Corporate governance index and discretionary accruals

Does the quality of corporate governance affects accrual-based earnings management in the US?

Name: Mithat Topaloglu

Student number: 376817

Supervisor: Drs. R.H.R.M. Aernoudts

Abstract

The objective of this study is to examine the relationship between the quality of corporate governance and accrual-based earnings management based on listed firms in the U.S. in 2015. This study follows the paper of Bekiris et al. (2011). The quality of corporate governance is measured by 9 important individual measures. The data for this study is collected from WRDS. The results of this study do not show a negatively association between corporate governance and accrual-based earnings management. The results of this study indicate that there is no relation between absolute abnormal accrual and the corporate governance index based on 9 individual measures.

Keywords: Corporate governance, Board of directors, Audit committee, Transparency, Remuneration, Shareholder rights, Discretionary accruals, ROA, Leverage, lnASSETS, MTB.

Preface

I would like to show my appreciation to my supervisor Roeland Aernoudts. I want to thank my supervisor for guiding me from my proposal to the final report of this study and answering all my questions and for giving proper feedback and ideas.

I would also thank my family and friends for supporting me during my study and during my thesis period.

Table of Contents

Chapter 1 – Introduction....4
1.1 Research Question....5
1.2 Contribution....6
1.3 Thesis outline....7
Chapter 2 –Review of prior literature....8
2.1 Definition of Earnings Management....8
2.2 – Models to detect earnings management....9
2.3 Definition of corporate governance....14
2.4 Dimensions of corporate governance....15
2.5 Measures of corporate governance....18
2.5.1 Board of directors....18
2.5.2 Audit committee....21
2.5.3 Remuneration....24
2.5.4 Transparency....27
2.5.5 Shareholders rights....29
2.5.6 Conclusion....32
3. Hypothesis development and research design....33
3.1 Libby Boxes....33
3.2 Hypothesis development....35
3.3 Conclusion....36
4. Research design....37
4.1 Independent variable....37
4.2 Dependent variable....38
4.3 Control variables....40
4.5 Sample....40
4.6 Data....42
4.7 Conclusion....44
5. Results and analysis....46
5.1 Descriptive statistics....46
5.2 Multivariate analysis....48
5.3 Pearson correlation matrix....47
5.4 Conclusion....48

6. Conclusions 51
6.1 Contribution to the existing literature 52
6.2 Discussion...53
6.3 Limitations and future research...53
7. Reference list 65
8. Appendix 69

Chapter 1 – Introduction

This chapter provides an introduction to the topic of this study. It describes the research question of this thesis, the reason to investigate the relationship between corporate governance and accrual-based earnings management, the difference of this study with prior studies and an overview of the following chapters of this thesis.

Over the last years, earnings management has become a hot topic in the accounting world. After different bookkeeping scandals like Waste Management, Enron, WorldCom and Lehman Brothers where they included wrong numbers in the annual report of the firm, earnings management has become increasingly popular. In these scandals the earnings of the firms were manipulated to create a better view of the economic performance of the firm. When manipulating the earnings of the firm by showing the profit and the equity of the firm higher in the annual report, the shareholders and the stakeholders may derive wrong conclusions and take wrong decisions.

The publicly traded Waste Management company reported 1.7 billion dollar in fake earnings in 1998. The company increased the depreciation time length falsely for their property, plant and equipment on the balance sheets. At the scandal around Enron, the managers kept huge debts off the balance sheets. High stock prices fueled suspicions. This scandal leads to a loss for shareholders of 74 billion dollar, thousands of employees and investors lost their retirement accounts and their jobs. At WorldCom, the internal auditing department of the firm uncovered 3,8 billion dollar in fraud. The assets of the firm inflated with 11 billion dollar that leads to 30,000 lost jobs and 180 billion dollar in losses for the investors. The global financial services firm Lehman Brothers went bankrupt in 2008. They hid over 50 billion dollar in loans disguised as sales. Lehman Brothers was ranked as number 1 in the 'Most Admired Securities Firm' by Fortune Magazine. In 2008 the firm was forced into the largest bankruptcy in U.S. history.

Healy and Wahlen (1999) describe earnings management as something that occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports. The purpose of this is to mislead shareholders and stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers.

On the other hand, there is also earnings management in a positive way. Earnings management in a positive way is seen as a result of flexibility of reporting of the manager. Beneficial earnings management is taking advance of the flexibility in the choice of accounting treatment to signal the manager's private information on future cash flows (Ronen and Yaari, 2008). Earnings management in a positive way enhances the transparency of reports.

Earnings management can be a consequence of a low quality of the corporate governance of the firm. Corporate governance is a broad concept and there are a lot of aspects of corporate governance. The structure of corporate governance is that the day-to-day management of a company is in the hands of the management. The management of the firm is under the supervision of the board of directors of the firm. Corporate governance is the framework of rules and practices of the company and by which the board of the company ensures accountability, fairness and transparency in the company's relationship with its all stakeholders. Sleifer and Vishny (1997) say that corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment. The perspective of Sleifer and Vishny (1997) on corporate governance is a straightforward agency perspective. It is referred to a separation of ownership and control.

1.1 Research Question

There is a lot of discussion about the relationship between corporate governance and earnings management. The purpose of this study is to examine the relation between the quality of corporate governance and the use of earnings management by using a corporate governance index consisting of internal as well as external mechanisms. This study thus focuses on the multidimensional character of corporate governance of U.S. firms and in doing so differs from other prior studies on this topic.

Therefore the research question of this thesis is formulated as:

Does the quality of corporate governance affects accrual based earnings management in US firms?

The financial reporting scandals around Waste Management, Enron, WorldCom and Lehman Brothers leads to a lot of discussion about earnings management and corporate governance.

Earnings management can be a consequence of a low quality of corporate governance. A high quality of corporate governance can reduce or even eliminate earnings management in a firm.

Corporate governance consists of several different components. One of the main components is the board of directors and/or the audit committee of the firm. There are many studies with regard to the relation between the board of directors or the audit committee and corporate governance in the U.S.. Early studies on corporate governance have focused on individual dimensions of corporate governance. This study focuses on multiple dimensions of corporate governance to measure the quality of corporate governance in U.S. firms. This study focuses on in contrast to other studies five components of corporate governance: board of directors, audit committee, remuneration, shareholders rights and transparency.

Accrual-based earnings management is based on items that make the difference between the reported earnings and the realized net cash flow. Accruals are divided into discretionary accruals and non-discretionary accruals. This thesis focus on the relationship between corporate governance and discretionary accruals. Discretionary accruals are managed and can be manipulated by the managers of the firm, because it measures the strength of earnings management.

The results of prior studies on U.S. firms suggests that there is a negative relation between corporate governance and earnings management. If the quality of corporate governance of a firm is low, it leads to higher abnormal accruals. A well-developed corporate governance mechanisms can reduce accrual-based earnings management.

1.2 Contribution

The uniqueness of this paper is that it focuses on different dimensions of corporate governance and not just one dimension of corporate governance as prior studies on U.S. firms have done. The contribution of this study is that it investigates the multidimensional character of corporate governance in the firms in the US. Prior researches in the US have focused on an individual dimension of corporate governance to measure the quality of corporate governance in the US firms. But corporate governance is a broad concept, so it is better to examine different dimensions of corporate governance, the results give a better view of the quality of the corporate governance in the US firms.

Prior studies using dimensions of corporate governance are compared with the measures provided in the paper of Bekiris et al. (2011) to determine the most important measure/measures of each dimension of corporate governance. In doing so the thesis contributes to the existing literature.

The practical contribution of the thesis is in aiding the determination of the quality of corporate governance while this is important for the stakeholders and the shareholders of the firm. A high quality of corporate governance prevents corporate scandals, fraud and the civil and criminal liability of the company. This thesis provides information to the stakeholders and the shareholders of the listed companies in the U.S. about the quality of corporate governance and whether it affects accrual based earnings management.

1.3 Thesis outline

The thesis is structured as follows; chapter 2 provides an overview of different definitions of earnings management and the different models to measure earnings management. It also provides an overview of prior studies on earnings management, and on how firms use earnings management.

The second part of chapter 2 provides an overview of different definitions of corporate governance and the different models to measure the quality of corporate governance of a firm. It gives an overview of prior studies about corporate governance and the most important findings of prior studies on corporate governance.

Chapter 3 focuses on the theoretical framework and the hypothesis development. Chapter 4 deals with the operationalization of theoretical constructs. Chapter 5 focuses on the results and link these results to the theories and prior researches. The last chapter, chapter 6, deals with the conclusion, a brief overview of the results of the paper, limitations and recommendations for future research.

Chapter 2 –Review of prior literature

This chapter provides information about the literature that is used for this research. To study the relation between corporate governance and accrual based earnings management, it is important to know the theory underlying these concepts. This chapter provides information about the theory behind earnings management and corporate governance and a review of prior studies about these concepts.

2.1 Definition of Earnings Management

There are different studies that describe the definition of earnings management. There are studies that describe the definition of earnings management in a negative way and there are studies that describes the definition of earnings management in a positive way.

Earnings of the firm are the most valuable reported information in the annual report of the firm. For the management of the firm, it is very interesting in which way the earnings of the firm are reported. Bookkeeping scandals caused by earnings management to mislead the shareholders and stakeholders about the underlying economic performance of the firm. There are different earnings management accounting policies: taking a bath, income minimization, income maximization and income smoothing. Taking a bath includes reporting large losses now to enhance the probability of future reported benefits. Income minimization is less extreme than taking a bath. Minimization of the income of the firm involves taking losses to lower earnings. Lower earnings for the firm, means lower tax payments. On the other hand, income maximization increases reported earnings for bonuses/contracting reasons. Managers of the firm could manipulate earnings to gain personal bonuses. Another earnings management pattern is income smoothing. Income smoothing is being used to lower the variability of earnings over time. The reason for this is for example to prevent fluctuations in compensation over time.

The study that shows earnings management in a positive way, is the study of Ronen and Yaari (2008). According to Ronen and Yaari (2008), the definition of earnings management is a collection of managerial decisions that result in not reporting the true short-term, value maximizing earnings as known to management. It is a positive description of earnings management, because earnings management is seen as a legal way to achieve financial results for the firm. The study describes that earnings management is taking advantage of the flexibility in

the choice of accounting treatment to signal the manager's private information on future cash flows.

One of the prior studies that describes the definition of earnings management in a negative way is the study of Schipper (1989). This study describes earnings management as a purposeful intervention in the external financial reporting process. According to the study of Schipper (1989) the intention the managers of the firm is to obtain some private gain. This definition is based on a view of accounting numbers as information. Under this definition of earnings management of Schipper (1989), earnings management could occur in any part of the external disclosure process.

Another study that describes the definition of earnings management in a negative way is the study of Healy and Wahlen (1999). This study describes earnings management as something that occurs when managers use judgment in financial reporting and in structuring transactions to manipulate financial reports. The reason for this is to mislead shareholders and stakeholders of the firm about the underlying economic performance of the firm or to have an influence in contractual outcomes that depend on reported accounting numbers.

The definition of Healy and Wahlen (1999) captures earnings management both the costly-contracting approach and the informational approach. The costly-contracting approach is about earnings management that is used to influence contractual outcomes. The informational approach is about earnings management that is used to mislead stakeholders. The definition of earnings management according to Healy and Wahlen (1999) points the management as responsible for making those decisions that fall under earnings management. For these reasons, this paper uses the definition of Healy and Wahlen (1999).

2.2 – Models to detect earnings management

This thesis focuses on accrual based earnings management (discretionary accruals), therefore this chapter provides a summary of the most important prior studies about accrual based earnings management, to determine which model is the best to measure earnings management related to corporate governance.

This thesis focuses on accrual-based earnings management, therefore it is considerable to know the explanation of accruals and the difference between discretionary and non-discretionary accruals.

Accruals are the items that make the difference between the reported earnings and the realized net cash flow (net cash flow = net profit + depreciations – net investments). Accruals are divided into discretionary accruals and non-discretionary accruals (Jones, 1991). The Jones Model (1991) is able to decompose the accruals into discretionary accruals and nondiscretionary accruals.

Discretionary accruals (managed, not explained by economic factors) are transactions that are not mandatory to carry out and that do not have to be realized (like bonuses and the salary of the management).

Non-discretionary accruals (unmanaged, explained by economic factors) are transactions that are mandatory to carry out, but do not have to be realized mandatory (like invoices, payments to suppliers and the salary of the employers). Both accruals are not realized (Jones, 1991).

This thesis focuses on discretionary accruals. The discretionary accruals measure the strength of earnings management. These are decisions of managers to manage the earnings in their own way. The size of discretionary accruals is indicated as a percent of the total assets of the firm. The main reasons to apply earnings management are: increasing profit or decreasing profit of the firm.

If the discretionary accruals are negative, it is an indication for decisions about decreasing profit. If the discretionary accruals are positive, it is an indication for decisions about increasing profit of the firm. Both decisions are taken by the management to manipulate the reported earnings of the firm. Higher value of discretionary accruals leads to a higher chance of manipulating the earnings of the firm. This thesis use an estimate of the discretionary component of total accruals and not of a single accrual. This because discretionary component of total accruals is more appropriate in this study. Managers are likely to use several accruals to reduce reported earnings.

The paper of Dechow et al. (1995) evaluates alternative accrual-based models for detecting earnings management. This study compares specification and power of commonly used test statistics by the models. In the research of Dechow et al. (1995) the following models are tested: the Healy Model (1985), the DeAngelo model (1986), the Jones Model (1991), the Modified Jones Model (Dechow et al., 1995) and the Industry Model (Dechow and Sloan, 1991). These models are in general representations of the models that have been used in the extant literature about earnings management.

The models that are studied in the paper of Dechow et al. (1995) are as follow:

The Healy Model (Healy, 1985) tests for earnings management by comparing the mean total accruals across the earnings management partitioning variable. This model measures the nondiscretionary accruals. The study of Healy differs from most other earnings management studies in that he predicts that systematic earnings management occurs in every period. The mean total accruals from the estimation period represent the measure of nondiscretionary accruals.

The DeAngelo Model (DeAngelo, 1986) tests for earnings management by computing differences in accruals and by assuming that the first differences have an expected value of zero under the null hypothesis of no earnings management. This Model is also created to measure nondiscretionary accruals, uses last period's total accruals as the measure of nondiscretionary accruals.

A common feature of the Healy and DeAngelo Model is that they both use total accruals from the estimation period to proxy for expected nondiscretionary accruals (Dechow et al., 1995).

The Jones Model (Jones, 1991) mitigates the assumption that nondiscretionary accruals are constant. This model attempts to control for the effect of changes in a firm's economic circumstances on nondiscretionary accruals. An assumption in the Jones Model (Jones, 1991) is that revenues are nondiscretionary. The Jones Model uses two phases to divide accruals in two parts: nondiscretionary accruals (phase 1) and discretionary accruals (phase 2).

The Modified Jones Model is a modified version of the Jones Model in the empirical analysis. The modification is designed to eliminate the tendency of the Jones Model to measure discretionary accruals with error, when the discretion is exercised over revenues. The Modified Jones Model adjusted the change in sales for the change in receivables. In the Modified Jones Model the nondiscretionary accruals are estimated during the period in which earnings management is hypothesized. This modified version of the Jones Model assumes that all changes in credit sales in the event period result from earnings management (Dechow at al., 1995).

The last model considered in the study of Dechow et al. (1995) is the Industry Model used by Dechow and Sloan (1991). A similar component of the Industry Model with the Jones Model is that this model also mitigates the assumption that nondiscretionary accruals are constant over time. The Industry Model assumes that the variation in the determinants of nondiscretionary accruals are common across firms in the same industry. Two factors of the Industry Model are important

to mitigate the measurement error in discretionary accruals. The first factor is that the Industry Model only eliminates variation in nondiscretionary accruals, that is common across firms in the same industry. The second factor is that the Industry Model eliminates variation in discretionary accruals that is correlated across firms in the same industry.

The empirical analysis in the study of Dechow et al. (1995) is conducted by testing for earnings management using 4 distinct samples of firm-years as event years: 1000 firm-years were selected randomly, 1000 firm-years selected randomly from pools of firm-years experiencing extreme financial performance, 1000 firm-years selected randomly in which a fixed and known amount of accrual manipulation has been factitious introduced and 32 firms that are subject to SEC enforcement actions for allegedly overstating annual earnings in 56 firm-years is used as a sample.

The results of the study of Dechow et al. (1995) suggest that all the models are used to get well specified tests for a random sample of firm-years. Dechow et al. (1995) find that that the modified version of the model developed by Jones (1991) provides the most powerful tests of earnings management.

Another study that have tested different accrual models is the study of Guay et al. (1996). This paper evaluates five discretionary models. The models are the same as those in the paper of Dechow et al. (1995). The five discretionary models evaluated in this model are: the Healy Model, the DeAngelo Model, the Jones Model, the Modified Jones Model and the industry n model. To evaluate these discretionary-accrual models, they specify an earnings model exists of managerial discretion hypotheses from existing literature and assume an efficient market (Guay et al. (1996). The findings of the study indicate that the Jones Model and the Modified Jones model are effective in isolating discretionary accruals consistent with opportunism and performance of the firm.

The study of Peasnell et al. (2000) examines specification and power issues in relation to three accruals models used to estimate abnormal accruals. The three models tested in this research are the Jones Model, the Modified Jones Model and the Margin Model. The findings of the study indicates that all three models are capable of producing relatively powerful tests of earnings management. The paper founds that the Jones Model and the Modified Jones Model are more powerful for revenue and bad debt manipulations. On the other hand, the Margin Model is more powerful to detect non-bad debt expense manipulations.

In the paper of Bekiris and Doukakis (2011) is also the Modified Jones Model used to investigate the relation between the corporate governance quality and accrual based earnings management. This paper follows the study of Bekiris and Doukakis (2011) to compare the 55 measures with other measures in prior studies about corporate governance and earnings management to determine which measures of corporate governance are the most important when investigating the quality of corporate governance. In the paper of Bekiris and Doukakis (2011) is the book-to-market (BM) and operating cash flows (CFO) added to the Modified Jones Model according to the paper of Larcker and Richardson (2004).

Larcker and Richardson (2004) investigate the relation between the fees paid to auditors for audit and non-audit services and the choice of accrual measures for a large sample of firms. The accrual model of the study of Larcker and Richardson (2004) builds on the Modified Jones Model discussed in DeFond and Subramanyam (1998). The Modified Jones Model discussed in DeFond and Subramanyam (1998) assumes that the changes in revenues less the changes in accounts receivable (ΔREV - ΔREC) are free from managerial discretion. Furthermore, Larcker and Richardson (2004) add 2 addition independent variables that are correlated with measures of unexpected accruals in order to mitigate measurement error that is associated with the discretionary accruals. The 2 independent variables are: book-to-market ratio (BM) and current operating cash flows (CFO). The variable Book to Market ratio controls the expected growth in operations. If it is not controlled, growth is picked up as discretionary accruals. The variable Current Operating Cash Flows is added because discretionary accruals are likely to be misspecified for firms with extreme levels of performance (Larcker and Richardson, 2004).

Therefore I added the Book to Market (BM) and the Current Operating Cash Flows (CFO) variables to the Modified Jones Model following the paper of Bekiris and Doukakis (2011).

The Modified Jones Model in the paper of Dechow et al. (1995) for nondiscretionary accruals is:

$$\boldsymbol{NDA_{i,t}} = \propto_1 \left(\frac{1}{A_{i,t-1}}\right) + \propto_2 (\Delta \boldsymbol{REV_{i,t}} - \Delta \mathbf{REV_{i,t}}) + \propto_3 (\boldsymbol{PPE_t})$$

The definition of the variables are:

$\boldsymbol{NDA_{i,t}}$ are the estimated nondiscretionary accruals for firm i in year t.

$\propto_{1,}\ \propto_{2,}\ \propto_3$ are the firm-specific parameters.

$\boldsymbol{A_{t-1}}$ indicates the total assets of the firm at t-1.

$\Delta \boldsymbol{REC_t}$ provides information about the revenues in year t less revenues in year t-1 scaled by total assets at t-1.

$\Delta \boldsymbol{REC_t}$ provides information about net receivables in year t less net receivables in year t-1 scaled by total assets at t-1.

The $\boldsymbol{PPE_t}$ includes the gross property plant and equipment in year t scaled by total assets at t-1.

The only difference between the Modified Jones Model and the original Jones Model is the adjustment of the change in revenues for the change in receivables in the event period (Dechow et al. 1995). According to the paper of Dechow et al. (1995) the original Jones Model for nondiscretionary accruals is:

$$\boldsymbol{NDA_t} = \propto_{\boldsymbol{1}} \left(\frac{\boldsymbol{1}}{\boldsymbol{A_{t-1}}}\right) + \propto_{\boldsymbol{2}} (\Delta \boldsymbol{REV_t}) + \propto_{\boldsymbol{3}} (\boldsymbol{PPE_t})$$

The definition of the variables are:

$\Delta \boldsymbol{REV_t}$ is the revenues in year t less the revenues in year t-1 scaled by the total assets at t-1

$\boldsymbol{PPE_t}$ is the gross property plant and equipment in year t scaled by total assets at t-1

$\boldsymbol{A_{t-1}}$ is the total assets at t-1

$\propto_{\boldsymbol{1}}, \propto_{\boldsymbol{2}}, \propto_{\boldsymbol{3}}$ are the firm-specific parameters

The original Jones Model assumes that discretion is not exercised over revenue in both the estimation period and the event period. The difference in the Modified Jones Model is that the Modified Jones Model assumes that all changes in credit sales in the event period result from earnings management (Dechow et al., 1995). The reason behind this adjustment of the Modified Jones Model is that it is easier to manage earnings by exercising discretion over the recognition of revenue on credit sales than on cash sales.

2.3 Definition of corporate governance

Corporate governance is a broad concept with different individual dimensions. To measure the quality of corporate governance, this thesis investigates 5 dimensions of corporate governance. The definition of corporate governance which is used in this thesis is the definition of Shleifer and

Vishny (1997). This article investigates on corporate governance, with attention to the protection of the investors and ownerships in corporate governance systems around the world. According to Shleifer and Vishny (1997), corporate governance deals with the ways in which the investors of a firm get a return on their investment.

The perspective of the study of Shleifer and Vishny (1997) on corporate governance is an agency perspective, a separation of ownership and control. The study investigates how investors get the managers to give them back their money.

This thesis provides information about the relation between corporate governance and accrual based earnings management. Therefore, the corporate governance definition of Shleifer and Vishney (1997) fits with the purpose of this study. The quality of corporate governance can have an effect on accruals based earnings management.

2.4 Dimensions of corporate governance

Corporate governance is a broad concept with different dimensions. Prior studies about the relation between corporate governance and accrual based earnings management focused on specific individual dimensions of corporate governance like board of directors and the audit committee.

The study of April Klein (2002) focuses on the effect of the audit committee and board characteristics on earnings management. The findings of the study indicate that there is a negative relation between audit committee independence and abnormal accruals.

Some important prior studies have used a corporate governance index score, consists of many individual measures of different components of corporate governance to measure the quality of corporate governance. One of these studies is the paper of Larcker et al. (2007).

Larcker et al. (2007) have focused on 39 measures of corporate governance. The results of the paper of Larcker et al. (2007) show that there is a mixed relation between corporate governance and abnormal accruals.

Another study that have used a corporate governance index to measure the quality of corporate governance, is the study of Bowen et al. (2008). Bowen et al. (2008) have focused on the relation between corporate governance score and earnings management in the US firms. The authors of that paper have used the Gompers's index to measure corporate governance. The results of the study of Bowen et al. (2008) did not find a significant relation between corporate governance and

absolute accruals. A major limitation of the paper of Bowen et al. (2008) is that the G-score are capturing some combination of anti-takeover provisions, but ignoring other important dimensions of corporate governance. The difference between these two studies is that the findings of the paper of Bowen et al. (2008) find no relation between corporate governance and accrual-based earnings management. Another difference is, that the paper of Bowen et al. (2008) use a G-score that ignores important dimensions of corporate governance.

Another corporate governance score to measure the quality of corporate governance, is the Gov-Score developed by Brown and Caylor (2006). In the paper of Jihang et al. (2008) they have used the Gov-Score to investigate the relation between corporate governance and accrual-based earnings management in the US firms. The results of the paper of Jihang et al. (2008) suggest that firms with weak corporate governance are more likely to manage earnings in order to meet or beat analyst forecasts. Another paper that have examined the relationship between corporate governance and accrual-based earnings management is the paper of Shen and Chih (2007). The paper of Shen and Chih (2007) have focused on the impact of corporate governance on accrual based earnings management in 9 Asian countries. In that paper, Shen and Chih have used firm-level governance data, taken from Credit Lyonnais Security Asia (CLSA) of nine Asian countries. The results of their research show that there is a negative relation between corporate governance and accrual based earnings management in those countries. The difference between this paper and the others, is that the paper of Shen and Chih (2007) have used 9 different countries as a sample. The findings of this paper are the same as the findings in the paper of Jihang et al. (2008).

Another paper that found the same results as the paper of Shen and Chih (2007) and Jihang et al. (2008) is the paper of Bekiris et al. (2011). The paper of Bekiris et al. (2011) have used the corporate governance index score to measure the quality of corporate governance. The corporate governance index score of Bekiris et al. consists of 55 measures of five different dimensions of corporate governance. The dimensions that they examine in the study of Bekiris et al. are: board of directors, audit committee, remuneration, shareholders rights and transparency. Compared with the other studies about the relation between corporate governance and accrual-based earnings management, the paper of Bekiris et al. (2011) have used the most measures to measure the quality of corporate governance.

For each dimension of corporate governance they have used many measures to examine the quality of corporate governance. For the dimension board of directors they have used 16 measures, for the dimension audit committee they have used 8 measures, for the dimension remuneration they have used 8 measures, for the dimension transparency they have used 12 measures and for the dimension shareholders rights they have used 11 measures to examine the quality of corporate governance in three different countries in Europe.

This thesis follows the paper of Bekiris et al. (2011) to use the corporate governance index score to measure the quality of corporate governance in the US firms. But this thesis is difference from the paper of Bekiris et al. (2011), because in this thesis I will compare the 55 measures with the measures they used in prior studies to determine the most important measure for each dimension. This thesis uses not 55 measures to measure the different dimensions of corporate governance.

The independent variable of this study is corporate governance. For each dimension of corporate governance, only the most important measures are examined. In this paper the 55 measures of the research of Bekiris et al. (2011) is compared to the measures that they have used in prior researches in top journals about each dimension of corporate governance. Only the most important measure/measures of each dimension of corporate governance is used to examine the quality of corporate governance in the US firms.

The dependent variable of this thesis is accrual based earnings management. There are different definitions of earnings management. In this study the definition of Healy and Wahlen (1999) about earnings management is used. To measure earnings management you have to use accruals. There are different accrual models. Accruals consist of 2 parts: non-discretionary accruals (unmanaged) and discretionary accruals (managed, not explained by economic factors). This thesis follows the research of Bekiris et al. (2011) to measure the accrual based earnings management with the Modified Jones Model (Dechow et al. 1995).

In this study there are additions on the Modified Jones Model with ‘book to market ratio’ and the ‘operating cash flows’, following the paper of Larcker and Richardson (2004). The additions are important to minimize the errors associated with discretional accruals. The control variables in this study are: firm size (lnassets), market to book ratio (MTB), return on assets (ROA) and leverage (LEVERAGE) following the paper of Bekiris et al. (2011).

The firm size could have an impact on the quality of corporate governance and could have an impact on the extent of use of earnings management. The market to book ratio is also related to the corporate governance characteristics (Klein 2002a, 2002b).

The other control variables return on assets (ROA) and leverage (LEVERAGE) is to measure the relation between high debt and earnings management. High debt could have an impact on earnings management. If a firm has a high level of leverage , it could happen that the firm cannot pay her debt. The high level of leverage could encourage the firm to use earnings management.

2.5 Measures of corporate governance

The paper of Bekiris et al. (2011) used a corporate governance index consisting of 55 measures to measure the quality of corporate governance 3 different countries in Europe. Prior studies have focused on certain individual corporate governance measures. This thesis compares the measures of the paper of Bekiris et al. with the measures of the most important prior studies, to determine which measure for each dimension is the most important to measure the quality of corporate governance.

2.5.1 Board of directors

The board of directors is an important aspect of corporate governance. The most widely investigated aspect of corporate governance is the board of directors. The board of directors of a firm has the power to hire, fire and compensate senior management teams, serves to resolve problems of interests between decision makers and residual risk bearers (Baysinger and Butler, 1985). If the quality of the board of directors is high, it has a big impact on the quality of the multidimensional character of corporate governance according to the paper of Bekiris et al. (2011).

The individual measures for the dimension 'board of directors' that they have used in the paper of Bekiris et al. are:

Dimension	**Individual measure**
Board of directors	Board size is greater than 5 but less than 16
Board of directors	Independent, non-executive directors amount for more than 50% of the board
Board of directors	Split between chairman and CEO roles
Board of directors	The chairman is an independent, non-executive director

Board of directors	CEO serves on the boards of two or fewer public companies
Board of directors	No former CEO of the company serves on the board
Board of directors	The company has a nomination committee
Board of directors	The chairman of the nomination committee is a non-executive director of the chairman of the board
Board of directors	The majority of the members of the nomination committee are independent non-executive directors
Board of directors	There are outside advisors available to the board
Board of directors	There is a nomination committee charter
Board of directors	All directors attended 75% of board meetings or had a valid excuse
Board of directors	There is a lead director
Board of directors	Outside directors meet without the CEO and disclose the number of times met
Board of directors	Governance guidelines are publicly disclosed
Board of directors	Code of ethics is publicly disclosed

There are important prior studies that have investigated the relation between board of directors and accrual based earnings management. The paper of Klein (2002) focuses whether the audit committee and board characteristics are related to earnings management. In this paper they classify directors as insiders, outsiders or affiliated with the firm. Insiders are the current employees of the firm. Outsiders are the members of the board and have no ties to the firm. The affiliated group, are the board members that are past employees, relatives of the CEO, or have significant transactions and/or business relations with the firm. The most considerable individual measure of the board of directors that they have used in this paper is the independence of the board. When the board of the firm has less than a majority of independent directors, the firm experiences earnings management. The results of the paper of Klein (2002) show that boards structured to be more independent of the CEO are more effective in monitoring the corporate financial accounting process.

Another paper that shows that the independence of the board reduces earnings management is the paper of Xie et al. (2013). The paper of Xie et al. (2003) focuses on the role of the board and the audit committee and the relation with earnings management. The results of the paper of Xie et al. (2013) shows that earnings management less likely to occur in firms whose boards include both more independent outside directors and directors with corporate experience. They also investigate the meetings of the board. The results indicate that when boards meet more often, discretionary accruals are lower. It consists with the idea that an active board may be better than an inactive board (Xie et al., 2013).

The paper of Park and Shin (2002) has difference findings than the papers of Xie et al. (2013) and Klein (2002). The paper of Park and Shin (2002) focuses on the relation between the board composition and earnings management in Canada. The paper find no evidence in Canada between the degree of accrual manipulation and the proportion of outside member of the board of directors. The researchers do not find evidence that the tenure of outside directors reduces earnings management. The explanations that are suggested in the paper for this finding are: outside directors as a whole, may lack financial sophistication and/or access to relevant information to detect earnings management (Park and Shin, 2002) and the presence of a large number of dominant shareholder CEOs may make it difficult for them to effectively curb earnings management. Some additional reasons are that the Canadian directors' labor market may not be well developed and that the outside directors in Canada may not be truly independent (Park and Shin, 2002). The difference is also, that the paper of Park and Shin (2002) focuses on the listed firms in Canada. The papers of Xie et al. (2013) and the paper of Klein (2002) focus on the listed firms in the US.

The paper of Jaggi et al. (2009) examines the association between corporate board independence and earnings management in Hong Kong firms. They use the proportion of independent non-executive directors on board of directors as a proxy for corporate board independence. Independent non-executive directors do not hold any executive position in the firm, have no relationship to the firm and have no related party transactions with the firm. The results of the paper show that a higher proportion of independent non-executive directors on corporate boards is likely to deter earnings management and will reduce earnings management. The findings of the paper of Jaggi et al. (2009) are the same as the findings of the paper of Klein (2002) and Xie et al. (2013).

The study of Beasley (1996) focuses on the relation between the board of director composition and financial statement fraud. The empirical results of this study shows that the outside members on the board of director is lower for firms experiencing financial statement fraud compares with the firms that do not experiences financial statement fraud. The results indicate that the inclusion of outside members on the board of director increases the board's effectiveness at monitoring management for the prevention of earnings management. The findings of the paper indicate that not only the board composition affects earnings management but board size and certain outside directors also affect the likelihood of financial statement fraud.

The prior studies about the relation between board of directors and earnings management show that the most important individual measure of the board of directors is the independence of the members of the board. All of these papers show that the independence of the board of directors reduces earnings management and increases the chance to detect earnings management. Only the results of the paper of Park and Shin (2002) reveal that there is no relation between the independence of the board of directors and earnings management. But the measure of board of directors, independence of the board, is the same as the measure that they used in the other important studies. Most of the findings of these prior studies show that it is very important for the effectiveness of corporate governance that the members of the board of directors are independent.

According to prior studies about the relation between board of directors and earnings management, I use in this paper the individual measures:

Dimension	**Individual measure**
Board of Directors	Independence of the board of directors
Board of Directors	Board size is greater than 5 but less than 16

2.5.2 Audit committee

Another important dimension of corporate governance is the audit committee. The audit committee in a firm should provide information of financial reporting, the risk management, internal control, compliance, ethics, management, internal auditors and the external auditors (The institute of internal auditors). The fraud committee is responsible for the financial statement of the firm. The financial statement should be understandable, transparent and reliable. The board of directors and the audit committee play critical role in a firm's tone at the top (The institute of internal auditors).

In the paper of Bekiris et al. (2011) they have used 8 individual measures to examine the quality of the audit committee of the firm. The individual measures of the audit committee that they have used is as follows:

Dimension	**Individual measure**
Audit committee	The company has an audit committee
Audit committee	All the members of the audit committee are independent non-executive directors
Audit committee	The chairman of the audit committee is a non-executive director
Audit committee	The audit committee meets at least three times per year
Audit committee	Financial expert. At least one member of the audit committee has recent and relevant experience
Audit committee	Audit fees for auditing services are higher than the fees for non-audit services
Audit committee	Disclosure of how much the company pays for audit fees to the auditor
Audit committee	There is an audit committee charter

There are important prior studies that have examined the relation between audit committee and accrual-based earnings management. The paper of Klein (2002) examines whether audit committee and board characteristics are related to earnings management by the firm. The paper found a negative relation between audit committee and accrual-based earnings management. The paper found that reductions in audit committee independence are associated to large increases in abnormal accruals. The most important individual measure that they used in this paper to examine the relation between the audit committee and earnings management is the independence of the audit committee.

Another paper that also find that there is a relation between audit committee and earnings management, is the paper of García et al. (2010). The paper of Garcia focuses on the relation between the audit committee and internal audit and earnings management in Spanish companies. The findings of this study show that audit committee is related to earnings manipulation. The individual measure of audit committee in this paper is that the more the audit committees meet, the better the opportunity to detect earnings management. They found a negative relationship

between the number of meetings of the audit committee and abnormal accruals. They found no relation between the independent audit committee and earnings management from their sample. The difference between the paper of García et al. (2010) and the paper of Klein (2002) is the result related to the independence of the audit committee. The results of the paper of Klein (2002) show that there is a relation between audit committee independence and accrual-based earnings management, but the results of the paper of García show that there is no relation between audit committee independence and accrual-based earnings management.

Another paper that found that there is no relation between audit committee independence and abnormal accruals is the paper of Habbash et al. (2013). This paper focuses on the relation between audit committee characteristics and earnings management in the United Kingdom. The findings of the paper show that there is no significant relation between the number of member of the audit committee and earnings management. And they also find no significant relation between meetings of the audit committee and earnings management. The results in this study show no relation between the independence of the audit committee and the impact on earnings management.

In The paper of Xie et al. (2003) the results show that the number of meetings of the audit committee is associated with earnings management. In the paper of Habbash et al. (2010) they do not find a relation between audit committee meetings and earnings management. The paper of Xie et al. (2003) examines the role of the board, the audit committee and the executive committee in preventing earnings management. The results of the paper indicate that the composition of the audit committee is associated with earnings management. The findings of this paper show that audit committee members with corporate or financial backgrounds are associated with firms that have smaller discretionary current accruals. Audit committee meeting frequency is also associated with reduced levels of discretionary accruals.

Another paper that examines the relation between audit committee and accrual-based earnings management is the paper of Abbott et al. (2000). They examine the association of audit committee independence and activity with earnings management. They find that audit committee of the firms that meets at least 3 times per year and audit committee with independent members is associated with a decreased likelihood of both fraud and no fraudulent misstatement. The results of this paper are the same as the results of most of the prior studies about audit committee meetings and the independence of the audit committee.

The important measures that they use in the paper of Lin et al. (2006) are audit committee independence and the size of the audit committee. This paper examines the role of audit committees in ensuring the quality of corporate financial reporting. A part of the findings of the paper support the hypothesis that a larger audit committee provide more oversight over the corporate financial reporting process. More oversight over the financial reporting process improves the earnings quality according to the findings of the paper of Lin et al. (2006). Another part of the findings of this paper indicates that the independence, financial expertise, activity and stock ownership have no impact on the quality of reported earnings.

The results of the most prior studies about audit committee and accrual-based earnings management show that audit committee independence and the meetings of the audit committee members is related to earnings management. These studies show that the most important measures of the relationship between audit committee and accrual-based earnings management are as follows:

Dimension	**Individual measure**
Audit committee	Independence of the audit committee members
Audit committee	The audit committee meets at least three times per year

2.5.3 Remuneration

Another dimension of corporate governance is remuneration. Remuneration is the compensation for employment in the form of pay, salary or wage, including allowances, benefits, bonuses, cash incentives and monetary value of the noncash incentives.

In the paper of Bekiris et al. (2011) they investigate the effect of remuneration on the corporate governance quality and the relation with earnings management. The individual measures that they have used for remuneration are:

Dimension	**Individual measure**
Remuneration	The company has a remuneration committee
Remuneration	The members of the remuneration committee are all independent non-executive directors
Remuneration	The chairman of the remuneration committee is a non-executive director or the chairman of the board

Remuneration	The company's annual report contains a statement of the remuneration policy
Remuneration	The form of the directors' salaries is disclosed (cash, shares, etc.)
Remuneration	Performance-based compensation exists
Remuneration	The company provides long term incentive plans
Remuneration	There is a remuneration committee charter

There are pior studies that have investigated remuneration. The paper of Cybinski et al. (2015) examines whether the independence of the remuneration committee aligns chief executive officer (CEO) total pay and bonuses with firm financial performance in the Australian context. After mandated executive remuneration disclosure in 2001, the levels of voluntary remuneration committee independence is varying. The findings of the study show that the firm size is an influential factor in the relationship under investigation. Large firm remuneration committees link CEO total remuneration and bonuses to firm financial performance, but smaller remuneration committees do not link either type of CEO remuneration to performance despite remuneration committee independence. So important measure of the remuneration committee in this paper is the independence and the firm sizes.

In the paper of Liu and Taylor (2008) they have used different measures compared with the study of Cybinski et al. (2015). The purpose of this paper is to provide Australian evidence about key determinants of discretionary disclosure in company annual reports of information about top executives' share rights, options and termination entitlement. The results of the paper show how Australian listed firms have responded to public pressure and shareholder concern following the corporate governance debates after the scandals in 2002. The paper focuses on the use of discretionary disclosure of details about executives' remuneration. The findings of the study reveal that there was a significant increase in every industry in disclosing of top executives 'equity based remuneration after the earnings management scandals in 2002.

The paper of Healy (1985) examines the effect of bonus schemes on accounting decisions. It tests the association between managers' accrual and accounting procedure decisions and their income reporting incentives under these circumstances. The findings of this study show that bonus schemes create incentives for managers to select accounting procedures and accruals to maximize

their bonus awards. The results show that there is a strong association between accruals and managers' income-reporting incentives under their bonus contracts.

Another paper about the executives' compensation related to the financial performance of the firm is the paper of Murphy (1984). The paper examines the relation between corporate performance and managerial remuneration. The individual measure that they use for the dimension remuneration is the executive compensation. The findings of this paper show that there is a strong association between accruals and managers' income-reporting incentives under their bonus contracts. Managers are manipulating earnings for their own bonus plan. The findings of this paper are the same as the findings of the paper of Healy (1985). The individual measure that they used in these papers is the performance based compensation.

The paper of Main et al. (1993) examines the role of the remuneration committee in the boards of listed companies in United Kingdom (UK) in the year 1990. They have used a sample of 220 listed companies in the UK. The results show that if the remuneration committee can be looked upon as a governance mechanism of control by the owners over top management, then the expectation of the remuneration committee is that the salaries of the top management will be tied more closely to the performance of the top management of the firm.

The research of Jensen et al. (2014) provides information about executive remuneration. In the last years, most of the fury over CEO pay has been aimed at executives associated with accounting scandals and collapses in the share prices of their company. The findings of this study show that the executive compensation can be a powerful tool for reducing the agency conflicts between managers and the company. Compensation can also be an essential source of agency costs, if it is not managed properly. In this study the important individual measure of remuneration is the executive compensation. The important individual measure that they used in this paper is the same as the measure that they used in the paper of Healy (1995) and Murphy (1984).

The prior studies about remuneration show that the most important individual measure of remuneration is the compensation of the executives of the firm. If the firm has performance-based compensation contracts, top management of the firm can have the intention to manipulate earnings of the firm, for their own bonuses.

In this study the individual measure for remuneration is:

Dimension	**Individual measure**
Remuneration	Performance-based compensation exists

2.5.4 Transparency

Another important dimension of corporate governance is transparency. Transparency plays an essential role in the quality of corporate governance and the relation with accrual-based earnings management. Transparency is the disclosing of important financial information of the firm in the financial statement. A greater transparency in reporting formats facilitates the detection of earnings management (Hunton et al., 2006).

In the paper of Bekiris et al. (2011) the dimension transparency is measured by 12 individual measures:

Dimension	Individual measure
Transparency	Detailed disclosure of financial and operating results
Transparency	Disclosure of strategic issues
Transparency	Disclosure of corporate targets and prospects
Transparency	Disclosure of the articles of association
Transparency	Investors and financial analysts are equally informed via the internet and also in English
Transparency	Detailed analysis of any deviation from previously announced earnings targets and strategic goals
Transparency	The annual report includes a forecast of the company's profitability in the next business year
Transparency	Disclosure of its plans for investment in the coming years
Transparency	Disclosure of the ownership structure
Transparency	Disclosure of the number of share ownership of the executive management staff members
Transparency	Disclosure of the number of shares held by the directors
Transparency	Archive of AGM resolutions for more than three years

There are prior studies that have investigated transparency. First the paper of Hunton et al. (2006) provides information about financial reporting transparency and earnings management. The paper examines whether the extent of financial reporting transparency affects current income-increasing and income-decreasing earnings management. The findings of the paper reveal that when financial analysts forecasts are above (below) the management's projected earnings, the firm use an income-increasing (-decreasing) earnings management strategy. Reporting transparency of the forecast of the firms' profitability reduced earnings management. The results of the paper also show that a more transparent disclosure of the comprehensive income of the firm will reduce earnings management.

The paper of Healy et al. (1993) provides information about the effect of firms' financial disclosure strategies on stock prices. The paper summarize the key ideas of the accounting information models in a form that is accessible to corporate managers. Financial reporting is very useful mechanism top management of the firm to communicate with outside investors. Managers have incentives to bias the number of the firm in their self-interest, so it's difficult for managers to credibly communicate their firms' current economic performance and future prospects to investors. According to the paper, managers can improve their communication with the investors by developing disclosure strategies. So it is important to disclose more information for the investors of the company.

Another paper about financial reporting transparency is the paper of Barth et al. (2008). This paper provides information about the definition of financial reporting transparency. According to this paper, the definition of financial reporting transparency is: the extent to which financial reports reveal an entity's underlying economic performance in a way that it is reliable and understandable for the users of the financial statement. Second, the results of the paper indicate that increasing financial reporting transparency reduce the cost of capital.

A recent research of Armstrong et al. (2016) provides information about the role of financial reporting and transparency in corporate governance. They discuss the role that financial reporting plays in the structure of incentive and monitoring mechanism of the firm to improve the credibility and transparency of the financial information. To make efficient investing decisions, it's important for investors to get timely and reliable information that enables them to monitor the actions of the top management of the firm and to participate in the firm's strategic direction. The findings of the

paper show that financial reporting is very important in resolving agency conflicts among managers, directors and shareholders of the firm. Financial reporting plays a big role in reducing information asymmetries that exists between managers and both directors and shareholders of the firm.

The last paper about transparency and corporate governance is the paper of Hermalin et al. (2007). The paper provides information about the role of transparency in corporate governance. After the corporate governance scandals in the last years, the governments has responded by adopted number of changes and one of the important changes is the increasing of disclosure requirements. The link between corporate governance and transparency is, that increasing transparency is improving governance. In this paper they analyze the effect that disclosure has on the contractual and monitoring relationship between the board and the CEO.

Financial reporting transparency is very important for the investors of the firm. Many findings of important prior studies indicate that increasing of financial reporting transparency is very important in resolving agency conflicts and improve the quality of corporate governance. For the investors it is very important that they get reliable and understandable information about the results of the company and about the forecast of the company's profitability in the next years, so the investors can make good investment decisions. For the dimension transparency, the most import individual measures that are important for the relation between corporate governance and earnings management are:

Dimension	Individual measure
Transparency	Detailed disclosure of financial and operating results
Transparency	Disclosure of the ownership structure

2.5.5 Shareholders rights

The last dimension that they discuss in the paper of Bekiris et al. (2011) is shareholders rights. Shareholders rights are important for a high quality of corporate governance. The economic performance of the company is important for the investors, to make good investment decisions. To measure the shareholders rights, the paper of Bekiris et al. (2011) have used 10 individual measures:

Dimension	Individual measure
Shareholders rights	Existence of a calendar of important relations function
Shareholders rights	Mechanisms of sufficient and timely information about the dates, place and agenda of the GMS
Shareholders rights	Shareholders can follow general meetings also via the internet
Shareholders rights	All common or ordinary equity shares have one-share, one-vote
Shareholders rights	The company has an investor relations function
Shareholders rights	Review of shareholder meetings (could be minutes)
Shareholders rights	All vote results for last shareholder meeting disclosed within
Shareholders rights	There are no special rights to certain classes of shareholders
Shareholders rights	Shareholders can vote either in person or through a representative
Shareholders rights	Voting rights can be exercised using the internet

There are also important prior studies about the last dimension of corporate governance, shareholders rights, discussed in this paper. The paper of Harris et al. (1988) provides information about corporate governance and voting rights of shareholders and majority rules. The paper examines the conditions under which the majority voting rule and one share-one vote create a socially optimal corporate governance rule. The results show that the majority rule along with the share-one vote is an optimal corporate governance scheme. Another finding is that voting rights without cash flow claims is optimal to maximize the aggregate value of the securities issued. So in this paper the important individual measures that they used for shareholder rights is one share-one vote measure. This rule makes for a better quality of corporate governance.

In the paper of Gompers et al. (2003) they used different individual measures to measure the shareholders rights, compared to the paper of Harris et al. (2008). This paper provides information about corporate governance and equity prices. The shareholders rights vary across firms, in this paper they use a 'Governance Index' to proxy for the level of shareholders rights. The shareholders of the company elect the directors of the firm (the representatives) who delegate most decisions to the managers of the company. The findings of the paper show that stock returns is strongly related with corporate governance. Weak shareholders rights caused poor economic performance of the firm according to the paper of Gompers et al. (2003).

The paper of Gillan et al. (2000) used also different individual measures compared to the prior studies. This paper provides information about the role of institutional investors. They measure the success of shareholders activism, with investigating voting outcomes and short-term market reactions. The findings of the study reveal that shareholder voting and stock market reaction depend on the issues addressed by the proposals of the shareholders. Proposals sponsored by group of institutional investors receive more votes and have some small negative impact on stock prices.

The paper of Jiraporn et al. (2007) examines how the strength of shareholder rights influences capital structure decisions of the company. The findings of the paper show that there is an inverse relation between the strength of the shareholder rights and capital structure. The results show that the debt ratio is positively related to the degree of restrictiveness of corporate governance. The more suppressive the corporate governance, the weaker is the shareholder rights and the higher the debt ratio. So for a high quality of corporate governance, it is important that the shareholder rights are not weak. The findings of this paper is the same as the findings of the paper of Gompers et al. (2003). Both papers show that weak shareholders is related to poor quality of corporate governance and that leads to poor economic performance.

Another paper that provides information about shareholder rights is the paper of Karpoff et al. (1996). The paper examines the effect of shareholder proposals on market reaction. The results of the study reveal that the proposals have not a positive effect on company share values and top management turnover. Even if the proposals receive a majority of shareholder votes, it does not affect positively the share prices of the company.

The paper of Mallin et al. (2012) provides information about shareholder rights, shareholder voting and corporate governance. Shareholder rights and shareholder voting are fundamental features of a high quality corporate governance. The shareholder rights are clearly seen as a fundamental to the relationship between the company and their shareholders. The shareholder vote is the most powerful means that the shareholders of the company have to engage with the board of directors of the company in which they invest. The findings of the paper show that there is a link between shareholder rights and the corporate performance of the firm. Shareholder rights has a positive effect on corporate performance. This paper shows that one of the most important individual measure of shareholder rights is the shareholder vote. The most important individual

measure of this paper is the same as the individual measure that they used in the paper of Harris et al. (1988).

The findings of the most prior studies discussed in this paper show that shareholder rights affects the quality of corporate governance. After analyzing prior studies about shareholder rights and corporate governance, the most important individual measures of shareholder rights are:

Dimension	**Individual measure**
Shareholders rights	All common or ordinary equity shares have one-share, one-vote
Shareholders rights	Required majority of the votes to call a meeting or written a consent (no special rights to an individual shareholder)

2.5.6 Conclusion

This chapter provides information about the definition of earnings management and corporate governance. First the definition of earnings management is discussed and the different models to detect earnings management. This paper follows the paper of Bekiris et al. (2011) and uses the Modified Jones Model to measure earnings management. The second part of this chapter provides information about the definition of corporate governance and the dimensions of corporate governance that I use in this paper. The 55 measures of the paper of Bekiris et al. (2011) are compared with prior studies and I select the most important measures of the corporate governance index of the paper of Bekiris et al. (2011) by comparing the measures with the measures in prior studies. The next chapter provides information about the hypothesis development.

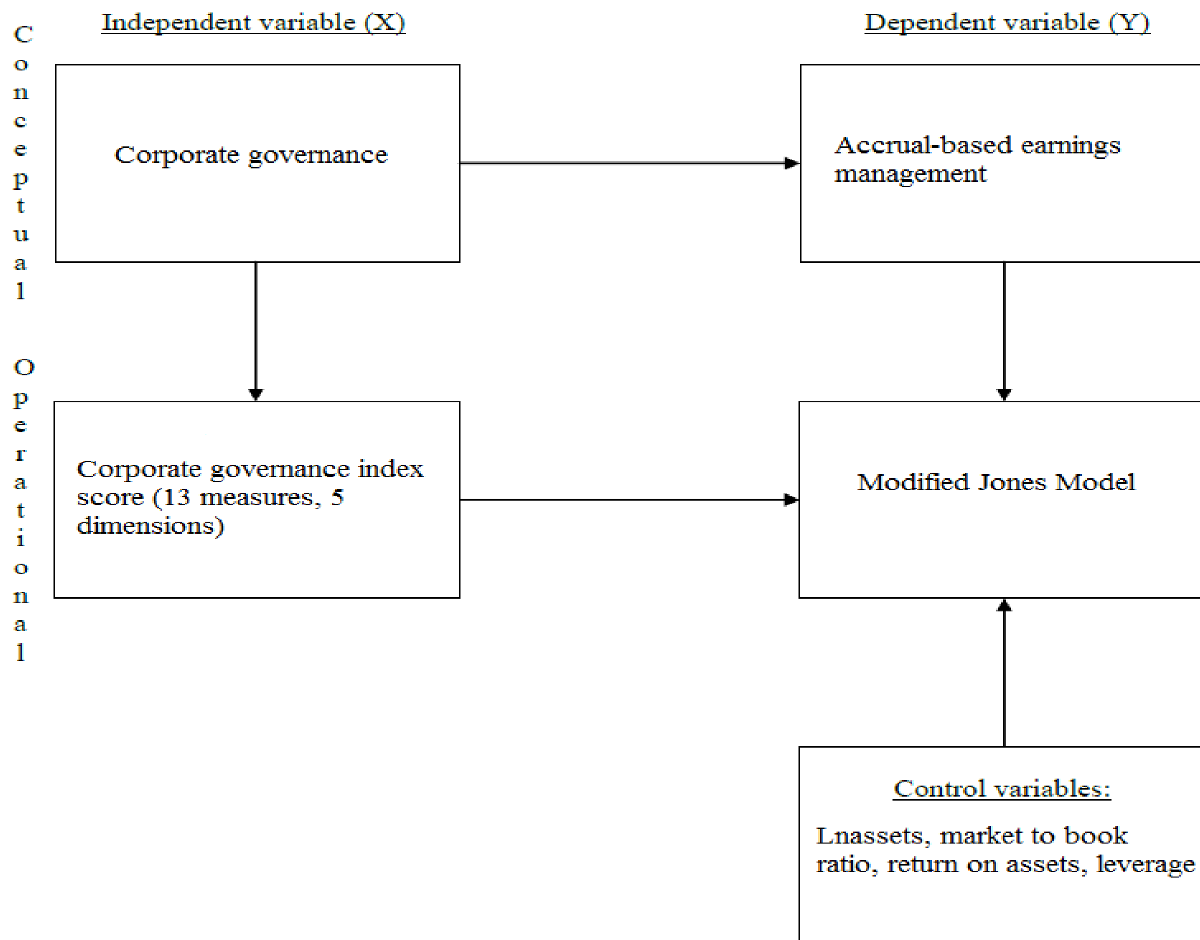
3. Hypothesis development and research design

This chapter provides information about the hypothesis development. The first part of this chapter includes the Libby Boxes. The second part of this chapter describes the hypothesis development of this thesis.

3.1 Libby Boxes

Prior studies about corporate governance and earnings management indicate that there is a relation between corporate governance and accrual-based earnings management. The different dimension that are used in this thesis are important for the quality of corporate governance. In the paper of Bekiris et al. (2011) they have used 55 individual measures to measure the quality of corporate governance in the listed firms on the Athens, Milan and Madrid Stock Exchanges in year 2008.

The created Libby boxes are as follows:



The independent variable, corporate governance, has an impact on accrual-based earnings management. The expectation of this study is, that a well-developed corporate governance reduces accrual-based earnings management. The independent variable in this paper is measured by a corporate governance index. The dependent variable of this paper is measured by the Modified Jones Model. The control variables are lnassets, market to book ratio, return on assets and leverage. This study is based on listed firms in the US, so corporate governance information is from the listed firms in the US. This study is not measurable in another country, because the data that is used for this study is based on listed firms in the US. The corporate governance rules in the US differ from other countries.

Internal validity

The degree to which you can be sure that observed effects are the result of the independent variables is the definition of internal validity (Libby et al., 2002). An experiment is effective if it provides evidence of sufficient internal validity. This thesis examines the relationship between corporate governance (dependent variable) and accrual-based earnings management (independent variable). The results of many prior studies (see and theories show that there is a relation between corporate governance and accrual-based earnings management. Therefore, you can be sure that there is a relation between corporate governance and accrual-based earnings management.

External validity

External validity of the Libby Boxes is the degree to which results can be generalized by the measurement methods in the study. In this study the corporate governance index score is used to measure the quality of corporate governance. In prior studies they have used different methods to measure the quality of corporate governance. This paper follows the study of Bekiris et al. (2011), focusing on a multidimensional character of corporate governance. The results cannot be generalized to other populations, because the data that is used for this study is based on listed firms in the US.
To measure accrual-based earnings management, this study uses the Modified Jones Model. The results of prior important studies show that the Modified Jones Model is the best model to detect accrual-based earnings management (see chapter 2).

3.2 Hypothesis development

The findings of prior studies show that there is a relation between weak corporate governance and high accruals in a firm. Managers of firms engage in earnings management to achieve positive earnings changes, small positive earnings, analyst earnings forecasts and others. A high quality of corporate governance mechanisms is related to the separation of ownership and control of the firm in the modern business world. The results of prior studies show that corporate governance mechanisms reduce agency costs and a high quality of corporate governance is expected to align the interests of managers with the interests of the majority shareholders as well as the interests of the minority shareholders (Bekiris et al., 2011).

These findings of prior studies and arguments lead to the formation of the general hypothesis that is used in this study:

H1: The quality of corporate governance is negatively related to accrual-based earnings management.

The hypothesis of this paper is in an alternative form. The corresponding null hypothesis is that the quality of corporate governance is not associated with the degree of accrual-based earnings management in listed firms in the US, that there is no relationship between the quality of corporate governance and accrual-based earnings management.

To test the hypothesis, the following empirical model is used:

$$\boldsymbol{ABS_AA_t = \beta_0 + \beta_1\, CGI_t + \beta_2 LNASSETS_t + \beta_3 MTB_{t-1} + \beta_4 ROA_t + \beta_5 LEVERAGE_t + \varepsilon_t}$$

The definition of the variables are:

$\boldsymbol{ABS_AA_t}$ = The absolute value of the abnormal accruals

$\boldsymbol{CGI_t}$ = The corporate governance index computed based on the 13 individual measures

$\boldsymbol{LNASSETS_t}$ = The natural log of total assets in year t

$\boldsymbol{MTB_{t-1}}$ = The market to book ratio at year t-1

$\boldsymbol{ROA_t}$ = Return on assets computed as net income in year t divided by total assets

$\boldsymbol{LEVERAGE_t}$ = The total debt in year t divided by total assets

3.3 Conclusion

This chapter includes the Libby Boxes that is used for this study and the hypothesis development. The independent variable is corporate governance and the dependent variable is the absolute abnormal accrual. Corporate governance is measured by 9 individual measures and the variable discretionary accruals is measured by the Modified Jones Model. The next chapter gives more information about the dependent and the independent variable used in this study.

4. Research design

This chapter provides information about the theoretical relation that this study examines. The first part of this chapter gives information about the independent and the dependent variable of this thesis. The second part of this chapter provides information about the sample and data that is used to examine the relationship between corporate governance and accrual-based earnings management.

4.1 Independent variable

The theoretical relation that examines this thesis is between the constructs 'corporate governance' and 'earnings management'. The independent variable has an impact on the dependent variable. In this thesis, the independent variable is corporate governance. To measure corporate governance this thesis follows the paper of Bekiris et al. (2011).

In the study of Bekiris et al. (2011) they use a corporate governance index that exists of 55 individual measures to measure the quality of corporate governance in three countries in Europe: Greece, Italy and Spain. This study compares those 55 individual measures with measures in other prior studies about corporate governance. Only the most important measures are selected for this thesis, consists of 9 measures distributed over 5 dimensions: board of directors (2 individual measures), audit committee (2 individual measures), remuneration (1 individual measures), transparency (2 individual measures) and shareholders rights (2 individual measures). This study uses these 9 measures, categorized in 5 dimensions, to measure the quality of corporate governance in the listed firms in the US.

For this study, WRDS is used to collect corporate governance information about the listed firms in the US and the CUSIP to abstract the information about the 9 individual measures of corporate governance. The data needed to measure the individual measures of corporate governance is extracted from WRDS. With the average function of Excel, the individual measures of corporate governance for each sample firm are calculated in Excel. The mean for CGI of each sample firm is added to STATA to get the results of the empirical model used for this study. This study compares the individual measures of each dimension of corporate governance in the paper of Bekiris et al. (2011) with the measures of prior studies about corporate governance and select only the most important individual measures to measure the quality of corporate governance.

The 9 individual measures about corporate governance that this thesis measures are:

Dimension	Individual measure
Board of directors	Independence of the board of directors
Board of directors	Board size is greater than 5 but less than 16
Audit committee	Independence of the audit committee members
Audit committee	The audit committee meets at least three times per year
Remuneration	Performance-based compensation exists
Transparency	Detailed disclosure of financial and operating results
Transparency	Disclosure of the ownership structure
Shareholders rights	All shareholders have the same voting rights
Shareholders rights	Required majority of the votes to call a meeting or written a consent (no special rights to an individual shareholder)

4.2 Dependent variable

The dependent variable is accrual-based earnings management. There are different models to detect earnings management. This thesis uses the Modified Jones Model to detect accrual-based earnings management. The Modified Jones Model assumes that all changes in credit sales in the event period result from earnings management (Dechow et al., 1995). The findings of prior studies about accrual-based earnings management reveal that the Modified Jones Model the best model is to detect accrual-based earnings management.

To detect the discretionary accruals, fist you need to detect the total accruals and non-discretionary accruals. TDA First of all the total accruals should be calculated. Following the paper of Bekiris et al. (2011), to detect accrual-based earnings management with the Modified Jones Model, the following steps will be taken:

Step 1: Total accruals

$$\frac{TA_{it}}{A_{it-1}} = \beta_0\left(\frac{1}{A_{it-1}}\right) + \beta_1\left(\frac{\Delta REV_{it} - \Delta AR_{it}}{A_{it-1}}\right) + \beta_2\left(\frac{GPPE_{it}}{A_{it-1}}\right) + \beta_3\, BM_{it} + \beta_4\left(\frac{CFO_{it}}{A_{it-1}}\right) + \varepsilon_{it}$$

TA_{it} = the total accruals calculated as firm i's net income minus the operating cash flows in year t taken from the statement of cash flows

A_{it-1} = total assets for firm i in year t-1

$\Delta \boldsymbol{REV}_{it}$ = the change in revenues for firm i from year t-1 to year t

$\Delta \boldsymbol{AR}_{it}$ = the change in accounts receivable for firm i from year t-1 to year t.

$\boldsymbol{GPPE}_{it}$ = the gross property, plant and equipment for firm i in year t

$\boldsymbol{BM}_{it}$ = the book value of common equity for firm i in year t

$\boldsymbol{CFO}_{it}$ = the operating cash flows for firm i in year t

$\boldsymbol{\varepsilon}_{it}$ = the error term for firm i in year t

Step 2: Normal accruals (non-discretionary accruals)

The next step is to calculate the non-discretionary accruals. The coefficient estimates from Equation 1 are used to estimate the normal accruals for the sample that I use in this paper.

$$NA_{it} = \beta_0 \frac{1}{Assets_{it-1}} + \beta_1 \frac{\Delta REV_{it} - \Delta AR_{it}}{Assets_{it-1}} + \beta_2 \frac{GPPE_{it}}{Assets_{it-1}} + \beta_3 BM_{it} + \beta_4 CFO_{it}/Assets_{it-1}$$

NA_{it} = the normal accruals (non-discretionary accruals) for firm i in year t

$\beta_0 - \beta_4$ = the industry-specific estimated coefficients from equation 1

Step 3: Abnormal accruals

After calculating the total accruals and the non-discretionary accruals, it is possible to calculate the abnormal accruals (discretionary accruals). The absolute abnormal accruals (ABS_AA) is the difference between TA (total accruals) and NA (normal accruals).

$$ABS_AA = \left(\frac{TA_{it}}{A_{it_{-1}}}\right) NA_{it}$$

ABS_AA = the abnormal accruals (discretionary accruals) for firm i in year t

4.3 Control variables

The control variables that are used for this thesis are the same as the control variables in the paper of Bekiris et al. (2011). The control variables are: firm size (lnASSETS), market to book ratio (MTB), return on assets (ROA) and leverage (LEVERAGE).

Firm size could have an impact on corporate governance characteristics as well as the level of earnings management (Becker et al., 1998). According to the paper of Watts and Zimmerman (1978), larger firms could face higher level of political cost compared with small firms, because of higher analyst following and investor scrutiny. Another paper suggest that the chance that larger firms use earnings management is higher, because the operations of larger firms are more complexity, so it is difficult for the users of the financial statement to detect overstatement (Lobo and Zhou, 2006).

Another control variable is the market to book ratio, that is also related to the corporate governance characteristics (Klein 2002a, 2002b). The control variable market to book ratio is used to control for the growth opportunities of a firm using the beginning of the year market-to-book ratio (MTB-1). Managers of a firm can use income increasing accruals, when the growth of the firm slows, to create a sustainable growth for the firm (Summers and Sweeney, 1998).

The control variable, return on assets (ROA), is to control the relation between earnings management and the level of profitability.

Finally, the control variable leverage (LEVERAGE) is to pick up debt contracting motivations for earnings management. This study measures leverage as the ratio of total liabilities to last year's total assets. The findings of the paper of (Defond and Jiambalvo, 1994) show that managers of highly leveraged firms have strong incentives to use income incrasing accruals to avoid debt covenant vialoation.

4.5 Sample

The sample for this research comprises listed firms in the US in the year 2015. Prior studies about the relationship between corporate governance and accrual-based earnings management in the US focus only on an individual dimension of corporate governance. This study follows the paper of Bekiris et al. (2011) using a multidimensional character of corporate governance, consisting of 5

dimensions. There are also not prior studies that investigate the relation between a multidimensional character of corporate governance with accrual-based earnings management in the last years, therefore the most recent year is chosen. In the paper of Bekiris et al. (2011) the researchers has chosen for the year 2008. There are not prior studies about the relationship between corporate governance and accrual-based earnings management based on the year 2015. The reason why the sample year exists of 1 year is that there are different dimensions of corporate governance measured. For each listed firm in this sample, the data is extracted for each individual dimension. With the data of each individual dimension of corporate governance, for each firm in this sample the corporate governance index is calculated. This thesis follows the paper of Bekiris et al. (2011), in that paper the researchers have chosen for one sample year, because there are different individual dimensions of corporate governance measured for each sample firm in that study. In this thesis, the same method is used to calculate the corporate governance index for each sample firm based on the individual dimensions of corporate governance. The findings of this thesis provides information to the stakeholders and the shareholders of the listed firms in the U.S. about the most recently corporate governance quality of the sample firms.

The financial companies are excluded because their fundamentally different accrual processes affects their incentives and opportunities for accrual-based earnings management. Utilities and real estate companies are also excluded for the same reason as the financial companies.

Firms with a negative book value of equity are also excluded and firms with not enough data to compute accruals are also eliminated.

The result of the final sample is as follows:

	Listed firms in the US (2015)
Initial sample	4028 (firm year observations)
Financial, insurance and real estate firms	(-) 13 (firms)
Firms with negative book value of equity	(-) 35 (firms)
Firms with missing data used to compute accruals	(-) 3171 (firm year observations)
Merged data of EM and CG	(-) 84 (firm year observations)
Final sample	723 (firms)

4.6 Data

To investigate the relationship between corporate governance and accrual-based earnings management in the US listed firms, data from the annual reports of the listed firms is collected. The sample of this thesis is based on the listed firms in the US in 2015, therefore information about the annual reports of the US listed firms in 2015 is needed. To determine all listed firms in the US in 2015, the Wharton Research Data Service (WRDS) is used.

The sample of listed firms in the US for this study is reduced by financial firms, utilities, real estate firms, firms with negative book value of equity and firms missing data to compute accruals.

For the part of corporate governance, this study uses WRDS to collect information about the corporate governance of the listed firms in the US in 2015. The 5 different dimensions of corporate governance, existing of 9 measures to measure the quality of corporate governance, is tested with data from the annual reports of the listed firms in the US in 2015.

To identify the discretionary accruals of the firms in the US, the Cusip (identification code) of all firms in the US is used to collect data to detect earnings management. The data that is used for this study to compute the Modified Jones Model is from 'Compustat North America – Fundamentals Annual; fiscal years 2014-2015' from WRDS.

The input variables that are used in WRDS to collect data for earnings management are:

Variable name	**Description**
cusip	Identification code
gvkey	Compustat company identifier
at	Total assets
dt	Total debt
ni	Net income
bkvlps	Book value per share
mkvalt	Total market value
sich	Standard Industrial Classification Code
sic	Standard Industry Classification Code

WRDS is also used to collect data for corporate governance of listed firms in the US. The data

about the 9 individual measures is collected from WRDS. The CUSIP of the firms used to detect accrual-based earnings management from WRDS (final sample) is used to collect data about corporate governance.

From ISS Directors, the data to measure the individual measures related to the dimension 'board of directors' is extracted. Also the data for the individual measures related to the dimension 'audit committee' is extracted from ISS Directors. The variables that are used to extract information about the board of directors and the audit committee are:

Variable name	**Description**
cusip	Identification code
classification	Board affiliation (E-employee/insider; I-independent; L-linked; NA-not ascertain
name	Company name
year	Data year
mtgmonth	Meeting per month
audit_membership	Audit Committee Member
employment	Employment title
attend_less75_pct	Attented < 75% of meetings

From Compustat Executive Compensation, the data to measure the individual measure related to the dimension 'remuneration' is extracted. The variables that are used to get information about transparency are as follows:

Variable name	**Description**
co_per_rol	ID number for each executive/company combination
coname	Company name
bonus	Bonus ($)
gvkey	Company ID number
year	Fiscal year
cusip	Cusip and Issue number

From ‘Compustat North America – Fundamentals Annual; fiscal years 2014-2015’ and ‘ISS Directors’ is checked whether the firms in the final sample provides information about the results and the ownership structure of the firm. The variables that are used to extract this information are:

Variable name	**Description**
cusip	Identification code
gvkey	Compustat company identifier
at	Total assets
dt	Total debt
ni	Net income
employment	Employment title

From ISS Governance, the data needed to measure the individual measures related to the dimension ‘shareholder rights’ is extracted. The variables that are used to get information about the shareholder rights are:

Variable name	**Description**
coname	Company Name
cusip	Identification code
uneqvote	Unequal voting rights
year	Year
spl_meet_votepct	Vote % required to call a meeting
written_consent_votepct	Vote % required for written consent

4.7 Conclusion

In this chapter, the relation between the independent variable and the dependent variable is explained. The independent variable is corporate governance, the dependent variable is accrual-based earnings management and the control variables are: lnassets, return on asssets, market to book ratio and leverage. The second part of this chapter includes the sample and data that is used for this study. The final sample consist of 723 listed firms in the US. The data that is needed to detect accrual-based earnings management and corporate governance information is extracted from Wharton Research Data Service (WRDS).

5. Results and analysis

The prior chapters of this thesis described the theory and the developed the empirical model to test the relation between corporate governance and discretionary accruals in the US. This chapter provides information about the results of the empirical tests and answers the main question of this study: 'Does the quality of corporate governance affects accrual-based earnings management in US firms?' The chapter includes the descriptive statistics, the Pearson correlation matrix and the multivariate analysis.

5.1 Descriptive statistics

Table 1 presents descriptive statistics on both the corporate governance index and the financial characteristics of sample firms and table 2 presents the outcomes for the same variables in the paper of Bekiris et al. (2011). The variable ABS_AA, CGI, lnAssets, MTB, ROA and leverage are used to test the relation between corporate governance and accrual-based earnings management in US firms. The mean CGI score for sample firms 0,6619. In the paper of Bekiris et al. (2011), the mean CGI for sample firms is 0,461. The difference is, that the paper of Bekiris et al. (2011) uses more individual measures (53 measures) and the sample consists of listed firms in three different countries. This thesis use 9 individual measures and uses as sample only listed firms in the US.

The mean for ABS_AA (absolute abnormal accrual) which is associated with earnings management is .039. The mean for ABS_AA in the paper of Bekiris et al. (2011) is .059. The difference mean of ABS_AA can be explained by the difference in the final sample of both studies. The final sample of the paper of Bekiris et al. (2011) is based on listed firms in three different countries in the year 2008.

The mean for lnAssets is 8,266, the mean for MTB is 1698.804, the mean for ROA is .030 and the mean for leverage is .289. There is no big difference in the outcomes of these variables, compared to the paper of Bekiris et al. (2011). Only the mean for MTB for this thesis is higher, compared to the mean of MTB in the paper of Bekiris et al. (2011), 2,622.

Table 1

Stats	*ABS_AA*	*CGI*	*lnAssets*	*MTB*	*ROA*	*leverage*
N	723	723	723	723	723	723
Mean	.0390678	.6619986	8.266306	1698.804	.030463	.2889088
SD	.0425631	.1001746	1.510593	15332.1	.1360289	.205875
P25	.0119798	.5555556	7.162397	78.67237	.0163961	.1598538
P50	.0267995	.6666667	8.072227	189.3159	.0492944	.2642988
P75	.0476022	.7777778	9.249946	614.8326	.08500086	.3839138
Min	.0001342	.4444444	4.764956	2.58234	-1.328921	.0000154
Max	.3686426	.8888889	12.90588	401168.2	.3493123	2.801534

ABS_AA = absolute abnormal accrual based on the Modified Jones Model with additions of Larcker and Richardson (2004). CGI = The corporate governance index existing of 9 individual measures. lnAssets = Natural log of total asset. MTB = Market to book ratio. ROA = Return on assets

Table 2

Outcomes for the mean in the paper of Bekiris et al. (2011)

Stats	*ABS_AA*	*CGI*	*lnAssets*	*MTB*	*ROA*	*leverage*
N	427	427	427	427	427	427
Mean	.059	.461	12.836	2.622	.023	.346

5.2 Pearson correlation matrix

The multivariate analysis provides information about the correlation between the variables. The Pearson correlation matrix provides information about the multicollinearity between the dependent and the independent variables. To get reliable results from the multivariate analysis, the correlations in the Pearson correlation matrix should not be higher than 0.9 (Field, 2009).

The results of the Pearson correlation matrix (table 4) shows that there is a positive correlation between ABS_AA and CGI, but is totally not significant. The correlation coefficients between all the variables in table 4 are lower than 0.9 that means that there is no high multicollinearity between the independent variables of this thesis.

Table 3

	ABS_AA	CGI	lnASSETS	MTB	ROA	leverage
ABS_AA	1					
CGI	0.0434	1				
lnASSETS	-0.1059	-0.0639	1			
MTB	-0.0107	0.0188	-0.0005	1		
ROA	-0.4514	-0.0790	0.0466	0.0157	1	
leverage	0.0144	-0.0259	0.1435	-0.0156	-0.2009	1

5.3 Multivariate analysis

Table 4 presents the results of the multivariate model for the total sample of firms used for this thesis. With the multivariate analysis, the role of CGI in constraining earnings management practices is examined. The absolute abnormal accrual (ABS_AA) is the dependent variable and the corporate governance index (CGI) is the independent variable. The hypothesis of this study is tested with the multivariate analysis. The hypothesis is that corporate governance affects accrual-based earnings management. The expectation of the results is that there is a negative relation between the corporate governance index score and discretionary accruals. This means that a well-developed corporate governance (high corporate governance index score) leads to less discretionary accruals.

Table 3 shows that the corporate governance index is not negatively associated with the absolute value of abnormal accruals. The coefficient of CGI is 0.0002226, not negative. This is not consistent with the hypothesis of this thesis. The coefficient β_1 is not negative and CGI is not statistically significant at the 5% level of significance. The (P>t) is 0.987, that means that the CGI is totally not significant. The results of the mostly other independent variables are significant. The coefficient of lnAssets, MTB, ROA and Leverage are negatively related to absolute abnormal accrual (ABS_AA). The coefficients of these variables are respectively –0.0021027, -0.0000013, -0.1443535, -0.0139771. Only the variable MTB has not a significant effect on absolute abnormal accrual (ABS_AA), the value of MTB is 0.890, which is totally not significant at the 5% level of significance. The other independent variables lnAssets, ROA and Leverage are significant at the 5% level of significance, respectively 0.027, 0.000 and 0.049. That means that these variables has an effect on the dependent variable ABS_AA.

The R-squared is 21,52%. The R-squared statistic shows how well the model fits the data. R-squared of 0% indicates that the model explains none of the variability of the response data around its mean and an R-squared of 100% indicates that the model explains all the variability of the response data around its mean. The R-squared statistic of this thesis, 21,52%, shows that 21,52% of the variance of ABS_AA is explained by the variables that are used in this multivariate analysis.

Table 4

ABS_AA	Coef.	Std. Err.	t	P > t
CGI	.0002226	.0141376	0.02	0.987
lnAssets	-.0021027	.0009462	-2.22	0.027
MTB	-.0000013	.0000092	-0.14	0.890
ROA	-.1443535	.0106359	-13.57	0.000
Leverage	-.0139771	.0070734	-1.98	0.049
_cons	.0647595	.0126389	5.12	0.000

Comparison with Bekiris et al. (2011)

The total results of the paper of Bekiris et al. (2011) show a significant negative relation between corporate governance and absolute abnormal accrual. The coefficient for CGI in the paper of Bekiris et al. (2011) is significant negatively related to ABS_AA at a significance level of 1% and 5%. The control variable lnAssets, in the results of the paper of Bekiris et al. (2011) is not significant negatively related to the absolute abnormal accrual, based on a significance level of 1%, 5% and 10%. The variables MTB and ROA are not significant on a significance level of 1%, 5% and 10%, that means that these variables has no effect on the absolute abnormal accrual (ABS_AA), based on the results of all the three countries that are examined in the paper of Bekiris et al. (2011). In the paper of Bekiris et al. (2011), only the control variable Leverage is significant at a significance level of 1%, 5% and 10% level. That means that the control variable Leverage, in the paper of Bekiris et al. (2011), has an significant effect on the relation between the absolute abnormal accruals and corporate governance.

The difference between the multivariate analyses in this thesis and the paper of Bekiris et al. (2011) is the CGI. The CGI in the paper of Bekiris et al. (2011) is negatively related to the absolute abnormal accrual and also significant in all of the three countries where the study of Bekiris et al.

(2011) is based on (Greece, Italy and Spain). The CGI in this thesis is not negatively related to the absolute abnormal accrual and also not significant at a 1%, 5% or 10% significance level.

The results for the control variables in the paper of Bekiris et al. (2011) are difference for each country. In the results of the paper of Bekiris et al. (2011), you can see that the control variable lnAssets is positively related to ABS_AA in all three countries, but it is not significant at a 1%, 5% or 10% significance level. In this thesis, the control variable lnAssets is negatively related to ABS_AA and also not significant. The t value for the control variable lnAssets in this thesis is -2,22, that means that it is nog significant at a significance level of 1%, 5% and 10%. The results for the control variable lnAssets in this thesis is the same as the results for the control variable lnAssets in the paper of Bekiris et al. (2011), in both papers the results for the control variable are not significant related to the dependent variable.

The control variable MTB in this thesis is negatively related to ABS_AA, but is not significant at a 1%, 5% or 10% significance level. The t value for MTB in this thesis is -0,14, that indicates that it has not an effect on the relation between the independent variable and the dependent variable in this thesis. The results for the control variable MTB in this thesis are the same as the results for the control variable MTB in the paper of Bekiris et al. (2011). The results of the multivariate analyses in the paper of Bekiris et al. (2011) show that the MTB is negatively related to ABS_AA in all of three countries, but the result for MTB is not significant at a 1%, 5% or 10% significance level.

In the findings of this thesis, the control variable ROA is also not significant related to ABS_AA. The t value for the control variable ROA is -13,57. This value indicated that the control variable ROA has not an effect on the relation between the dependent variable and the independent variable in this thesis, because the t value for ROA in this thesis is not significant at a significance level of 1%, 5% and 10%. In the paper of Bekiris et al. (2011), the result for the control variable ROA is also not significant for the three countries combined. The results of the paper of Bekiris et al. (2011) specific for each of the three countries, show that the control variable ROA for the countries Italy and Spain are negatively related to ABS_AA, but not significant at a significance level of 1%, 5% and 10%. Only for Spain the results of ROA are significant. Only for Greece are the results of the control variable ROA positive, but not significant at a 1%, 5% and 10% significance level.

The last control variable Leverage is negatively related to the absolute abnormal accrual in this thesis and is not significant. The t value of Leverage is -1.98 that indicates that Leverage is negatively related to the absolute accrual in this thesis, but it is not significant at significance level of 1%, 5% and 10%. The t value should be higher than 2 to be significant. That means the Leverage of the sample firms has no effect on the absolute abnormal accrual (ABS_AA). The results of the paper of Bekiris et al. (2011) show that the control variable is positive related to the absolute abnormal accrual based on the firms in all of the three countries, but it is not significant in the analysis based on the firms in Italy.

5.4 Conclusion

The results show that there is no significant relation between the quality of corporate governance and accrual-based earnings management. The hypothesis of this thesis is tested by a multiple linear regression analysis. The results of this analysis do not indicate a negative relationship between the quality of corporate governance and absolute abnormal accrual, but it is totally not significant at a 1%, 5% or 10% significance level. A part of the results of the independent variables are the same as the results of the paper of Bekiris et al. (2011). However, the hypothesis of this study is not accepted, because the results of the analysis do not show a negative relation between the quality of corporate governance and accrual-based earnings management.

6. Conclusions

The last chapter of this thesis indicates the conclusions of this study. The main objective of this study is to investigate the relationship between the quality of corporate governance and accrual-based earnings management using a sample of listed firms in the US in the year 2015. The quality of corporate governance is measured by 9 individual measures categorized in 5 different dimensions of corporate governance. The mean for corporate governance is 0.662, which means that the quality of corporate governance of the sample firms is good. The general hypothesis of this study is that the quality of corporate governance is negatively related to discretionary accruals. The hypothesis is rejected, because the results do not show that the quality of corporate governance is negatively related to absolute abnormal accrual. The coefficient of the CGI is not negative, that means that a well-developed corporate governance (high quality of CG) is not related to less discretionary accruals. The t value (0.02) for CGI is totally not significant, so the results show that the quality of corporate governance is not associated with the level of discretionary accruals.

To have a significant relation between CGI and the level of discretionary accruals, the t value of CGI should be higher than 2.

The t value for CGI is 0.02. For a significant relation between corporate governance and accrual-based earnings management, the t value should be significant at a significance level of 1%, 5% or 10%. The final sample of this study is 723 firms. For N-1, 722 sample firms, the t-value should be higher than 2,581 at a significance level of 1%. The t-value for CGI is 0,02, so the results for the relationship between corporate governance and accrual-based earnings management are not significant. At a significance level of 5%, the t-value should be higher than 1,962. The t-value of CGI is 0,02, so the results show that there is no significant relation between corporate governance and discretionary accruals. At a significance level of 10%, the t-value should be higher than 1,646. The t-value of 0,02 is much lower than 1,646, so the results of the test are not significant. The results show that there is no significant relation between corporate governance and accrual-based earnings management, because the t value of CGI is not significant at a significance level of 1%, 5% and 10%.

6.1 Contribution to the existing literature

This study contributes to the existing body of knowledge in the literature. The quality of corporate governance is measured by different dimensions consisting of 9 different individual dimensions. Prior studies do not focus on a multidimensional character of corporate governance based on listed firms in the US. The studies in the past about corporate governance and accrual-based earnings management, have mainly focused on the audit committee of the firm. This thesis has analyzed the most important corporate governance dimensions of important prior studies. Therefore, the quality of corporate governance in this thesis is not limited to one individual measure or limited to one dimension of corporate governance. Therefore, the results give a better view of the quality of the corporate governance in the US firms.

The sample year of this study is also unique. In the paper of Bekiris et al. (2011) the researchers has chosen for the year 2008. There are not prior studies about the relationship between corporate governance and accrual-based earnings management based on the year 2015. For each listed firm in this sample, the data is extracted for each individual dimension. With the data of each individual dimension of corporate governance, for each firm in this sample the corporate governance index is calculated. The findings of this thesis provides information to the stakeholders and the

shareholders of the listed firms in the U.S. about the most recently corporate governance quality of the sample firms.

6.2 Discussion

This study follows the paper of Bekiris et al. (2011). In the paper of Bekiris et al. (2011), the listed firms in Greece, Italy and Spain are examined. The economic situation in the countries like Greece and Spain is often negatively news worldwide (Economou et al. 2013). The economic situation in those three countries in the paper of Bekiris et al. (2011) is not very well compared with the economic situation of the US in 2015. The results of the paper of Bekiris et al. (2011), based on listed firms in these poorly economic countries, show that there is a negative relationship between the quality of corporate governance and accrual-based earnings management. The results of this study is based on listed firms in the US. The US is economically stronger than those three countries in the paper of Bekiris et al. (2011). The intention to manipulate earnings to get better results can be much higher in bad economically environment. Therefore, the expectation is that in countries that are in a bad economic situation, the intention to manipulate earnings can be higher compared with the degree of earnings management in well economically development countries like the US. The findings of the paper of Habib et al. (2013) show that distressed firms during the crisis in 2008-2009 engage more in manipulating the earnings of the firm compared to their healthy firm counterparts.

The corporate governance rules in the countries in Europe and in the study of Bekiris et al. (2011) are difference from each other and the corporate governance index in the paper of Bekiris et al. (2011) exists of 53 measures. This may have an effect on the results of the study. These circumstances can lead to difference results between this study and the study of Bekiris et al. (2011).

6.3 Limitations and future research

One of the limitations of this study is the final sample. The final sample consists of 723 listed firms in the U.S. in 2015. Future research should focus on more firms and more years. Some individual measures of corporate governance cannot be find at WRDS, it must be hand collected from the annual reports of the firm.

Future research may focus on more important individual measures of corporate governance that is only possible to get data hand collected from the annual reports of the firms. It may focus on

more firms and more years, so you can see the change of the quality corporate governance of the listed firms and whether it affects accrual-based earnings management.

The sample year of this thesis is 2015, after the global financial crisis during 2007-2008. Future research may focus on a longer sample period between 2005-2015. Data of important individual measures of the listed firms may hand collected from the annual reports and combined with other important individual measures collected from WRDS for the years 2005-2015. Therefore, the period before, during and after the global financial crisis may examine.

6.4 Literature matrix

The literature matrix gives an overview of the 29 articles related to the topic of this thesis. The author of the article, the article year, the subject of the article, the variables of the article, the final sample and the period of the article, the methodology of the article and the findings of each article related to corporate governance and accrual-based earnings management, stated in the literature matrix. The articles in the matrix are all about corporate governance characteristics and the relation with accrual-based earnings management. The last column of the matrix indicates whether the article fits with the hypothesis of this study.

The alternative hypothesis of this study is that the quality of corporate governance is negatively related to accrual-based earnings management. The findings of 19 articles agree with the hypothesis of this study.

Literature matrix:

Author	***Year***	***Subject***	***Variables***	***Sample & Period***	***Methodology***	***Findings***	***Hypothesis***
Abbott et al.	2000	Audit committee independence and earnings management	Dependent variable: earnings management (fraudulent and no fraudulent misstatements) Independent variable: audit committee independence (meetings of the audit committee and independence of the audit committee members)	78 sample firms 1980-1996	OLS regression analysis and descriptive statistics	They find that audit committee of the firms that meets at least 3 times per year and audit committee with independent members is associated with a decreased likelihood of both fraud and no fraudulent misstatement	Agree
Armstrong et al.	2010	The role of financial reporting and transparancy in corporate governance	Dependent variable: information asymmetries (that exists between managers and both directors and shareholders of the firm) Independent variable: financial reporting transparency	Theoretical research Review of recent literature	Review of recent literature Comparison of prior literature	The findings of the paper show that financial reporting is very important in resolving agency conflicts Financial reporting plays a big role in reducing information asymmetries.	Agree
Barth et al.	2008	Definition of financial reporting transparency	Dependent variable: cost of capital Independent variable: transparency of financial reporting	Theoretical research	Theoretical research	The findings of the paper show that increasing of financial reporting transparency (the extent to which financial reporting reveal an entity's underlying economic performance in a way that it is reliable and understandable for the users of the financial statement) reduces the cost of capital.	Agree

Baysinger et al.	1985	Relation between the board of director composition and financial statement fraud	Dependent variable: financial statement fraud Independent variable: outside members on the board of directors	Theoretical research	Comparison of different theoretical research questions and findings about this subject	The results of the study indicate that the inclusion of outside members on the board of directors increases the board's effectiveness at monitoring management for the prevention of earnings management. Board size and certain outside directors also affects the likelihood of financial statement fraud.	Agree
Bekiris et al.	2011	Corporate governance and accrual-based earnings management	Dependent variable: accrual-based earnings management (discretionary accruals) Independent variable: corporate governance (5 dimensions of corporate governance, 55 measures)	427 firms listed on the Athens, Milan and Madrid stock exchanges 2008	OLS regression analysis and descriptive statistics Corporate governance index score	The findings of the paper show that there is a relation between corporate governance and discretionary accruals Firms with well developed corporate governance, high corporate governance score, have higher earnings quality. Discretionary accruals are lower for firms with high corporate governance score	Agree
Bowen et al.	2008	Relation between corporate governance score and earnings management in the US firms	Dependent variable: earnings management Independent variable: corporate governance	3154 firm-year observations 1992-1995	OLS regression analysis and descriptive statistics G-score to measure the quality of corporate governance	The results of the study do not find a significant relation between corporate governance and absolute accruals The G-score ignores important dimensions of corporate governance.	Disagree

Cybinski et al.	2013	Independence of remuneration committee and CEO total pay and bonuses	Dependent variable: CEO pay and bonuses link to financial reporting Independent variable: independence of remuneration committee	143 large publicly listed companies 2001	OLS regression analysis	The findings of the study show that the firm size is an influential factor in the relationship under investigation. Large firm remuneration committees link CEO total remuneration and bonuses to firm financial performance, but smaller remuneration committees do not link either type of CEO remuneration to performance despite remuneration committee independence	Agree
Garcia et al.	2012	Relation between audit committee and earnings management	Dependent variable: earnings management Independent variable: audit committee of Spanish firms (number of meetings of the audit committee of Spanish firms and the independence of the audit committee).	127 Spanish firms 2003-2006	OLS regression analysis	The results of the study show that more meetings of the audit committee reduces earnings management They found no relationship between the independent of the audit committee and earnings management	Agree
Gillan et al.	2000	The role of institutional investors	Dependent variable: shareholders activism Independent variable: shareholders proposals across a period of substantial activity	2042 proposals 1987-1994	OLS regression analysis Mean analysis of the voting outcomes	The findings of the study reveal that shareholder voting and stock market reaction depend on the issues addressed by the proposals of the shareholders. Proposals sponsored by group of institutional investors receive more votes and have some small negative impact on stock prices.	Not Applicable

Gompers	2003	Corporate governance index and equity prices	Dependent variable: equity prices (stock return), firm valuation Independent variable: shareholder rights (corporate governance), GOV-score (51 factors).	1500 firm-year observations 1990-1999	OLS and median regression analysis	Stock return is strongly related with corporate governance. Weak shareholders rights caused poor economic performance of the firm according to the paper of Gompers et al	Agree
Habbash et al.	2013	Audit committee independence and abnormal accruals	Dependent variable: abnormal accruals Independent variable: audit committee independence	392 firm-year observations 2006-2007	OLS regression analysis and descriptive statistics and correlation analysis	There is no significant relation between the number of member of audit committee and earnings management There is no significant relation between meetings of the audit committee and earnings management There is no relation between the independence of the audit committee and the impact on earnings management	Disagree
Harris et al.	1988	Relation between corporate governance and voting rights	Dependent variable: earnings quality, value of issued securities Independent variable: voting rights of shareholders, share-one vote.	Review of prior literature, studies.	Theoretical research, use of theoretical models.	The results show that the majority rule along with the share-one vote is an optimal corporate governance scheme. Another finding is that voting rights without cash flow claims is optimal to maximize the aggregate value of the securities issued.	Not applicable

Healy et al.	1993	Financial disclosure strategies and stock prices	Dependent variable: stock prices Independent variable: financial reporting, disclosure strategies	Theoretical research	Theoretical research	Financial reporting is very useful mechanism top management of the firm to communicate with outside investors. Managers have incentives to bias the number of the firm in their self-interest, so it's difficult for managers to credibly communicate their firms' current economic performance and future prospects to investors. According to the paper, managers can improve their communication with the investors by developing disclosure strategies	Not applicable
Hermalin et al.	2007	The role of transparency in corporate governance	Dependent variable: corporate governance Independent variable: financial reporting transparency, increasing of disclosure requirements	No sample and no period	Different models created by the researchers (Lemma 1, 2 and 3)	The link between corporate governance and transparency is, that increasing transparency is improving governance. Higher transparency leads to higher cost for the firm	Agree
Hunton et al.	2006	Financial reporting transparency and earnings management	Dependent variable: earnings management Independent variable: extent of financial reporting transparency (forecast of the firms' transparency and disclosure of the comprehensive income).	62 participants (59 financial managers and 3 CEOs) 2002	Between subject design Mean analysis, debriefing analysis and ANOVA analysis	The findings of the paper reveal that when financial analysts forecasts are above (below) the management's projected earnings, the firm use an income-increasing (-decreasing) earnings management strategy. Reporting transparency of the forecast of the firms' profitability reduced earnings management. The results of the paper also show that a more transparent disclosure of the comprehensive income of the firm will reduce earnings management.	Agree

Jaggi et al.	2009	Association between corporate board independence and earnings management	Dependent variable: discretionary accruals (quality of financial reporting) Independent variable: corporate boards of Hong Kong firms	943 firm-year observations	2SLS regression analysis and OLS regression analysis	The results of the paper show that a higher proportion of independent non-executive directors on corporate boards is likely to deter earnings management and will reduce earnings management.	Agree
Jihang et al.	2008	Relation between corporate governance and earnings management	Dependent variable: earnings management Independent variable: corporate governance (measured by the Gov-score)	4311 firm-year observations 2002-2004	OLS regression analysis and descriptive statistics	The results of the paper show that a higher proportion of independent non-executive directors on corporate boards is likely to deter earnings management and will reduce earnings management. The findings of the paper of Jaggi et al. (2009) are the same as the findings of the paper of Klein (2002) and Xie et al. (2013).	Agree
Jiraporn et al.	2007	Relation between the shareholder rights and capital structure decisions of the company	Dependent variable: corporate governance Independent variable: strength of the shareholder rights	4638 firm-year observations 1993,1995, 1998,2000, 2002	OLS regression, descriptive statistics and Tobin's Q	The results show that the debt ratio is positively related to the degree of restrictiveness of corporate governance. The more suppressive the corporate governance, the weaker is the shareholder rights and the higher the debt ratio. So for a high quality of corporate governance, it is important that the shareholder rights are not weak. The findings of this paper is the same as the findings of the paper of Gompers et al. (2003).	Not applicable

Karpoff et al.	1996	The effect of shareholder proposals on market reaction	Dependent variable: market reaction Independent variable shareholder proposals	709 cases Shareholder proposals Sample 1986-1990	OLS regression analysis	The results of the study reveal that the proposals have not a positive effect on company share values and top management turnover. Even if the proposals receive a majority of shareholder votes, it does not affect positively the share prices of the company.	Disagree
Klein	2002	Board characteristics and audit committee	Dependent variable: earnings management Independent variable: board characteristics and audit committee	692 firm-year observations 1992-1993	OLS regression analysis	The findings of the study indicate that there is a negative relation between audit committee independence and abnormal accruals.	Agree
Larcker et al.	2007	Corporate governance and accrual-based earnings management	Dependent variable: accrual-based earnings management Independent variable: corporate governance measured by 39 individual measures	2109 firm-year observations 2002-2003	OLS regression analysis	The results of the paper of Larcker et al. (2007) show that there is a mixed relation between corporate governance and abnormal accruals.	Disagree
Lin et al.	2006	Relation between financial reporting and audit committee independence and audit committee size	Dependent variable: financial reporting quality Independent variable: audit committee size and audit committee independence	Sample 267 firms 2000	OLS regression analysis	More oversight over the financial reporting process improves the earnings quality according to the findings of the paper of Lin et al. (2006). Another part of the findings of this paper indicates that the independence, financial expertise, activity and stock ownership have no impact on the quality of reported earnings.	Agree

Liu and Taylor	2008	Disclosure of key determinants and public pressure and corporate governance	Dependent variable: disclosure of key determinants of discretionary disclosures Independent variable: public pressure and corporate governance debates after the scandals	191 companies 2003-2004	OLS regression analysis	The results of the paper show how Australian listed firms have responded to public pressure and shareholder concern following the corporate governance debates after the scandals in 2002. There was a significant increase in every industry in disclosing of top executives 'equity based remuneration after the earnings management scandals in 2002.	Not applicable
Main et al.	1993	The role of the remuneration committee in the boards of listed companies in United Kingdom (UK)	Dependent variable: performance of the top management Independent variable: remuneration committee (the salaries of the top management)	220 listed companies in the UK 1990	Median analysis of the company characteristics	The results show that if the remuneration committee can be looked upon as a governance mechanism of control by the owners over top management, then the expectation of the remuneration committee is that the salaries of the top management will be tied more closely to the performance of the top management of the firm.	Not applicable
Mallin et al	2012	Shareholer rights, shareholder voting and corporate governance	Dependent variable: corporate governance Independent variable: shareholder rights and shareholder voting	No sample (theoretical research, comparison of different articles) sample year	Theoretical research, comparison of different articles about this subject	The findings of the paper show that there is a link between shareholder rights and the corporate performance of the firm. Shareholder rights has a positive effect on corporate performance. This paper shows that one of the most important individual measure of shareholder rights is the shareholder vote.	Agree

Murphy	1985	executives compensation and financial performance	dependent variable: financial performance independent variable: managerial remuneration (executive compensation)	Sample period 1964-1970 72 firms, 461 executives and 4500 executive-years	OLS regression analysis	The findings of this paper show that there is a strong association between accruals and managers' income-reporting incentives under their bonus contracts. Managers are manipulating earnings for their own bonus plan. The findings of this paper are the same as the findings of the paper of Healy (1985). The individual measure that they used in these papers is the performance based compensation.	Agree
Park et al.	2004	Board composition and earnings management in Canada	Dependent variable: earnings management Independent variable: board composition	Sample period 1991-1997 539 firm-years	OLS regression analysis	The paper find no evidence in Canada between the degree of accrual manipulation and the proportion of outside member of the board of directors. The researchers do not find evidence that the tenure of outside directors reduces earnings management. The explanations that are suggested in the paper for this finding are: outside directors as a whole, may lack financial sophistication and/or access to relevant information to detect earnings management (Park and Shin, 2002) and the presence of a large number of dominant shareholder CEOs may make it difficult for them to effectively curb earnings management.	Disagree

Shen et al.	2007	corporate governance and accrual-based earnings management in 9 asian countries	dependent variable: accrual-based earnings management independent variable: corporate governance	Sample 495 companies in 25 emerging countries april 2001 and february 2002	OLS regression analysis and descriptive statistics	The results of their research show that there is a negative relation between corporate governance and accrual based earnings management in those countries. The difference between this paper and the others, is that the paper of Shen and Chih (2007) have used 9 different countries as a sample. The findings of this paper are the same as the findings in the paper of Jihang et al. (2008).	Agree
Xie et al.	2003	The relationship between the audit committee and board of directors with earnings management	Dependent variable: earnings management Independent variable: board of directors and audit committee	Sample 282 firm-year observations 1992,1994 and 1996	OLS regression analysis and descriptive statistics	The results of the paper of Xie et al. (2013) shows that earnings management less likely to occur in firms whose boards include both more independent outside directors and directors with corporate experience. They also investigate the meetings of the board. The results indicate that when boards meet more often, discretionary accruals are lower. It consists with the idea that an active board may be better than an inactive board (Xie et al., 2013).	Agree

7. Reference list

Abbott, L. J., Park, Y., & Parker, S. (2000). The effects of audit committee activity and independence on corporate fraud. *Managerial Finance*, *26*(11), 55-68.

Armstrong, C. S., Guay, W. R., & Weber, J. P. (2010). The role of information and financial reporting in corporate governance and debt contracting. *Journal of Accounting and Economics*, *50*(2), 179-234.

Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of accounting research*, *46*(3), 467-498.

Baysinger, B. D., & Butler, H. N. (1985). Corporate governance and the board of directors: Performance effects of changes in board composition. *Journal of Law, Economics, & Organization*, *1*(1), 101-124.

Beasley, M. S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *Accounting review*, 443-465.

Becker, C. L., DeFond, M. L., Jiambalvo, J., & Subramanyam, K. R. (1998). The effect of audit quality on earnings management. *Contemporary accounting research*, *15*(1), 1-24.

Bekiris, F. V., & Doukakis, L. C. (2011). Corporate governance and accruals earnings management. *Managerial and Decision Economics*, *32*(7), 439-456.

Bowen, R. M., Rajgopal, S., & Venkatachalam, M. (2008). Accounting discretion, corporate governance, and firm performance. *Contemporary Accounting Research*, *25*(2), 351-405.

Brown, L. D., & Caylor, M. L. (2006). Corporate governance and firm valuation. *Journal of accounting and public policy*, *25*(4), 409-434.

Cybinski, P., & Windsor, C. (2013). Remuneration committee independence and CEO remuneration for firm financial performance. *Accounting Research Journal*, *26*(3), 197-221.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review*, 193-225.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review*, 193-225.

Dechow, P. M., & Sloan, R. G. (1991). Executive incentives and the horizon problem: An empirical investigation. *Journal of accounting and Economics*, *14*(1), 51-89.

DeFond, M. L., & Subramanyam, K. R. (1998). Auditor changes and discretionary accruals. *Journal of accounting and Economics*, *25*(1), 35-67.

DeFond, M. L., & Jiambalvo, J. (1994). Debt covenant violation and manipulation of accruals. *Journal of accounting and economics*, *17*(1), 145-176.

DeAngelo, L. E. (1986). Accounting numbers as market valuation substitutes: A study of management buyouts of public stockholders. *Accounting Review*, 400-420.

Economou, M., Madianos, M., Peppou, L. E., Patelakis, A., & Stefanis, C. N. (2013). Major depression in the era of economic crisis: a replication of a cross-sectional study across Greece. *Journal of Affective Disorders*, *145*(3), 308-314.

Field, A. (2009). *Discovering statistics using SPSS.* London: SAGE Publications Ltd.

Garcia-Meca, E., & Sanchez-Ballesta, J. P. (2010). The association of board independence and ownership concentration with voluntary disclosure: A meta-analysis. *European Accounting Review*, *19*(3), 603-627.

Gillan, S. L., & Starks, L. T. (2000). Corporate governance proposals and shareholder activism: The role of institutional investors. *Journal of financial Economics*, *57*(2), 275-305.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *The quarterly journal of economics*, *118*(1), 107-156.

Guay, W. R., Kothari, S. P., & Watts, R. L. (1996). A market-based evaluation of discretionary accrual models. *Journal of accounting research*, 83-105.

Habbash, M., Sindezingue, C., & Salama, A. (2013). The effect of audit committee characteristics on earnings management: Evidence from the United Kingdom. *International Journal of Disclosure and Governance*, *10*(1), 13-38.

Habib, A., Uddin Bhuiyan, B., & Islam, A. (2013). Financial distress, earnings management and market pricing of accruals during the global financial crisis. *Managerial Finance*, *39*(2), 155-180.

Harris, M., & Raviv, A. (1988). Corporate governance: Voting rights and majority rules. *Journal of Financial Economics*, *20*, 203-235.

Healy, P. M. (1985). The effect of bonus schemes on accounting decisions. *Journal of accounting and economics*, *7*(1-3), 85-107.

Healy, P. M., & Palepu, K. G. (1993). The effect of firms' financial disclosure strategies on stock prices. *Accounting Horizons*, *7*(1), 1.

Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting horizons*, *13*(4), 365-383.

Hermalin, B. E., & Weisbach, M. S. (2007). *Transparency and corporate governance* (No. w12875). National Bureau of Economic Research.

Hunton, J. E., Libby, R., & Mazza, C. L. (2006). Financial Reporting Transparency and Earnings Management (Retracted). *The Accounting Review*, *81*(1), 135-157.

Jaggi, B., Leung, S., & Gul, F. (2009). Family control, board independence and earnings management: Evidence based on Hong Kong firms. *Journal of Accounting and Public Policy*, *28*(4), 281-300.

Jiang, W., Lee, P., & Anandarajan, A. (2008). The association between corporate governance and earnings quality: Further evidence using the GOV-Score. *Advances in Accounting*, *24*(2), 191-201.

Jiraporn, P., & Gleason, K. C. (2007). Capital structure, shareholder rights, and corporate governance. *Journal of Financial Research*, *30*(1), 21-33.

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of accounting research*, 193-228.

Karpoff, J. M., Malatesta, P. H., & Walkling, R. A. (1996). Corporate governance and shareholder initiatives: Empirical evidence. *Journal of Financial Economics*, *42*(3), 365-395.

Klein, A. (2002). Audit committee, board of director characteristics, and earnings management. *Journal of accounting and economics*, *33*(3), 375-400.

Larcker, D. F., & Richardson, S. A. (2004). Fees paid to audit firms, accrual choices, and corporate governance. *Journal of Accounting Research*, *42*(3), 625-658.

Larcker, D. F., Richardson, S. A., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review*, *82*(4), 963-1008.

Libby, R., Bloomfield, R., & Nelson, M. W. (2002). Experimental research in financial accounting. *Accounting, Organizations and Society*, *27*(8), 775-810.

Lin, J. W., Li, J. F., & Yang, J. S. (2006). The effect of audit committee performance on earnings quality. *Managerial Auditing Journal*, *21*(9), 921-933.

Liu, J., & Taylor, D. (2008). Legitimacy and corporate governance determinants of executives' remuneration disclosures. *Corporate Governance: The international journal of business in society*, *8*(1), 59-72.

Lobo, G. J., & Zhou, J. (2006). Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial evidence. *Accounting Horizons*, *20*(1), 57-73.

Main, B. G., & Johnston, J. (1993). Remuneration committees and corporate governance. *Accounting and Business Research*, *23*(sup1), 351-362.

Mallin, C., & Melis, A. (2012). Shareholder rights, shareholder voting, and corporate performance. *Journal of Management & Governance*, *16*(2), 171-176.

Murphy, K. J. (1985). Corporate performance and managerial remuneration: An empirical analysis. *Journal of accounting and economics*, *7*(1-3), 11-42.

Park, Y. W., & Shin, H. H. (2004). Board composition and earnings management in Canada. *Journal of corporate Finance*, *10*(3), 431-457.

Peasnell, K. V., Pope, P. F., & Young, S. (2000). Detecting earnings management using cross-sectional abnormal accruals models. *Accounting and Business research*, *30*(4), 313-326.

Ronen, J., & Yaari, V. (2008). *Earnings management*. Springer US.

Schipper, K. (1989). Commentary on earnings management. *Accounting horizons*, *3*(4), 91-102.

Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *The journal of finance*, *52*(2), 737-783.

Shen, C. H., & Chih, H. L. (2007). Earnings management and corporate governance in Asia's emerging markets. *Corporate Governance: An International Review*, *15*(5), 999-1021.

Summers, S. (1998). Fraudulently misstated financial statements and insider trading: An empirical analysis. *The Accounting Review, 73*(1), 131-146.

Watts, R. L., & Zimmerman, J. L. (1978). Towards a positive theory of the determination of accounting standards. *Accounting review*, 112-134.

Xie, B., Davidson, W. N., & DaDalt, P. J. (2003). Earnings management and corporate governance: the role of the board and the audit committee. *Journal of corporate finance*, *9*(3), 295-316.

8. Appendix

Appendix 1: mean of the individual measures of corporate governance

Dimension	Individual measure	Mean
Board of directors	Independence of the board of directors	0.825
Board of directors	Board size is greater than 5 but less than 16	0.943
Audit committee	Independence of the audit committee members	0.825
Audit committee	The audit committee meets at least three times per year	1,000
Remuneration	Performance-based compensation exists	0,375
Transparency	Detailed disclosure of financial and operating results	1,000
Transparency	Disclosure of the ownership structure	0,137
Shareholders rights	All shareholders have the same voting rights	0.943
Shareholders rights	Required majority of the votes to call a meeting or written a consent (no special rights to an individual shareholder)	0.165 0.571

Appendix 2: mean for the 5 dimensions of corporate governance

Dimension	Mean
Board of directors	0.884
Audit committee	0.913
Remuneration	0.375
Transparency	0.569
Shareholder rights	0.560