, which would indicate big bath accounting.

The absence of such classification in this study probably causes noise and bias in the tests. Appointed CEO's will probably engage faster into big bath accounting when their predecessor had a forced dismissal. In this case, the new CEO can easily blame the dismissed CEO for underperforming in the year of the CEO change and manage earnings downwards at the detriment of his predecessor.

The absence of negative discretionary accruals could also be caused by the used model. The model may measure the accruals wrong and overestimate the discretionary accruals systematically. This will lead to inaccurate results.

Selection bias

Because of the small sample and the exclusion of 50% of the index, the selection of the sample performs some bias. The absence of the necessary data is the main reason of this.

When looking at the descriptives (see §4.2.2) it is clear that the sample consists of only the largest firms in Europe. Furthermore, the country of origin is not equally distributed. England, Germany and France represent 62% of the sample, while there are also a lot of European countries not represented in the sample, in particular Eastern European countries. Moreover, there is no Spanish firm included in the sample (see §4.2.1), while it has the fifth-largest economy of the European Union.

Due to the sample and the sample selection, it is hard to assume that the results of this study can be extrapolated to the entire population of European CEO changes.

§5.3 Limitations and implications for future research

This study has a few limitations. First, by investigation only FTSE Eurotop 100 index-listed firms, the sample is quite small. Certainly because half of the index listed firms are excluded from the sample for different reasons. When taking a larger sample, which consists of the largest firms of

every country, the explanatory power of the study can significantly be improved. Moreover, this will refute the sample bias. Second, I only use accruals as measure for earnings management. Other measurements, like real transaction management, are not investigated in this study. A similar method as Roychowdhury (2006) used is an opportunity. Hereby, real transaction management is distinguished in sales manipulation, reduction of discretionary expenditures, and overproduction. Third, the reason of the CEO change is not taken into account. Whether or not a CEO change is forced will probably influence the earnings management behaviour of the resigned CEO and his successor. A possibility hereby is to split up the sample in a forced and a non-routine sample, and perform the empirical test separately. Finally, the economic circumstances in the years surround the CEO change will influence the results of the firm, and therefore influence the results of the study. In this study, I do not control for such circumstances, like the dot-com bubble in the beginning of the 21st century and the financial crisis, which started in 2008. A possibility in this case is to split up the sample in a before and after period, like pre- and post IFRS and SOX studies did. Furthermore, it is convenient to determine the non-discretionary accruals cross-sectional, which exclude the influence of the economic circumstances over time.

When these four limitations can be obviated, such a study can be significantly improved. Another implication for future research is to extent the used model with several factors, which would enlarge the explanatory power of the relation between earnings management and the CEO change.

In the theoretical background (chapter 2) and literature review (chapter 3), there are several factors discussed which could add value to this model. First of all, CEO characteristics could be added to the model. The CEO's age, reputation, decision horizon, level of narcissism, employment background (inside or outside hired), and the composition of the compensation contract are examples of this. Also firm characteristics could be added, like the type of industry, board size, proportion of independent directors, shares hold by executives, and if the CEO also chairs the board.

Prior literature has shown that the above mentioned factors affect the earnings management behaviour of the CEO. For example, Favaro, Karlsson, & Neilson (2011) document that CEO's who are appointed from within the firm are on average two years longer CEO than outsiders. The longer tenure of the insiders could decrease the opportunistic behaviour of the CEO, because he has more time to prove himself. Furthermore, Antia, Pantzalis, & Park (2010) suggest that the

decision horizon of a CEO is limited to his tenure, and therefore the CEO has a preference for investments that provide short-term results.

As mentioned in §3.2, Mather & Ramsay (2006) find that larger boards and a higher proportion of independent directors are firm characteristics that reduce earnings management in the year of the CEO change. Furthermore, we saw that Said (2005) documents that managers smooth earnings when the bonus-based component increases in the structure of the CEO's compensation.

§5.4 Summary

In this chapter the results are discussed and an analysis is made. When looking at the firm-specific coefficients of the sample firms, it is striking that there are large differences between the coefficients of different firms. The coefficients β_4 (return on assets) and β_3 (gross property, plant and equipment) turned out to have the largest impact on the model.

The results of the model shows us that for all the observed years (T-1, T0, T+1) the total accruals (TAC) and the non-discretionary accruals (NDA) are on average negative, which results in a positive amount of discretionary accruals (DA). For all three types of accruals, there are no major differences over time. Based on these outcomes and the statistical test the first hypothesis is accepted and the second is rejected.

So, the results of this study are consistent with the notion that CEO's of large European firms are myopically, and therefore manage earnings upwards in the last year of their tenure. The test with regard to hypotheses two do not indicate big bath accounting. Contrary to my expectations, the discretionary accruals are positive in the year of the CEO change, but are lower than in T-1 and T+1.

I discussed three reasons for the absence of negative discretionary accruals in T-1. First, the appointed CEO does not completely control the accounting decisions in the year of the CEO change. Second, the reputational concerns may have led to income increasing earnings management in the first year of their tenure. Third, the absence of the distinction between forced and routine CEO changes probably causes noise and bias in the tests.

Furthermore, I pointed out four limitations of the research method in this chapter. The small sample (50 CEO changes) is the first limitation. Another limitation is that earnings management is only measured with accruals, and not with other measures, like real transaction management.

Furthermore, the reason of the CEO change (forced or not) and the economic circumstances around the CEO change are not taken into account in this study.

Finally, I pointed out some implications for future research. Not only the limitations can be solved to improve such a study, but also other factors which are discussed in previous chapters can be interesting to add to the model. This could include CEO and firm characteristics, such as the CEO's decision horizon, level of narcissism, and the board size.

6. CONCLUSION

This study aims to answer the question whether there is a relation between CEO changes and earnings management. The motivation behind this research question primarily came from the Positive Accounting Theory and the decrease in the average CEO tenure in the last decade. Based on this, I predict that CEO's have less time to prove themselves and therefore manage earnings upwards in the last year of their tenure, which will boost their reputation and compensation. Furthermore, I assume that appointed CEO's create a big bath in the first years of their tenure, so they can "clean up" their balance sheet and create a better starting position for their future (financial) performance.

Because of the principle-based accounting approach in Europe (IFRS), management of a firm has flexibility in making accounting choices and estimation decisions when they prepare the financial statements. Based on an opportunistic or efficiency perspective, the CEO of a firm has a lot of incentives and techniques to manage earnings, especially surrounding a CEO change.

The focus in this study is on accrual based earnings management, whereby the accruals are measured with the Modified Jones model with the performance adjustment of Kothari, Leone, & Wasley (2005). The investigated sample consists of 50 large European non-financial firms, which are listed on the FTSE Eurotop 100 index. For these firms, the last CEO change is subject to this study. Most of these changes (86%) took place in the period 2006 through 2011.

The outcomes of this study show that the negative total accruals and non-discretionary accruals result in a positive amount of discretionary accruals in the year before (T-1), the year of (T0), and the year after (T+1) the CEO change. For all three years, the discretionary accruals are significant positive, which indicate that CEO's do manage earnings opportunistically surrounding a CEO change. This supports the assumption that the decreasing CEO tenure influences the earnings management behaviour of CEO's.

Consistent with my hypothesis, the mean discretionary accruals are positive (mean 0.0338) in the last year of the CEO's tenure. This corresponds with the results of prior research of Guan, Wright, & Leikam (2005) and Wells (2002). 58% of the CEO's in the sample managed earnings upwards in the last year of their tenure.

The results of this study do not indicate big bath accounting by incoming CEO's. Although the discretionary accruals are significant lower in T0 than in T-1, the discretionary accruals are still positive in the year of the CEO change (mean 0.0106). Consistent with my assumption, the discretionary accruals are positive in T+1 (mean 0.0242) but are not significant higher than these in T0. Only in case of 1 CEO change, big bath accounting is observed.

It can be argued that the non-existence of significant negative accruals in the year of the CEO change is due to the absence of complete control over the accounting decisions by the appointed CEO. This is because the departing CEO has influence on the accounting decision in the first periods of T0 (till his resign). Moreover, the CFO of the firm could have more influence on the reported earnings than the CEO, because the CFO's primary responsibility is financial reporting.

REFERENCE LIST

- Arya, A., Glover, J., & Sunder, S. (2003). Are unmanaged earnings always better for shareholders? *Accounting Horizons*, 17, 111-116.
- Association of National Numbering Agencies. (2012). *ISINs & ISO 6166*. Retrieved June 24th, 2012, from ANNA-web: <http://www.anna-web.com/index.php/home/isinsaiso6166>
- Badertscher, B. (2011). Overvaluation and the choice of alternative earnings management mechanisms. *The Accounting Review*, 86(5), 1491-1518.
- Baskerville, P. (2011, November 10th). *What are accruals in accounting?* Retrieved from Saylor.org: <http://www.saylor.org/site/wp-content/uploads/2011/12/BUS103-ACCRUALS.pdf>
- Beest, van, F. (2011). *Rules-based and principles-based accounting standards and earnings management (dissertation)*. Nijmegen: Radboud Universiteit Nijmegen.
- Bova, F. (2008). *Labor unions, employee ownership, and management's incentive to signal declining profitability*. Working paper, University of Toronto.
- Chen, L., Dhaliwal, D., & Trombley, M. (2007). *The impact of earnings management and tax planning on the information content of earnings*. Working paper, University of Arizona.
- Christensen, T., Paik, G., & Stice, E. (2008). Creating a bigger bath using the deferred tax valuation allowance. *Journal of Business Finance & Accounting*, 35(5-6), 601-625.
- Conyon, M., Fernandes, N., Ferreira, M., Matos, P., & Murphy, K. (2010). *The executive compensation controversy: A transatlantic analysis*. Fondazione Rodolfo De Benedetti .
- Dechow, P., & Sloan, R. (1991). Executive incentives and the horizon problem. *Journal of Accounting and Economics*, 14, 51-89.
- Dechow, P., Sloan, R., & Sweeney, A. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193-225.
- Deegan, C., & Unerman, J. (2006). *Financial accounting theory* (European ed.). London: McGraw-Hill Education.
- Epstein, B., & Jermakowicz, E. (2008). *Wiley IFRS 2008: Interpretation and application of international financial reporting standards*. Wiley.
- Favaro, K., Karlsson, P., & Neilson, G. (2010). *CEO succession 2000-2009: A decade of convergence and compression*. Booz & Company Inc.
- Favaro, K., Karlsson, P., & Neilson, G. (2011). *CEO succession 2010: The four types of CEOs*. Booz & Company Inc.
- Fazeli, Y., & Rasouli, H. (2011). Real earnings management and the value relevance of earnings. *International Research Journal of Finance and Economics*, 62(3), 28-37.
- Fong, A. (2006). Earnings management in corporate accounting: An overview. *Cross-sections: The Bruce Hall Academic Journal*, 2, 81-95.
- FTSE (2011). *Ground rules for the management of the FTSE Eurotop 100, Euro 100 & FTSE EuroMid Indices (Version 9.7)*. FTSE International Limited.
- Gabriëls, P. (2008). *Earnings management & de verplichting tot IFRS (bachelor thesis)*. Erasmus University Rotterdam.
- Guan, L., Wright, C., & Leikam, S. (2005). Earnings management and forced CEO dismissal. *Advances in Accounting*, 21(5), 61-81.
- Healy, P., & Wahlen, J. (1998). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365-383.
- Hribar, P., & Collins, D. (2002). Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research*, 40(1), 105-134.

- International Accounting Standards Board. (2011). *International Financial Reporting Standards: as issued at 1 January 2011 (Part A: the Conceptual Framework and requirements & Part B: the accompanying documents)*. London: International Accounting Standards Committee Foundation.
- Jans, M., & Lybaert, N. (2007). De "award for the best financial information": Is deze maatstaf van informatiekwaliteit te beïnvloeden door winststuring? *Maandschrift Accounting & Bedrijfskunde*, 27(1), 13-23.
- Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Jiang, J., Petroni, K., & Wang, I. (2010). CFO's and CEO's: Who have the most influence on earnings management? *Journal of Financial Economics*, 96, 513–526.
- Kaszniak, R. (1999). On the association between voluntary disclosure and earnings management. *Journal of Accounting Research*, 37(1), 57-81.
- Klaassen, J., Hoogendoorn, M., & Vergoossen, R. (2008). *Externe verslaggeving* (7 ed.). Groningen/Houten: Wolters-Noordhoff.
- Kothari, S., Leone, A., & Wasley, C. (2005). Performance matched discretionary accrual measures. *Journal of Accounting and Economics*, 39(1), 163-197.
- Levitt, A. (1998). Remarks of chairman Arthur Levitt. *The numbers game*. N.Y.U. Center for Law and Business, New York: Securities and Exchange Commission.
- Mather, P., & Ramsay, A. (2006). The effects of board characteristics on earnings management around Australian CEO changes. *Accounting Research Journal*, 19(2), 78-93.
- McGregor, S. (2008, May 28th). *Earnings management and manipulation*. Retrieved March 28th, 2012, from Pace University:
<http://webpage.pace.edu/pviswanath/notes/corpfina/earningsmanip.html#types>
- McKee, T. (2005). *Earnings management: An executive perspective*. South-Western Educational Publishing.
- Mora, A., & Sabater, A. (2008). Evidence of income-decreasing earnings management before labour negotiations within firms. *Investigaciones económicas*, 32(2), 201-230.
- Mulford, C., & Comiskey, E. (2002). *The financial numbers game: Detecting creative accounting practices*. New York: John Wiley & Sons.
- Murphy, K., & Zimmerman, J. (1993). Financial performance surrounding CEO turnover. *Journal of Accounting and Economics*, 16, 273-315.
- Narayanan, M. (1985). Managerial incentives for short-term results. *The Journal of Finance*, 40(5), 1469-1484.
- Nes, van, J. (2009). *Earnings management and international financial reporting standards: The case of CEO turnover (master thesis)*. Erasmus University Rotterdam.
- Palepu, K., Healy, P., & Peek, E. (2010). *Business analysis and valuation; IFRS-edition (second edition, text only version)*. South-Western Cengage Learning.
- Pijper, T. (2008). *Are we better off under IFRS?* Moody's Global Corporate Finance.
- Pinto Vela, J., & Verkerk, S. (2012). *Is earnings management related to CEO tenure? (Research proposal Seminar Advanced Financial Accounting)*. Rotterdam.
- Pourciau, S. (1993). Earnings management and nonroutine executive changes. *Journal of Accounting and Economics*, 16, 317–336.
- Pourciau, S. (1993). Earnings management and nonroutine executive changes. *Journal of Accounting and Economics*, 16, 317–336.
- Rijssenbilt, A. (2011). *CEO narcissism: Measurement and impact (dissertation)*. Rotterdam: Erasmus Research Institute of Management.
- Ronen, J., & Yaari, V. (2008). *Earnings management: Emerging insights in theory, practice, and research*. Springer science+Business media.

- Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335–370.
- Said, A. (2005). *The dynamic relation between the structure of compensation and earnings management (paper based on dissertation)*. Toledo: University of Toledo.
- Schipper, K. (1989). Commentary on earnings management. *Accounting Horizons*, 3(4-5), 91-102.
- Turner, L., & Weirich, T. (2006, December). *A closer look at financial statement restatements: Analyzing the reasons behind the trend*. Opgehaald van The CPA Journal Online: <http://www.nysscpa.org/cpajournal/2006/1206/infocus/p12.htm>
- Vander Bauwhede, H., & Willekens, M. (2003). Earnings management in Belgium: A review of the empirical evidence. *Tijdschrift voor Economie en Management*, XLVIII(2), 199-217.
- Višnevská, O. (2010). Earnings management through goodwill impairment: CEO and CFO tenure impact. In *Accountability: Papers from master theses 2009* (pp. 128-146). Rotterdam: Erasmus University Rotterdam.
- Watts, R., & Zimmerman, J. (1986). *Positive accounting theory*. New Jersey: Prentice-Hall International.
- Wells, P. (2002). Earnings management surrounding CEO changes. *Accounting and Finance*, 42, 169–193.
- Wharton Research Data Services. (2012, July 13th). *SEDOL*. Retrieved from Wharton Research Data Services: http://wrds-web.wharton.upenn.edu/wrds/support/Data/_001Manuals%20and%20Overviews/_001Compustat/_001General/_000dataguide/sedol.cfm
- Wilson, M., & Wang, L. (2010). Earnings management following chief executive officer changes: the effect of contemporaneous chairperson and chief financial officer appointments. *Accounting and Finance*, 50(2), 447-480.
- Zang, A. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review*, 87(2), 675-703.
- Zhang, W. (2009). CEO tenure and earnings quality. *Dissertation*.

APPENDIX A | OVERVIEW USED LITERATURE FOR LITERATURE STUDY

Pourciau, S. (1993). Earnings management and nonroutine executive changes. *Journal of Accounting and Economics*, 16, 317–336.

Object of study	Sample	Methodology	Results
The relation between non-routine executive changes and discretionary accounting choices.	<ul style="list-style-type: none"> • U.S. firms • Compact disclosure database • 1985 to 1988 • 73 CEO changes 	<ul style="list-style-type: none"> • Random walk model • Variables: Unexpected earnings, accruals, cash flows, and special items for the years T-1, T0, and T+1 • The earnings measure is net income and accruals are defined as net income minus cash flow • Each measure is scaled by current-year sales prior to differencing 	<ul style="list-style-type: none"> • Departing executives record unexpected accruals and large write-offs decreased earnings in the year before the executive change. • In the year of the executive change, the unexpected accruals and write-offs result in decreased earnings. In T+1 the reverse takes place, but the results are not statistically significant in general. • Evidence EM? Yes, insignificant

Murphy, K.J., & Zimmerman, J.L. (1993). Financial performance surrounding CEO turnover. *Journal of Accounting and Economics*, 16, 273-315.

Object of study	Sample	Methodology	Results
The behaviour of a variety of financial variables surrounding CEO turnover.	<ul style="list-style-type: none"> • U.S. firms (Forbes 500) • Forbes compensation surveys • 1971 to 1990 • 1,063 CEO changes 	<ul style="list-style-type: none"> • investigation of eight financial variables • Different models for each variable • Ordinary least squares (OLS) and two-stage least-squares (2SLS) regressions • Five years before through five years after the CEO change 	<ul style="list-style-type: none"> • The variables research & development, advertising, capital expenditures, and accrual are lower in the year T-1 and T0, but are a result of firm performance. • In case of non-routine CEO changes, the accruals are significant negative the year of the CEO change, but the accruals remain negative in the first years after the CEO change. • Evidence EM? No

Wells, P. (2002). Earnings management surrounding CEO changes. *Accounting and Finance*, 42(2), 169–193.

Object of study	Sample	Methodology	Results
The extent of opportunistic earnings management in the periods surrounding CEO changes for Australian firms.	<ul style="list-style-type: none"> • 100 largest Australian Securities Exchange listed firms • Jobson's Yearbook of Australian Companies • 30 June 1984 to 30 June 1994 • 65 CEO changes, reported by 42 firms. 	<ul style="list-style-type: none"> • Modified Jones model to estimate unmanaged or expected accruals • Seemingly Unrelated Regression • Two way cross tabulation • T-1, T0, T+1, T+2 	<ul style="list-style-type: none"> • Non-routine CEO changes report positive unexpected accruals in T-1. In contrast, routine CEO changes report income decreasing unexpected accruals. Nevertheless, both results are insignificant, • In case of non-routine CEO changes, there are negative unexpected accruals due to abnormal and extraordinary items in the year of the CEO change (T0). The unexpected accruals are still negative in the first and second full period of the CEO (T+1 and T+2). So, there is no reversal of earnings. • The results are nearly all insignificant. • Evidence EM? Yes, insignificant

Guan, L., Wright, C.J., & Leikam, S.L. (2005). Earnings management and forced CEO dismissal. *Advances in Accounting*, 21, 61–81.

Object of study	Sample	Methodology	Results
The discretionary accounting choices made by CEO's facing forced dismissal.	<ul style="list-style-type: none"> • U.S. firms • Wall Street Journal • 1990 to 1998 • 172 firms; 94 firms forced dismissal, 78 firms other reasons 	<ul style="list-style-type: none"> • Modified Jones model and cross-sectional estimation method to measure discretionary accruals • Total accruals are estimated with the direct method • T-2, T-1, T0 	<ul style="list-style-type: none"> • Outgoing CEO's who manage earnings upward when they face resignation. • For as well as the non-routine sample as the forced dismissal group, the researchers find significant negative discretionary accruals in the year of the CEO change. • Evidence EM? Yes, significant

Narayanan, M.P. (1985). Managerial incentives for short-term results. *The Journal of Finance*, 40(5), 1469-1484.

Object of study	Sample	Methodology	Results
Investigation of managerial incentives to take decisions that result in short-term results at the expense of stockholders value.	(No empirical research)	<ul style="list-style-type: none"> • Game theoretical model 	<p>The incentives for short-termism reduce when:</p> <ul style="list-style-type: none"> • managers have more experience and have long-term contracts; • a firm has risky cash flows; and • managers have compensation contracts that are based on long-term firm performance.

Zhang, W. (2009). *CEO tenure and earnings quality (working paper)*.

Object of study	Sample	Methodology	Results
Investigation of the relation between CEO tenure and earnings quality.	<ul style="list-style-type: none"> • U.S. firms • Obtain data from: ExecuComp database, Compustat Annual Tape File, CRSP database, IRRC Corporate Governance database, Thomson Reuters 13f File • 1993 to 2006 • 14,234 observations 	<ul style="list-style-type: none"> • The Basu and Ball & Shivakumar model to measure aggressive reporting of earnings. • Combination of the models of Jones and Dechow & Dichev to measure discretionary accruals 	<ul style="list-style-type: none"> • Long-tenured CEO's report earnings less aggressively compared with short-tenured CEO's. • Short-tenured CEO's recognizes losses in a timelier manner and report lower discretionary accruals • "Long-tenured CEO's care more about protecting their reputation with higher quality reporting, while short-tenured CEO's care more about establishing their reputation with more aggressive reporting". • CEO's with a tenure of at least six years recognize losses in a timelier manner in the second half of their tenure. • CEO's report more aggressively in the last year of their tenure. • Evidence EM? Yes, significant

Antia, M., Pantzalis, C., & Park, J.C. (2010). CEO decision horizon and firm performance: An empirical investigation. *Journal of Corporate Finance*, 16(3), 288-301.

Object of study	Sample	Methodology	Results
Investigation of the effect of CEO's myopia on agency costs, market valuation and the level of information risk	<ul style="list-style-type: none"> • U.S. firms (S&P 500) • 1,135 observations • 1996 through 2003 	<ul style="list-style-type: none"> • The CEO's decision horizon is estimated by the CEO's expected tenure, which is measured with the relative age and current tenure of the CEO. • Agency costs is measured by free cash flows (standardized by total assets) with poor growth opportunities. • Information risk is measured by the quality of earnings and the information asymmetry between investors. • The market valuation is measured by Tobin's Q. 	<ul style="list-style-type: none"> • There is a positive association between short CEO decision horizons and agency costs. • Shorter CEO horizon is associated with higher levels of information risk. • A longer decision horizon leads to better firm performance, which results in higher market valuation. • Evidence EM? Yes, significant

Višnevskáá, O. (2010). Earnings management through goodwill impairment: CEO and CFO tenure impact. In *Accountability: Papers from master theses 2009* (pp. 128-146). Rotterdam: Erasmus University Rotterdam.

Object of study	Sample	Methodology	Results
The association between the tenure and prior employment of the CEO and CFO and the company's financial reporting behaviour in relation to the magnitude of goodwill impairment.	<ul style="list-style-type: none"> • FTSE Eurotop 100 index firms • Annual reports • 2006 and 2007 • 58 firms, 116 observations 	<ul style="list-style-type: none"> • Multivariate regression model • Independent variables: CEO & CFO tenure, CEO & CFO prior employment by company • Control variables: EBITDA, net income after tax, company size, leverage 	<ul style="list-style-type: none"> • There is a positive association between goodwill impairment charges and the CEO tenure. • Internal-hired CEO's report relatively higher goodwill impairment charges compared with CEO's who are hired from outside the firm. • There are no significant associations between goodwill impairment charges and the employment background and tenure of the CFO. • Evidence EM? Yes, significant

Mather, P., & Ramsay, A. (2006). The effects of board characteristics on earnings management around Australian CEO changes. *Accounting Research Journal*, 19(2), 78-93.

Object of study	Sample	Methodology	Results
Testing whether certain board characteristics are effective in controlling perceived opportunistic earnings management around CEO changes.	<ul style="list-style-type: none"> • Australian firms • Australian Financial Review database • 1992 to 1999 • 87 firms; 27 retirements, 60 resignation 	<ul style="list-style-type: none"> • Ordinary least squares regression • In measuring unexpected accruals using each firm as its own control and assuming that expected accruals remain constant • Including in de model: 4 board characteristics, 5 control variables, 2 dummy variables • T0, T+1 	<ul style="list-style-type: none"> • In T0, the unexpected accruals are negative for the resignation sample and positive for the retirement sample (both significant). There is no reversal in the year after the CEO's resignation (T+1). The retirement sample shows evidence for significant positive unexpected accruals in the year after the CEO change. • Larger boards and a higher proportion of independent directors reduce the negative unexpected accruals significantly in T0. • For CEO retirements, none of the examined board characteristics influences earnings management significantly in T0. • Evidence EM? Yes, significant

Christensen, T.E., Paik, G.H., & Stice, E.K. (2008). Creating a bigger bath using the deferred tax valuation allowance. *Journal of Business Finance & Accounting*, 35(5-6), 601-625.

Object of study	Sample	Methodology	Results
Testing if managers use a deferred tax valuation allowance to make a big bath even bigger	<ul style="list-style-type: none"> • U.S. firms • Annual Compustat file • EDGAR database to obtain deferred tax and valuation allowance data • 1996 through 1998 • 444 firms 	<ul style="list-style-type: none"> • Include firms if the reported special charges exceeding 10% of their total assets • Deferred tax valuation allowance prediction model 	<ul style="list-style-type: none"> • Managers do not use the deferred tax valuation allowance as an additional element in big bath accounting. • A small number of firms have used the tax valuation allowance to meet or beat analysts' forecasts. • Evidence EM? No

Wilson, M., & Wang, L.W. (2010). Earnings management following chief executive officer changes: the effect of contemporaneous chairperson and chief financial officer appointments. *Accounting and Finance*, 50, 447–480.

Object of study	Sample	Methodology	Results
Testing the effect of contemporariness chairperson and CFO appointments on earnings management by incoming CEO's.	<ul style="list-style-type: none"> • Australian firms • Aspect Financial Analysis • Connect 4's Boardroom Review • 1999 through 2007 • 4,740 firm year observations • 527 CEO appoitments whereof 186 where contemporaneous CEO and chairperson appointments 	<ul style="list-style-type: none"> • Cross-sectional modified Jones model with performance adjustment of Kothari, Leone, & Wasley (2005) • Total accruals are estimated with the indirect method 	<ul style="list-style-type: none"> • There is no evidence for earnings management in the first full financial period following a CEO change. • A CEO change which is accompanied with a change of the chairperson is associated with significant income-decreasing earnings management in year of appointment. • There is no evidence for a significant relationship between contemporaneous CEO and CFO changes and income and earnings management in the year of appointment. • Evidence EM? Yes, significant

Said, A.A. (2005). *The dynamic relation between the structure of compensation and earnings management (paper based on dissertation)*. Toledo: University of Toledo.

Object of study	Sample	Methodology	Results
Testing if the structure of the CEO's compensation is related to the extend and form of earnings management	<ul style="list-style-type: none"> • U.S. firms • ExecuComp database • Compustat • 1992 through 1998 • 3,938 firm year observations 	<ul style="list-style-type: none"> • Cross-sectional version of the Jones model • Total accruals are estimated with the indirect method • Ordinary least squares and two-satge least squares • Hausman specification test for endogeneity 	<ul style="list-style-type: none"> • Managers manipulate earnings significant in order to maximize their bonus- and stock-based compensation. • When the bonus-based component increases in the structure of the compensation, managers will smooth income. • Managers smooth less earnings as the stock-based compensation decreases in the compensation structure. • Evidence EM? Yes, significant

APPENDIX B | INFORMATION SAMPLE FIRMS

	Firm	Country	Industry	Number of employees	Date of CEO change	Last/penultimate CEO change	*Years for calculating β
1	ABB Limited	Switzerland	Engineering & machinery	133,600	1-Sep-2008	Last	13
2	Anglo American PLC	England	Mining	100,000	1-Mar-2007	Last	10
3	Anheuser-Busch Inbev SA	Belgium	Beverages	116,278	1-Mar-2006	Last	13
4	AstraZeneca PLC	England	Pharmaceuticals & biotechnology	57,200	1-Jan-2006	Penultimate	13
5	Atlas Copco AB	Sweden	Diversified industrials	37,579	1-Jun-2009	Last	12
6	Bayer AG	Germany	Chemicals	111,800	1-Oct-2010	Last	13
7	BMW AG	Germany	Automobiles & parts	100,306	1-Sep-2006	Last	13
8	BHP Billiton PLC	England	Mining	40,757	1-Oct-2007	Last	10
9	BP PLC	England	Oil & gas	83,400	23-Jun-2010	Last	13
10	British American Tobacco PLC	England	Tobacco	87,813	1-Jan-2004	Penultimate	12
11	Carrefour SA	France	Food & drug retailers	471,755	1-Jan-2009	Penultimate	13
12	Centrica PLC	England	Oil & gas	39,432	1-Jul-2006	Last	13
13	Compagnie De St-Gobain	France	Construction & building materials	194,658	7-Jun-2007	Last	13
14	Daimler AG	Germany	Automobiles & parts	271,370	1-Jan-2006	Last	10
15	Deutsche Telekom AG	Germany	Telecommunication services	235,132	13-Nov-2006	Last	13
16	E On AG	Germany	Electricity	78,889	1-May-2010	Last	13
17	Electricite De France	France	Electricity	158,842	25-Nov-2009	Last	11
18	ENI	Italy	Diversified industrials	79,313	1-Jun-2005	Last	12
19	Ericsson 'B' AB	Sweden	Software & computer services	104,525	1-Jan-2010	Last	13
20	Fortum OYJ	Finland	Electricity	10,585	1-May-2009	Last	13
21	France Telecom	France	Telecommunication services	171,949	1-Mar-2010	Last	13
22	Glaxosmithkline PLC	England	Pharmaceuticals & biotechnology	97,389	21-May-2008	Last	10
23	H & M Hennes & Mauritz AB	Sweden	Clothing, leisure & personal products	64,874	1-Jul-2009	Last	13
24	Heineken NV	Netherlands	Beverages	64,252	1-Oct-2005	Last	12
25	Holcim Limited	Switzerland	Diversified industrials	80,967	1-Jan-2002	Penultimate	10

Firm	Country	Industry	Number of employees	Date of CEO change	Last/penultimate CEO change	*Years for calculating β
26 Imperial Tobacco Group PLC	England	Tobacco	38,200	13-May-2010	Last	13
27 Linde AG	Germany	Chemicals	50,417	1-Jan-2003	Last	10
28 L'Oreal	France	Clothing, leisure & personal products	68,886	25-Apr-2006	Last	13
29 National Grid PLC	England	Electricity	n/a	1-Jan-2007	Last	13
30 Nestle SA	Switzerland	Food producers & processors	328,000	10-Apr-2008	Last	13
31 Nokia Corporation	Finland	Telecommunication services	130,050	21-Sep-2010	Last	13
32 Novartis AG	Switzerland	Pharmaceuticals & biotechnology	123,686	1-Feb-2010	Last	13
33 Kon. Philips Electronics NV	Netherlands	Clothing, leisure & personal products	125,241	30-Apr-2001	Penultimate	11
34 Rio Tinto PLC	England	Mining	67,930	1-May-2007	Last	13
35 Roche Holding AG	Switzerland	Pharmaceuticals & biotechnology	80,129	4-Mar-2008	Last	13
36 Royal Dutch Shell	England	Oil & gas	90,000	1-Jul-2009	Last	13
37 RWE AG	Germany	Utilities	72,068	1-Oct-2007	Penultimate	13
38 Sanofi	France	Pharmaceuticals & biotechnology	113,719	1-Dec-2008	Last	10
39 SAP AG	Germany	Software & computer services	55,765	7-Feb-2010	Last	13
40 Schneider Electric SA	France	Electronic & electrical equipment	140,491	3-May-2006	Last	13
41 Siemens AG	Germany	Electronic & electrical equipment	350,500	1-Jul-2007	Last	13
42 Statoil ASA	Norway	Oil & gas	31,715	15-Aug-2004	Last	12
43 Syngenta AG	Switzerland	Chemicals	26,300	1-Jan-2008	Last	9
44 Telecom Italia	Italy	Telecommunication services	84,154	3-Dec-2007	Last	9
45 Teliasonera AB	Sweden	Telecommunication services	28,412	3-Sep-2007	Last	11
46 Total SA	France	Oil & gas	96,104	14-Feb-2007	Last	13
47 Unilever NV	Netherlands	Food producers & processors	169,000	1-Jan-2009	Last	13
48 Vinci SA	France	Construction & building materials	183,320	9-Jan-2006	Last	10
49 Vodafone Group PLC	England	Telecommunication services	86,373	9-Oct-2006	Last	13
50 Volkswagen AG	Germany	Automobiles & parts	97,691	1-Jan-2007	Last	13

* Number of years used to determine the firm-specific coefficients in order to calculate the non-discretionary accruals (step 2).

APPENDIX C | INFORMATION EXCLUDED FIRMS

Excluded financials

	Firm	Country	Industry
1	Allianz SE	Germany	Insurance
2	AXA	France	Insurance
3	Banco Santander SA	Spain	Banks
4	Barclays PLC	England	Banks
5	Banco Bilbao Vizcaya Argentaria SA	Spain	Banks
6	BNP Paribas	France	Banks
7	Credit Agricole SA	France	Banks
8	Credit Suisse Group AG	Switzerland	Banks
9	Deutsche Bank AG	Germany	Banks
10	Assicurazioni Generali	Italy	Insurance
11	HSBC Holdings PLC	England	Banks
12	ING Groep NV	Netherlands	Insurance
13	Intesa Sanpaolo	Italy	Banks
14	Lloyds Banking Group PLC	England	Banks
15	Munchener Rueckversicherung Ges.	Germany	Insurance
16	Nordea Bank AB	Sweden	Banks
17	Prudential PLC	England	Life assurance
18	Royal Bank of Scotland Group PLC	Scotland	Banks
19	Societe Generale	France	Banks
20	Standard Chartered PLC	England	Banks
21	UBS AG	Switzerland	Banks
22	Unicredit	Italy	Banks
23	Zurich Insurance Group AG	Switzerland	Insurance

Excluded because CEO changes is associated with a merger

	Firm	Country	Industry
24	ArcelorMittal	Luxembourg	Steel & other metals
25	GDF Suez	France	Oil & gas

Excluded because of double inclusion of firm in sample

	Firm	Country	Industry
26	Unilever PLC	Switzerland	Clothing, leisure & personal products

Excluded because non-existence of CEO change

	Firm	Country	Industry
27	Comp. Financiere Richemont SA	England	Food producers & processors

Excluded firms because not all necessary data was available

Firm	Country	Industry	Date of CEO change	Last/Penultimate CEO change	First year all data available
28 AP Moller-Maersk A/S	Denmark	Diversified industrials	5-Nov-2007	Last	2002 (a)
29 Air Liquide	France	Chemicals	1-Sep-1997	Last	1997 (b)
30 BASF SE	Germany	Chemicals	6-May-2003	Penultimate	1998 (b)
31 BG Group PLC	England	Oil & Gas	23-Oct-2000	Last	1994 (b)
32 Danone	France	Food producers & processors	2-May-1996	Last	1994 (b)
33 Diageo PLC	England	Beverages	1-Sep-2000	Last	1994 (c)
34 Endesa SA	Spain	Electricity	30-Jun-2009	Last	2005 (b)
35 Enel Spa	Italy	Electricity	30-May-2005	Last	1994 (d)
36 Glencore International PLC	Switzerland	Mining	2-Jan-2002	Last	2009 (a)
37 Iberdrola SA	Spain	Utilities	21-May-2001	Last	2005 (b)
38 Inditex SA	Spain	General retailers	9-Jun-2005	Last	2002 (a)
39 LVMH	France	Clothing, leisure & personal products	13-Jan-1989	Last	1994 (b)
40 Novo Nordisk A/S	Denmark	Pharmaceuticals & biotechnology	Nov-2000	Last	1994 (b)
41 Reckitt Benckiser Group PLC	England	Clothing, leisure & personal products	3-Dec-1999	Penultimate	1994 (b)
42 Repsol YPF SA	Spain	Oil & gas	27-Oct-2004	Last	2005 (b)
43 SABMiller PLC	England	Beverages	Mar-1999	Last	1993 (e)
44 Telefonica SA	Spain	Telecommunication services	26-Jul-2000	Last	2005 (b)
45 Telenor ASA	Norway	Telecommunication services	21-Jun-2002	Last	1999 (a)
46 Tenaris SA	Luxembourg	Steel & other metals	31-Jan-2003	Last	2000 (a)
47 Tesco PLC	England	Food & drug retailers	Feb-1997	Penultimate	1994 (e)
48 Vivendi	France	Media & entertainment	28-Apr-2005	Penultimate	1998 (f)
49 Volvo AB	Sweden	Diversified industrials	1997	Penultimate	1994 (b)
50 Xstrata PLC	Switzerland	Mining	1-Oct-2001	Last	2002 (a)

(a) Absence of all items till first year all necessary data was available.

(b) Absence of cash flow from operations till first year all necessary data was available.

(c) Absence of gross property, plant and equipment and net accounts receivables in 2005.

(d) Absence of gross property, plant and equipment in 2005.

(e) Absence of net accounts receivables till first year all necessary data was available.

(f) Absence of gross property, plant and equipment in 2003 and 2004.

APPENDIX D | FINANCIAL ITEMS SAMPLE FIRMS

Firm	T	EXBI	CFO	TA	REV	REC	PPE	ROA
1 ABB Limited	T-1	2,285	2,201	20,994	21,034	5,472	5,879	14.63
	T0	2,259	2,876	23,376	25,367	6,232	6,271	10.48
	T+1	2,102	2,936	23,815	23,180	6,119	6,793	9.40
2 Anglo American PLC	T-1	4,942	6,490	34,972	26,420	3,306	27,522	13.53
	T0	3,590	4,439	30,392	17,273	2,079	22,766	16.70
	T+1	2,922	4,253	35,312	14,695	1,405	27,531	10.78
3 Anheuser-Busch Inbev SA	T-1	904	2,286	22,631	11,656	1,714	14,241	6.32
	T0	1,411	3,287	25,389	13,308	1,823	14,286	7.52
	T+1	2,198	4,064	28,036	14,430	1,680	14,829	9.92
4 AstraZeneca PLC	T-1	3,777	5,577	20,094	19,222	3,188	11,016	19.74
	T0	4,827	6,427	21,776	21,150	3,252	11,307	23.04
	T+1	3,794	5,336	32,193	20,046	3,655	11,553	15.50
5 Atlas Copco AB	T-1	907	808	6,614	6,748	1,401	1,653	17.60
	T0	610	1,446	6,393	6,224	1,192	1,762	10.40
	T+1	1,100	1,200	7,796	7,748	1,477	1,960	15.51
6 Bayer AG	T-1	1,359	4,646	50,092	31,168	6,106	24,535	3.85
	T0	1,301	5,309	50,332	35,088	6,668	26,262	3.53
	T+1	2,470	4,565	51,454	36,528	7,061	27,076	5.84
7 BMW AG	T-1	2,239	10,691	73,794	46,656	14,146	42,055	3.49
	T0	2,868	9,980	78,302	48,999	14,959	45,593	4.06
	T+1	3,126	11,794	88,277	56,018	16,761	50,914	3.97
8 BHP Billiton PLC	T-1	8,491	8,512	36,534	26,124	2,178	38,460	25.30
	T0	10,240	11,904	40,954	30,149	2,452	42,400	26.37
	T+1	9,669	11,409	45,912	37,365	5,074	44,662	23.92
9 BP PLC	T-1	11,961	19,998	165,634	172,638	15,901	162,684	7.19
	T0	-2,813	10,300	203,281	224,756	18,145	175,232	-1.22
	T+1	19,121	16,483	225,479	279,388	21,533	186,567	8.98
10 British American Tobacco PLC	T-1	896	3,077	26,554	15,001	1,808	7,603	4.62
	T0	1,551	2,420	24,896	15,204	1,336	6,548	7.31
	T+1	2,577	2,997	27,299	13,572	1,591	7,150	11.16
11 Carrefour SA	T-1	1,256	4,887	51,410	86,967	2,919	30,401	3.18
	T0	327	3,484	50,841	85,963	2,238	32,115	1.12
	T+1	433	2,737	52,884	90,099	2,555	33,726	1.29
12 Centrica PLC	T-1	1,407	1,527	18,911	19,572	1,374	10,032	10.03
	T0	-218	825	16,108	24,416	1,769	10,670	0.90
	T+1	1,740	2,990	16,105	22,251	1,913	10,669	14.24
13 Compagnie De St-Gobain	T-1	1,637	2,648	41,328	41,596	6,301	28,439	5.06
	T0	1,487	3,755	40,810	43,421	6,211	28,262	4.69
	T+1	1,378	3,379	42,888	43,800	5,647	30,163	4.57
14 Daimler AG	T-1	2,851	12,353	198,904	149,776	68,696	134,437	1.99
	T0	3,231	14,016	187,410	151,616	59,693	133,919	2.06
	T+1	4,849	13,088	133,212	99,399	22,641	71,289	2.45
15 Deutsche Telekom AG	T-1	5,682	14,998	120,328	59,604	7,512	116,044	6.97
	T0	3,203	14,195	121,208	61,347	7,749	118,181	5.00
	T+1	569	13,714	114,054	62,516	7,693	117,173	1.52

Firm	T	EXBI	CFO	TA	REV	REC	PPE	ROA
16 E On AG	T-1	8,396	9,054	149,560	81,817	11,577	121,449	6.44
	T0	5,853	11,085	150,400	92,863	15,819	123,498	5.30
	T+1	-2,219	6,610	147,720	112,954	18,065	117,999	0.16
17 Electricite De France	T-1	3,400	7,572	197,376	64,279	19,144	204,458	2.37
	T0	3,905	12,374	238,815	66,336	19,633	231,783	2.66
	T+1	1,020	11,488	238,434	65,165	19,524	199,645	0.85
18 ENI	T-1	7,274	12,362	67,092	61,240	10,785	78,968	11.67
	T0	8,788	14,936	81,989	73,679	14,593	90,710	11.70
	T+1	9,217	17,001	86,587	85,957	15,230	94,084	11.14
19 Ericsson 'B' AB	T-1	358	2,389	24,940	20,156	6,483	2,751	1.85
	T0	1,236	2,947	29,835	22,547	6,778	3,175	4.62
	T+1	1,370	1,122	30,040	25,499	7,250	3,578	5.01
20 Fortum OYJ	T-1	1,542	2,002	20,276	5,636	849	18,133	9.72
	T0	1,312	2,264	19,794	5,435	784	19,459	7.54
	T+1	1,300	1,437	21,823	6,296	943	22,125	7.04
21 France Telecom	T-1	2,997	14,384	88,305	45,944	5,494	82,129	4.87
	T0	3,920	12,588	89,852	45,503	5,596	85,596	7.24
	T+1	3,895	12,879	92,532	45,277	4,905	85,468	5.61
22 Glaxosmithkline PLC	T-1	7,099	8,227	39,223	30,929	6,341	20,542	21.14
	T0	4,760	7,040	37,889	25,187	5,530	19,638	15.50
	T+1	6,225	8,068	45,572	31,930	6,211	21,112	15.81
23 H & M Hennes & Mauritz AB	T-1	1,488	1,748	4,860	8,614	194	2,110	33.70
	T0	1,561	1,713	5,062	9,663	190	2,314	31.79
	T+1	2,041	2,385	6,348	11,850	247	2,786	33.59
24 Heineken NV	T-1	537	1,520	10,401	10,005	948	12,422	6.48
	T0	761	1,872	11,543	10,796	1,464	11,074	8.24
	T+1	1,211	1,849	12,602	11,829	1,410	11,146	11.24
25 Holcim Limited	T-1	549	1,625	18,293	9,229	1,408	18,430	5.09
	T0	349	1,646	17,721	8,967	1,161	18,189	3.44
	T+1	440	1,679	15,874	8,077	1,110	16,762	4.15
26 Imperial Tobacco Group PLC	T-1	725	3,352	34,769	16,137	2,933	3,174	3.94
	T0	1,737	2,631	35,165	17,335	3,180	3,480	6.26
	T+1	2,085	2,327	35,373	17,633	3,176	3,644	7.50
27 Linde AG	T-1	240	1,274	12,062	8,726	1,734	10,619	3.27
	T0	108	1,281	11,783	8,992	1,570	10,523	1.56
	T+1	274	1,249	11,468	9,421	1,454	10,827	3.35
28 L'Oreal	T-1	1,972	2,094	23,461	14,533	2,380	5,299	9.41
	T0	2,061	2,476	24,353	15,790	2,559	5,655	9.09
	T+1	2,656	2,644	22,784	17,063	2,618	5,846	11.93
29 National Grid PLC	T-1	1,803	3,252	36,928	13,176	1,201	41,664	16.31
	T0	2,054	3,445	41,828	12,811	940	42,710	7.27
	T+1	2,024	3,099	47,441	13,849	1,458	44,161	11.80
30 Nestle SA	T-1	6,434	8,119	67,930	64,980	7,265	29,891	11.10
	T0	12,192	7,274	69,867	74,284	7,132	31,219	17.57
	T+1	7,031	12,092	73,302	67,817	6,355	31,749	10.35

Firm	T	EXBI	CFO	TA	REV	REC	PPE	ROA
31 Nokia Corporation	T-1	891	3,249	34,231	40,984	7,981	5,447	2.66
	T0	1,850	4,775	37,527	42,446	7,570	5,629	5.69
	T+1	-1,164	1,138	34,357	38,659	7,181	5,652	-2.53
32 Novartis AG	T-1	6,136	8,906	63,507	32,338	5,806	18,097	11.16
	T0	8,151	11,707	97,857	42,129	8,182	23,998	9.97
	T+1	6,597	10,358	86,268	42,482	7,977	23,132	7.55
33 Kon. Philips Electronics NV	T-1	9,602	2,996	37,625	37,862	5,905	20,265	29.62
	T0	-2,604	1,248	36,972	32,339	5,298	18,069	-5.76
	T+1	-3,206	2,228	31,137	31,820	4,517	16,015	-8.18
34 Rio Tinto PLC	T-1	5,942	6,606	25,991	17,946	1,613	28,827	23.35
	T0	4,959	5,872	69,176	20,142	3,333	43,960	11.25
	T+1	2,044	8,469	63,345	30,174	2,671	43,513	4.41
35 Roche Holding AG	T-1	5,897	7,558	46,440	27,872	5,809	17,765	13.36
	T0	6,062	8,497	50,190	30,831	6,471	20,370	12.09
	T+1	5,249	11,082	48,542	33,074	6,923	21,523	12.67
36 Royal Dutch Shell PLC	T-1	14,754	24,458	197,656	257,368	21,831	165,298	8.86
	T0	8,966	15,020	200,410	199,255	20,812	188,683	4.28
	T+1	15,226	19,800	237,293	278,427	28,005	213,598	6.89
37 RWE AG	T-1	2,509	6,783	89,837	42,871	8,876	76,474	6.05
	T0	2,659	6,085	81,175	41,053	8,816	68,888	4.05
	T+1	2,558	9,326	91,821	47,500	10,415	71,050	3.75
38 Sanofi	T-1	5,263	7,106	69,002	28,052	4,904	10,378	7.71
	T0	3,851	8,523	69,067	27,568	5,303	11,551	5.96
	T+1	5,265	8,515	77,137	29,306	6,015	13,104	7.51
39 SAP AG	T-1	1,748	3,015	12,976	10,672	2,546	2,562	13.77
	T0	1,811	2,932	20,105	12,464	3,099	2,739	11.31
	T+1	3,438	3,775	22,760	14,233	3,431	2,918	16.46
40 Schneider Electric SA	T-1	994	1,325	15,820	11,679	2,515	4,461	7.84
	T0	1,309	1,588	18,292	13,730	2,797	4,661	8.47
	T+1	1,583	2,090	22,580	17,309	3,379	4,944	9.10
41 Siemens AG	T-1	3,087	4,981	85,990	87,325	15,149	30,700	4.21
	T0	3,710	6,159	88,961	72,448	12,864	26,177	5.20
	T+1	1,698	7,795	91,454	77,327	14,062	26,944	6.94
42 Statoil ASA	T-1	1,973	3,670	26,334	29,617	3,598	37,017	7.93
	T0	3,027	4,714	30,130	36,899	3,855	42,682	10.67
	T+1	3,847	7,043	36,134	48,896	5,429	50,091	11.53
43 Syngenta AG	T-1	804	847	8,630	6,699	1,629	3,685	10.40
	T0	1,011	1,070	10,080	8,485	1,656	3,594	11.15
	T+1	1,000	1,035	11,202	8,014	1,751	4,043	10.34
44 Telecom Italia	T-1	3,014	9,194	88,545	31,235	7,369	67,600	4.80
	T0	2,448	8,690	87,178	31,279	7,310	69,466	4.41
	T+1	2,214	8,405	84,648	30,158	6,473	67,729	4.69
45 Teliasonera AB	T-1	1,883	3,048	20,761	10,092	1,316	19,423	9.41
	T0	1,870	2,808	21,662	10,196	1,380	19,263	9.81
	T+1	1,729	2,464	22,840	9,423	1,194	18,554	9.56

Firm	T	EXBI	CFO	TA	REV	REC	PPE	ROA
46 Total SA	T-1	11,768	16,061	104,417	132,689	17,393	102,211	11.87
	T0	13,181	17,686	112,744	136,824	19,129	102,845	12.76
	T+1	10,590	18,669	117,300	160,331	15,287	108,822	9.48
47 Unilever NV	T-1	5,034	3,628	35,406	40,523	2,788	12,390	14.96
	T0	3,377	5,538	36,608	39,823	2,314	13,677	10.36
	T+1	4,250	5,256	40,871	44,262	2,541	15,452	11.89
48 Vinci SA	T-1	871	1,676	25,683	21,543	8,334	5,465	4.35
	T0	1,221	2,507	48,214	25,634	9,323	5,626	4.78
	T+1	1,461	3,611	49,434	30,428	11,101	6,696	4.44
49 Vodafone Group PLC	T-1	-10,963	18,611	192,461	49,630	4,096	50,808	-4.70
	T0	-31,412	17,651	181,450	42,067	3,529	38,474	-15.64
	T+1	-7,267	15,693	160,906	45,829	4,190	42,243	-3.80
50 Volkswagen AG	T-1	1,954	14,470	133,565	104,875	28,475	82,286	2.75
	T0	4,120	15,662	142,248	108,897	30,609	84,831	3.46
	T+1	4,753	10,799	164,575	113,808	33,004	92,441	3.56

APPENDIX E | FIRM-SPECIFIC COEFFICIENTS SAMPLE FIRMS

Firm	β_1	β_2	β_3	β_4
1 ABB Limited	0.513	-0.609	-0.268	0.351
2 Anglo American PLC	0.467	0.234	-0.462	0.402
3 Anheuser-Busch Inbev SA	-0.003	-0.133	-0.229	0.718
4 AstraZeneca PLC	0.500	-0.324	-0.394	0.082
5 Atlas Copco AB	0.097	0.492	-0.124	0.540
6 Bayer AG	0.057	0.008	-0.073	0.718
7 BMW AG	0.940	-0.245	-1.537	-0.011
8 BHP Billiton PLC	0.120	-0.006	-0.980	0.218
9 BP PLC	-0.249	0.200	-0.157	0.722
10 British American Tobacco PLC	0.640	0.177	-1.888	0.414
11 Carrefour SA	0.316	-0.559	-0.684	0.115
12 Centrica PLC	0.471	-0.207	-0.704	0.547
13 Compagnie De St-Gobain	-0.623	0.083	-0.119	0.850
14 Daimler AG	-0.834	0.696	-0.527	0.011
15 Deutsche Telekom AG	-0.456	0.114	0.442	0.913
16 E On AG	0.467	0.321	-0.419	0.641
17 Electricite De France	-0.738	-0.372	0.282	0.479
18 ENI	0.354	-0.633	-0.648	1.373
19 Ericsson 'B' AB	-0.869	-0.666	0.804	1.523
20 Fortum OYJ	0.050	-0.088	-0.522	0.141
21 France Telecom	0.199	0.330	-0.320	1.056
22 Glaxosmithkline PLC	-0.142	0.348	-0.688	1.083
23 H & M Hennes & Mauritz AB	-0.842	-0.177	-0.642	-0.637
24 Heineken NV	0.387	0.677	-0.522	0.378
25 Holcim Limited	-0.585	-0.402	0.090	0.580
26 Imperial Tobacco Group PLC	-1.900	-0.226	0.255	1.852
27 Linde AG	0.227	0.378	0.084	0.198
28 L'Oreal	-0.276	0.005	0.366	0.981
29 National Grid PLC	-0.424	0.038	0.174	0.934
30 Nestle SA	0.470	0.332	-1.019	0.643
31 Nokia Corporation	0.307	1.835	-2.115	0.316
32 Novartis AG	1.000	0.139	-0.255	-0.952
33 Kon. Philips Electronics NV	-1.442	0.662	1.336	-0.129
34 Rio Tinto PLC	-0.272	-0.638	0.164	0.817
35 Roche Holding AG	0.444	0.092	-0.655	0.477
36 Royal Dutch Shell PLC	-0.867	-0.204	0.724	0.674
37 RWE AG	-0.934	0.300	0.551	0.152
38 Sanofi	-0.002	-0.036	-0.776	0.317
39 SAP AG	1.002	0.596	-1.162	0.930
40 Schneider Electric SA	0.735	-0.332	-0.458	0.937
41 Siemens AG	0.249	-0.139	0.270	0.198
42 Statoil ASA	-0.411	-0.724	0.141	0.143
43 Syngenta AG	-1.571	0.119	1.296	1.837
44 Telecom Italia	0.098	-0.262	-0.826	0.436
45 Teliasonera AB	-0.026	-0.249	-0.105	0.795

Firm	β_1	β_2	β_3	β_4
46 Total SA	0.419	-0.506	0.121	0.991
47 Unilever NV	-0.799	-0.105	0.510	1.024
48 Vinci SA	1.011	0.198	-1.641	-0.042
49 Vodafone Group PLC	-0.126	0.125	-1.251	-1.145
50 Volkswagen AG	-1.940	-0.182	1.612	0.125

APPENDIX F | ACCRUALS SAMPLE FIRMS

Firm	T	TAC	NDA	DA
1 ABB Limited	T-1	0.0045	-0.0943	0.0988
	T0	-0.0294	-0.1469	0.1175
	T+1	-0.0357	0.0092	-0.0449
2 Anglo American PLC	T-1	-0.0355	-0.2211	0.1857
	T0	-0.0243	-0.2866	0.2623
	T+1	-0.0438	-0.3898	0.3460
3 Anheuser-Busch Inbev SA	T-1	-0.0774	-0.1587	0.0813
	T0	-0.0829	-0.0997	0.0168
	T+1	-0.0735	-0.0691	-0.0044
4 AstraZeneca PLC	T-1	-0.0961	-0.2538	0.1578
	T0	-0.0796	-0.2328	0.1532
	T+1	-0.0708	-0.1739	0.1031
5 Atlas Copco AB	T-1	0.0168	0.0628	-0.0460
	T0	-0.1265	-0.0002	-0.1263
	T+1	-0.0157	0.1411	-0.1567
6 Bayer AG	T-1	-0.0640	-0.0076	-0.0565
	T0	-0.0800	-0.0124	-0.0677
	T+1	-0.0416	0.0028	-0.0444
7 BMW AG	T-1	-0.1259	-1.0194	0.8934
	T0	-0.0964	-0.9551	0.8588
	T+1	-0.1107	-1.0161	0.9054
8 BHP Billiton PLC	T-1	-0.0006	-1.0624	1.0618
	T0	-0.0455	-1.0805	1.0350
	T+1	-0.0425	-1.0173	0.9748
9 BP PLC	T-1	-0.0497	-0.1430	0.0933
	T0	-0.0792	-0.1147	0.0355
	T+1	0.0130	-0.0289	0.0418
10 British American Tobacco PLC	T-1	-0.0884	-0.5746	0.4862
	T0	-0.0327	-0.4308	0.3981
	T+1	-0.0168	-0.5094	0.4926
11 Carrefour SA	T-1	-0.0712	-0.4625	0.3913
	T0	-0.0614	-0.4225	0.3611
	T+1	-0.0453	-0.4942	0.4489
12 Centrica PLC	T-1	-0.0098	-0.4132	0.4034
	T0	-0.0552	-0.4410	0.3858
	T+1	-0.0776	-0.3587	0.2811
13 Compagnie De St-Gobain	T-1	-0.0250	-0.0283	0.0033
	T0	-0.0549	-0.0377	-0.0172
	T+1	-0.0490	-0.0472	-0.0018
14 Daimler AG	T-1	-0.0524	-0.3802	0.3277
	T0	-0.0542	-0.3167	0.2624
	T+1	-0.0440	-0.2565	0.2126
15 Deutsche Telekom AG	T-1	-0.0864	0.5384	-0.6248
	T0	-0.0914	0.4812	-0.5725
	T+1	-0.1084	0.4423	-0.5508

Firm	T	TAC	NDA	DA
16 E On AG	T-1	-0.0043	-0.2939	0.2897
	T0	-0.0350	-0.2974	0.2624
	T+1	-0.0587	-0.2896	0.2309
17 Electricite De France	T-1	-0.0226	0.3206	-0.3432
	T0	-0.0429	0.3410	-0.3839
	T+1	-0.0438	0.2415	-0.2853
18 ENI	T-1	-0.0778	-0.6804	0.6025
	T0	-0.0916	-0.7969	0.7053
	T+1	-0.0949	-0.6805	0.5855
19 Ericsson 'B' AB	T-1	-0.0824	0.0755	-0.1579
	T0	-0.0686	0.1167	-0.1854
	T+1	0.0083	0.1174	-0.1091
20 Fortum OYJ	T-1	-0.0260	-0.5277	0.5016
	T0	-0.0470	-0.4897	0.4428
	T+1	-0.0069	-0.5767	0.5697
21 France Telecom	T-1	-0.1263	-0.2652	0.1389
	T0	-0.0982	-0.2357	0.1376
	T+1	-0.1000	-0.2434	0.1434
22 Glaxosmithkline PLC	T-1	-0.0324	-0.2114	0.1790
	T0	-0.0581	-0.2204	0.1623
	T+1	-0.0486	-0.1565	0.1079
23 H & M Hennes & Mauritz AB	T-1	-0.0597	-0.5333	0.4736
	T0	-0.0312	-0.5467	0.5155
	T+1	-0.0681	-0.6420	0.5739
24 Heineken NV	T-1	-0.0904	-0.5222	0.4319
	T0	-0.1068	-0.5067	0.3999
	T+1	-0.0553	-0.3978	0.3425
25 Holcim Limited	T-1	-0.0655	0.1337	-0.1992
	T0	-0.0709	0.1097	-0.1806
	T+1	-0.0699	0.1282	-0.1981
26 Imperial Tobacco Group PLC	T-1	-0.0718	0.0719	-0.1437
	T0	-0.0257	0.1352	-0.1609
	T+1	-0.0069	0.1633	-0.1702
27 Linde AG	T-1	-0.0836	0.0711	-0.1547
	T0	-0.0972	0.0899	-0.1871
	T+1	-0.0827	0.1013	-0.1841
28 L'Oreal	T-1	-0.0072	0.2072	-0.2144
	T0	-0.0177	0.1776	-0.1953
	T+1	0.0005	0.2052	-0.2047
29 National Grid PLC	T-1	-0.0403	0.3545	-0.3949
	T0	-0.0377	0.2690	-0.3067
	T+1	-0.0257	0.2944	-0.3201
30 Nestle SA	T-1	-0.0273	-0.4015	0.3742
	T0	0.0724	-0.3092	0.3816
	T+1	-0.0724	-0.4235	0.3511

Firm	T	TAC	NDA	DA
31 Nokia Corporation	T-1	-0.0627	-0.7009	0.6382
	T0	-0.0854	-0.2294	0.1440
	T+1	-0.0613	-0.4927	0.4313
32 Novartis AG	T-1	-0.0526	-0.1906	0.1380
	T0	-0.0560	-0.1750	0.1191
	T+1	-0.0384	-0.1313	0.0929
33 Kon. Philips Electronics NV	T-1	0.2291	1.0385	-0.8095
	T0	-0.1024	0.5625	-0.6649
	T+1	-0.1470	0.5939	-0.7409
34 Rio Tinto PLC	T-1	-0.0351	0.3151	-0.3502
	T0	-0.0929	0.3576	-0.4505
	T+1	-0.0538	0.0405	-0.0943
35 Roche Holding AG	T-1	-0.0369	-0.1916	0.1547
	T0	-0.0524	-0.2251	0.1726
	T+1	-0.1162	-0.2172	0.1009
36 Royal Dutch Shell PLC	T-1	-0.0531	0.6888	-0.7419
	T0	-0.0306	0.7789	-0.8095
	T+1	-0.0228	0.7448	-0.7676
37 RWE AG	T-1	-0.0410	0.4182	-0.4592
	T0	-0.0381	0.4228	-0.4609
	T+1	-0.0834	0.5059	-0.5893
38 Sanofi	T-1	-0.0248	-0.0839	0.0591
	T0	-0.0677	-0.1105	0.0428
	T+1	-0.0471	-0.1240	0.0769
39 SAP AG	T-1	-0.0904	-0.0975	0.0070
	T0	-0.0864	-0.0831	-0.0033
	T+1	-0.0168	0.0270	-0.0438
40 Schneider Electric SA	T-1	-0.0255	-0.1065	0.0810
	T0	-0.0176	-0.0927	0.0751
	T+1	-0.0277	-0.0928	0.0651
41 Siemens AG	T-1	-0.0237	0.0880	-0.1117
	T0	-0.0285	0.1128	-0.1413
	T+1	-0.0685	0.0898	-0.1583
42 Statoil ASA	T-1	-0.0602	0.2639	-0.3241
	T0	-0.0641	0.0506	-0.1147
	T+1	-0.1060	0.0004	-0.1065
43 Syngenta AG	T-1	-0.0050	0.7549	-0.7599
	T0	-0.0069	0.7686	-0.7755
	T+1	-0.0035	0.7029	-0.7064
44 Telecom Italia	T-1	-0.0663	-0.5808	0.5145
	T0	-0.0705	-0.6291	0.5586
	T+1	-0.0710	-0.6204	0.5494
45 Teliasonera AB	T-1	-0.0571	-0.0338	-0.0234
	T0	-0.0451	-0.0199	-0.0252
	T+1	-0.0339	-0.0072	-0.0267

Firm	T	TAC	NDA	DA
46 Total SA	T-1	-0.0410	0.1763	-0.2173
	T0	-0.0431	0.2340	-0.2772
	T+1	-0.0717	0.0880	-0.1597
47 Unilever NV	T-1	0.0382	0.3234	-0.2852
	T0	-0.0610	0.3037	-0.3647
	T+1	-0.0275	0.3249	-0.3524
48 Vinci SA	T-1	-0.0346	-0.3768	0.3422
	T0	-0.0501	-0.3375	0.2874
	T+1	-0.0446	-0.2174	0.1728
49 Vodafone Group PLC	T-1	-0.1353	-0.2374	0.1021
	T0	-0.2549	-0.0756	-0.1793
	T+1	-0.1265	-0.2456	0.1191
50 Volkswagen AG	T-1	-0.0961	1.0093	-1.1054
	T0	-0.0864	1.0256	-1.1120
	T+1	-0.0425	1.0488	-1.0913