

Good Corporate Governance controls earnings management during financial crises

Abstract

An increasing stream of literature focuses on corporate governance as one of the underlying causes of the financial crisis. Why did some firms perform better than others during the crisis? Do firms manipulate earnings? The focus of this paper lies on earnings management practices using a unique dataset consisting of firms listed on the five highest capitalized indices of the Eurozone during the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012. The regression results show positive relations for board size and dual leadership structures, implicating that small boards and separated CEO/chairman functions will reduce earnings management practices during a crisis period. In addition, this paper has found negative relations for board independence at the 10% level. For the audit committee characteristics, size, independence, and expertise, only the latter one is found significant. Therefore these findings are largely in line with most pre-crisis literature. Corporate governance is even during periods of crisis an effective control mechanism to constrain earnings management practices. These results could provide new insights in the influence of corporate governance on earnings management. They are measured over a longer crisis period and therefore could have serious implications for future governance design. This thesis contributes to existing literature by adding financial crises periods in which corporate board actions can be of certain importance for differences in earnings manipulations. Overall, good corporate governance is an important determinant of controlling earnings management.

Keywords: Corporate governance, earnings management, financial crisis

MSc. Accounting, auditing, control

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1. Introduction

The current economic crisis which started in 2007 have collapsed an exceptional large number of financial and non-financial institutions. Share prices have fallen sharply and in some cases are more than halved. The financial results of corporations are under high pressure. One of the many reasons mentioned in literature is the strong stagnating housing in the United States (Mizen, 2008). Mortgage Backed Securities (MBS) were traded all over the world. The value of these bonds were based on wrong information and were as a result devaluated. Through these impairments, many organizations faced financial difficulties. This effect was strengthened by the lack of trust in the market. At the end of 2008 the crisis evolved and due to the freezing of the interbank money market many corporations were in trouble, share prices dropped again, and governments launched different rescue programs of hundreds of billions dollars.

On February 1 of this year, the Dutch Government nationalized the 4th largest bank and insurance group SNS Reaal in a \$14 billion rescue (Reuters, 2013). The bank suffered enormous devaluations on its real estate loan portfolio they bought in 2006 from ABN Amro. After the nationalization, the Dutch government released some documents that provisions of €700 million were made by SNS for bad loans on its €9 billion real estate loan portfolio. According to SNS the portfolio had a value of €6.2 billion in the worst-case scenario. However, external auditors that were hired by the regulators estimated the worst-case scenario value of € 4.9 billion (US News, 2013). A difference of € 1.3 billion.

Integrity of financial reporting has been a consistent concern among regulators and practitioners. Major accounting scandals that were uncovered in the early 2000s (e.g. Enron, WorldCom, Tyco, Parmalat, Ahold) increased the interest in Corporate governance significantly. Concerns about the quality of financial statements questioned the effectiveness of audit committees.

Investors are largely dependent on the financial reporting of corporations. They make important decisions about increasing, holding or reducing equity positions in certain companies. Although there are several financial reporting standards to increase the reliability of the financial reports, there are still possibilities for management to influence the financial results, which is called earnings management. Earnings management is the manipulation of a firm's earnings in order to reach a pre-determined target (e.g., firm targets or analyst consensus). Rather than

exceptional good or bad years in terms of earnings, firms tend to keep the earnings relatively stable by adding or removing cash from reserve accounts (known as income smoothing).

The financial crisis questioned the effectiveness of various control mechanisms. Bonuses of top-management are heavily discussed in society. They would encourage too much risk taking (e.g., option theory: managers have unlimited upward potential and only limited downward in terms of bonus remuneration). In literature there is limit knowledge about the effect of corporate governance (measured as audit committee characteristics and corporate board characteristics) on the manipulation of earnings. Interesting is that some researchers are now questioning the effectiveness of corporate governance. According to the OECD Steering Group on Corporate Governance, weak corporate governance is one of the main causes of the financial crisis (Kirckpatrick, 2009).

In this paper the influence of audit committees and corporate boards will be investigated on earnings management over the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012.

The central research question of this paper is stated as:

What influence does corporate governance have on earnings management during financial crises?

This relation is tested on firms listed on indices of the five largest countries of the Eurozone measured by their GDP over the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012. These countries include Germany (DAX), France (CAC40), The Netherlands (AEX), Italy (S&P/MIB) and Spain (IBEX). Earnings management is measured by the Modified-Jones model over the periods mentioned above. The governance variables, corporate board characteristics (independence, size, CEO duality) and audit committee characteristics (independence, size, and financial expertise) are measured in the year preceding the measurement period. Corporate boards take an important place in the control system since the chief auditor reports to them. They fulfill two major functions: (1) monitoring role and (2) advisory role (Masulis, Wang and Xie, 2012) and therefore play an important role in the financial reporting process (Peasnell et al. 2005). An important subcommittee of the board is the audit committee as they are responsible for the oversight of the financial reporting process (Bradbury, Mak and Tan, 2006). Following Ryan (2008), the third research period starts in January 2007 because that is generally perceived as the period the first sub-prime losses were revealed in the market. The findings of this study are in line with the pre-crisis literature.

Corporate governance is even during periods of crisis an effective control mechanism to constrain earnings management practices.

In the next two subsections the motivation and contribution of this paper will be addressed.

1.1 Motivation

In addition to scientific contributions there might also be some societal benefits. The results of this study might benefit several external parties such as:

- Management- accountants, accountants, and auditors
- Individuals and institutional investors
- Financial institutions (e.g. banks and insurance companies)
- Policymakers/supervisory bodies

Management- accountants, accountants, and auditors

An accountant issues a statement of reliability for the annual report of a company. During the start of the planning phase auditors estimate the risk of earnings management and further determine the depth and shape of the audit based on a cost-benefit tradeoff. This tradeoff can be influenced when the financial crisis affects earnings management practices.

The way governance is organized influences the agency relationship. Independent corporate boards and audit committees are less influenced by top management and should therefore participate less in earnings management. However, there is limited knowledge about the influence of a financial crisis on this relationship. Because corporate governance is related to controlling and directing firms to do the 'right things', the results might be beneficial for future management control design.

Individual and institutional investors

During the financial crisis stock markets almost halved in value and are even now still very volatile. Investors are very cautious by taking investments and are very interested in the future earnings capacity of a firm. Critical investors purchase certain shares depending on timeliness and reliability of information about the firms' performance. Management can influence sales or profits up- and downward. In such a case the firms' earnings do not reflect the actual situation. Investors should be aware of earnings management (especially during financial crisis periods) and take this into account by taking investment decisions.

Financial institutions

Since the start of the financial crisis financial institutions, especially banks, are under increased supervision by central banks. Some banks went bankrupt, while others are rescued by national governments. Since January 1 of this year the implementation of Basel III is started. It represents a result of years of negotiations and adjustments with as ultimate goal to prevent and-or reduce the risk of a future financial crisis. Banks will have to meet the minimum capital requirements to intercept financial and operational risks. The minimum capital requirements are (expressed in risk-weighted assets): 3.5% share capital, 4.5% Tier-1 capital and 8% total capital (Deloitte, 2013). These percentages will gradually increase to 4.5% share capital, 6% Tier-1 capital and 8% total capital in 2019. In that year the Basel III agreement should be fully implemented.

The capital requirements recommended by Basel III reduces the lending capacity of banks. In order to assess lending risks banks want to know to what extent a corporation is solvent. Companies with higher debt ratios have to pay higher interest rates because of the higher risk. Managers can manipulate earnings by changing the ratio between debt and equity of a firm. When income figures do not reflect the true performance of a company it could affect its solvency or profitability. Banks want to estimate risk as reliable as possible, they can benefit from the results of this study. Especially in periods of crisis, earnings management behavior can be of high importance for risk estimations.

Policymakers/supervisory bodies

For legislators and regulators this study may be relevant because they can distract whether companies misuse accounting rules in times of financial crises. Do companies manipulated earnings? Regulators could assess whether there should be more or less regulatory flexibility so that still reliable information is made public for all available stakeholder groups.

1.2 Contribution

This paper will contribute to an extensive body of literature. Most papers focused on firms committing egregious financial fraud (Beasley, 1996; Dechow et al. 1996), firms with incentives to overstate earnings (DeFond and Jiambalvo, 1994; Teoh et al., 1998; Parker, 2000). The focus of this paper is on publicly listed firms which have no systematic up- or downward earnings management a priori.

The second contribution of this paper to existing literature is the unique research setting of the paper. So far little or no research on earnings management has been done during a financial crisis period. This paper might therefore create new insights on the effects of audit committee and board characteristics on earnings management.

Finally, most literature is based on Anglo-Saxon companies. This paper will contribute to existing literature by enlarging the research scope to Dutch, French, Italian, Spanish, and German listed companies. France, Italy and Spain use a 1-Tier (like the US and UK) or 2-Tier system and the Netherlands and Germany use only a 2-Tier system. Using a multi-country scope allows to make comparisons between the different characteristics of boards and audit committees among different governance systems.

Therefore, these findings may have several implications for future governance design.

The remainder of this study proceeds as follows. In the next section earnings management and its underlying theories and practices will be discussed. Thereafter the two corporate governance variables, corporate boards and audit committees and their characteristics, will be explained in sections 3.1 and 3.2 respectively. The prior literature, theory, and expectations that are made in these sections will form the basis of formulating the hypothesis later on in the paper. Section 4 presents the sample and data description and part 5 provides the research methodology. Section 6 presents the hypotheses development and section 7 reports the results. Section 8 discusses the results and their place in literature. Finally, the conclusion and limitations will be provided in section 9.

2. Earnings Management

This chapter provides an introduction to some theoretical backgrounds on earnings management. Sections 2.1 and 2.2 start with discussing the theory why earnings management exists using the Agency and Positive Accounting Theory respectively. Subsequently some definitions are formulated based on existing literature (2.3) and most common forms of earning management will be explained (2.4). Finally six models to detect earnings management are discussed in section 2.5.

2.1 Agency theory

The principal-agent theory is considered to be a good starting point for any debate covering corporate governance (Kyerboah et al. 2006). The principal-agent relationship is regarded as a contract under which *“one or more persons (principal) engage another person (agent) to perform some service on their behalf, which involves delegating some decision-making authority to the agent”* (Jensen and Meckling, 1976).

Most large organizations are characterized by a separation of ownership. Investors can buy shares of listed firms and become partial owner. This transfer of ownership provides cash that can be invested or enhance the financial position of the firm. When the firm's investments turn out to be profitable, investors own the right to distribute the financial benefits. However, agency theory predicts divergence of interests between the agent (management) and principal (owner). Managers will always act in their own interests when they are not closely monitored (Jensen and Meckling, 1976).

Due to information asymmetry, principals are confronted with two main problems: (1) adverse selection (how to select the most capable managers) and (2) moral hazard (how to provide the right incentives to managers so that they put forth the appropriate effort and make decisions which are aligned with interests of shareholders) (Kyerboah et al. 2006).

The divergence of interest can result in conflicts between the manager or controlling shareholder and the minority shareholders. The former may be more interested to perquisites firm's resources than to pursue new profitable venture opportunities. Monitoring activities can reduce these divergence of interest however includes certain 'agency costs', such as budgeting costs, control systems design (e.g., action-, result-, and personnel controls), compensation system design (e.g., objective/subjective, financial/non-financial, piece-rate/fixed), auditing

costs, and bonding expenditures by the agents and the loss as a result of divergence of interests (Kyerboah et al. 2006).

So agency theory predicts that both, the principal and the agent, will aim to maximize their own utility and therefore agents do not always act in the best interest of shareholders. As managers start to act in self-interest to maximize their own utility agency problem arises (Davidson III, Jiraporn, Kim and Nemeč, 2004). Managers have strong incentives to engage in earnings management (DeGeorge, Patel and Zeckhauser, 1999). Since shareholders and other potential investors derive valuable information from earnings information optimal investment decisions become difficult to make when earnings are manipulated (Davidson III et al., 2004). The monitoring problem makes it even harder to detect earnings management. According to Eisenhardt (1989) reliable (external) financial accounting standards and good corporate governance can reduce such agency problems. These implications will be discussed in following sections.

2.2 Positive Accounting theory

Besides Agency Theory, the Positive Accounting Theory (PAT) has been one of the most important accounting theories in the last decades. It explains earnings management in the preparation of reported financial statements (Watts and Zimmerman, 1978). In accounting research two literature streams are identified: normative and positive theory. Normative theories are concerned with an attempt to tell individuals what they should do while positive theory describes, explains and predicts particular behavior. What drives managers' decisions to choose certain accounting policies? According to Scott (2012, p.304) PAT is "*concerned with predicting such actions as the choices of accounting policies by firm managers and how managers will respond to proposed new accounting standards*". To understand earnings management it is important to know what drives management to certain accounting choices.

PAT is based on the set of contracts a firm enters into (e.g. executive remuneration and debt contracts). When contract costs (such as negotiation costs, moral hazard, performance monitoring and contract violation) are minimal they are considered to be efficient. Contracts are often based on financial accounting variables that are influenced by accounting policies like US GAAP, IFRS, or Dutch GAAP. Positive Accounting Theory assumes that all individuals are rational and act in self-interest to maximize their own utility, which corresponds with the Agency Theory perspective. When management has the flexibility to determine the accounting

policy, the possibility of opportunistic behavior arises (*ex post*) (Scott, 2012). Managers will choose the accounting method that maximizes their own utility and thereby reducing contract efficiency (*ex post*). Watts and Zimmerman (1986) formulate three hypotheses (known as the bonus plan, debt covenant and political cost hypothesis) that form the basis of the PAT. These hypotheses will be shortly explained below.

The bonus plan hypothesis

Firms that compensate their managers with bonus plans are more likely to use accounting policies that increase reported income (Watts and Zimmerman, 1990). Managers shift future earnings to current period to increase the present value of their bonuses. In addition, Scott (2009) notes that earning smoothing policies are also preferred by managers that are risk-averse. This is because a higher expected utility is achieved by a less variable bonus stream than a volatile one. Therefore the Positive Accounting Theory predicts that the presence of a bonus plan leads to less conservative and less volatile accounting policies chosen by managers than for firms without such a plan (Scott, 2009).

The debt covenant hypothesis

Managers are more likely to shift future reported earnings to current periods when they are close to violating covenants. Firms that have a high debt-to-equity ratio are more likely to adapt accounting policies that are less conservative and that limit the ability to increase earnings volatility at a minimal (Scott, 2009).

The political cost hypothesis

Firms will shift future earnings to current periods when a firm bears high political costs. E.g., firms that are dependent on government subsidies, or the chance of new taxes or regulations. Special taxes on the excessive profits of oil companies in the United States by rising oil prices, or the discussion of excessive profits of health-insurance companies in the Netherlands this year while health-care insurance premiums constantly increased. In such cases PAT predicts that managers of large firms will adapt accounting policies to decrease their reported earnings (Scott, 2009).

2.3 Earnings Management

Last decades earnings management has become an increasingly important topic considered by academic researchers, regulators and stakeholders (Eckles, Halek, He, Sommer and Zhang, 2011). There are several definitions of earnings management in literature. Although generally earnings management is perceived as negative there is still a debate. Therefore both perspectives will be discussed below.

One of the first definitions in literature is by Schipper (1989) who defines earnings management as the “*purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain*”. Ten years later Healy and Wahlen (1999) review the academic evidence on earnings management. In their paper the following definition of earnings management is used: “*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*” (Healy and Wahlen, 1999). Both perspectives define earnings management as a negative behavior “to mislead stakeholders about their underlying organization’s performance”. Self-interested and opportunistic behavior of management is central in both definitions.

Beneish (2001) perceives earnings management as something positive. In his study he defines earnings management as “*a means for managers to reveal to investors their private expectations about the firm’s future cash flows*”. A similar perspective on earnings management is provided by Scott (2012, p.423) “*the choice by a manager of accounting policies, or actions affecting earnings, so as to achieve some specific reported earnings objective*”. Agents have specific information through their expertise which is often costly to communicate to the principal. The contract’s efficiency is reduced by this blocked communication and therefore the principal may seek ways to reduce or eliminate this blocked communication (Scott, 2012). Signaling information to the market through earnings management can make financial reports more useful. E.g., earnings persistence (stable earnings in future) can be signaled through earnings smoothing. Their focus lie more on the information part of earnings management instead of the manipulation part as perceived by Schipper (1989) and Healy and Wahlen (1999). In their view investors could make better decisions when private information is available.

However, the most common perception of earnings management in literature is manipulating earnings to gain private benefits (Messod, 2001) and will therefore be used in this paper.

2.4 How can earnings be managed?

In practice there are two ways to manipulate earnings (Bauwhede, 2003; Scott, 2012). First managers can choose the accounting policy and second through real actions. Accounting policy choice can be further subdivided into two classifications. One relatively easy to recognize accounting policy choice for outsiders like straight-line depreciation compared to declining-balance depreciation. This is classified by Scott (2012) as accounting policy choice *per se*. the second classification is *discretionary accruals*. This is much more difficult to identify and includes issues such as valuation of inventories, credit loss provisions, amortization charges and warrant costs.

The alternative way of manipulating earnings is by means of real variables which are actions that affect reported income directly as well as future CFs. Firms that have profits close to zero can use real variables like R&D expenses, advertising expenses, purchase of capital assets, timing of purchasing, maintenance, and overproduction to increase reported income (Roychowdhury, 2006). Managing real variables are expensive since they affect the firm's long-term interests directly (Scott, 2012). The focus of this paper lies primarily on earnings manipulation through accounting variables rather than real variables.

GAAP states that large firms should use accrual accounting instead of cash based accounting when they prepare financial statements. It's based on the matching principle: recognize revenues when earned and record expenses when incurred. Where net income and cash flows are equal under cash-based accounting, this is not necessarily the case for accrual accounting which provides managers discretion in determining earnings (Xie, Davidson III and DaDalt, 2003). Total accruals under accrual accounting can be calculated as:

$$\text{Total accruals} = \text{Earnings} - \text{Operating Cash Flow}$$

This difference should not be fully devoted to earnings management since they can be divided into two parts: *discretionary* and *non-discretionary* accruals. The latter part reflects business conditions and contains adjustments that are firm specific or industry related which are

necessary to adapt business operations for managers for new unexpected circumstances and is already expected by outsiders. However, the discretionary (unexpected) part of accruals remains difficult to detect for outside investors since it identifies management choices. Therefore this part is more likely to be subject to manipulations by managers. Accruals can be of poor quality for two reasons: 1) intentional (earnings management) or 2) unintentional estimation errors (e.g., uncertain future estimations or insufficient controls to detect errors) (Doyle and Ge, 2007). Of course managers cannot manipulate earnings infinitely because of the ‘iron law’ or ‘accrual reverse’. Manipulating earnings in one period upwards will reverse earnings downwards in sequent periods.

Scott (2012) recognizes a variety of EM patterns:

- *Taking a bath*: when a loss cannot be prevented (e.g. during organizational stress or reorganizations) managers are more willing to take a huge loss for current period which will result in a higher future profits.
- *Income minimization*: Manage earnings downwards to minimize profit (e.g., for political visible firms).
- *Income maximization*: Manage earnings upwards to maximize profit (e.g., for debt covenants)
- *Income smoothing*: Manage earnings in such a way to reduce volatility of earnings to a minimum (e.g., to receive a constant remuneration or to signal or disclose inside information to the market.).

2.5 Detection models

Earnings management occurs since managers use their discretion in accounting estimates and choices that are reflected in the discretionary accruals. According to the accrual-based method accruals should be separated into (non)- discretionary accruals (see definition [1]) to be able to proxy earnings management. As introduced in the prior section (2.4) the difficulty arises to identify which parts of total accruals are managed and which parts are unmanaged.

$$TA_t = NDA_t + DA_t \quad [1]$$

Where:

TA_t = total accruals
 NDA_t = non – discretionary accruals
 DA_t = discretionary accruals

Total accruals can be calculated as the change in noncash working capital (that is current assets (CA) minus current liabilities (CL), excluding cash (equivalents) (CASH) and short-term debt (STDEBT)) before income tax payable minus total depreciation (DEP). This is comparable with the difference between net income (NI) and cash flow from operation (CFO), were tax payable, cash accounts and extra ordinary items are excluded. Because it is very difficult for managers to use accounting discretion in determining cash accounts and short-term debt, noncash working capital should be used (Dechow et al. 1995). Most changes in this account are due to changes in revenues and thus earnings manipulation (Jones, 1991). Therefore definition [1] becomes:

$$TA_t = \frac{\Delta CA_t - \Delta CASH_t - \Delta CL_t + \Delta STDEBT_t - DEP_t}{A_{t-1}} \quad [2]$$

Where:

| | |
|-------------------|--|
| TA_t | = total accruals |
| ΔCA_t | = current assets in year _t less current assets in year _{t-1} |
| $\Delta CASH_t$ | = cash and cash equivalents in year _t less cash and cash equivalents in year _{t-1} |
| ΔCL_t | = current liabilities in year _t less current liabilities in year _{t-1} |
| $\Delta STDEBT_t$ | = short term debt in year _t less short term debt in year _{t-1} |
| DEP_t | = depreciation and amortization expense during year _t |
| A_{t-1} | = total assets in year _{t-1} |

In literature several accrual detection models are used to identify earnings management. These models include the Healy model (1985), DeAngelo model (1986), the Jones model (1991), the Modified-Jones model (Dechow et al., 1995), the Industry model (1991) and model by Ye (2007). These six models will be shortly discussed below.

Healy model (1985)

In this model non-discretionary accruals are computed as proxy for earnings management. NDA is measured by comparing the mean total accruals that are scaled by lagged total assets [3]. This model assumes earnings management to occur systematically every period. The sample in this study is separated in three different groups. The first group contains earnings that are forecast to be manipulated upwards (threatened as *estimation* period) while the other two groups are predicted to be managed downwards (threatened as the *event* period). Finally the mean total accruals are a measure of NDA as represented in [3] below:

$$NDA_t = \frac{\sum_t TA_t}{T} \quad [3]$$

Where:

| | |
|-------|--|
| NDA | = estimated non discretionary accruals |
| TA | = total accruals scaled by lagged total assets |
| T | = 1, 2, ..., T is a year subscript for years included in the estimation period |
| t | = a year subscript indicating a year in the event period |

DeAngelo model (1986)

The model of DeAngelo (1986) is an adjusted version of the Healy model (1985). It assumes that the differences in total accruals are a measure of EM. In addition the model expects this difference to be zero under the hypothesis of no earnings management. Earnings management (represented as NDA) is calculated as the total accruals of last period that are scaled by lagged total assets as represented below [4].

$$NDA_t = TA_t \quad [4]$$

Both models represented in [3] and [4] proxy NDA by using total accruals from the *estimation* period. When NDA is (not) constant over time, (some) no degree of error exists. According to Kaplan (1985) this assumption of constant NDA over time is unlikely to occur over time. He argues that NDA responds on changes in economic circumstances which is due to the nature of accrual accounting practices.

Jones model (1991)

The Jones model (1991) is a response to the shortcomings of the first two models which are stated in [3] and [4]. The changes in the economic circumstances of a firm on NDA is controlled. She assumes that NDA stay constant over time. Moreover the variables (REV, lagged firm size and gross PPE) she added are components that are not controlled by managers. This model is stated below in [5]:

$$NDA_t = \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 (\Delta REV_t) + \alpha_3 (PPE_t) \quad [5]$$

Where:

| | |
|----------------|--|
| ΔREV_t | = revenues in year _t less revenues in year _{t-1} scaled by total assets _{t-1} |
| PPE_t | = gross property plant and equipment in year _t scaled by total assets _{t-1} |
| A | = total assets _{t-1} |
| α | = firm specific parameters |

Modified-Jones model (1995)

This model is a modification of the original Jones model (1991). In the original model total revenues are classified as non-discretionary. Jones recognized this as a limitation, especially when earnings are manipulated (Dechow et al. 1995).

The Modified-Jones model (1995) was designed to deal with this limitation. According to Dechow et al. (1995) (p.199) the adjusted model “*is designed to eliminate the conjectured tendency of the Jones model to measure discretionary accruals with error when discretion is exercised over revenues*”. The adjusted model estimates NDA during the event period as:

$$NDA_t = \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 (\Delta REV_t - \Delta REC_t) + \alpha_3 (PPE_t) \quad [6]$$

Where:

$$\Delta REC_t = \text{net receivables in year}_t \text{ less receivables in year}_{t-1} \text{ scaled by total assets}_{t-1}$$

The formula in [6] shows that the change in revenues is adjusted for the change in receivables. This implicates that the Modified-Jones model classifies all changes of credit sales as earnings manipulation by management. The underlying thought is that credit sale revenues are easier to manipulate through management discretion than sales revenues based on cash transactions.

Industry model (1991)

Dechow and Sloan (1991) created the so-called industry model. This model assumes that NDA stay constant over time, just like the Jones model (1991). The major difference between the models is that the latter provides the determinants of NDA directly while the prior one assumes that these determinants are the same across firms operating in the same industry. However, measurement errors may occur if NDA are largely a response to changes in firm-specific circumstances. This model is shown below:

$$NDA_t = \gamma_1 + \gamma_2 \text{median}_1(TA_t) \quad [7]$$

Where:

$$\text{median}_1(TA_t) = \text{the median value of total accruals scale by lagged assets for all non sample firms in the same 2 digit SIC code}$$

Jianming Ye (2007)

The model as proposed by Ye (2007) is a response on certain limitations by the several versions of the Jones model. A constant depreciation rate (stable useful life of assets) and working capital intensity is assumed by the previous models of Jones.

This model takes into account changes in firm size by $NCWC_{i,t-1} * \Delta REV_{i,t}$. When firms become larger (measured by sales), accruals change also proportionally. In a similar way the model treated depreciation. The depreciation rate takes into account the differences in useful life of the assets since it considers both, time varying and cross-sectional differences ($dep_{i,t-1} * PPE_{i,t}$).

Four variables are added to the model in order to reveal accruals. First noncash working capital (NCWC) is added to the equation followed by (2) historical average (\overline{ncwc}_i) and (3) interaction with changes in revenues ($NCWC_{i,t-1} * \Delta REV_{i,t}$). Finally property, plant and equipment is interacted with lagged depreciation.

The model combines several variations of Jones models (including Jones (1991), Modified-Jones (1995) and Kothari (2005)(the latter one added ROA)) with new variables and is represented below:

$$TA_{i,t} = \beta_0 + \frac{\beta_1}{A_{i,t-1}} + \beta_2 \Delta REV_{i,t} + \beta_3 PPE_{i,t} + \beta_4 ROA_{i,t-1} + \beta_5 NCWC_{i,t-1} + \beta_6 \overline{ncwc}_i \quad [8]$$

$$+ \beta_7 NCWC_{i,t-1} * \Delta REV_{i,t} + \beta_8 dep_{i,t-1} + \beta_9 dep_{i,t-1} * PPE_{i,t}$$

Where:

- $NCWC_{i,t-1}$ = noncash current assets less current liabilities excluding short term debt scaled by lagged total sales $REV_{i,t-1}$
- \overline{ncwc}_i = normal noncash working capital intensity (estimation based on historical values of NCWC)
- $dep_{i,t-1}$ = depreciation expense during year $t - 1$

Literature overview (CH 2)

The table below summarizes the studies that provided insight for this research.

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|---|------|--|--|----------------------------|---|
| Davidson III, Jiraporn, Kim and Nemeec. | 2004 | Earnings Management following Duality-Creating Successions: Ethnostatistics, Impression Management, and Agency Theory. | Does the creation of a dual leadership structure results in increased earnings management practices by successors? | 1982-1992 | CEO duality increases likelihood of (impression) earnings management since the authority for dual leadership provides opportunities for showing increased firm performance. More specific relation has found: firms that announce to create a dual leadership structure for a successor show more earnings management than firms that do not create a dual structure. Poor firm performance of prior years is more likely to result in income increasing earnings management practices because successors want to provide the impression of improved firm performance. |
| Dechow, Sloan and Sweeney. | 1996 | Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC. | What are the motives and consequences of earnings management (EM)? | 1982-1992 | Motives and consequences identified are: <ul style="list-style-type: none"> - raising external financing at low cost - debt covenant restrictions avoidance - no evidence to increase managers' bonuses - no evidence that managers sell stockholdings at inflated prices - poor management oversight (due to weak CG structures) is associated with increased earnings management - once revealed that earnings are overstated, cost of capital increases significantly. - dual leadership structures are associated with higher discretionary accruals. |
| Dechow and Sloan | 1995 | Detecting Earnings Management | How well do several models detect earnings management? | 1950-1991 | For a random sample of event-years all models perform a reasonably well test. However, earnings management for economically plausible magnitudes show a low power of the test. For years of extreme financial performance no model provide an accurate test. Most powerful test to detect earnings management is the Modified-Jones Model. |
| Degeorge, Patel and Zeckhauser | 1999 | Earnings Management to Exceed Thresholds. | How do equity markets account for earnings at the time of announcement in resetting stock prices when earnings management is expected? | 1974-1996 | Earnings will be managed upward when falling below thresholds. Thresholds are made more attainable when earnings fall far away from thresholds. Earnings management is driven by three main reasons or thresholds sorted at level of importance: (1)report positive profits (2)sustain stable performance in terms of profits at least equal to last 4 quarters, (3)meeting expectations of analysts. Firms that meet threshold exactly show performance in future that's more worse than firms that beat the threshold more easily. |
| Doyle and Ge | 2007 | Accruals Quality and Internal Control over Financial Reporting. | Do firms with weak internal control quality have lower accruals quality? | August 2002- November 2005 | Reduced accrual quality is detected by firms that have weak internal controls. This relation holds for all proxies of accruals quality (e.g., historical restatements, average absolute residual values, discretionary accruals, and earnings persistence). |
| Eckles, Halek, He, Sommer and Zhang. | 2011 | Earnings Smoothing, Executive Compensation, and Corporate Governance: | How is executive remuneration and board structure related to | 1992-2004 | Earnings management is related to executive remuneration and board structure intensifies this relation even more. |

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| | | Evidence from the Property Liability Insurance Industry. | reserving practices of insurance firms? | | <p>A mitigating influence of board structure is not found.</p> <p>Within the insurance industry, insufficient monitoring from board combined with executive remuneration allows managers a lot of discretion over accounting numbers.</p> <p>Bonus plans, restricted stockholdings, exercised stock options, and restricted stock awards are associated to earnings management.</p> <p>No direct link between corporate governance on managerial incentive mechanisms. However, some board structures (board size (-) and dual leadership (+), independence (no)) allow more opportunistic manipulation of reserves than other suggesting an indirect relationship to be present.</p> |
| Kyerboah and Biepke | 2006 | The relationship between board size, board composition, CEO duality and firm performance: Experience from Ghana. | How are board size, board composition, and CEO duality related to firm performance? | 1990-2001 | <p>A positive relation between board size and the firm performance variables ROA and Tobin's q is found while a negative relation is found for sales growth rate.</p> <p>Further (insignificant) negative relations are found for board composition and CEO duality on the firm performance variables. Although insignificant, a positive relation is found for the two-tier board structures and sales growth.</p> |
| Roychowdhury | 2006 | Earnings management through real activities manipulation. | What factors influence the choice for earnings management through real activities? | 1987-2001 | <p>Negative relation between real activity manipulation and institutional ownership.</p> <p>Positive relation between real activity manipulation and the presence of debt, growth opportunities, stock of inventories and receivables.</p> <p>Firms try to avoid negative forecast errors by participating in real activity manipulations.</p> |
| Watts and Zimmerman | 1978 | Towards a Positive Theory of the Determination of Accounting Standards. | Why do firms want to manipulate the choice of accounting standards through expending resources? | 1972-1974 | <p>Large firms try to decrease their reported earnings to prevent increased government regulations like antitrust or price controls.</p> <p>In addition, firms will be invest less risky because risky investments increase the chance of high profits which they try to avoid.</p> |
| Xie, Davidson, and Dadalt. | 2003 | Earnings management and corporate governance: the role of the board and audit committee. | How is CG related to earnings management? | 1992.4.6 | <p>Results in line with SEC Blue Ribbon Panel Report and Recommendations. Independent boards with corporate experience reduce the likelihood of EM.</p> <p>Oversight functions full-filled by the audit committee and executive committee reduce the level of earnings management.</p> <p>Committee members with corporate experience or investment banking backgrounds are negatively related to EM.</p> <p>Association found between meeting frequency and lower levels of EM (thus functioning as effective monitors).</p> <p>Independent directors at the board and committee members at the audit committee with financial expertise are both negatively related to the level of earnings management. CEO/chairman is unrelated to DAs. Finally larger boards are associated with lower levels of earning management.</p> |

Conclusion

This chapter discussed the fundamentals of earnings management. Several definitions were discussed that highlighted the negative theory of self-interested and opportunistic behavior of management and positive theory of information signaling to outside investors. The first perspective is generally the most used perspective in literature and is therefore used in this paper. Further the Agency and Positive Accounting Theory were discussed which explained the motives and behavior of management to engage in earnings management. In addition several ways management can engage in earnings management is explained (e.g., taking a bath, income maximization and minimization, and income smoothing).

Finally, several models are discussed by Dechow et al. (1995) to detect earnings management. These models are different in range and vary from very simple to more sophisticated models. The first two models, Healy (1985) and DeAngelo (1986), measure management discretion as the change in total accruals while the third model of Jones (1991) takes another approach and takes into account the non-discretionary factors affecting accruals. Here a linear relation is assumed between total accruals (TA) and property, plant and equipment (PPE). The Industry model (1991) is almost similar to the Jones model but assumes that NDA determinants are the same within an industry. Fifth, the modified- Jones model (1995) responds to the limitation of the original Jones model (1991) and makes an adjustment for the change in receivables. For a random sample of event- periods all models produce tests that are well specified. Finally the proposed model by Ye (2007) is an attempt to adjust for the assumptions of a stable useful life of assets and a constant working capital intensity. However when firms in changing economic circumstances experience extreme financial performance all models produce misspecified results, of which the Modified- Jones model provides the most powerful test to detect EM. The changes as proposed by the model of Ye (2007) will not be used in this paper due to the very limited usage in literature.

In the next sections the two corporate governance variables, corporate boards and audit committees, and their characteristics will be discussed.

3. Corporate Governance

Last decennia the interest in CG has increased significantly due to major business scandals revealed in the early 2000s. As response on these large business scandals such as Enron and WorldCom, the United States' senate enacted the so-called Sarbanes- Oxley Act (SOX) in the year 2002 to restore trust in the financial markets. SOX has as goal to protect all stakeholders from fraudulent practices and errors in financial reporting. Within SOX, sections 302 and 404 are most important. Section 302 prescribes the disclosure of information and requires the management to provide information about design and operating control effectiveness. Section 404 demands of the CEO and CFO that they should say explicitly how reliable the internal control system of the company is. Cohen, Dey and Lys (2008) investigated whether real and accrual- based earnings management practices changed with the rise of this new legislation. Using a sample consisting of 8,157 non-financial firms during the period 1987-2005 they found evidence for a continued increase in earnings management even after the introduction of SOX. However, real earnings management increased more while accrual based earnings management shows some small decline. The Sarbanes- Oxley Act is applicable on all firms listed on the US stock exchange including foreign affiliates or foreign firms with affiliates in the United States. However, because the sample of this paper consists only of European listed firms, this act is not applicable to this paper.

A second important development took place in January 2005. From this year, all companies operating in European Union countries had to report according to international financial reporting standards (IFRS). This change in reporting standard includes primarily 'fair value' reporting instead of purchase value. The rationale of this development was twofold: (1) the change of focus from high *level* profits to more *quality* profits, and (2) firms should also become more comparable within Europe. Whether the introduction of IFRS has influenced earnings management practices is no conformity yet in literature. Zéghal, Chtourou and Sellami (2011) investigated this relation among 353 French listed firms and found reduced earnings management practices for firms with high levels of corporate governance after the mandatory adoption of IFRS. Other researcher find evidence that earnings management (measured by discretionary accruals) within the European Union stayed constant or has even intensified (Callao and Jarne, 2010; Capkun, Collins and Jeanjean, 2013; Tendeloo and Vanstraelen, 2011). They argue that although there are shared rules, incentives for management and other institutional factors are still important determinants in financial reporting. Managers can still influence financial reporting since much measurements are based on private information and

therefore allow some discretion (e.g. fair value estimations for assets that are not directly observable in the market).

Today some researchers again question the effectiveness of corporate governance. The OECD Steering Group on Corporate Governance even blames weak corporate governance as one of the main causes of the current financial crisis that started in 2007 (Kirckpatrick, 2009).

In literature several definitions of corporate governance can be found. Metrick and Ishii (2002) define corporate governance using an investor perspective as “*both the promise to repay a fair return on capital invested and the commitment to operate a firm, efficiently given investment*”. This definition highlights the impact of corporate governance on the ability of a firm to access the capital market. Another definition by Cadbury Committee (1992) defines corporate governance as “*a system by which companies are directed and controlled*”. Merchant et al. (2007) define corporate governance as “*the set of mechanisms and processes that help ensure that companies are directed and managed to create value for their owners while concurrently fulfilling responsibilities to other stakeholders (e.g. employees, suppliers, society at large)*” (Merchant et al. 2007).

Although there may be differences in corporate governance between countries and cultures, the definitions have one thing in common: it has been influenced by what is thought to be the ‘best practice’. Corporate governance concerns with reducing the agency problem through reducing the divergence of interest and ensuring the firm runs for the benefit of investors (Mayer, 1997). By controlling the behavior of top-management (e.g., directors and other executives), all other employees lower in hierarchy will be directed.

Earnings management decisions can also be influenced by analysts that act as an outside monitoring mechanism (Yu, 2008). Analysts can be effective in constraining earnings management since they (1) do act in the best interests of *all* market participants, including not only current but also future shareholders, (2) have more time and resources and are generally well financially sophisticated compared to most management, (3) following companies on a continuous basis in terms of behavior by management or irregularities in financial statements.

Yu finds that the likelihood of earnings management practices is reduced with more analyst's coverage¹, especially top analysts with much experience and female analysts are an effective way in reducing EM. This is because firms that are actively followed and analyzed by external analysts create an environment with less asymmetric information and therefore less earnings management will occur.

However, within corporate governance, this paper will focus on audit committees and corporate boards. In large organizations, corporate boards take an important place in the internal control system (because the chief auditor ultimately reports to them) and therefore fulfill an important role in the financial reporting process (Peasnell et al. 2005). An important subcommittee of the board of directors is the audit committee. They are responsible for the oversight of the financial reporting process (Bradbury et al., 2006). ACs act as a formal communication channel between various parties, including the board, the internal control system and the external auditors. They have an important monitoring role to assure and enhance the quality of financial reporting and corporate accountability (Carcello and Neal, 2000). Both, when effective, are able to reduce information asymmetry and protect principals' interests. Moreover, effective boards are able to monitor and constrain accounting manipulations. The most important board characteristics that are identified in literature include: board size, board composition, and CEO duality (Kyereboah et al., 2006).

Both variables will be discussed below.

3.1 Corporate Boards

Corporate boards are a group of individuals that have fiduciary duties in leading and directing a firm (Abdullah, 2004). Their primary objective is to protect the long-term interests of shareholders of the firm. They set corporate goals and evaluate the appropriateness of the strategies implemented by monitoring management and reward or punish them accordingly for their performance. In doing so they increase shareholders' wealth.

Most modern organizations are characterized by a dispersion of ownership and are strongly dependent on external financing sources. The decisions concerning the direction or operations

¹ Refers to the number of analysts that are actively following a company and its stock and in doing so also publishes their opinions about these subjects. Often larger companies have also larger analyst's coverage than smaller ones.

of a firm are no longer managed by the firms' owners but are led by a professional team of managers. They often own a small amount of equity which may result in conflicts of interests (as the agency theory predicts) and result in value decreasing activities. Board of directors are established to monitor the firm's performance and prevent them from opportunistic behavior. Therefore effective boards increase firm value. Lorsch (1995) describes three conditions to be met to ensure the corporate board act as an effective monitoring mechanism. First employees, including management, should safeguard legal and ethical behavior. Second, empowered boards should have to confirm strategic decisions. In addition they have to assess, reward, select and in the worst case scenario the possibility to remove the CEO. Finally, succession plans has to be available for higher management functions. This study identifies several characteristics that influences board effectiveness. These will be discussed below.

3.1.1 Independence

Corporate board characteristics are perceived in literature as an important determinant of corporate governance. Corporate boards play an important monitoring role of managerial actions (Fama and Jensen, 1983; Weisbach (1988), Byrd and Hickman (1992), Shivdasani (1993), Brickley, Coles, and Terry (1994)) and they are effective in reducing agency problems (Lefort et al. 2008). However there is still no consensus whether outside directors are more or less preferable than inside directors (Kyereboah et al. 2006).

The majority of independent directors are managers or decision-makers who often operate in several organizations (Nguyen & Nielsen, 2010) and therefore they care about their reputation (Fama & Jensen, 1983). They also possess technical expertise in both management and decision making. Their independence (not affiliated to the firm) allows them to perform certain activities better because they reduce agency costs and improve firm performance (Yuetang et al. 2006). This is because they are perceived to make long term decisions. The fair representation of shareholders' interest is increased because of their independence from management (Saat et al. 2011). In literature independent directors are positively related to firm performance (Luan and Tang, 2007).

They are professionals and are expected to protect shareholders' interests and other users of financial statements by monitoring the financial reporting system (Siagian and Tresnaningsih, 2011). Beasley (1996) found a negative relation between outside (independent) corporate directors and the likelihood of financial fraud, suggesting that when the number of independent

directors increases the likelihood of financial fraud decreases. In addition, Peasnell et al. (2006) found that the proportion of outside directors on the board is negatively related to income-increasing abnormal accruals. They conclude that the likelihood of managers to avoid reporting losses and earnings reductions is significantly lower with more independent directors.

However, dependent directors are more familiar with the firm and have more inside information which increases their boards' efficiency (Yuetang et al. 2006). They will better be able to monitor top- management.

In literature, the proportion of independent directors is negatively related with the level of abnormal accruals (Klein, 2002). In addition the meeting frequency of the board reduces the likelihood of managing earnings. Independent directors improve firms' reporting system (measured as quality of reported earnings) because they are not subject to conflicts of interest that reduces their monitoring capacity (Siagian & Tresnaningsih, 2011).

3.1.2 Board size

Whether the size of corporate boards influences earnings management practices is still subject to debate (e.g. Xie et al. 2003; Yang and Krishnan, 2005; Rashidah and Ali, 2006; Joubert and Fakhfakh, 2010). Proponents of larger boards argue that performance increases since there are more people on whom to draw (Vafeas, 2005). In addition large boards consists of a varied body of expertise which improves monitoring quality and reduces the likelihood of EM practices (Rashidah et al., 2006). Moreover, DeZoort and Salterio (2001) find in their study that large corporate boards can even facilitate quality discussions among AC members. Larger boards also have often more experience (Bradbury, Mak and Tan, 2006; Peasnell, Pope and Young, 2005; Rashidah et al., 2006) resulting in less earnings manipulations by management (Xie et al. 2003).

However, there is still a maximum amount of board members a corporate board can have to operate effective. When corporate boards become too large a diffusion of responsibilities arises resulting in decreased performance (Vafeas, 2005). Lipton and Lorsch (1992) argue that corporate boards should not have more than ten members, otherwise it becomes more difficult to express ideas and opinions in the relative short time interval. Jensen (1993) finds even that boards should be below seven or eight members to function effectively. Larger boards are associated with more bureaucracy and therefore make slower decisions.

Opponents of large boards argue that smaller board's face less (strong) free-rider problems (Ahmed, Hossain and Adams, 2006) since these boards have increased coordination and communication abilities compared to larger boards. The agency theory predicts that the free-rider problem arises more easily in larger board settings (Jensen, 1993) because these boards are more diffuse (less responsibility for each director). In addition, small (large) boards face less (more) bureaucracy and therefore make faster (slower) decisions (Xie et al., 2003) which makes them more (less) functional to operate (Rashidah et al. 2006). More fragmented board members can also more easily be manipulated by management (Alexander et al. 1993; Lipton, 1998). Therefore a large board size lead to decreased monitoring capabilities of the board. This is confirmed by the paper of Yermack (1996) who find that CEOs are more effectively monitored by smaller boards. In a similar way Beasley (1996) finds that financial statement fraud is less likely to occur with smaller boards and show a stronger earnings-return relation (Vafeas, 2000).

3.1.3 CEO duality

In literature the power CEO's have in controlling board of directors is a much discussed subject. Shareholders perceive the board of directors as the first line of defense towards incompetent management (Weisbach, 1988). The chairman of the board is responsible for leading board meetings and monitoring the processes related to senior management. These processes includes several issues like hiring and firing people, but also evaluating and compensating issues (Beasley et al., 2001). In addition, Jensen (1993) argues that the role of the board chair is to monitor the CEO. In the situation that the CEO is also chairman of the board he has the ability to impede external monitoring by directors (Beasley et al., 2001). This is because the primary monitor of management becomes management itself (Davidson et al., 2004). In addition, Joubert et al. (2010) find that a CEO can control the information to other board members effectively in a dual leadership structure.

CEOs are often evaluated and subsequently compensated for the firm's financial performance. Since they cannot directly influence stock market performance they try other ways to control their compensation by manipulating the accounting-based performance measures (Davidson et al., 2004). CEO duality leads to increased agency costs because they create reserves depending on their compensation (Eckles et al., 2011). Jensen (1993) finds that the CEO/chairman function should be separated in order to be able to operate effectively. In a similar way Lorsch (1995)

and Lorsch and Young (1990) add several points of view into the discussion of the optimal board structure. According to them, operating effectively depends on several factors. The CEO/chairman duality structure provides a lot of power to the CEO who is in general a person with much knowledge, experience, and a long career at the company and in the function of chairman he can also set the agenda of the board. The ability to influence the appointment of directors provides even more power. Lorsch and MacIver (1989) suggest to provide more power to directors at the board, including choosing, assessing, compensating and replacing the CEO. In addition, one should split the function of CEO/chairman to promote more fruitful board room discussions by providing more information to directors at the board. These changes will restore the balance of power within the board. However, the outside directors should mainly focus on monitoring management while the CEO should mainly focus on managing the company (Lorsch, 1995). When all directors are open to each other and trust each other including the CEO, better decisions could be made at the boardroom.

While some researcher do not find any relation between dual leadership and abnormal accruals (Bradbury et al., 2006; Eckles et al., 2011) others researchers find an association with more earnings manipulations (Dechow et al. 1996; Xie et al. 2003). These studies find evidence of an overstatement of fraud in firms with a dual leadership structure and these firms are subject to enforcement actions. Davidson et al. (2004) found firms that experience a change in CEO may engage more in earnings management. This is because the new CEOs may feel pressure since to convince the board and shareholders that his appointment leads to improved firm performance. Beasley et al., (2001) find a positive relation for number of independent directors, segregated CEO/chairman positions, and size of the BoD and the likelihood of more voluntary outsiders on the audit committee.

So far agency costs (e.g., non-optimal decisions) associated with CEO duality have been discussed. Brickly, Coles and Jarell, (1997) argue that the combination of those two functions can also provide certain benefits. According to them, splitting those functions bring also certain costs like: information sharing costs, shared authority, two large salaries, succession processes and reputational costs. There is no optimal leadership structure one can identify because both structures have their costs and benefits. The costs associated with separating those positions are larger than agency costs of duality (Brickly et al., 1997). In a similar way, Dalton, Daily, Ellstrand, and Johnson (1998) find that the costs associated with agency theory do not outweigh the benefits.

In the next section audit committees and their most important governance characteristics will be discussed.

3.2 Audit Committees

Audit committees have an important monitoring role to assure the quality of financial reporting and corporate accountability. They are responsible for financial and accounting activities, including the internal- and external audit functions and financial reporting (Carcello and Neal 2000). An association has been found by Abbott, Parker and Peters (2010) between audit committees' oversight and internal audit activities. The composition of audit committees are an important factor of effective monitoring (Beasley 1996; Carcello and Neal 2000). Other researchers find that well-structured and functioning audit committees are an effective way of reducing earnings management ((Bedard, Chtourou, & Courteau, 2004) ; (Xie, Davidson, & Dadalt, 2003)). They find a significant negative relation between audit committee independence and earnings management. In addition committee members' financial knowledge, and the meeting frequency of the audit committee reduces the likelihood of managing earnings. Independent audit committees improve firms' reporting system (measured as quality of reported earnings) because they are not subject to conflicts of interest that reduces their monitoring capacity (Siagian & Tresnaningsih, 2011).

Peter and Cotter (2009) examined the relation between audit committees and (improved) earnings quality using a sample of Australian listed firms. The relation investigated is prior to the introduction of the binding audit committee requirements in 2003. Earnings quality was measured by the Jones (1991) model and the Dechow and Dichev (2002) model. Their results show that the existence of an audit committee does not decrease accrual estimation errors but reduces intentional earnings management. The existence of an audit committee reduces abnormal accruals content when reporting earnings compared to firms without audit committees (Klein, 2002).

3.2.1 Audit committee size

The impact of audit committee size on earnings management is still a debate in literature. Several researchers do not find any relationship between audit committee size and earnings management (Abbott et al. 2000; Chandrasegaram et al. 2013; Xie et al. 2003). Other researchers find that firm value is reduced when firms have larger boards implicating that

smaller boards are more effective in their monitoring role (Yermack, 1996; Eisenberg, Sundgren and Wells, 1998). In addition, financial statement fraud is more likely to occur with larger boards (Beasley, 1996). Small boards are better able to keep financial reporting oversight because they face less bureaucratic problems which makes them more functional to operate (Rashidah et al. 2006). Small boards have more responsibility to monitor financial statement reporting and therefore provide a stronger earnings-return relation (Vafeas, 2000). In contrast larger boards are associated with more bureaucracy and therefore make slower decisions. In addition more fragmented board members can more easily be manipulated by management (Alexander et al. 1993; Lipton, 1998).

The literature so far promotes the benefits of a smaller audit committee. However, the problems recognized above are not fully applicable to audit committees. This is because most audit committees are relatively small and consist almost never of more than six members. In contrast, taking the important and complex nature of the responsibilities of the audit committee, the Blue Ribbon Committee Report states (p.26): “(...) *the committee merits significant director resources, both in terms of the number of directors dedicated to the committee and the time each director devotes to committee matters.*” This suggests that larger audit committees are more effective in solving and uncovering financial statement reporting since they have more resources available which improves quality of monitoring. This is in line with the results found by Felo et al. (2003) and Lin et al. (2006) who argue that larger audit committees are better able to ensure that disclosed information in financial statements is accurate since they have more time and effort. Therefore larger² audit committees are more preferable as long as no coordination problems are likely to occur.

3.2.2 Audit committee independence

The Blue Ribbon Committee considers someone independent when the person did not hold a position in the past five years as “*employee of the firm, immediate family member of employees, director receiving compensation for reasons other than board service or under a tax-qualified retirement plan or directors affiliated with any firm doing significant business with the firm within the past five years*”.

In literature independent board members are associated with improved monitoring and therefore act in the best interests of shareholders (Felo et al. 2003). Firms that perform poorly are more

² Jensen (1993) suggest that the size of boards should be below seven to eight members to operate effectively.

likely to replace the CEO when the majority of the board exists of outside directors (Weisbach, 1988). In addition, financial statement fraud is significant less likely to occur for firms that have corporate boards with more independent directors (Beasley, 1996).

Similarly, audit committees are expected to be more effective in the oversight of financial reporting when they are independent. In literature less financial misstatements are associated with more independent audit committees (Abbott et al. 2000; Beasley, 1996; Beasley et al., 2000). In addition Bradbury et al. (2006) and Bedard et al. (2004) find that independent audit committees are better able to reduce earnings management (measured as abnormal accruals). Other indicators related to the quality of financial reporting which are associated with external audit committee members are the probability of SEC enforcement action as identified by Wright (1996) and the size of abnormal accruals as found by Klein (2002). The latter one finds that reduced abnormal accruals are associated with the majority of independent audit members in the committee. She suggests that it is not necessary to have an audit committee that is full (100%) independent.

Other researchers did not found any relationship. Chandrasegaram et al. (2013) investigated this relationship among a sample 153 Malaysian listed firms and found a negative relationship between audit committee independence and earnings management. However this relationship was not found to be significant. Similar results were found by Felo, Krishnamurthy and Solieri (2003), Klein (2002), Lin et al. (2006), Rashidah and Ali (2006). Also Peter and Cotter (2009) did not found a relation between earnings quality and audit committee independence.

3.2.3 Audit committee financial expertise

In literature audit committee expertise is considered as one of the most important features of an audit committee to operate effectively (Bedard et al. 2004). A definition by McDaniel, Martin and Maines (2002) highlights the importance of audit committees' financial expertise as :“(...) *the presence of experts may both sharpen and shift the focus of audit committees' discussions and overall evaluations of a company's financial reporting quality. These changes likely will improve audit committees' evaluations of financial reporting quality...*”

However what is financial expertise exactly? Audit committees' financial expertise is defined as the: “(...) *past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results*

in the individual's financial sophistication, including being or having been a CEO or other senior officer with financial oversight responsibilities" (Blue Ribbon Committee 1999, 25).

This definition suggests that, to function effectively, audit committees should have at least one member that has financial expertise. This is because audit committees should be able to understand and assess the financial statements (Beasley and Saltario, 2001; DeFond, Hann and Xu, 2005) and be able to recognize potentially misleading transactions or financial statements in order to improve its quality (Felo et al. 2003). Audit committees with financial expertise are expected to detect and mitigate opportunistic earnings management practices (Rashidah and Ali, 2006). In addition Xie et al. (2003) find evidence that accounting committee members with corporate experience or investment banking backgrounds are associated with reduced earnings manipulations (measured as discretionary accruals).

In a similar way, DeFond et al. (2005) argue that audit committees with a financial expert strengthen corporate governance. They increase shareholder value since their monitoring function of financial statements direct corporate boards to act in the best interests of shareholders. However, they found only significant cumulative abnormal returns (CARs) around the appointment of an accounting financial expert.

Bedard et al. (2004) studied the effects of audit committees' expertise, independence, and activity on aggressive EM. They found a negative relation between the likelihood of earnings management and the presence of an expert, a clear mandate and no affiliated directors, suggesting that the presence of a financial or governance expert reduces earnings manipulations. In a similar way Yang and Krishnan (2005) find that increased governance expertise is positively related with EM. In addition, Felo et al. (2003) found a positive relation between the number of audit committee members with financial expertise and financial reporting quality implicating that when the number of members with financial expertise increases, the quality of the financial statements also increases.

Also some researchers investigated which type of expertise (finance, accounting, or supervisory) improved the quality of accruals most (Dhaliwal et al., 2010). Using a sample of 770 U.S. listed firms they found only a positive significant relation for accounting expertise. Contrary, (Xie et al. 2003) find that earnings management is reduced by AC's with corporate or investment banking backgrounds.

However also some inconsistencies exists in literature. Other researchers that also investigated similar relationships between financial expertise and quality of earnings did not find any significant relation at all (Abbott et al. 2000; Baxter and Cotter, 2009; Lin et al., 2006).

Literature overview (CH 3)

The table below summarizes the studies that provided insight for this research.

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| Abbott, Parker, and Peters. | 2010 | Serving two masters: the association between audit committee internal audit oversight and internal audit activities. | How are the internal audit function and nature of activities related to audit committee's oversight? | 2005 | By increased internal auditing function oversight, more hours are allocated towards internal control activities. Largest part of internal auditing function budget is devoted to IC activities. IAF's demand for increased IC's may lead to increased focus on IC's by the IAF. |
| Abbott, Parker, and Peters. | 2000 | The Effectiveness of Blue Ribbon Committee Recommendations in Mitigating Financial Misstatements: An Empirical Study | Do audit committee characteristics as suggested by the RCR reduce financial misstatements? | 1991-1999 | Audit committees levels of activity and degree of independence are related to a reduced fraud level. In addition, firms having dual leadership structures are more likely to have financial misstatements. Audit committee size and financial expertise of audit members are not found to be significant. |
| Abdullah | 2004 | Board composition, CEO duality and performance among Malaysian listed companies. | How are corporate board characteristics (independence and CEO duality) related to financial firm performance? | 1994-1996 | No evidence found that the board characteristics, independence and dual leadership, are related to firm performance. |
| Alexander, Fennell, and Halpem. | 1993 | Leadership instability in hospitals: The influence of board-CEO relations and organizational growth and decline. | How is leadership instability related to sociopolitical structures? | 1970-1988 and 1985-1989 | CEO positions are more volatile in organizations that experience unstable or declining performances. Leadership instability is also explained by the relation between CEOs and governing boards. Fragmented boards can relative easily be manipulated by management/CEOs. Top- management stability is related to more heterogeneous boards. |
| Baxter and Cotter | 2009 | Audit committees and earnings quality. | Do audit committees improve earnings quality? | 2001 | The creation of an audit committee is associated with reduced earnings management. No significant relation found for the individual audit committee characteristics: independence, size, activity and expertise. Also board size and board independence are not found significant. |
| Beasley | 1996 | An empirical analysis of the relation between the board of director composition and financial statement fraud. | Does the inclusion of larger proportions of outside members on the board of directors significantly reduces the likelihood of financial statement fraud? | 1980-1991 | Firms facing financial statement fraud have a lower proportion outside board members. Board composition is more important reducing likelihood of financial statement fraud than the presence of an audit committee. Besides board composition, board size and certain outside director characteristics affect the likelihood of FS fraud. |

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| Beasley and Salterio. | 2001 | The Relationship Between Board Characteristics and Voluntary Improvements in Audit Committee Composition and Experience. | How are the characteristics of the BoD related to the degree of more voluntary independent directors with financial and audit knowledge and experience at the audit committee? | 1994 | Positive relation found for number of independent directors, segregated CEO/chairman positions, and size of the BoD and the likelihood of more voluntary outsiders on the audit committee. These external members generally have more audit knowledge and experience and financial reporting expertise. |
| Bedard, Chtourou, and Courteau. | 2004 | The effect of audit committee expertise, independence, and activity on aggressive earnings management. | How are audit committee expertise, independence, and activity related to EM? | 1996 | Negative relation between the likelihood of EM and the presence of financial expert, a clear mandate and no affiliated directors. CG negatively related with EM. When there is a strong CG system, less likely that EM takes place. No relation between size, meeting frequency, and firm-specific expertise and aggressive EM. Income increasing earnings manipulation is more likely to occur than income decreasing. This difference is only found significant for the presence of a clear mandate. |
| Bradbury, Mak, and Tan. | 2006 | Board Characteristics, Audit Committee Characteristics and Abnormal Accruals. | How is corporate governance related to earnings management? | 2000 | Board independence and CEO duality do not impact earnings management significantly. In contrast board size and audit committee independence are related to earnings management (measured as abnormal accruals). However, audit committee independence is only significant when the board is fully (100%) independent and only for income increasing accruals. Within the financial reporting process, audit committees are most effective in reducing income increasing accruals. |
| Brickley, Coles, and Jarell. | 1997 | Leadership structure: Separating the CEO and chairman of the board. | What effect does a dual leadership structure have on performance? | 1988 | In 1988, most firms did not have an independent (external) chairman, but had instead a person closely ties to the firm (e.g., past or current CEO). Leadership structures are often replaced after appointment new CEO. In case of separation of functions, chairman is characterized as independent (no firm ties) director with high stockownership and detailed knowledge. Separation of leadership takes place when information and agency costs are low. Well performing CEOs are rewarded to become chairman. This leads not to entrenchment. Finally, no evidence of lower market or accounting returns (dual leadership is associated with the opposite). However it is associated with lower CFs. To conclude, separation costs are larger than benefits for most firms. |
| Brickley, Coles, and Terry | 1994 | Outside directors and the adoption of poison pills. | How is the stock market reaction affected by the adoption of poison pills and the subsequent takeover outcome while varying the board composition? | 1984-1986 | After the announcement of the adoption of a poison pill the average stock-price reaction is found to be positive when the majority of the board comprise outside directors and is found significant negative when they do not. Outside directors serve the interests of shareholders. |

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| | | | | | The fraction of outside directors is positively related to the probability that the firm induces an auction among competing bidders during a control contest. |
| Byrd and Hickman | 1992 | Do outside directors monitor management? Evidence from tender offer bids. | Do independent directors improve monitoring? | 1980-1987 | Boards of directors that independent (measured as $\geq 50\%$ independent members) are associated with less negative returns. Fully independent directors (emphasized with increased monitoring power) could harm shareholders by making the board less effective in its decision-making and advisory roles. |
| Carcello, Hollingsworth, and Klein. | 2008 | Audit committee financial expertise, competing corporate governance mechanisms, and earnings management. | What influence does audit committee financial expertise and other CG mechanisms have on earnings management? | July 15, 2003 – December 31, 2003 | For firms with weak CG, accounting committee financial expertise (ACFE) reduces earnings management. Independent ACFE's are more effective than dependent ACFE's. No relation found between non-accounting ACFE and earnings management, unless this person is not affiliated with the firm before. For firms with strong CG, accounting committee financial expertise (ACFE) does not reduce earnings management. |
| Callao and Jarne | 2010 | Have IFRS Affected Earnings Management in the European Union? | How does IFRS changed earnings management practices in terms of discretionary accruals within the European Union? | 2003-2004 and 2005-2006 | Earnings management practices increased after the mandatory adoption of IFRS in 2005. Examples of variables recognized that allow some managerial discretion are: legal enforcement, investor protection, leverage and business size. |
| Capkun, Collins and Jeanjean. | 2013 | Does adoption of IAS/IFRS deter earnings management? | What effect does the implementation of IFRS in 2005 have on earnings management practices? | 1994-2009 | Earnings management increased after 2005 (mandatory adoption IFRS), due to too little guidance at the implementation stages and the new standards that allow some more flexibility (i.e. "vague criteria, overt and covert options, and subjective estimates") Capkun et al. (2013). |
| Carcello and Neal | 2000 | Audit committee composition and auditor reporting | How does the composition of audit committees in firms that face financial distress affect the likelihood of receiving going-concern-reports? | 1994 | Auditor going-concern reporting behavior is influenced by the audit committee composition. The likelihood of receiving a going concern report is lower when the audit committee exists of an increasing percentage of affiliated directors. |
| Chandrasegaram, Rahimansa, Rahman, Abdullah and Nik Mat. | 2013 | Impact of Audit Committee Characteristics on Earnings Management in Malaysian Public Listed Companies. | Do audit committee characteristics influence EM within the Malaysian stock exchange? | 2011 | Audit committee independence is (not significantly) negatively related to EM. For all three variables, meeting frequency, independence and size, no significant evidence is found. |
| Cohen, Dey and Lys | 2008 | Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods | How does the introduction of the Sarbanes Oxley (SOX) influence earnings management practices in terms of real and accrual-based activities? | 1987-2001 and 2002-2005 | EM increased preceding the introduction of SOX and returned to normal levels after the introduction. Accrual EM decreased and real activities EM increased. Increase preceding introduction of SOX is concurrent with the change in proportion of executive remuneration (equity based). |
| Dalton, Daily, Ellstrand, and Johnson. | 1998 | Meta-analytic reviews of board composition, leadership structure, and financial performance. | How is board composition (including CEO duality and independence) impact financial firm performance? | - | Limited evidence found for various board composition variables and financial performance/ systematic governance structure relations. |

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| Davidson III, Jiraporn, Kim and Nemeec. | 2004 | Earnings Management following Duality-Creating Successions: Ethnostatistics, Impression Management, and Agency Theory. | Does the creation of a dual leadership structure results in increased earnings management practices by successors? | 1982-1992 | <p>CEO duality increases likelihood of (impression) earnings management since the authority for dual leadership provides opportunities for showing increased firm performance.</p> <p>More specific relation has found: firms that announce to create a dual leadership structure for a successor show more earnings management than firms that do not create a dual structure.</p> <p>Poor firm performance of prior years is more likely to result in income increasing earnings management practices because successors want to provide the impression of improved firm performance.</p> |
| Dechow, Sloan and Sweeney. | 1996 | Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC. | What are the motives and consequences of earnings management (EM)? | 1982-1992 | <p>Motives and consequences identified are:</p> <ul style="list-style-type: none"> - raising external financing at low cost - debt covenant restrictions avoidance - no evidence to increase managers' bonuses - no evidence that managers sell stockholdings at inflated prices - poor management oversight (due to weak CG structures) is associated with increased earnings management - once revealed that earnings are overstated, cost of capital increases significantly. - dual leadership structures are associated with higher discretionary accruals. |
| Dechow and Dichev | 2002 | The quality of accruals and earnings: The role of estimation errors | Does the magnitude of estimation error in accruals reduce the quality of earnings and accruals? | 1987-1999 | <p>Accruals are assumed to be are temporary adjustments in changing CFs. These adjustments are either intentional or unintentional.</p> <p>The quality of accruals is related to observable and recurring firm characteristics. E.g. an increased operations volatility is related to increased occurrence of unavoidable estimation errors.</p> <p>Earnings volatility is found to be a good proxy of earnings quality and accruals volatility is found to be a good proxy for accruals quality. Further a positive relation is found between accrual quality and earnings persistence.</p> <p>Finally, large accruals signify low quality of earnings, and less persistent earnings (increased improvement CFs).</p> |
| DeFond, Hann and Xu. | 2005 | Does the Market Value Financial Expertise on Audit Committees of Boards of Directors? | Do markets react positively when audit committees are appointed with members that have financial expertise? | 2002-2003 | <p>Cumulative Abnormal Returns are found at the nomination of audit committee members with accounting financial expertise, only when the firm has strong corporate governance.</p> <p>No relation found for directors with other than accounting financial expertise.</p> |
| DeZoort and Salterio. | 2001 | The Effects of Corporate Governance Experience and Financial-Reporting and Audit Knowledge on Audit Committee Members' Judgments. | Does the CG experience, financial-reporting and audit knowledge of AC members affect their judgement in conflict situations of auditor-corporate management? | Experiment | <p>Auditor - management disputes are positively related to audit committees' members and their number of independent directorships and knowledge of audit reporting.</p> <p>Less support for auditors is found in situations where there is a concurrent board and experienced managers.</p> <p>Finally no evidence that AC member support for auditor is related with financial reporting knowledge.</p> |

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| Dhaliwal, Naiker, and Navissi. | 2010 | The Association Between Accrual Quality and the Characteristics of Accounting Experts and Mix of Expertise on Audit Committees. | How are AC specific expertise's related to accruals quality? | 2004-2006 | <p>The most effective audit committees exists of independent accounting experts with only a few other directorships and a low tenure.</p> <p>Non-accounting financial experts are not significantly related.</p> <p>Accruals quality is improved by AC members with finance expertise since they can complement accounting knowledge. In contrast supervisory expertise does not complement in such way.</p> |
| Eckles, Halek, He, Sommer and Zhang. | 2011 | Earnings Smoothing, Executive Compensation, and Corporate Governance: Evidence from the Property Liability Insurance Industry. | How is executive remuneration and board structure related to reserving practices of insurance firms? | 1992-2004 | <p>Earnings management is related to executive remuneration and board structure intensifies this relation even more.</p> <p>A mitigating influence of board structure is not found.</p> <p>Within the insurance industry, insufficient monitoring from board combined with executive remuneration allows managers a lot of discretion over accounting numbers.</p> <p>Bonus plans, restricted stockholdings, exercised stock options, and restricted stock awards are associated to earnings management.</p> <p>No direct link between corporate governance on managerial incentive mechanisms. However, some board structures (board size (-) and dual leadership (+), independence (no)) allow more opportunistic manipulation of reserves than other suggesting an indirect relationship to be present.</p> |
| Eisenberg, Sundgren and Wells | 1998 | Larger board size and decreasing firm value in small firms. | What impact does board size have on firm value of small firms? | 1992-1994 | <p>Small firms located in Finland that also have small boards show a higher profitability implicating a negative relation between size of the board and profitability.</p> <p>Communication and coordination problems do not only occur at large boards and firms but are also extended to smaller boards and firms.</p> <p>Optimal board size varies with firm size and is therefore not standard.</p> |
| Fama and Jensen | 1983 | Separation of ownership and control. | How are decision management and control related within an organization's decision process? | - | <p>In reducing agency problems, combining decisions management with control and-or separating decisions management from residual risk bearing are most effective.</p> |
| Felo, Krishnamurthy and Solieri | 2003 | Audit Committee Characteristics and the Perceived Quality of Financial Reporting: An Empirical Analysis. | How are audit committee characteristics (expertise, independence and size) related to the Perceived Quality of Financial Reporting? | 1992-1996 | <p>The quality of financial reporting is positively related to financial/accounting expertise and size of audit committees in terms of members.</p> <p>Financial expertise on audit committee boards reduces cost of capital.</p> <p>No relation found concerning audit committee independence.</p> <p>Board of directors that are independent or grey are positively related to financial reporting quality.</p> <p>Larger firms disclose more accurate financial statements.</p> <p>Audit committee size is positively related to the quality of financial reporting.</p> |

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| Jones | 1991 | Earnings management during import relief investigations. | Do firms attempt to decrease earnings through using EM during import relief investigations by ITC when they benefit from import relief? | 1980-1985 | During import relief investigations, managers are tend to make income decreasing accruals. |
| Jouber and Fakhfakh. | 2010 | Earnings management and board oversight: an international comparison. | How are BoD characteristics related to EM? | 2006-2008 | Board size and leadership structure have a neutral relation to EM. Strong EM determinants are shares owned by a CEO (+), independent monitoring (-), institutional investor's property (-), audit committee independence (-) and dual leadership (+). However, there are some differences found between French and Canadian firms. E.g., French EM is more related to high ownership concentrations while Canadian firms have more dominant minority ownerships related to EM. In the latter one, capital market forces also play a role in EM. |
| Kirckpatrick | 2009 | The Corporate Governance Lessons from the Financial Crisis. | How is Corporate Governance related to the financial crisis? | - | Weak corporate governance has contributed to the financial crisis. CG did not prevent managers against excessive risk taking. Robust risk management combined with qualified board oversight is of major importance. The OECD CG Principles need to be reviewed. |
| Klein | 2002 | Audit committee, board of director's characteristics and earnings management | Do audit committee and board characteristics influence earnings management? | 1991-1993 | A non-linear negative relation between audit committee independence and earnings management is found. More precisely, only when less than fifty percent of independent directors is active on the audit committee board, a significant relation was found. Further, there is no significant relation between fully independent audit committees and earnings manipulations. |
| Kyereboah and Biepk. | 2006 | The relationship between board size, board composition, CEO duality and firm performance: Experience from Ghana. | How are board size, board composition, and CEO duality related to firm performance? | 1990-2001 | A positive relation between board size and the firm performance variables ROA and Tobin's q is found while a negative relation is found for sales growth rate. Further (insignificant) negative relations are found for board composition and CEO duality on the firm performance variables. Although insignificant, a positive relation is found for the two-tier board structures and sales growth. |
| Lefort and Urzúa. | 2008 | Board independence, firm performance and ownership concentration: Evidence from Chile. | How are board composition and ownership concentration related to firm performance? | 2000-2003 | The value of the company is affected by outside independent directors and not specifically by professional directors. Companies with more agency conflicts tend to, in an effort to improve CG and reduce agency problems, incorporate professional directors. Those directors are also preferred when a company is in financial needs. |
| Lin, Li and Yang. | 2006 | The effect of audit committee performance on earnings quality. | How are audit committee characteristics related to the quality of earnings? | 2000 | Negative relation between earnings restatements and audit committee size suggesting that larger audit committees are associated with improved financial reporting. They have more oversight and therefore improve earnings quality. No relation found for audit committee independence, audit committee financial expertise, audit committee meetings frequency and audit committee stock ownership. |

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| Lipton and Lorsch | 1992 | A modest proposal for improved corporate governance. | - | - | <p>Corporate board limitations:</p> <ul style="list-style-type: none"> - lack of time and board size - complexity of information - lack of cohesiveness - power of top management - confused accountabilities <p>Proposals in paper include (only few examples incorporated here):</p> <ul style="list-style-type: none"> - board size <10 - >2, but max 6 independent directors - New independent directors can only follow up prior independent directors - Presence of audit, nominating, and compensating committee suggested with only independent directors. <p>Boards should meet bimonthly at a minimum and this meeting should take a full day.</p> |
| Lorsch | 1995 | Empowering the board | <i>"How do boards draw the line between monitoring performance and managing the company?"</i> | 1989 | <p>Most important suggestions:</p> <ul style="list-style-type: none"> • Empower directors at the board • Separated CEO/Chairman function and provide information to directors • Outside directors should mainly monitor management, CEO & management should focus on managing the company. |
| Lorsch and Young. | 1990 | Pawns or Potentates: The Reality of America's Corporate Boards | <i>Are director's pawns or potentates? How effective do they monitor? How to restore the power balance?</i> | 1989 | See issues mentioned by Lorsch (1995). |
| Luan and Tang | 2007 | Where is independent director efficacy? | How are outside directors and firm performance related? | 1997-2001 2002 | <p>Although the paper did not recognize the direction of causality, they do recognize that outside directors are positively related to firm performance.</p> <p>No significant relation found between outside directors and firm performance when independent directors are assigned due to their absorptive capacity.</p> |
| Nguyen and Nielsen | 2010 | The value of independent directors: evidence from sudden deaths | How are independent directors related to firm value? | 1994-2007 | <p>Stock price reactions are less negative following the death of a director when the director had a long board tenure or was appointed during the tenure of the current CEO.</p> <p>The marginal value of an independent director increases when they perform important board functions (e.g. chairman or audit committee member) or when there are only a few directors independent.</p> <p>Controlled for ability and skills of individual directors, the paper of Nguyen and Nielsen provide evidence that independent directors increases shareholder value.</p> |
| Peasnell, Pope, and Young. | 2005 | Board Monitoring and Earnings Management: Do Outside Directors Influence Abnormal Accruals? | How are corporate boards related to EM? | 1993-1995 | <p>Independent directors at the board are associated with reduced earnings management practices, especially less income-increasing earnings.</p> <p>In firms where separation of ownership and control is largest, managers try to avoid or minimize a loss. In addition, dual leadership (+) are related to EM. No relation is found for the size of boards.</p> <p>No evidence found that external directors engage in income-decreasing earnings manipulations when the pre-determined threshold is already achieved.</p> |

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| | | | | | The presence of an AC does not influence income-increasing and decreasing earnings manipulations in order to meet or beat a pre-defined threshold. |
| Peasnell, Pope, and Young. | 2006 | Do outside directors limit earnings management? | What is the relation between outside directors and abnormal accruals? | 1993-1995 | <p>Lower magnitude abnormal accruals when there are more external directors on the board.</p> <p>Audit committee existence does not influence earnings management (directly). This means that establishing an audit committee per se is not enough but it can still play a role in constraining earnings management.</p> <p>Inside (managerial) ownership does not significantly influence earnings management. Also it does not moderate the board influence.</p> <p>Larger corporate boards are associated with lower abnormal accruals. The paper finds no clear reason for this phenomena.</p> |
| Peter and Cotter. | 2009 | Audit committees and earnings quality | Does earnings quality improve by audit committees? | 2001 | <p>Audit committees increase earnings quality.</p> <p>EQ improvement after formation audit committee.</p> <p>Audit committees reduce earnings management rather than they reduce accrual estimation errors.</p> <p>Accounting expertise of audit committee members is associated with increased EQ.</p> <p>No evidence found for their second hypothesis that audit committee independence, expertise, activity, and size are positively associated with EQ. Also no relation is found for board size and independence.</p> |
| Rashidah and Ali. | 2006 | Board, audit committee, culture and earnings management: Malaysian evidence. | Do the BoD, audit committees, and concentrated ownership effectively reduce earnings management with their monitoring function? | 2002-2003 | <p>Earnings management is positively related to board size, suggesting that smaller boards are more effective. Monitoring process is more difficult since larger board's faces control problems and conflicts of interests.</p> <p>No significant relations found for the board and audit committee independence on earnings management. Also ethnicity (Malay directors) is not found to be significant.</p> |
| Saat, Karbhari, and Heravi. | 2011 | Effective Oversight Roles of Board of Directors: The Case of Listed Firms on Bursa Malaysia. | Do external (independent) corporate boards improve firm performance? | 2002-2004 | <p>Firm performance increased when there was no CEO duality, and there was a senior independent director on the board while there were no board members that also fulfilled a role as CEO, CFO, COO or MD within the firm.</p> <p>For family owned firm, independent directors function as an effective CG mechanism by monitoring family directors.</p> |
| Siagian and Tresnaningsih. | 2011 | The impact of independent directors and independent audit committees on earnings quality reported by Indonesian firms. | How is earnings quality related to board of directors and audit committees? | 2000-2003 | <p>After JSX independence requirements there is a significant reduction of EM. Earnings quality in terms of discretionary accruals improved.</p> <p>ERC improvement seems to be only temporary. Possible reason is that investors' perception of independent boards and audit committees is only short term focused.</p> |

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| | | | | | Generally, earnings quality improves with independent boards and audit committees. |
| Tendeloo and Vanstraelen. | 2005 | Earnings management under German GAAP versus IFRS. | Is voluntary adoption of IFRS associated with reduced earnings management practices? | 1999-2001 | No difference found in terms of earnings management between firms reporting under German GAAP and IFRS. |
| Vafeas | 2005 | Audit committees, boards, and the quality of reported earnings. | How are ACs and corporate boards related to EM? | 1994-2000 | The paper identifies several factors that explain (a part) of earnings quality. Factors identified: Equity ownership and other services by committee. More weak determinants are: tenure length and board size. ACs with more outsiders and more meetings are associated with higher earnings quality. AC members with more experience in other committees are related to less small earnings increases. Board tenure length has a negative relation with earnings quality. Board independence is not significantly related to increased EQ. |
| Weisbach | 1988 | Outside directors and CEO turnover. | How are internal and external directors related to CEO resignations? | 1977-1980 | Outside dominated boards are highly correlated with CEO turnovers compared to inside dominated boards. By changing the CEOs, outside dominated boards add value to the firm. This effect is magnified with poor prior performance. Inside dominated boards show no significant results. Ownership structures, size or industry do not influence this cause. External directors have a final decision of accounting policy choice, such as the degree of discretion allows managers to manipulate accounting numbers. |
| Wright | 1996 | Evidence on the relation between corporate governance characteristics and the quality of financial reporting. | How is CG related to financial reporting? | 1989-1993 | Financial reporting quality is measured as: AIMR report analysts' rating and propensity for fraudulent financial reporting as identified by SEC. Negative relation between internal and "grey" directors on audit committee and financial reporting quality. |
| Xie, Davidson, and Dadalt. | 2003 | Earnings management and corporate governance: the role of the board and audit committee. | How is CG related to earnings management? | 1992.4.6 | Results in line with SEC Blue Ribbon Panel Report and Recommendations. Independent boards with corporate experience reduce the likelihood of EM. Oversight functions full-filled by the audit committee and executive committee reduce the level of earnings management. Committee members with corporate experience or investment banking backgrounds are negatively related to EM. Association found between meeting frequency and lower levels of EM (thus functioning as effective monitors). |

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| | | | | | Independent directors at the board and committee members at the audit committee with financial expertise are both negatively related to the level of earnings management. CEO/chairman is unrelated to DAs. Finally larger boards are associated with lower levels of earning management. |
| Yang and Krishnan. | 2005 | Audit Committees and Quarterly Earnings Management. | How are AC characteristics related to EM? | 1996-2000 | No significant relation found between discretionary accruals and AC independence or financial expertise. Earnings management is more likely to occur when both, dependent and independent members own stocks of the firm. This relation is somewhat weaker for independent members compared to dependent one. Also AC tenure is linked to decreased EM. Finally, earnings management is less likely to occur for AC boards that have more experience on other boards. Those members are more active in monitoring since they also have a reputation. |
| Yermack | 1996 | Higher market valuation of companies with a small board of directors. | Do small BoD improve firm value? | 1984-1991 | Inverse relation between firm value and board size. When boards become larger, especially from small to medium sized, the largest loss in firm value occurs. Firms do not change the size of corporate boards because of past performance. As long as corporate boards are relatively small, profitability and efficiency ratio are high. When they increase in size, these ratios decline. Incentives (e.g., remuneration or threat of dismissal) provided by the board to improve CEO performance weakens when boards increase in size. Stock returns increase (decrease) after announcement of decrease (increase) in board size. |
| Yu | 2008 | Analyst coverage and earnings management | How are earnings management decisions influenced by equity analysts? | 1988-2002 | An increase in analyst coverage leads to a decrease of EM practices. This effect is stronger for female, highly experienced, or top analysts working at top brokers. |
| Zéghal, Chtourou and Sellami. | 2011 | An analysis of the effect of mandatory adoption of IAS/IFRS on earnings management. | Is mandatory adoption of IFRS by French firms related to reduced EM? | 2003-2006 | Firms with high levels of corporate governance (e.g. independence, audit committee existence) show decreased levels of earnings management. This is also the case for firms that are highly dependent on foreign financial markets. |

Conclusion

This chapter discussed the fundamentals of corporate governance, especially board and audit committee characteristics. Based on both, the chapter and the literature overview the following can be concluded.

The chief auditor reports to the board and therefore the board fulfills an important role in the financial reporting process (Peasnell et al. 2005). Their primary objective is to safeguard long-term interests of the organizations' shareholders by setting strategies and monitoring management. The number of independent directors available at the corporate board is negatively related with the level of abnormal accruals (Klein, 2002). Larger boards have more directors with financial expertise increasing monitoring quality (Rashidah et al., 2006) and can more easily participate in quality discussions (DeZoort and Salterio, 2001). The downside however is increased levels of bureaucracy leading to slower decisions (Xie et al., 2003) which makes them less functional to operate (Rashidah et al. 2006). In a similar way Jensen (1993) perceives smaller boards as more efficient in detecting earnings management. Finally, the chairman of the board is responsible for leading board meetings and monitoring the processes related to senior management. In literature, studies find inconsistent results. Some argue that dual leadership structures lead to earnings manipulations (Dechow et al. 1996; Xie et al. 2003), while others argue that agency costs do not outweigh the benefits of separating CEO/chairman (Brickly et al., 1997; Dalton et al., 1998).

Audit committees have an important function within organizations since they function as a communication channel between the board, internal monitoring system, and the external auditor (Chandrasegaram, Rahimansa, Rahman, Abdullah and Nik Mat, 2013). Moreover they are appointed to enhance the credibility of firms' financial statements. Audit committees mitigate agency problems since they monitor the preparers of financial statements. They can improve the monitoring of financial statements when they have enough resources (i.e. time and effort) (Felo et al., 2003; Lin et al., 2006), suggesting that larger committees are more effective. When independent from management, they can avoid pressures from management. Therefore they will be better able to support the corporate board about financial matters. Audit committee members that are independent and with financial expertise are most effective in mitigating earnings management (Carcello et al., 2008).

In the following sections, the sample data will be discussed. The governance and earnings management variables are addressed in the summary statistics even as the correlation.

4. Data

This section discusses the most important characteristics of the sample data. Section 4.1 explains the time period while sections 4.2 and 4.3 address the data sources and summary statistics. Finally, the normal distribution and correlation test will be discussed in section 4.4 and 4.5.

4.1 Time period

The governance variables (audit committee and corporate boards) will be measured in the year preceding the measurement period, so the third period will be measured in 2006, the year before the start of the financial crisis. Earnings management will be measured over the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012. The start of 2007 is chosen because this period is generally considered as the start of the financial crisis in which the first severe sub-prime losses were realized (Ryan, 2008). Much literature is focused on the period 2007-2008 since this period is considered as the worst financial crisis period since the Great Depression in late 1929. However still after 2008, many firms are still struggling for their existence, several countries went almost bankrupt and has to be rescued. All countries wait severe austerities, some more than others. During these periods, profits are under high pressure and maybe encourage earnings management. The investigation period ends at December 2012, due to lack of data availability in 2013, as the most recent date.

Figure 1 illustrates the movements of the Gross Domestic Product (GDP) of the United States and the European Union. In the year 2000 the United States suffers the so-called Dot-com crisis resulting in a small recession in the years thereafter. From the years 2003 till the end of 2006 a recovery took place with increasing GDP. However, in January 2007 again a crisis occurred, but different from the prior Dot-com crisis, this (financial) crisis took a much broader impact and damaged most modern economies worldwide. This movement can also be traced for the European Union which shows a strong GDP decline in the years 2007-2008. Within the European Union, some countries were hit strongly and became almost bankrupt (primarily Southern Europe).

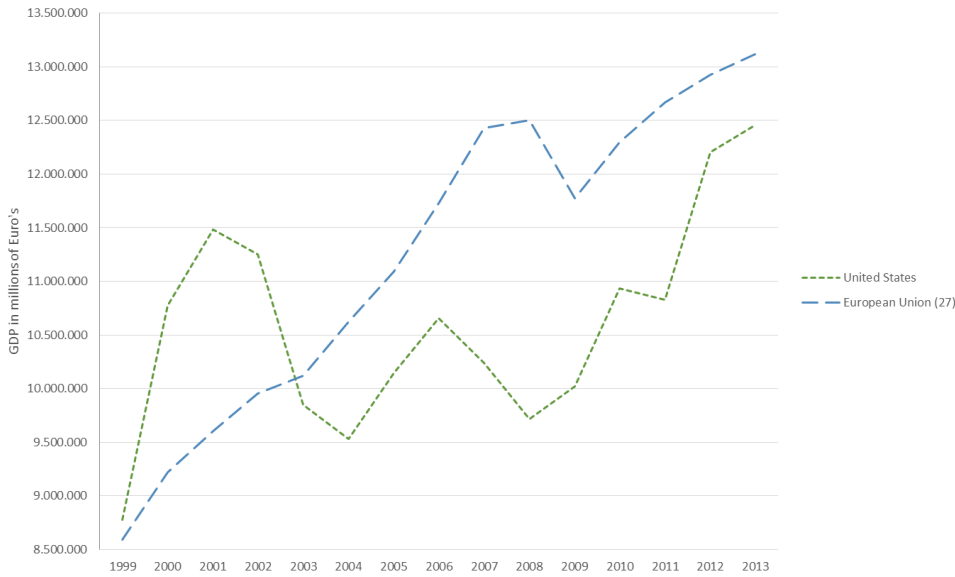


Figure 1: Development of Gross Domestic Product (GDP) over the period 1999-2013.

This figure provides an overview of the development of GDP of the United States and the European Union respectively. On the y-axis GDP in millions of Euro's is provided. The x-axis shows the time period 1999-2013. Source: Own figure based on data from Eurostat.

Most literature is focused on non-crisis periods, more specifically periods of economic prosperity. During these upward periods often positive outcomes are found. In a similar way the few research papers investigating crisis periods often find negative outcomes. This relation is illustrated in figure 2. This figure shows a positive tangent alpha (tga) for upward periods ($h > 0$) and negative tangent alpha (tga) for downward periods ($h < 0$). The sign of h is comparable with the Beta of a regression analysis.

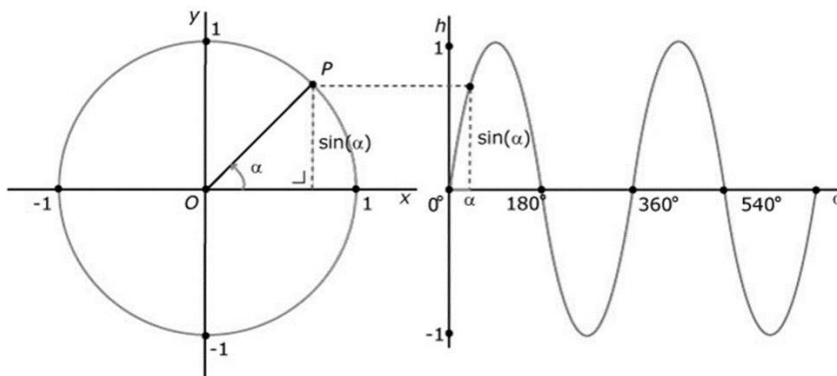


Figure 2: Cyclical periods

This figure illustrates a cyclical periods. On the left side a circle of radius 1 is drawn. Line O-P makes an angle α with the horizontal axis. The height of h is the vertical side of the triangle and can be calculated as $\sin(\alpha) = \frac{h}{1} = h$. This is exactly the y- coordinate of point P. Source: breem.nl

These cycle periods are provided in figure 3. This figure shows the movements of the five largest indices within the Eurozone. The investigation period of this paper are primarily the crises periods of 2000-2003 and 2007-2009. However, because of the problems recognized

above, also two other periods will be provided in the regression analysis in section 6 to make comparisons between crises and non-crises periods possible.

In the first period (2000-2003) there is a downward movement, followed by an upward movement in the second period (2003-2007). The second crises starts in the year 2007 and shows again a downward movement till 2009. Finally, due to lack of data availability, 2012 is chosen as the most recent date.

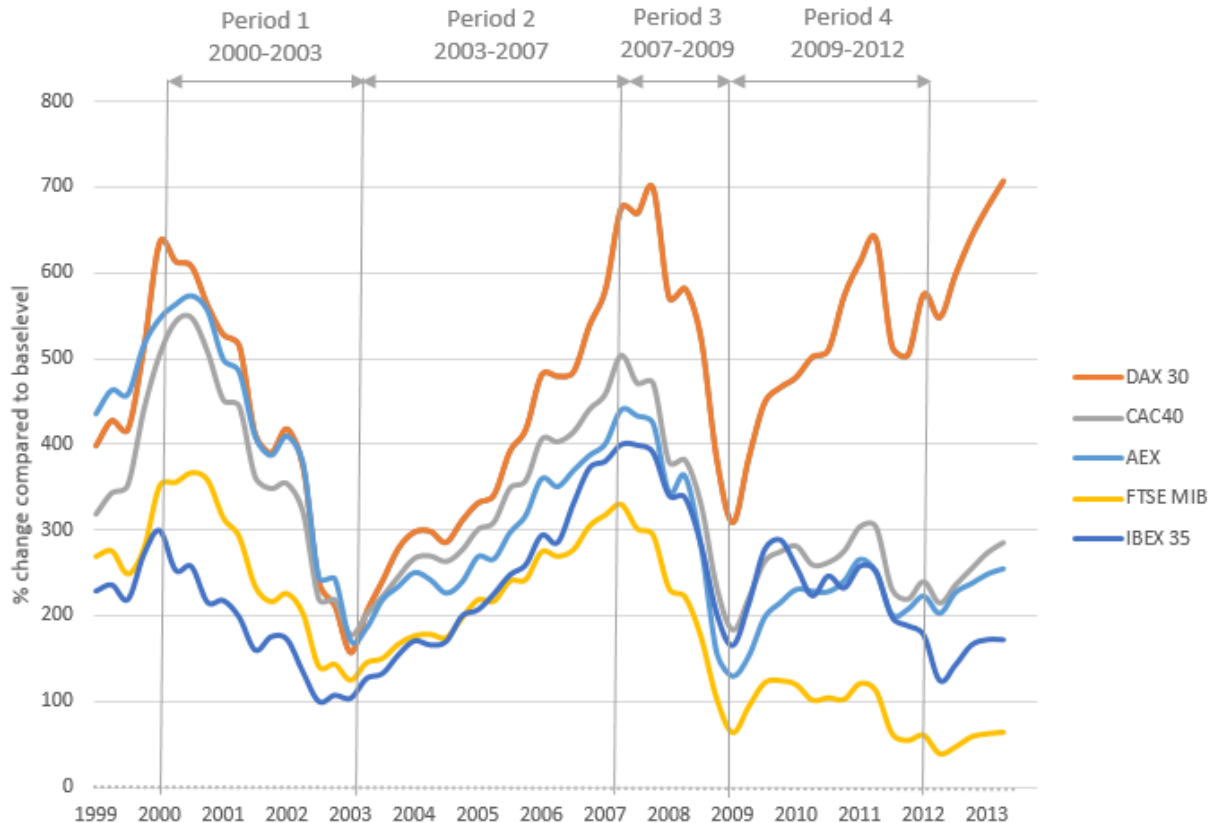


Figure 3: Development of the five largest European indices over the period 1999-2013.

This figure provides an overview of the five largest indices within the Eurozone, including the DAX (Germany), CAC40 (France), AEX (The Netherlands), FTSE MIB (Italy), and IBEX35 (Spain). On the y-axis, the relative change compared to base level (0) of each index is provided, i.e. a base level of 100 for the AEX, a base level of 1,000 for the DAX and CAC40, a base level of 3,000 for the IBEX and a base level of 10,000 for the FTSE MIB index respectively. Finally on the x-axis the time period is provided for the years 1999 - 2013. Source: Own figure based on data collected from Bloomberg.

In the figure, a sudden and relative strong recovery is shown in the graph in the year 2009. This sudden increase in value can be attributed to three main events that took place around that year. To start, in October 2008 enormous government bailouts have taken place in the US and Europe (e.g. the Troubled Asset Relief Program (TARP) with a value of \$700 billion and similar other programs were initiated in the UK (\$850 billion) and Europe). Second, short-selling bans were enforced by regulators of several countries on stocks of many (financial) institutions. The goal of these short-selling bans was an attempt to limit the steep declines of stock prices suffered by

many financial institutions. Finally, financial institutions were allowed by the IFRS to avoid recognizing asset write downs. From end 2009 and onwards, financial markets are dominated by the European sovereign debt crisis. Investors and firms are uncertain about the value of their investments in so-called ‘problem countries’ such as Greece, Ireland, Italy, Portugal, and Spain. Considerable uncertainty is still available in the financial markets. Although the European Financial Stability Facility (EFSF) was formed in 2010 with a value of €750 billion, the value of investments is still uncertain and therefore companies continue writing-off their investments. Therefore from 2010 and onwards the indices show several (relatively strong) up and downward movements.

4.2 Sample firms

Data is collected from firms during the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012. A cross-country analysis has been done, focused on firms that are listed on the stock exchanges of the five largest and most important countries within the Eurozone. They comprise more than 83 percent of GDP of the Eurozone and more than half of the European Union³. These are the Netherlands (AEX), Germany (DAX), France (CAC40), Italy (S&P/MIB), and Spain (IBEX). The firms on these indices have a market capitalization of at least €2,554 billion.

The sample data is filtered as follow (table 1). Financial institutions such as banks, trusts and insurance companies are excluded because the financial reporting requirements are different in those industries. Also diversified financials and real estate firms are left out as such firms generally do not generate any sales revenue (SIC codes 6000-6900) (Baxter, 2009). Moreover, government linked corporations are excluded since the firms in these industries are highly regulated (SIC codes 4000-4400, 4600, 4800-4900, 4910 and 4939) (Chandrasegaram et al., 2013). In addition, the sample excludes firms that did not exist in 2006. Also firms without an audit committee and firms of which an audit committee existence cannot be determined were left out. Finally, firms that were listed on multiple exchanges were counted only once and firms with missing data points were left out.

Table 1: Steps in data selection

| | Total number of firms |
|--|------------------------------|
| Firms listed on DAX, AEX, CAC40, IBEX and FTSE-MIB | 170 |
| (less) financials (SIC codes 6000-6900) | 36 |
| (less) other regulated industries (SIC codes 40-44, 46, 48-49, 4910, 4939) | 22 |
| (less) firms that does not existed in 2006 | 12 |
| (less) firms without an audit committee | 4 |
| (less) same firm listed on multiple exchanges | 2 |
| (less) firms with missing values | 5 |
| | 81 |
| | 89* |

SIC, Standard Industrial Classification

*For the first two periods, 10 (period 1) and 6 (period 2) additional firms were removed because those firms were not listed.

An overview of the variables is provided in Appendix A. The first governance variable, corporate boards, is divided into three variables: size, independence, and CEO duality. Board size is defined as the number of directors on the board and board independence is calculated as the total number of independent board members divided by the total board size. Finally CEO duality is an indicator variable that equals one when a firm has not a separate CEO and board chairman. All corporate board data has been collected from the *BoardEx* database or annual reports (ARs). The *BoardEx* database is the leading database in providing specific data concerning board compositions of publicly listed firms. Within this database, independent board members are classified as ‘independent’ when they are non-executives.

The second governance variable, audit committees, is also divided into three variables of which the last one differs. Audit committee characteristics include committee: size, independence, and expertise. Audit committee size referred to the number of directors on the audit committee. Audit committee independence is calculated as the total number of independent committee members divided by the total committee size. Finally, audit committee expertise is measured as the number of directors with financial expertise divided by the total committee size. All three variables (size, independence and expertise) are manually collected using the *BoardEx* database or are found using annual reports.

The earnings management variables, as required for the Modified-Jones model, have been derived from the *Compustat* database which can be accessed through *Wharton Research Data Services (WRDS)*.

4.3 Descriptives

In this subsection a description of the data used in this research is provided. The summary statistics are given in table’s 2A-2D. As can be seen from the tables is that board size has a very large range in all four tables, varying from 4 board members to even 22 board members (table 2A). The board sizes found are close to the suggested average of Lipton and Lorsch (1992) who argued that boards should be no larger than 10 members. Within the sample, corporate boards have an average independence ratio of 45.7% and a range of 94% (the difference between 6 and 100%) in 1999 which gradually increases to an average of 61,9% in 2008. The lower bound of the ranges can be explained by some firms that are not independent according to most used definitions, including SOX. They have for example employee representatives in the board who should act independent but are not recognized as fully independent because of their affiliation

(salary) with the firm. CEO duality is a dummy variable since dual leadership structures are not allowed in some countries within the sample. The countries that do allow a CEO/chairman structure are France, Italy, and Spain. On average 27-32% of the firms in the sample has a dual leadership structure. Audit committees have almost 4 committee members on average with a range between 2 and 6 members (only exception is table 2D were the range is between 2 and 7). In addition, audit committees have a large majority (near the 70-75%) independence in the last three periods. The only exception here is the first period which shows a small majority of 55%. Audit committee expert level varies between 0 and 75% in all four periods, with an average around the 20-25%. This value corresponds with the minimum level as recommended by most corporate governance codes (see Appendix B).

Table 2A: Summary statistics

| | no. of observations | Mean | Std. Dev. | Median | Minimum | Maximum |
|------------------------------|------------------------|-------|-----------|--------|---------|---------|
| <i>Corporate Governance</i> | | | | | | |
| Board size | 79 | 10.89 | 4.826 | 10.00 | 4.00 | 22.00 |
| Board independence | 79 | 0.457 | 0.279 | 0.50 | 0.06 | 1.00 |
| CEO/Chairman | 79 | 0.320 | 0.515 | 0.00 | 0.00 | 1.00 |
| Audit committee size | 79 | 3.521 | 1.088 | 3.00 | 2.00 | 6.00 |
| Audit committee independence | 79 | 0.547 | 0.366 | 0.67 | 0.20 | 1.00 |
| Audit committee expertise | 79 | 0.190 | 0.169 | 0.25 | 0.00 | 0.75 |
| <i>Earnings management</i> | | | | | | |
| Discretionary accruals | 79 | 0.000 | 0.981 | 0.115 | -5.034 | 3.740 |
| <i>Controls</i> | | | | | | |
| CFO | 79 | 0.085 | 0.090 | 0.081 | -0.036 | 0.500 |
| Firm size | 79 | 10.01 | 1.818 | 9.940 | 5.386 | 13.91 |
| Leverage | 79 | 0.143 | 0.116 | 0.129 | 0.000 | 0.543 |
| MTB | 79 | 8.497 | 2.549 | 7.824 | 0.000 | 16.14 |
| ROE | 79 | 0.147 | 0.124 | 0.126 | -0.089 | 0.652 |

This table provides summary statistics of the five largest indices within the Eurozone. The sample consists of 79 firms after subtracting 91 firms (see section 4.2). The corporate governance variables are from 1999. The earnings management variable (measured as discretionary accruals) is over the period 2000-2003.

Table 2B: Summary statistics

| | no. of observations | Mean | Std. Dev. | Median | Minimum | Maximum |
|------------------------------|------------------------|--------|-----------|--------|---------|---------|
| <i>Corporate Governance</i> | | | | | | |
| Board size | 83 | 11.207 | 4.570 | 11.00 | 3.00 | 20.00 |
| Board independence | 83 | 0.496 | 0.260 | 0.50 | 0.03 | 1.00 |
| CEO/Chairman | 83 | 0.296 | 0.478 | 0.00 | 0.00 | 1.00 |
| Audit committee size | 83 | 3.655 | 0.962 | 3.00 | 2.00 | 6.00 |
| Audit committee independence | 83 | 0.699 | 0.378 | 0.67 | 0.20 | 1.00 |
| Audit committee expertise | 83 | 0.231 | 0.205 | 0.25 | 0.00 | 0.75 |
| <i>Earnings management</i> | | | | | | |
| Discretionary accruals | 83 | 0.000 | 0.982 | -0.117 | -2.855 | 4.772 |
| <i>Controls</i> | | | | | | |
| CFO | 83 | 0.081 | 0.061 | 0.080 | -0.199 | 0.272 |
| Firm size | 83 | 9.188 | 1.352 | 9.269 | 6.162 | 12.14 |
| Leverage | 83 | 0.193 | 0.130 | 0.179 | 0.000 | 0.607 |
| MTB | 83 | 6.598 | 2.177 | 5.749 | 0.276 | 13.13 |
| ROE | 83 | 0.098 | 0.187 | 0.111 | -0.642 | 0.744 |

This table provides summary statistics of the five largest indices within the Eurozone. The sample consists of 83 firms after subtracting 87 firms (see section 4.2). The corporate governance variables are from 2002. The earnings management variable (measured as discretionary accruals) is over the period 2003-2007.

Table 2C: Summary statistics

| | no. of observations | Mean | Std. Dev. | Median | Minimum | Maximum |
|------------------------------|------------------------|--------|-----------|--------|---------|---------|
| <i>Corporate Governance</i> | | | | | | |
| Board size | 89 | 11.540 | 4.235 | 11.00 | 4.00 | 21.00 |
| Board independence | 89 | 0.539 | 0.213 | 0.56 | 0.04 | 1.00 |
| CEO/Chairman | 89 | 0.280 | 0.452 | 0.00 | 0.00 | 1.00 |
| Audit committee size | 89 | 3.780 | 0.914 | 4.00 | 2.00 | 6.00 |
| Audit committee independence | 89 | 0.732 | 0.253 | 0.75 | 0.20 | 1.00 |
| Audit committee expertise | 89 | 0.243 | 0.216 | 0.25 | 0.00 | 0.75 |
| <i>Earnings management</i> | | | | | | |
| Discretionary accruals | 89 | 0.000 | 0.983 | -0.285 | -1.165 | 5.312 |
| <i>Controls</i> | | | | | | |
| CFO | 89 | 0.093 | 0.052 | 0.087 | -0.040 | 0.323 |
| Firm size | 89 | 9.547 | 1.360 | 9.676 | 5.268 | 12.369 |
| Leverage | 89 | 0.201 | 0.141 | 0.182 | 0.000 | 0.663 |
| MTB | 89 | 3.229 | 1.903 | 2.743 | 0.22 | 10.20 |
| ROE | 89 | 0.203 | 0.170 | 0.192 | -0.313 | 0.846 |

This table provides summary statistics of the five largest indices within the Eurozone. The sample consists of 89 firms after subtracting 81 firms (see section 4.2). The corporate governance variables are from 2006. The earnings management variable (measured as discretionary accruals) is over the period 2007-2009.

Table 2D: Summary statistics

| | no. of observations | Mean | Std. Dev. | Median | Minimum | Maximum |
|------------------------------|------------------------|--------|-----------|--------|---------|---------|
| <i>Corporate Governance</i> | | | | | | |
| Board size | 89 | 11.614 | 4.361 | 11.5 | 3.00 | 20.00 |
| Board independence | 89 | 0.619 | 0.271 | 0.56 | 0.04 | 1.00 |
| CEO/Chairman | 89 | 0.274 | 0.442 | 0.00 | 0.00 | 1.00 |
| Audit committee size | 89 | 3.841 | 1.038 | 4.00 | 2.00 | 7.00 |
| Audit committee independence | 89 | 0.715 | 0.360 | 0.67 | 0.20 | 1.00 |
| Audit committee expertise | 89 | 0.240 | 0.214 | 0.25 | 0.00 | 0.75 |
| <i>Earnings management</i> | | | | | | |
| Discretionary accruals | 89 | 0.000 | 0.983 | 0.300 | -2.374 | 7.721 |
| <i>Controls</i> | | | | | | |
| CFO | 89 | 0.114 | 0.058 | 0.084 | -0.012 | 0.271 |
| Firm size | 89 | 9.709 | 1.281 | 9.822 | 5.579 | 12.55 |
| Leverage | 89 | 0.216 | 0.139 | 0.186 | 0.000 | 0.611 |
| MTB | 89 | 3.763 | 1.828 | 2.202 | 0.768 | 10.73 |
| ROE | 89 | 0.101 | 0.343 | 0.156 | -1.770 | 0.629 |

This table provides summary statistics of the five largest indices within the Eurozone. The sample consists of 89 firms after subtracting 81 firms (see section 4.2). The corporate governance variables are from 2008. The earnings management variable (measured as discretionary accruals) is over the period 2009-2012.

4.4 Normality of the variables

One of the requirements of performing a regression analysis is that the variables should follow a normal distribution. Most variables have a normal distribution except for the control variable ROE, which is right skewed. Therefore this variables is transformed to the natural log (LN) resulting in a much more 'normal' distribution. This transformations produces a new variable that is mathematically equivalent to the original variables but expressed in a different measurement unit. Finally, the log is used for the control variable firm size to correct for size differences. This variable has a normal distribution.

4.5 Correlation test

A correlation test is made to test whether the independent variables and dependent (earnings management) are influenced by each other. The *Pearson correlation coefficient* makes it possible to quantify the strength of a linear relationship between one or more variables. The Pearson correlation coefficient is expressed with the letter (r). The coefficient may have a value between -1 and +1, where ($r < 0$) suggests a negative correlation exists between two tested variables and ($r > 0$) suggests a positive correlation. When ($r = 0$) it's called a perfect correlation (Saunders et al. 2007). To test whether there is a problem of multicollinearity, the correlation coefficients may not be greater than 0.6 (or less than -0.6) between any two of the explanatory variables (Bryman and Cramer, 2011). Otherwise the regression analysis should be rejected. In table 3 can be seen that there is no value close or exceeding the 0.6. Therefore a regression is valid to perform.

Table 3: Correlation matrix

| | Discretionary accruals | Board size | Board independence | CEO/Chairman | Audit committee size | Audit committee independence | Audit committee expertise | CFO | Firm size | Leverage | MTB | ROE |
|------------------------------|------------------------|------------|--------------------|--------------|----------------------|------------------------------|---------------------------|---------|-----------|----------|--------|-----|
| Discretionary accruals | 1 | | | | | | | | | | | |
| Board size | 0.296* | 1 | | | | | | | | | | |
| Board independence | -0.082 | -0.219 | 1 | | | | | | | | | |
| CEO/Chairman | -0.046 | -0.033 | 0.025 | 1 | | | | | | | | |
| Audit committee size | -0.095 | 0.398** | -0.049 | -0.066 | 1 | | | | | | | |
| Audit committee independence | -0.054 | -0.392** | 0.400** | 0.029 | -0.388** | 1 | | | | | | |
| Audit committee expertise | -0.124 | -0.106 | 0.175 | -0.126 | -0.100 | 0.057 | 1 | | | | | |
| CFO | 0.011 | -0.184 | 0.086 | -0.048 | -0.113 | 0.202 | 0.056 | 1 | | | | |
| Firm size | 0.442** | 0.413** | 0.205 | -0.084 | 0.323** | -0.124 | 0.001 | -0.283* | 1 | | | |
| Leverage | 0.060 | -0.020 | -0.351** | 0.056 | -0.048 | -0.095 | 0.053 | -0.291* | 0.112 | 1 | | |
| MTB | 0.258 | -0.306** | -0.154 | 0.060 | -0.254* | 0.105 | 0.091 | 0.375 | -0.356** | -0.162 | 1 | |
| ROE | -0.214 | 0.151 | 0.131 | 0.083 | 0.194 | -0.047 | -0.117 | -0.140 | 0.340** | 0.119 | -0.207 | 1 |

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

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

5. Research method

This paper examines the relationship between corporate governance and earnings management using an OLS regression on the sample data. Both variables are discussed in previous chapters. The independent variable, corporate governance, is measured as audit committee characteristics (e.g. degree of independence, size, and expert level.) and corporate board characteristics (e.g. degree of independence, size and CEO duality).

In literature there are several models to estimate earnings management, which is the dependent variable. These models are discussed in prior sections and include the Healy model (1985), DeAngelo model (1986), the Jones model (1991), Modified-Jones model (1995), the Industry model (1991) and the model by Ye (2007).

In this paper the Modified- Jones model is used because this is the most widely accepted model since it provides the most powerful tests. The modified-Jones model (provided in section 2.5, [6]) is developed as follows (Yoon, Kim and Woodruff, 2012). First the model distinguishes two types of accruals, discretionary (DA) and non-discretionary (NDA) accruals. The second stage is the transformation into statistical model followed by standardization of the model in the third stage. In this stage the model is divided by A_{t-1} to control for heteroscedasticity⁴. Finally proxy variables are selected in stage (4) for DA and NDA. These proxies include revenues (REV), receivables (REC) and property plant and equipment (PPE).

These stages of the model are more specified below:

First stage (decomposition of total accruals)

$$TA_t = DA_t + NDA_t \quad [1]$$

Second stage (transformation into a statistical model)

$$TA_t = \beta_0 + \beta_1 DA_t + \beta_2 NDA_t + \varepsilon_t \quad [9]$$

Third stage (standardization by A_{t-1} to control for heteroscedasticity)

$$TA_t/A_{t-1} = \beta_0 \left(\frac{1}{A_{t-1}}\right) + \beta_1 \left(\frac{DA_t}{A_{t-1}}\right) + \beta_2 \left(\frac{NDA_t}{A_{t-1}}\right) + \varepsilon_t \quad [10]$$

Final stage (selection of proxy variables)

$$TA_t/A_{t-1} = \beta_0 \left(\frac{1}{A_{t-1}}\right) + \beta_1 \left(\frac{\Delta REV_t - \Delta REC_t}{A_{t-1}}\right) + \beta_2 \left(\frac{PPE_t}{A_{t-1}}\right) + \varepsilon_t \quad [11]$$

⁴ This occurs when the standard deviation (s.d.) is not constant over time for a particular variable.

Control variables

In addition to the identified board characteristics that may affect earnings management, this paper also used certain control variables to minimize the specification bias⁵ since these variables have a known effect on earnings management practices.

The first control variable is firm performance. Well-performing firms are less likely to engage in earnings management practices (Cornett, Marcus and Tehranian, 2008). In literature, financial fraud is more likely to occur when firms show worse financial performance (Uzun et al., 2004). Earnings surprises are negatively related to firm performance, implicating that abnormal accruals are associated with firms that show marginal profits. In this paper, firm performance is measured as *return on equity* and the coefficient is expected to be negative.

Second, cash flow from operations (CFO) is recognized. Earnings manipulations through discretionary accruals (DA) are less likely to occur when firms show high CFOs (Jiang, Lee and Anandarajan, 2008). This is because they have less incentives to boost earnings. In contrast, firms that perform worse in terms of operating cash flows have incentives to manipulate earnings (income increasing DA's) to signal positive information to investors. Therefore a negative coefficient is expected.

Third, the level of debt (LEVERAGE), calculated as total debt divided by total assets, may provide managers incentives to engage in earnings manipulations through DA (Klein, 2002). Firms that require substantial financial needs have incentives to prevent debt covenant defaults by manipulating abnormal accruals. Those firms are associated with increased financial fraud (Weber, 2006). Income decreasing actions are associated with higher levels of debt.

Fourth, firm size (SIZE) is found to be related to EM in literature (Xie et al., 2003). Scott (2009, 2012) argue that political costs⁶ are higher for larger firms that causes substantial scrutiny by stock market and stimulates the downward manipulation of earnings. In contrast, earnings manipulations can also be lower because large firms are associated with lower information asymmetry, increased external monitoring and strong CG (Meek, Rao and Skousen, 2007). Because the literature provides no consistent perspective, no predictions of the sign of the coefficient are made.

⁵ Specification bias, also called *omitted variable bias*, occurs when leaving a variable out of the equation of the regression. The expected value of the estimated coefficient goes away from the (true) population coefficient.

⁶ Costs that arise from (in)direct regulation.

Fifth, market-to-book value (MTB) is measured as market value of equity divided by book value of equity. Unethical managers may engage in financial statements manipulations when growth slows down to show consistent growth to investors. The MTB indicates the *market expectations* of future profitability growth. Managers manipulate DAs to attain this objective (Jiang et al., 2008). The coefficient is expected to be positive.

Sixth, audit quality (BIG-4) is an important control variable because reduced EM and improved earnings quality is associated with higher quality external auditors (i.e. one of the Big-4 audit firms) (Jiang et al., 2008). In their paper they find evidence of lower DA's for Big-4 auditors compared to non-Big4 audits after controlling for size, tenure and independence. In addition, more process independence is related to less corporate fraud (Uzun, Szewczyk and Varma, 2004). In a similar way Klein (2002) find that less financial statements take place with more independent audit committees. Therefore this variable is expected to have a negative coefficient. However, although it's a much used control variable, this variable is left out in the equation due the fact that all firms in the sample have a BIG-4 auditor which makes the variable irrelevant.

Based on the information above the final formal regression is stated in equation [12]:

$$\begin{aligned}
 & \text{Earnings management (DA)} && [12] \\
 & = \beta_0 + \beta_1 (\text{Board size}) + \beta_2 (\text{Board independence}) + \beta_3 (\text{CEO/Chairman}) \\
 & \quad + \beta_4 (\text{Audit committee size}) + \beta_5 (\text{Audit committee independence}) \\
 & \quad + \beta_6 (\text{Audit committee expertise}) + \beta_7 (\text{CFO}) + \beta_8 (\text{Firm size}) \\
 & \quad + \beta_9 (\text{Leverage}) + \beta_{10} (\text{MTB}) + \beta_{11} (\text{ROE}) + \varepsilon_t
 \end{aligned}$$

Where:

- Earnings management is measured by the Modified- Jones Model over the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012.
- Control variables include:

| | |
|-----------|---|
| CFO | = cash flow from operations scaled by beginning of the year total assets |
| FIRM SIZE | = natural logarithm of total assets |
| LEVERAGE | = total debt divided by total assets |
| MTB | = market value of the total firm divided by the book value of assets, measured at the beginning of the fiscal year. |
| ROE | = net income divided by shareholders' equity |

Most data of the control variables is found in the *Compustat* database and/or *Thomson One Banker*.

6. Hypotheses Development

The expectations of the different variables in the regression model are as follows. A negative relation between corporate governance and earnings management is found in literature, implicating that strong corporate governance is an effective mechanism to reduce earnings management practices. For example the results of Klein (2002) indicate that the signs of coefficients on board independence is negatively related to abnormal accruals. Also Xie et al. (2003) find that corporate governance is associated with lower earnings management practices. Corporate governance was measured using several board and committee variables, including degree of independence, size, blockholders and dual leadership structures. Based on a sample of 110 firms listed on the S&P500 index they find evidence that more independent and experienced boards reduce the likelihood of EM. Moreover they find that audit committees that are more independent and have financial expertise perform better oversight functions and therefore reduces earnings management practices. In addition, Rashidah et al. (2006) investigated corporate governance and earnings management. Using a sample of 97 Malaysian firms they find evidence of a positive relation between board size and earnings management. No significant relation is found for other corporate governance mechanisms like board and audit independence. They argue that independent boards are ineffective since they have lack of knowledge in company affairs. Others argue that independent directors are better able to monitor the financial statements (Siagian and Tresnaningsih, 2011). Dechow et al. (1996) and Xie et al. (2003) find that earning manipulations and overstatements of financial fraud is associated with dual leadership structures. However in literature there is no optimal leadership structure found for this governance mechanism. Also Bedard et al. (2004) studied several audit committee characteristics (expertise, independence, activity) and found a negative relation with EM. The presence of a financial expert reduces the likelihood of EM. Lin et al. (2006) performed a regression analysis among 267 publicly held firms in the United States finds that larger audit committees are better able to ensure that disclosed information in financial statements is accurate since they have more time and effort.

So far, only non-crisis literature has been discussed. In literature only limited studies examined the influence of economic cycles on earnings management. Most literature investigates the effects of corporate governance on firm performance during periods of economic stability while only a few studies examined financial crisis periods. Aldamen, Duncan, Kelly, McNamara and Nagel (2012) find that the quality of financial decision-making and risk management processes have a mitigating effect on the performance of firms during economic downturns. In their paper

they investigate the impact of several audit committee characteristics during the global financial crisis using a sample of 300 firms listed on the Australian stock exchange. Their results indicate that firms perform better during the global financial crisis when they have audit committees that are small, have much experience and financial expertise. An article by Chia, Lapsley and Lee (2007) found that during the Asian financial crisis, service-oriented firms engaged more income decreasing EM. Moreover they found that Big-6 audit firms are able to constrain this EM practices implicating that high quality auditing services act as a deterrent to EM. The relation between CG and firm value is measured by Leung and Horwitz (2009). They find that ownership structures and firms with dual leadership structures show lower stock declines during the Asian financial crisis period (1997-1998) compared to firms with no dual leadership structures. Using a sample of 463 non-financial firms listed in Hong Kong they show that a positive relation between corporate governance and firm performance pre-crisis turns into a negative relation during the crisis. For the proportion of outside directors they found no significant relation with firm performance during the crisis. Similar Beltratti and Stulz (2009) and Erkens, Hung and Matos (2009) found comparable results during the 2007-2008 financial crisis. Moreover, Erkens et al. (2009) find that firms experienced larger losses during the crisis when they had more independent directors at the corporate boards or high levels of institutional ownership. However, like Leung et al. (2009) and Beltratti et al. (2009), Erkens et al. (2009) did not relate their findings to earnings management practices. Argilés-Bosch, García-Blandón, and Martínez-Blasco (2012) performed a study among 104 listed firms in Spain and found that earnings management practices (through real activities) are reduced during the recent economic downturn. Firms facing strong financial difficulties are more likely to improve firm income while firms that are relatively stable reserve earnings for the recovery phase of the business cycle in future. Another study by Habib, Bhuiyan and Islam (2013) find that financially distressed firms engage more in earning management practices that decreases earnings but find no significant difference between the pre-crisis and crisis periods.

Overall the crisis literature indicates that firms with high levels of corporate governance (e.g. more independent boards and larger audit committees) perform well pre-crisis and perform worse during the crisis. A possible explanation for this phenomena could be that well governed firms are able to constrain earning management practices during periods of crisis. Therefore this firm performance literature may suggest that firms with high levels of corporate governance will engage less in earning management practices, especially during periods of crisis. Based on

these literature, a negative relation between corporate governance and earnings manipulation is expected during the financial crisis.

Therefore the following hypothesis is formulated (see figure 1):

H1: *Organizations with a higher level of corporate governance (pre-crisis) engage less in earnings management during the financial crisis.*

This relation is also graphically represented in Figure 1.

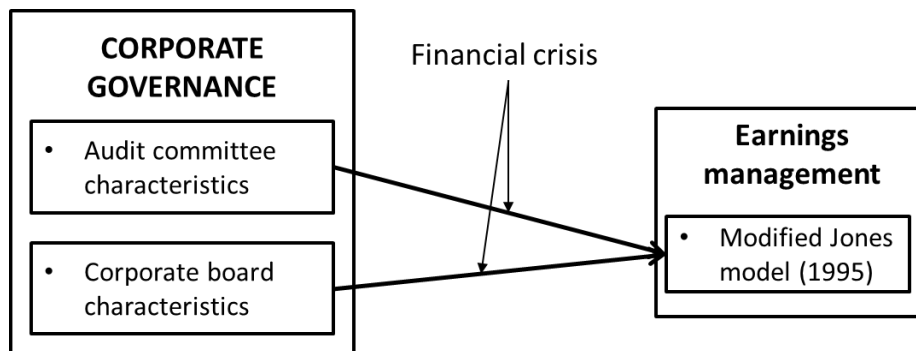


Figure 1: Research model. The independent variable is Corporate Governance which is divided into two sub variables (1) Audit committee characteristics (degree of independence, size, and expert level) and (2) Corporate board (degree of independence, size and CEO duality). Earnings management is the dependent variables and will be measured by using the Modified-Jones model (1995). Control variables include performance (ROE), cash flow from operations (CFO), leverage, firm size, and market-to-book ratio.

Based on existing literature, there is reason to expect different outcomes for the individual variables within corporate governance. Therefore the hypothesis is subdivided into six smaller hypotheses.

H1a: *Organizations with larger corporate boards (pre-crisis) engage more in earnings management during the financial crises.*

H1b: *Organizations with more independent boards (pre-crisis) engage less in earnings management during the financial crises.*

H1c: *Organizations with CEO/chairman positions (pre-crisis) engage more in earnings management during the financial crises.*

H1d: *Organizations with larger audit committees (pre-crisis) engage less in earnings management during the financial crises.*

H1e: *Organizations with more independent committees (pre-crisis) engage more in earnings management during the financial crises.*

H1f: *Organizations with more financial experts at the committee (pre-crisis) engage less in earnings management during the financial crises.*

7. Results

In this section the regression results are presented of corporate governance (corporate board and audit committee characteristics) on earnings management practices during the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012. This has been done by estimating four regression models to be able to see the differences among the cycle periods as discussed in section 4.

The regression results are provided in table 4. An adjusted R-squared value has been found varying from 17,5% to 21,1% in columns (1)-(4). This value indicates the proportion of the variance in the dependent variable (earnings management) that can be explained by the independent variables. Although this percentage is not that large, it's reasonable that much more factors can influence earning management practices than the measured governance variables alone. Therefore these governance variables can be considered as an important element in explaining earnings management practices. Before considering the coefficient of the individual variables, the regression models needs to be significant. Table 4 shows that the goodness of fit for all regression models is significant at the 1% level. This means that all models do explain the deviations in the dependent variable. There is a relation between corporate governance and earnings management. The direction and the strength of this relationship can be examined with the coefficients of the individual variables. The table shows that the coefficients for board size are positive in all regressions performed, indicating that smaller boards are better able to constrain earning management practices. However, this relation is found only significant at the 10% level in regressions (1) and (3). For board independence, negative relations with discretionary accruals are found for all regressions performed (significant at the 10% level). Lower earnings management practices are associated with more independent boards. Third, CEO/chairman is found positive for all regressions performed, suggesting that dual leadership increases the likelihood of earnings management practices. This variable is only found significant for the regression in column (2). Audit committee size shows, in contrast to board size, negative coefficients for all regressions. This indicates that larger audit committees are able to constrain earning management practices. However, only the regression in column (2) is found significant. Committee independence is also negative, but only significant for column (1). The relative high percentage of independent committee members may be the cause that not all the regressions are significant, since an additional independent member will only have a limited influence on constraining earnings management practices. Finally, financial experts at

the audit committee are found significant for all regressions performed. Column (1) is significant at the 5% level and columns (2) – (4) are significant at the 10% level.

Table 4

Dependent Variable = Earnings management (Discretionary Accruals)

| Independent variable | Pred. Sign | (1) 2000-2003 | (2) 2003-2007 | (3) 2007-2009 | (4) 2009-2012 |
|------------------------------|------------|---------------------|---------------------|---------------------|---------------------|
| Constant | +/- | -1.900 [2.227] | -0.449 [1.777] | -3.260 [1.299]** | -0.845 [1.192] |
| Board size | + | 0.775 [0.461]* | 0.044 [0.033] | 0.406 [0.236]* | 0.354 [0.376] |
| Board independence | - | -0.225 [0.124]* | -0.737 [0.411]* | -0.316 [0.174]* | -0.042 [0.025]* |
| CEO/Chairman | + | 0.113 [0.306] | 0.473 [0.225]** | 0.222 [0.197] | 0.133 [0.230] |
| Audit committee size | - | -0.261 [0.664] | -0.941 [0.513]* | -0.459 [0.445] | -0.228 [0.532] |
| Audit committee independence | - | -0.752 [0.407]* | -0.179 [0.314] | -0.112 [0.275] | -0.030 [0.034] |
| Audit committee expertise | - | -1.617 [0.679]** | -0.862 [0.454]* | -1.325 [0.736]* | -0.975 [0.507]* |
| CFO | - | 2.536 [1.409]* | -4.146 [2.165]* | 3.500 [2.032]* | -5.105 [2.169]** |
| Firm size | +/- | 1.522 [0.961] | 0.164 [0.862] | 0.388 [0.094]*** | 0.027 [0.106] |
| Leverage | + | 0.110 [0.065]* | 0.120 [0.114] | 0.179 [0.093]* | 0.045 [0.026]* |
| MTB | + | 0.103 [0.056]* | 0.100 [0.015] | 0.391 [0.211]* | 0.043 [0.017]** |
| ROE | - | -0.311 [1.396] | -1.438 [0.655]** | -0.012 [0.030] | -0.620 [0.318]* |
| R-squared | | 0.226 | 0.252 | 0.238 | 0.213 |
| Adjusted R-squared | | 0.192 | 0.211 | 0.203 | 0.175 |
| F-Statistic | | 6.230*** | 5.108*** | 6.746*** | 6.550*** |
| Observations | | 79 | 83 | 89 | 89 |

Table 4 shows the results of the regression analysis with earnings management (measured as discretionary accruals) as dependent variable. The following regression is used: Earnings management (DA) = $\beta_0 + \beta_1$ (board size) + β_2 (Board independence) + β_3 (CEO/Chairman) + β_4 (Audit committee size) + β_5 (Audit committee independence) + β_6 (Audit committee expertise) + β_7 (CFO) + β_8 (Firm size) + β_9 (Leverage) + β_{10} (MTB) + β_{11} (ROE) + ε_t . The earnings management variable is measured over the periods 2000-2003, 2003-2007, 2007-2009 and 2009-2012. The number of firms decreases from 89 in the last two regressions to 79 firms in the first regression. This is due to firms that were not listed at the measurement period. Corporate governance is divided into two major sections, corporate boards and audit committees. Within corporate board characteristics, the variable board size is based on the number of directors on the board. Board independence is based on the number of independent board members divided by the total board size. Finally, CEO duality is an indicator variable that equals one when a firm has a combined CEO and board chairman. Within audit committees, the size of the committee is measured as the number of directors on the audit committee. The degree of independence is based on the total independent committee members divided by total committee size. Finally, audit committee expertise is the number committee members with financial or accounting expertise divided by total committee size. Several control variables are used to minimize the specification bias. The first control variable is the return on equity (ROE) of the year prior to each specific period to measure the performance of the firm. ROE is calculated as net income (NI) divided by shareholders' equity (SE). Second, Cash flow

from operations (CFO) is used, which is defined as cash flow from operations scaled by beginning of the year total assets. Third, leverage, calculated as total long-term debt divided by stockholders' equity, is added. Fourth, firm size, measured as the Natural logarithm of total assets, is included. Finally, market-to-book (MTB), market value of the total firm divided by the book value of assets measured at the beginning of the fiscal year, is added. The symbols ***, **, and * denote significance at 1%, 5%, and 10% levels, respectively.

Hypotheses examined

The results of the regression models suggest that in downward periods, smaller boards are more effective in constraining earnings management. They are able to make faster decisions since they face less bureaucracy. Smaller boards provide more responsibility to each director reducing the chance of free-riding. Therefore, smaller boards (i.e. less fragmented) are more difficult to manipulate by management. Based on the results, H1a can be accepted.

Organizations with more independent boards perform better (less earnings management) in both, up- and downward periods. The results suggests that independent directors are better able to perform certain activities better because they are not affiliated with the firm and have a reputation to hold. Based on the results of the regression, H1b can be accepted.

CEO/chairman show positive coefficients for all four periods, implicating that splitting the dual leadership structure with a separate chairman would be recommended. However, the relation is only found significant for the second period. Therefore, H1c should be rejected.

Audit committee size is, as expected, negatively related to all earnings management for all periods. Larger committees are better able to constrain earnings management practices because they have more time to spend on. However, because only the first upward period is found significant, H1d has to be rejected.

The level of independence of the audit committee shows negative coefficients for all four periods, including up- and downward periods. Only the first period is found significant. A possible reason could be that the relative high number of independence at the committee ensures that an additional independent member has less impact. H1e can therefore only partly be confirmed.

Finally, the level of expertise shows significant negative coefficients, implicating that more members with financial expertise are better able to constrain earnings management. Therefore, H1f can be accepted.

The hypotheses are summarized in table 5 below.

Table 5: Hypotheses examined

| Hypotheses | Predicted sign | Results |
|---|----------------|-----------|
| H1a: <i>Organizations with larger corporate boards (pre-crisis) engage more in earnings management during the financial crises.</i> | + | Confirmed |
| H1b: <i>Organizations with more independent boards (pre-crisis) engage less in earnings management during the financial crises.</i> | - | Confirmed |

| | | | |
|-----|--|---|------------------|
| H1c | <i>Organizations with CEO/chairman positions (pre-crisis) engage more in earnings management during the financial crises.</i> | + | Not confirmed |
| H1d | <i>Organizations with larger audit committees (pre-crisis) engage less in earnings management during the financial crises.</i> | - | Not confirmed |
| H1e | <i>Organizations with more independent committees (pre-crisis) engage more in earnings management during the financial crises</i> | - | Partly Confirmed |
| H1f | <i>Organizations with more financial experts at the committee (pre-crisis) engage less in earnings management during the financial crises.</i> | - | Confirmed |

8. Place in literature

The results of this study are in line with Rashida et al. (2006) and Beasley (1996) who found a positive relation between board size and earnings manipulation, suggesting that smaller boards are more effective in constraining earnings management practices during periods of crisis. In their paper, Rashida et al. (2006) also used the Modified-Jones model and found evidence for a positive relation among Malaysian firms over the period 2002-2003. Beasley (1996) found similar results using a sample consisting of 75 fraud firms and 75 non-fraud firms. However, the results also contradict with literature that find a negative relationship. These authors used a different model (Bradbury et al. 2006) or investigated primarily Anglo-Saxon countries (Peasnell, 2005; Xie et al. 2003). Other authors did not find any relationship at all. Those studies used a single industry (Eckles et al. 2011), a single year (Baxter and Cotter, 2009; Peter and Cotter, 2009) or a time period including upward and downward cycles which have a mitigating effect on the results (Uzun et al. 2004). Second, board independence shows negative coefficients for all regressions performed and therefore the results correspond with most literature. Similar results are found by Beasley (1996); Cornett et al. (2008); Felo et al. (2003); Joubert and Fakhfakh (2010); Peasnell et al. (1998); Peasnell et al. (2005); Peasnell et al. (2006); Uzun et al. (2004) and Xie et al. (2003). Those authors used samples existing of primarily U.S. firms during a non-crisis period. Although most literature has found a negative relation between board independence and earnings management, there are some papers that do not find any relation at all. Those papers used a different model (Bradbury et al. (2006) and Vafeas (2005)), a specific industry (Eckles et al. 2011), or a single time period and country (Peter and Cotter, 2009; Rashida and Ali, 2006). CEO duality provides comparable results with most literature since no difference in the coefficients of dual leadership structures between crisis and pre-crisis periods has been found. Authors that also found a positive relation include Abbott et al. (2000), Davidson et al. (2004), Dechow et al. (1996), Joubert and Fakhfakh (2010), Uzun et al. (2004) and Xie et al. (2003). Although only positive relations are found, they are not all significant. In a similar way there are some authors finding no relation (Bradbury et al. 2006; Eckles et al.

2011; Joubert and Fakhfakh, 2010; Peasnell et al. 2005). The results of audit committee variables are comparable with the pre-crisis literature like Abbott et al. (2000), Bedard et al. (2004), Carcello et al. (2008), Joubert and Fakhfakh (2010) and Vafeas (2005) who find a negative relation for independence. In a similar way Bedard et al. (2004), Carcello et al. (2008), Felo et al. (2003) and Xie et al. (2003) find a negative relation for financial expertise. Implicating that a financial expert at the audit committee is an effective way to constrain earning management. In addition, Felo et al. (2003) and Lin et al. (2000) find comparable results for audit committee size (negative relation). However, although the coefficients are generally in line with prior research, the relations identified above are not significant for all the regressions performed, except for expert level. These results correspond with the many research papers that do not find any relation for independence (Baxter and Cotter, 2009; Chandras et al., 2013; Felo et al., 2003; Lin et al., 2000; Peter and Cotter, 2009; Rashida and Ali, 2006; Uzun et al., 2004; Yang and Krishnan, 2005), size (Abbott et al., 2000; Baxter and Cotter, 2009; Bedard et al., 2004; Chandras et al., 2013; Peter and Cotter, 2009), and expertise (Abbott et al., 2000; Baxter and Cotter, 2009; Lin et al., 2000; Peter and Cotter, 2009; and Yang and Krishnan, 2005). The latter findings contradict with the results find in this paper.

The findings of this paper and the used literature are summarized in the table below.

Literature overview (CH 8)

The table below summarizes the studies that provided insight for this research.

| | | | | | | |
|-----------------------------|------|--|--|-----------|--|--|
| Abbott, Parker, and Peters. | 2000 | The Effectiveness of Blue Ribbon Committee Recommendations in Mitigating Financial Misstatements: An Empirical Study | Do audit committee characteristics as suggested by the RCR reduce financial misstatements? | 1991-1999 | <p>Audit committees levels of activity and degree of independence are related to a reduced fraud level.</p> <p>In addition, firms having dual leadership structures are more likely to have financial misstatements.</p> <p>Audit committee size and financial expertise of audit members are not found to be significant.</p> | <p>Agree</p> <ul style="list-style-type: none"> - CEO duality - Audit committee size <p>Disagree</p> <ul style="list-style-type: none"> - Audit committee independence - Audit committee expert |
| Baxter and Cotter | 2009 | Audit committees and earnings quality. | Do audit committees improve earnings quality? | 2001 | <p>The creation of an audit committee is associated with reduced earnings management.</p> <p>No significant relation found for the individual audit committee characteristics: independence, size, activity and expertise.</p> <p>Also board size and board independence are not found significant.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Audit committee independence - Audit committee size <p>Disagree</p> <ul style="list-style-type: none"> - Board size - Board independence - Audit committee expert |
| Beasley | 1996 | An empirical analysis of the relation between the board of director composition and financial statement fraud. | Does the inclusion of larger proportions of outside members on the board of directors significantly reduces the likelihood of financial statement fraud? | 1980-1991 | <p>Firms facing financial statement fraud have a lower proportion outside board members.</p> <p>Board composition is more important reducing likelihood of financial statement fraud than the presence of an audit committee.</p> <p>Besides board composition, board size and certain outside director characteristics affect the likelihood of FS fraud.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board size - Board independence |

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|-------------------------------------|------|--|--|-----------------------------------|--|---|
| Bedard, Chtourou, and Courteau. | 2004 | The effect of audit committee expertise, independence, and activity on aggressive earnings management. | How are audit committee expertise, independence, and activity related to EM? | 1996 | <p>Negative relation between the likelihood of EM and the presence of financial expert, a clear mandate and no affiliated directors.</p> <p>CG negatively related with EM. When there is a strong CG system, less likely that EM takes place.</p> <p>No relation between size, meeting frequency, and firm-specific expertise and aggressive EM.</p> <p>Income increasing earnings manipulation is more likely to occur than income decreasing. This difference is only found significant for the presence of a clear mandate.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Audit committee size - Audit committee expertise <p>Disagree</p> <ul style="list-style-type: none"> - Audit committee independence |
| Bradbury, Mak, and Tan. | 2006 | Board Characteristics, Audit Committee Characteristics and Abnormal Accruals. | How is corporate governance related to earnings management? | 2000 | <p>Board independence and CEO duality do not impact earnings management significantly. In contrast board size and audit committee independence are related to earnings management (measured as abnormal accruals). However, audit committee independence is only significant when the board is fully (100%) independent and only for income increasing accruals.</p> <p>Within the financial reporting process, audit committees are most effective in reducing income increasing accruals.</p> | <p>Disagree</p> <ul style="list-style-type: none"> - Board size - Board independence - CEO duality |
| Carcello, Hollingsworth, and Klein. | 2008 | Audit committee financial expertise, competing corporate governance mechanisms, and earnings management. | What influence does audit committee financial expertise and other CG mechanisms have on earnings management? | July 15, 2003 – December 31, 2003 | <p>For firms with weak CG, accounting committee financial expertise (ACFE) reduces earnings management.</p> <p>Independent ACFE's are more effective than dependent ACFE's.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Audit committee expertise <p>Disagree</p> <ul style="list-style-type: none"> - Audit committee independence |

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|--|------|--|--|-----------|--|--|
| | | | | | <p>No relation found between non-accounting ACFE and earnings management, unless this person is not affiliated with the firm before.</p> <p>For firms with strong CG, accounting committee financial expertise (ACFE) does not reduce earnings management.</p> | |
| Chandrasegaram, Rahimansa, Rahman, Abdullah and Nik Mat. | 2013 | Impact of Audit Committee Characteristics on Earnings Management in Malaysian Public Listed Companies. | Do audit committee characteristics influence EM within the Malaysian stock exchange? | 2011 | <p>Audit committee independence is (not significantly) negatively related to EM.</p> <p>For all three variables, meeting frequency, independence and size, no significant evidence is found.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Audit committee independence - Audit committee size |
| Cornett, Marcus, and Tehranian. | 2008 | Corporate governance and pay-for-performance: the impact of earnings management. | How are management incentives related to EM (measured as DA)? | 1994-2003 | <p>Management incentives are strongly related to earnings management. Increased monitoring activities reduce the likelihood of EM practices. Monitoring can take place in various forms such as institutional share ownership, presence on board, and external independent outsiders on board. CEO options increase likelihood of EM while more independent directors at the board reduce aggressive earning management.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board independence |
| Davidson III, Jiraporn, Kim and Nemeč. | 2004 | Earnings Management following Duality-Creating Successions: Ethnostatistics, Impression Management, and Agency Theory. | Does the creation of a dual leadership structure results in increased earnings management practices by successors? | 1982-1992 | <p>CEO duality increases likelihood of (impression) earnings management since the authority for dual leadership provides opportunities for showing increased firm performance.</p> <p>More specific relation has found: firms that announce to create a dual leadership structure for a successor show more earnings management than firms that do not create a dual structure.</p> | <p>Agree</p> <ul style="list-style-type: none"> - CEO duality |

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|--------------------------------------|------|--|--|-----------|---|--|
| | | | | | Poor firm performance of prior years is more likely to result in income increasing earnings management practices because successors want to provide the impression of improved firm performance. | |
| Dechow | 1996 | Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC. | What are the motives and consequences of earnings management (EM)? | 1982-1992 | <p>Motives and consequences identified are:</p> <ul style="list-style-type: none"> - raising external financing at low cost - debt covenant restrictions avoidance - no evidence to increase managers' bonuses - no evidence that managers sell stockholdings at inflated prices - poor management oversight (due to weak CG structures) is associated with increased earnings management - once revealed that earnings are overstated, cost of capital increases significantly. - dual leadership structures are associated with higher discretionary accruals. | Agree - CEO duality |
| Eckles, Halek, He, Sommer and Zhang. | 2011 | Earnings Smoothing, Executive Compensation, and Corporate Governance: Evidence from the Property Liability Insurance Industry. | How is executive remuneration and board structure related to reserving practices of insurance firms? | 1992-2004 | <p>Earnings management is related to executive remuneration and board structure intensifies this relation even more.</p> <p>A mitigating influence of board structure is not found.</p> <p>Within the insurance industry, insufficient monitoring from board combined with executive remuneration allows managers a lot of discretion over accounting numbers.</p> <p>Bonus plans, restricted stockholdings, exercised stock options, and restricted stock awards are associated to earnings management.</p> | Disagree - Board size - Board independence - CEO duality |

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| | | | | | No direct link between corporate governance on managerial incentive mechanisms. However, some board structures (board size (-) and dual leadership (+), independence (no)) allow more opportunistic manipulation of reserves than other suggesting an indirect relationship to be present. | |
| Felo, Krishnamurthy and Solieri | 2003 | Audit Committee Characteristics and the Perceived Quality of Financial Reporting: An Empirical Analysis. | How are audit committee characteristics (expertise, independence and size) related to the Perceived Quality of Financial Reporting? | 1992-1996 | <p>The quality of financial reporting is positively related to financial/accounting expertise and size of audit committees in terms of members.</p> <p>Financial expertise on audit committee boards reduces cost of capital.</p> <p>No relation found concerning audit committee independence.</p> <p>Board of directors that are independent or grey are positively related to financial reporting quality.</p> <p>Larger firms disclose more accurate financial statements.</p> <p>Audit committee size is positively related to the quality of financial reporting.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board independence - Audit committee independence - Audit committee expertise <p>Disagree</p> <ul style="list-style-type: none"> - Audit committee size |
| Habib, Bhuiyan and Islam. | 2012 | Financial distress, earnings management and market pricing of accruals during the global financial crisis. | How are financially distressed firm related to EM and does this relation change during the recent financial crisis? | 1999-2011 | <p>Financially distressed firms engage more in earning management practices. They manipulate earnings more downwards. However this relation is not significantly changed during the global financial crisis.</p> <p>A positive market pricing of DAs is found during normal periods while during the crisis</p> | Agree |

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|----------------------------|------|---|---|-----------|--|--|
| | | | | | period a substantial decrease in pricing coefficients is found. | |
| Jouber and Fakhfakh. | 2010 | Earnings management and board oversight: an international comparison. | How are BoD characteristics related to EM? | 2006-2008 | <p>Board size and leadership structure have a neutral relation to EM.</p> <p>Strong EM determinants are shares owned by a CEO (+), independent monitoring (-), institutional investor's property (-), audit committee independence (-) and dual leadership (+).</p> <p>However, there are some differences found between French and Canadian firms. E.g., French EM is more related to high ownership concentrations while Canadian firms have more dominant minority ownerships related to EM. In the latter one, capital market forces also play a role in EM.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board independence <p>Disagree</p> <ul style="list-style-type: none"> - CEO duality - Audit committee independence |
| Lin, Li and Yang. | 2006 | The effect of audit committee performance on earnings quality. | How are audit committee characteristics related to the quality of earnings? | 2000 | <p>Negative relation between earnings restatements and audit committee size suggesting that larger audit committees are associated with improved financial reporting. They have more oversight and therefore improve earnings quality.</p> <p>No relation found for audit committee independence, audit committee financial expertise, audit committee meetings frequency and audit committee stock ownership.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Audit committee independence <p>Disagree</p> <ul style="list-style-type: none"> - Audit committee size - Audit committee expert |
| Peasnell, Pope, and Young. | 1998 | Outside directors, board effectiveness, and earnings management. | How are external directors related to earnings management? | 1993-1995 | Significant relation between external directors and income-increasing discretionary accruals. Outside directors are effective in reducing income-increasing accruals and also restrict overall level of EM. | <p>Agree</p> <ul style="list-style-type: none"> - Board independence |

| | | | | | | |
|----------------------------|------|---|---|-----------|--|---|
| | | | | | External directors improve CG and quality of financial reporting. They reduce managerial opportunism and therefore increase integrity of financial statements. In this way they protect the stockholders of the company. | |
| Peasnell, Pope, and Young. | 2005 | Board Monitoring and Earnings Management: Do Outside Directors Influence Abnormal Accruals? | How are corporate boards related to EM? | 1993-1995 | <p>Independent directors at the board are associated with reduced earnings management practices, especially less income-increasing earnings.</p> <p>In firms where separation of ownership and control is largest, managers try to avoid or minimize a loss. In addition, dual leadership (+) are related to EM. No relation is found for the size of boards.</p> <p>No evidence found that external directors engage in income-decreasing earnings manipulations when the pre-determined threshold is already achieved.</p> <p>The presence of an AC does not influence income-increasing and decreasing earnings manipulations in order to meet or beat a pre-defined threshold.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board independence - CEO duality <p>Disagree</p> <ul style="list-style-type: none"> - Board size |
| Peasnell, Pope, and Young. | 2006 | Do outside directors limit earnings management? | What is the relation between outside directors and abnormal accruals? | 1993-1995 | <p>Lower magnitude abnormal accruals when there are more external directors on the board.</p> <p>Audit committee existence does not influence earnings management (directly). This means that establishing an audit committee per se is not enough but it can still play a role in constraining earnings management.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board independence |

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|-------------------|------|--|---|-----------|---|---|
| | | | | | <p>Inside (managerial) ownership does not significantly influence earnings management. Also it does not moderate the board influence.</p> <p>Larger corporate boards are associated with lower abnormal accruals. The paper finds no clear reason for this phenomena.</p> | |
| Peter and Cotter. | 2009 | Audit committees and earnings quality | Does earnings quality improve by audit committees? | 2001 | <p>Audit committees increase earnings quality.</p> <p>EQ improvement after formation audit committee.</p> <p>Audit committees reduce earnings management rather than they reduce accrual estimation errors.</p> <p>Accounting expertise of audit committee members is associated with increased EQ.</p> <p>No evidence found for their second hypothesis that audit committee independence, expertise, activity, and size are positively associated with EQ. Also no relation is found for board size and independence.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Audit committee size - Audit committee independence <p>Disagree</p> <ul style="list-style-type: none"> - Board size - Board independence - Audit committee expertise |
| Rashidah and Ali. | 2006 | Board, audit committee, culture and earnings management: Malaysian evidence. | Do the BoD, audit committees, and concentrated ownership effectively reduce earnings management with their monitoring function? | 2002-2003 | <p>Earnings management is positively related to board size, suggesting that smaller boards are more effective. Monitoring process is more difficult since larger board's faces control problems and conflicts of interests.</p> <p>No significant relations found for the board and audit committee independence on earnings management. Also ethnicity (Malay directors) is not found to be significant.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board size - Audit committee independence <p>Disagree</p> <ul style="list-style-type: none"> - Board independence |

| | | | | | | |
|----------------------------|------|---|--|-----------|---|---|
| Uzun, Szewczyk and Varma. | 2004 | Board Composition and Corporate Fraud. | How are various characteristics of board of directors and audit committees related to the occurrence of corporate fraud? | 1978-2001 | <p>Significant relation found between board of directors and oversight committees and corporate financial fraud.</p> <p>More independent outside directors are related to less corporate fraud.</p> <p>No relation found between board size, dual leadership, and audit committee independence and financial statement fraud.</p> <p>Compensation committee presence is associated with more corporate fraud.</p> | <p>Agree</p> <ul style="list-style-type: none"> - Board independence - CEO duality - Audit committee independence <p>Disagree</p> <ul style="list-style-type: none"> - Board size |
| Vafeas | 2005 | Audit committees, boards, and the quality of reported earnings. | How are ACs and corporate boards related to EM? | 1994-2000 | <p>The paper identifies several factors that explain (a part) of earnings quality.</p> <p>Factors identified: Equity ownership and other services by committee. More weak determinants are: tenure length and board size.</p> <p>ACs with more outsiders and more meetings are associated with higher earnings quality.</p> <p>AC members with more experience in other committees are related to less small earnings increases.</p> <p>Board tenure length has a negative relation with earnings quality. Board independence is not significantly related to increased EQ.</p> | <p>Disagree</p> <ul style="list-style-type: none"> - Board independence - Audit committee independence |
| Xie, Davidson, and Dadalt. | 2003 | Earnings management and corporate governance: the role of | How is CG related to earnings management? | 1992.4.6 | Results in line with SEC Blue Ribbon Panel Report and Recommendations. Independent boards with corporate experience reduce the likelihood of EM. | <p>Agree</p> <ul style="list-style-type: none"> - Board independence - CEO duality - Audit committee expert |

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|--------------------|------|---|---|-----------|--|--|
| | | the board and audit committee. | | | <p>Oversight functions full-filled by the audit committee and executive committee reduce the level of earnings management.</p> <p>Committee members with corporate experience or investment banking backgrounds are negatively related to EM.</p> <p>Association found between meeting frequency and lower levels of EM (thus functioning as effective monitors).</p> <p>Independent directors at the board and committee members at the audit committee with financial expertise are both negatively related to the level of earnings management. CEO/chairman is unrelated to DAs. Finally larger boards are associated with lower levels of earning management.</p> | <p>Disagree - Board size</p> |
| Yang and Krishnan. | 2005 | Audit Committees and Quarterly Earnings Management. | How are AC characteristics related to EM? | 1996-2000 | <p>No significant relation found between discretionary accruals and AC independence or financial expertise.</p> <p>Earnings management is more likely to occur when both, dependent and independent members own stocks of the firm. This relation is somewhat weaker for independent members compared to dependent one. Also AC tenure is linked to decreased EM.</p> <p>Finally, earnings management is less likely to occur for AC boards that have more experience on other boards. Those members are more active in monitoring since they also have a reputation.</p> | <p>Agree - Audit committee independence</p> <p>Disagree - Audit committee expert</p> |

To conclude, although the results are not significant over all periods, good corporate governance is an effective mechanism to constrain earnings management practices during up- and downward periods. Overall the findings of this paper are in line with most pre-crisis literature.

In the next section the conclusion, implications and directions for future research will be discussed.

9. Conclusions, implications, directions for future research

This paper empirically analyzed whether and how corporate governance can explain the factors that do influence earning management practices. Using several periods in time, this paper reveals the importance of corporate governance on earnings management. Within this paper, corporate governance has been divided into two main variables, corporate boards and audit committees. Corporate board is further divided into size, independence, and dual leadership. Audit committee has similar variables, with the exception that dual leadership is replaced by financial expertise. A comprehensive dataset is used consisting of 79-89 firms publicly listed firms from five leading European countries that comprise more than 83% of GDP of the Eurozone and more than half of the European Union.

The results of the multiple regressions performed are in line with pre-crisis literature. Larger boards are associated with more earnings management, especially during the crisis periods. Board independence shows for all periods a significant negative relation, suggesting that independent boards are an effective way to constrain earning management practices. Dual leadership provides only positive coefficients and therefore corresponds with most literature. However, the results are only for one regression found significant. The downward periods show no significant results. The sign of the coefficients suggests that separating the CEO/chairman function will reduce the likelihood of earnings management. Committee independence and expertise show both negative coefficients for all periods (crisis and non-crisis), but the latter one is only found significant for the first period. An explanation could be that the level of independence at the audit committee is already high and therefore has less impact. The findings for expertise hold in both, up- and downward periods. Finally, because most relations did not change during the crisis, one could conclude that good corporate governance is an effective way in controlling managers to engage in earnings manipulations.

Similar to most papers, this paper has several limitations. The most obvious limitation, the sample size, which consist of 89 firms. Although the size is well enough to perform the regression analysis, larger samples could create possibilities to extent the research to individual countries or specific industries (e.g. a country like Germany has many family business organizations while France may have more state owned or regulated firms). Second, the firms included in this research consists of the highest capitalized firms since they are listed on the five largest countries measured by their GDP. They are generally more diversified than smaller firms and may therefore act differently. Also smaller firms use more often non-BIG4 auditors.

Third, the sample consist of countries that follow the so-called Rijnlands model compared to the Anglo-Saxon model as used by the United Kingdom and the United States. Differences between those governance models might introduce new insights into earning management practices. Fourth, corporate governance is measured by two major variables, corporate boards and audit committees. There are much more governance variables that could impact the relationship on earnings management. Other examples are executive remuneration, insider-, and institutional ownership. Fifth, the modified- Jones model is used to calculate the discretionary accruals. There are several models identified in literature of which the most important are discussed in section 2.5. Other or further developed models might provide different outcomes. Finally, the time periods used (2000-2003, 2003-2007, 2007-2009, and 2009-2012) are measured over a relative short time interval. There may exist differences between individual years or longer periods of time.

10. References

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Appendices

Appendix A: Overview variables

Appendix B: Comparison of corporate governance codes

Appendix A: Overview variables

| Variables | Definition | Data sources |
|---------------------------------|---|--------------------------------|
| Governance | | |
| <i>Corporate board</i> | | |
| - Independence | Total independent board members divided by total board size | Annual reports & BoardEx |
| - Size | The number of directors on the board | Annual reports & BoardEx |
| - CEO duality | An indicator variable that equals one when a firm has a separate CEO and board chairman | Annual reports & BoardEx |
| <i>Audit committee</i> | | |
| - Independence | Total independent committee members divided by total committee size | Annual reports & BoardEx |
| - Size | The number of directors on the audit committee | Annual reports & BoardEx |
| - Expertise | The number of directors with financial expertise at the audit committee divided by the total committee size | Annual reports & BoardEx |
| Earnings Management | | |
| - Modified Jones model (1991) | $NDA_t = \alpha_1 \left(\frac{1}{A_{t-1}} \right) + \alpha_2 (\Delta REV_t) + \alpha_3 (PPE_t)$ | Compustat |
| Controls | | |
| Performance (PERFORMANCE) | Return on equity = Net income divided by shareholders' equity | Compustat |
| Cash flow from operations (CFO) | Cash flow from operations scaled by beginning of the year total assets | Compustat |
| Leverage (LEV) | Total long-term debt divided by stockholders' equity | Compustat |
| Firm size (SIZE) | Natural logarithm of total assets | Compustat |
| Market-to-book (MTB) | market value of the total firm divided by the book value of assets, measured at the beginning of the fiscal year. | Compustat & Thomson One Banker |

This table provides an overview of the research variables, their definitions, the measurement period and the data sources.

Appendix B: Comparison of Corporate Governance codes (before crisis)

| | Board characteristics | | Audit committee characteristics |
|--------------------|--|--|---|
| | Composition | Structure | |
| France | <ul style="list-style-type: none"> – Single-tier system, and – Two-tier system: a) Management board b) Supervisory board – In widely held corporations without controlling shareholders half of the board should be independent (8.2) – Others, at least 1/3 of the board should be free from conflicts of interests (8.2) – CEOs may serve as the board Chair (but shareholders and third parties should be informed about the choice) (3.2) | <ul style="list-style-type: none"> – No requirement for a subcommittee, but specialized committees are recommended (13) <i>When a committee does exist :</i> – Compensation committee: at least majority independent directors (15.1) – No requirement for board size | <ul style="list-style-type: none"> – No requirement for audit committee, but specialized committees are recommended (13) <i>When a committee does exist :</i> – Independence should be raised to two third independent directors (14.1) – AC's should not include any corporate officer (14.1) |
| Germany | <ul style="list-style-type: none"> – Two-tier system: a) Management board b) Supervisory board – Adequate number of independent directors at supervisory board (recommended) (5.4.2) | <ul style="list-style-type: none"> – No requirement for sub-committees (5.3.1) – No requirement for board size | <ul style="list-style-type: none"> – No requirement for audit committee (5.3.1 & 5.3.2) <i>When a committee does exist :</i> – Chair shall have expertise in accounting and be independent (5.3.2) |
| Netherlands | <ul style="list-style-type: none"> – Two-tier system: a) Management board b) Supervisory board – Independence requirement at supervisory board (with exception of not more than one person) (III.2.1) – At least one member should be a financial expert (III.3.2) – Chairman of SB may not be a former member of MB (III.4.2) | <ul style="list-style-type: none"> – No requirement for sub-committees, but recommended when SB exists of more than four members* (III.5) – No requirement for board size (III.3.1) | <ul style="list-style-type: none"> – No requirement for audit committee, but recommended when SB exists of more than four members* (III.5) <i>When a committee does exist :</i> – Maximum one member is allowed to be not independent (III.5.1) – Chair must be independent (III.5.6) – At least one member must be a financial expert (III.5.7) |
| Italy | <ul style="list-style-type: none"> – Single-tier system, and – Two-tier system: a) Management board b) Supervisory board – At least 1/3 of board should exist of independent directors, with a minimum of 2 (3.C.3) – Appointment of lead independent director in case of CEO duality (recommended) (2.C.3) | <ul style="list-style-type: none"> – No requirement for sub-committees, but at least one is recommend (4.P.1) <i>When a committee does exist :</i> – At least three members at committee, however when BoD exists of no more than eight members, two directors at a committee are allowed, but they should be both independent (4.C.1a) – No requirement for board size (1.C.3, 2.P.3 & 3.C.3) | <ul style="list-style-type: none"> – Requirement for audit committee who's members are selected by shareholders (8.P.1) – All members must be independent (7.P.4, 8.P.1 & 8.C.1) – Chair is appointed by minority shareholders which increases independent requirements (8. comment) – At least one member must be a financial expert (accounting or finance) (7.P.4) |
| Spain | <ul style="list-style-type: none"> – Single-tier system, and – Two-tier system: a) Management board b) Supervisory board – An ample majority of the board should be independent (recommendation) (UCR**.II.10) – At least one third of the board should be independent (UCR**.II.13) – The code makes no comment on advisability of separating CEO/chairman positions. However, in case of dualleadership, an independent director should be empowered to request board meetings or setting the agenda (UCR** II.17). | <ul style="list-style-type: none"> – Boards should consist of at least 5 and maximum 15 directors (UCR**.9) – Mandatory under the Security Market Law, besides an AC, firms should form a committee, or two separate committees, of Nomination and Remuneration (UCR**.II.44). <i>When a committee does exist :</i> – At least three members at committee and they should be independent (UCR**.II.44) | <ul style="list-style-type: none"> – All members must be independent, including chair (UCR**.44.B) – Minimum size of AC is three members (UCR**.44.B) – Chair should should be a financial expert (UCR**.46) |

* If still decided to have no sub-committee, best practice provisions III.5.4, III.5.5, III.5.8, III.5.9, III.5.10, III.5.14, V.1.2, V.2.3, V.3.1, V.3.2 and V.3.3 apply to entire supervisory board.

** UCR is an abbreviation for: Unified Code Recommendation

Binding definitions: For all countries, listed companies can freely decide to comply or not with the Code's good governance recommendations, but their reporting on the same must invariably respect the underlying concepts used. So, for instance, it is up to companies whether they follow Recommendation 13 (Spain) on independent directors, but what they cannot do is call a director "independent", for the purposes of disclosure requirements, if that person does not meet the minimum conditions stated in point 5 of Section II (Definitions).

Source: Own, based on corporate governance codes available on the website of the European Corporate Governance Institute (ECGI).