



Accounting conservatism and crisis:

What was the impact of the credit crisis on accounting conservatism?

Master thesis

Name: R.J.J. van der Heijden

Student number: 305463

Supervisor: Dr. C.D. Knoops

Abstract

In this thesis accounting conservatism in relation with the credit crisis is investigated for seven European countries for the period 2002-2010. For measuring the level of conservatism the timely loss recognition from Basu and the C_score method from Khan and Watts are used. There exists no prior research that investigated the relation between the credit crisis and the level of conservatism using these methods and these countries. First the level of conservatism over the whole sample is investigated. Then the annual level of conservatism before the credit crisis (2002-2006) is discussed. Next the levels of conservatism in the two periods (2002-2006 and 2007-2010) are compared. Finally the levels of conservatism of good performing and bad performing companies are investigated. The most significant results of this thesis regard that the C_score method does not provide any significant results for this sample. Also the levels of conservatism before the crisis (2002-2006) and during the crisis (2007-2010) are almost the same according to the timely loss recognition. This indicates that companies did not become less conservative during the credit crisis. Finally bad performing companies were much more conservative in the pre-crisis period than good performing companies.

Key words: conservatism, C-score, timely loss recognition, credit crisis

Preface

Rotterdam, 30- June-2011

This thesis is my final assignment of the master Accounting, Auditing&Control at the Erasmus University Rotterdam. For several months I have conducted research on conservative accounting. Hereby I present you my results in this thesis. During this period I have had help from several people. The first thanks go out to my girlfriend, family and friends for all of their supports. I also want to thank my fellow students at the University for all their comments and advise. I personally want to thank dr. C.D. Knoops for his support during the Advanced Financial Accounting seminar and this master thesis. I also want to thank PwC for their support and for allowing me an internship to write this thesis.

Robbert van der Heijden

Table of contents

Abstract	2
Preface	3
<i>Chapter 1: Introduction</i>	7
1.1 Introduction	7
1.2 Research question	8
1.3 Relevance	9
1.4 Structure	9
<i>Chapter 2: Literature review</i>	11
2.1 Introduction	11
2.2 Definitions	11
2.3 Explanations of conservatism	13
2.3.1 Contracting	14
2.3.2 Litigation cost	15
2.3.3 Taxation	15
2.3.4 Accounting regulation.....	16
2.4 Measuring conservatism	17
2.4.1 Market-based accounting	17
2.4.2 Measurement method.....	19
2.4.2.1 Basu Model	19
2.4.2.2 Limitation of the Basu model	20
2.4.3 Givoly and Hayn model	21
2.4.3.1 Non-operating accrual method.....	21
2.4.3.2 Measures based on the time-series properties of earnings and cash flows	22
2.4.3.3 The market-to-book ratio	23
2.4.4 Khan and Watts model.....	23
2.5 Overview of prior research on conservatism	25
2.5.1 Introduction	25
2.5.2 The progress of conservatism	25
2.5.3 Criticism on methods that measure conservatism	26

2.5.4 Explanations of conservatism	28
2.5.5 Conservatism and differences between countries.....	30
2.5.6 Conservatism and crisis.....	31
2.5.7 Overview of literature.....	33
2.6: Summary.....	34
Chapter 3 Institutional factors	35
3.1 Introduction	35
3.2 Institutional factors crisis.....	35
<u>3.2.1 The Asian crisis</u>	35
<u>3.2.2 The credit crisis</u>	36
<u>3.2.3 Institutional factors of the crises</u>	37
3.3 Institutional factors countries.....	40
3.4 Summary	42
Chapter 4: Research Design	44
4.1 Introduction	44
4.2 Hypotheses.....	44
4.3 Methodology and robustness checks	48
4.4 Sample, data and period.....	49
4.5 Summary	53
Chapter 5: Results and analyses	55
5.1 Introduction	55
5.2 Hypothesis 1	55
5.3 Hypothesis 2	58
5.4 Hypothesis 3	61
5.5 Hypothesis 4	64
5.6 Analysis of both measurement methods.....	67
5.7 Limitations.....	68
<u>5.7.1 Sample limitations</u>	68

<u>5.7.2 methodology limitations</u>	69
5.8 Summary	69
Chapter 6: Conclusion	71
6.1 Summary	71
6.2 Conclusion	72
6.3 Further research.....	73
References.....	74
Appendix 1: Overview of the composition of the indices	79
Appendix 2: Tables of prior research	84
Appendix 3: Tables of the results of the regressions.....	92

Chapter 1: Introduction

1.1 Introduction

In this thesis, the topic conservatism in accounting will be discussed. Conservative accounting already exists for many years. Evidence is found that trading partners in the early years of the 15th century used conservative accounting (Penndorf, 1930). If it exists for so long then there has to be some reason why conservative accounting is still practiced. Watts (2003) provides reasons of why conservative accounting is still applied and explains why it is an important factor of accounting.

But what is conservative accounting? There is no generally accepted definition and therefore, several researchers have come with their definition of conservative accounting. Basu (1997) for example interpreted conservative accounting as follows: “‘*accountants’ tendency to require a higher degree of verification for recognizing good news than bad news in financial statements*’”. In my literature review several other definitions of accounting conservatism will be provided.

Conservative accounting is an important principle of accounting. As a result of this importance, there exists many research on this topic. The variety in this topic is very large. For instance, research that studied the explanations of conservatism, or research that studied the link between conservatism and earnings management. I have narrowed conservatism in this literature review to specific topics. One of those topics is conservatism and crisis. In those studies the researchers have looked at the level of conservatism during a crisis. The results were that companies report less conservative during a crisis. But those results are based on the Asian crisis that occurred in 1997.

In this master’s thesis, accounting conservatism in relation with the credit crisis will be examined. The sample used in this thesis consists of the following countries: Belgium, France, Germany, Ireland, Luxembourg, UK and The Netherlands. From every country the largest index will be included in the sample. The sample period will be from 2002 until 2010, resulting in a total sample of 1629 firm years.

1.2 Research question

Prior studies found evidence that companies are being conservative, and this level of conservatism has increased during time. As a result of these studies, I expect that companies still use conservative accounting. The reasons for conservatism (contracting, litigation, taxation and regulation) have not changed a lot, therefore companies still apply accounting conservatism. Also, I expect that the level of conservatism has increased over time. Accounting regulation still does not allow full recognition of all intangible assets. For that reason differences between the book value and the market value still exist.

A lot has changed in the past years from 1997 until 2011, for instance the credit crisis that has hit the economy worldwide. But what was the impact for the financial reports/statements?

Therefore this literature review has the following research question:

“What was the impact of the credit crisis on accounting conservatism?”

I expect that companies were less conservative during the crisis. This is consistent with prior research. Although those studies were based on the Asian crisis in 1997, I expect that companies reacted the same in the credit crisis of 2007 as companies did in the Asian crisis. Indeed, in a crisis/ economic downturn the market has a bad sentiment. The stocks will decrease and many investors want to leave the stock market. As a result the volatility of the stocks will increase and investors will react more negatively to bad news. Companies are aware of this sentiment. I think that companies will try to lower this impact and therefore postpone their bad news and only disclose some positive news. When companies react in this way, then they become less conservative.

Finally, theory and prior research suggest that conservative companies are more capable to counter economic downturns, because those companies have not overstated any assets and recognized all possible losses. As a consequence I expect that companies that are bad performing during the credit crisis were less conservative before the credit crisis and the other way around.

Thus to come to an answer on the research question, I have developed four hypotheses. Those hypotheses are:

Hypothesis 1: companies use conservative accounting.

Hypothesis 2: conservatism in accounting has increased before the credit crisis.

Hypothesis 3: companies are less conservative during the credit crisis.

Hypothesis 4: conservative companies have a better performance during the credit crisis than less conservative companies.

With these hypotheses I will try to answer the main research question of this thesis.

1.3 Relevance

This thesis is relevant for practitioners, financial analysts, accountants, auditors, accounting students and others who are interested on the impact of the credit crisis on accounting conservatism. As stated in the previous subsection, there has been some research to conservative accounting in relation with a crisis. But those studies were based on a different crisis. In this thesis, conservative accounting in relation with the credit crisis will be studied. Therefore, this thesis provides some new insights on the relation between conservative accounting and crisis. Moreover, there is still no research done using the C_score method for measuring conservatism for a European sample. In this thesis I will use the C_score method to measure the level of conservatism for European countries. Another contribution is that the sample used in this thesis includes code law countries. There is no prior research that has taken code law countries into the sample when using the C_score method. The final contribution is that this thesis uses the C_score method and the Basu method for comparison, therefore the accuracy of the results from the relatively new measurement method the C_score can be checked.

1.4 Structure

The structure of this thesis will be as follows. Chapter two will consist of a literature review. First, the theoretical background of conservative accounting will be provided, followed by methods that measure conservatism. Finally, a short overview of prior research on accounting conservatism will be presented. In chapter three the institutional factors between the Asia crisis and the credit crisis will be discussed, followed by the institutional factors of the countries used in the sample of this thesis. Chapter four consists of the research method: the

hypotheses development, methodology and the sample will be discussed. In chapter five the results and analyses of this thesis will be elaborated. The outcomes will be compared with the expectations and with prior literature. Also the limitations of the thesis will be discussed. Finally in chapter six the summary and conclusion of this thesis will be presented. In the appendix an overview of the listed companies will be provided, followed by tables of the outputs from both measurement methods, and at last a table of prior research is included. This table provides a small summary/overview of the results of the prior researches.

Chapter 2: Literature review

2.1 Introduction

In this chapter I will discuss the literature on conservatism. At the beginning of this chapter the accounting principle conservatism will be discussed. The reasons of existence of conservatism will then be explained.

In the following section 2.3, I will explain and elaborate some models that measure accounting conservatism. Those models use different approaches, but they are grouped into two main perspectives. Those are the information perspective and the measurement perspective. After those perspectives I will briefly discuss the market efficiency hypotheses followed by categorization that Watts (2003b) made of models that measure accounting conservatism. Finally the models will be discussed in section 2.4.

In section 2.5 some studies in the context of accounting conservatism will be discussed. Some papers are already mentioned in sections 2.3 and 2.4, but in this section the papers will be elaborated in more detail, and the results of those studies will be further discussed. The papers will be categorized in specific research subtopics of accounting conservatism. The categories are: the progress of conservatism, criticism on methods that measure conservatism, explanations of conservatism and finally conservatism and crisis. Every subsection will discuss a category in more detail. In the appendix there will be a table that provides an overview of the literature.

The final subsection 2.6 will be a short summary of this chapter.

2.2 Definitions

The difficulty of the research of conservatism is that there is no generally accepted definition for what conservatism is, although it is a very important and well known characteristic of Generally Accepted Accounting Principles (Huang et al., 2008).

The Financial Accounting Standards Board (FASB) gives an explanation of what conservatism is. Statement of Financial Accounting Concepts (SFAC) No. 2 (FASB, 1980) paragraph 95 states: *“if two estimates of amounts to be received or paid in the future are about equally likely, conservatism dictates using the less optimistic estimate”*.

This means that the company should choose the lowest estimate for gains/profits and the highest estimate for liabilities/ losses if the company can choose between different estimates. Therefore, the company is being cautiously in measuring the assets and liabilities, or amounts to be received or paid in the future. As a result, the risk that the company has overstated its assets will be much lower. Even if something happens in the future that could have an impact on the company, the risk of overstating assets and gains is less.

International Accounting Standards Board (IASB) (2004) sees conservatism/ prudence as part of the qualitative characteristic reliability. With prudence you have to be cautious with estimating the assets, so that assets are not overstated and liabilities are not understated. As a result when you apply this qualitative characteristic from the International Financial Reporting Standards (IFRS) this can lead to conservatism. However, IFRS do not allow being too prudent because you have to comply with other IFRS qualitative characteristics such as neutrality and faithful representation.

Because of the fact that there is no exact definition of conservatism, researchers have interpreted accounting conservatism in different ways.

Traditionally accountants have interpreted conservatism as: *“anticipate no profit, but anticipate all losses”* (Bliss, 1924). This is conservatism in its extreme form, because you do not recognize any profits and you recognize all losses even if they are not yet verifiable. Profits will only be recognized when they are completely verifiable and there is a legal claim on them.

Basu (1997) has interpreted this conservatism rule in accounting as: *“the accounting tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news and losses”*. For this interpretation he used several accounting conservatism examples, for instance: (Accounting Principle Board (APB) opinion 6, APB, 1965) *“writing down of physical assets to reflect obsolescence of impairments, but not revaluing them upwards”*. For this and other examples he concluded that conservatism results in a greater probability of more timely accounting recognition of bad news and good news (Basu, 1997).

Watts (2003) defines conservatism as follows. *“Conservatism is the asymmetrical verification requirements for gains and losses”*. This means that there exists a difference in requirement for recognizing profits and losses. This definition allows different degrees of conservatism. It

depends on the degree of verification of profit and losses. The greater the difference of verification, the greater the degree of conservatism.

The definitions of Basu, (1997) and Watts, (2003) are the most used definitions of conservatism in recent papers and studies. Therefore, those definitions of conservatism will be further used for this paper.

In the accounting literature there is a distinction made between ‘conditional conservatism’ and ‘unconditional conservatism’. Unconditional conservatism is also called ‘ex ante’ or ‘news dependent’ and conditional conservatism is also referred to as ‘ex post’ or ‘news independent’ (Beaver & Ryan, 2005). What is meant with unconditional conservatism is the following: “*the predetermined understatement of the book value of net assets, as occurs with the immediate expensing of the cost of most intangibles*” (Ryan, 2006). This type of conservatism is also referred to balance sheet conservatism. With conditional conservatism is meant “*the difference of timely recognition of bad news and goods news also called the asymmetrical timeliness*” (Ryan, 2006). Conditional conservatism is also referred to as ‘earnings conservatism’.

2.3 Explanations of conservatism

As mentioned in section 2.2, there is not a generally accepted definition of conservatism despite the fact that it is an important principle. Conservatism has influenced accounting for many centuries. In fact it has influenced the accounting practice for at least 500 years (Basu, 1997). There are historical records found of trading partnership in the early 15th century who practice conservatism (Penndorf, 1930). With this record it is proven that conservatism in Europe exists for many years. The fact that conservatism exists for so many years must be a positive thing. Indeed, if it had a negative impact on accounting it might have been deleted many years ago according to accounting Darwinism.

In the literature there are several explanations for the existence of conservatism in accounting. Those explanations of conservatism in accounting are: contracting, litigation, taxation and accounting regulation (Basu, 1997: Watts, 2003 a&b). In the next section I will explain and elaborate each of the four explanations stated above.

2.3.1 Contracting

The first explanation is contracting. *“Conservatism arises because it is part of the efficient technology employed in the organization of the firm and its contracts with various parties”* (Watts, 2003a). With conservatism in accounting the moral hazard problem is limited and agency costs are reduced. Agency costs are based on the agency theory (Jensen and Meckling, 1976). Jensen and Meckling define the agency relationship as: *“a contract under which one or more (principals) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent”*.

In other words, this means that the agent (manager) has to work for the interest of the principal (shareholders), but the agent has his own interest. Therefore the interests of the agent and the principal are different and that can cause costs. Those costs are called agency cost. The moral hazard is that people act differently if they do not have to pay for the costs or only a small part of them. As a result they do not bear the risk. For example, a manager will invest in high risk projects in case the manager can earn up-side earnings fees while not bearing downward risk. If the investment turns out to be good he partly receives the earnings benefits, and when it turns out negative, the shareholders have lost their money whilst the manager incurs no losses. Another reason for moral hazard could be the different horizons of the managers and the shareholders. When a manager is close to his retirement, he might have different incentives than managers who will work for many years for the firm. Managers who are close to retirement want projects that deliver profits right away. They cannot wait for the project to become profitable, because then they are retired. Therefore, the managers will miss their bonuses, because the profitable results are in the years after they are retired. For this reason managers who are close to retirement prefer investments that are profitable as soon as possible, in comparison to investments that are more profitable after a few years. Although it is better for the company to invest in the project that becomes more profitable after a few years, managers have the incentive to invest in other less profitable projects which generates more profits in the short run.

Agency theory is the result of the information asymmetry between the agent and the principal (Jensen and Meckling, 1976). Managers have more information about the firm than shareholders, because the managers are working in the firm and therefore know what is happening. The shareholders rely on the information provided by the managers. This difference of information level is called information asymmetry. Lafond and Watts, (2008)

found evidence that this is a reason that conservatism is applied. In section 2.5 I will elaborate their results some more.

Conservatism reduces the optimistic views of managers, because they will recognize the full losses and only partly recognize gains. As a result, managers can pay less dividends to the shareholders and receive less bonus rewards. The latter is also called the compensation contracts (Watts, 2003a). Thus shareholders demand conservative contracts whereby the risk of the shareholders is decreased.

Conservatism also reduces the risk for debt holders in that management overspends money and assets are overstated. Watts (2003a) calls this debt contracting. Thus debt providers demand conservative contracts to decrease the risk of lending. Again there is evidence that debt contracting is linked with conservatism and that it results in benefits for debt holders and debt providers (Beatty et al., 2008; Zhang, 2008). A final subgroup of contracting is corporate governance. With corporate governance in contracting, timely signals of bad projects that result in losses are demanded. This protects shareholders because they can investigate the bad project and take appropriate actions (Watts, 2003a).

2.3.2 Litigation cost

This explanation for conservatism looks at the risk of litigation. The risk of litigation for overstating assets and results is much higher than for understating the assets and results (Watts, 2003a). The reason is that when the company overstated his assets and results and the market finds out that the company overstates their assets and results, there will be a drop in the market value of the company. This drop of market value causes financial harm to shareholders. But when it is the other way around (understating) the company has actually a bigger market value. Therefore the shareholders are not immediately harmed. As a result overstating results in a higher litigation risk. Chung et al. (2008) found evidence that there is a relation between litigation and conservatism.

2.3.3 Taxation

Watts (2003a) links conservatism with taxation for the following reason. Companies will lower their reported income to lower their taxable income. Therefore, they defer payable taxes to the future. As a result, they have to pay a lower tax in their current fiscal year, because they have lowered their income by fully recognizing their cost and only partly recognizing their

gains. This explanation of conservatism holds only for countries where the taxable income and accounting income are linked with each other.

2.3.4 Accounting regulation

In this final explanation for accounting conservatism Watts (2003a) concludes that conservatism is also a result of the rules and regulation. As mentioned earlier in subsection 2.2 in the example of the FASB, a company has to choose the lowest of two valuation methods (FASB, 1980), and the IASB sees prudence as part of the qualitative characteristic reliability. As a result, when you apply the principles of the accounting standards some conservatism will be included in the preparation of the financial statements.

The reason that regulators prefer conservatism is that the political consequences will be lower (Watts, 2003a). When the rules lead to overstating the public will hold the regulators responsible for their losses. Therefore the regulators prefer conservatism which results in less criticism. Lobo and Zhou (2006) found evidence that accounting regulation has an influence on the level of conservatism in accounting. They have looked at the Sarbanes-Oxley Act (SOx) that was introduced in the United States of America in the year 2002. The introduction of SOx was a reaction to the fraudulent financial statements of Enron and WorldCom. With SOx the regulators wanted to increase the level of confidence of shareholders, because shareholders had lost their trust in the financial statements of companies. This loss in trust was caused by the fraudulent financial statements of companies. SOx introduced some strict rules, for example the CEO and CFO of the companies had to certify their financial statements, and audit firms were prohibited to perform non audit services when they are auditing the company. Those strict rules of SOx have had an impact on the level of accounting conservatism in practice (Lobo and Zhou, 2006). Companies and audit firms became more conservative with the financial statements because of the high punishments of breaking the SOx rules.

But there are some changes with regulations concerning conservatism in accounting. The FASB “is trying to move toward financial statements that provide neutral (unbiased) information” (Watts, 2003a). With the standard SFAS No. 142 impairment on the goodwill is introduced. Before the introduction companies were allowed to amortize the goodwill on a linear amortization basis, even without any indication of a required impairment on the value of the goodwill. Also with fair value accounting, regulators are trying to provide neutral

information. The value of the items are not always verifiable and therefore they are likely to be manipulated (Watts, 2003a). This might conflict with prudence.

But companies can still be conservative when they apply fair value accounting. For instance when an asset has three different values. Those values are based by three different experts. Then the company can still choose to use the lowest value. When choosing the lowest value the company is still being conservative. The company is less conservative than compared with the historical cost accounting but it can still apply conservative accounting.

Watts (2003b) also mentioned two non-conservatism explanations: earnings management and abandonment options. With earnings management managers could deliberately understate their earnings and with the abandonment option managers abandon projects and operations that are not profitable. But Watts (2003b) found “*that the abandonment and earnings management explanations are not individually or jointly consistent with the overall pattern of evidence on conservatism. For example, neither individually nor in combination can they plausibly explain the systematic understatement of net assets*”. Thus the abandonment options and earnings management explanations can not explain separately or taken together the overall systematic undervaluation of assets and gains like the other four explanations can. Therefore the other four explanations are better explanations for conservative accounting. The contracting and litigation explanation are the most important reasons for conservatism, taxation and accounting regulation have weaker evidence (Watts, 2003a).

2.4 Measuring conservatism

2.4.1 Market-based accounting

Conservatism in accounting is a topic in market-based accounting research. In this research approach the focus lays on the relation between accounting numbers and share prices.

The market-based approach uses the market efficiency theory of Fama et al. (1969). They provided three hypotheses of market efficiency. Those are: strong form of efficiency, semi strong efficiency and the weak form of efficiency. The strong form indicates that all available information including private and public information is correctly interpreted and quickly spread. The semi strong indicates that not all private information is correctly interpreted and available. The weak form indicates that only prior information about the share prices and trading volumes are reflected in the current share prices.

The market-based approach has two perspectives as stated in the introduction, the information perspective to decision usefulness and the measurement perspective to decision usefulness. With the information perspective there is expected that when new information becomes available there will be a share price reaction. The new information must be useful otherwise it is not new information that leads to reactions of investors (Scott, 2008). The measurement perspective according to Scott (2008, p. 177): “*to decision usefulness is an approach to financial reporting under which accountants undertake a responsibility to incorporate current values into the financial statements proper, providing that this can be done with reasonable reliability, thereby recognizing an increased obligation to assist investors to predict firm performance and value*”.

The market-based approach is about association studies between accounting numbers and capital market numbers and it looks at the value relevance of the accounting numbers in association with the capital market numbers.

Watts (2003 a&b) does not look at the differences in information perspective and measurement perspectives. Instead he categorized the methods used to measure conservatism in the following groups:

Net assets measures, Earnings and accrual measures, and Earnings/ stock returns relation measures (Watts, 2003b).

In the first category of net assets measures, conservatism leads to understatement of net assets. They are valued below the market value (Watts, 2003). One of those methods to measure conservatism, was based on the theory of Feltham and Ohlson (1995), the market to book ratio (Givoly and Hayn, 2000)

The second category regards earnings and accruals measures. Under this method conservatism is seen as the accounting method were the profits are not yet fully recognized but the losses are fully recognized as soon as they appear. This results in an asymmetry in accruals because of the different treatment of profits and losses. Conservatism can be measured as the negative periodic net accruals and negative cumulative accruals accumulated over periods (Watts, 2003). Several papers have used this method to measure conservatism, such as Basu (1997), Givoly and Hayn (2000), and Ball and Shivakumar (2005).

The third group includes the earnings/stock return relation measures. In these methods the relation between earnings and stock returns is investigated. “*stock market prices tend to*

reflect assets value changes at the time those changes occur whether those changes imply losses or gains in assets value-- stock returns tend to be timely''(Watts, 2003, p. 290). Because stock returns tend to be timely, they are used to measure the level of conservatism. There have been many variations on this method but the method that has been mostly applied is the method of Basu (1997). The method of Basu will be elaborated in section 2.4.2.

In the following subsection I will discuss some of the methods that have been mentioned more and provide some others methods.

2.4.2 Measurement method

In this section the methods that are used to measure conservatism in accounting will be discussed. And in every subsection a different method is then further elaborated. Finally some limitations of the methods will be provided.

2.4.2.1 Basu Model

As already mentioned in section 2.1, Basu (1997) interprets accounting conservatism as the result that bad news (losses) is more quickly reflected in the income than good news (gains). Therefore there is a systematic difference in the timeliness and persistence in earnings. According to (Basu, 1997) stock prices reflect information received from sources other than current earnings. This means that all publicly available information is reflected in the share prices. And due to conservatism there is an asymmetrical recognition of good news and bad news. Therefore Basu predicts that the earnings are more sensitive for bad news than for good news. To measure the conservatism he uses stock prices as a proxy for good and bad news (Basu,1997). The stock returns can be both positive and negative. When they are negative, there is an indication for conservatism, because losses are recognized earlier than profits. Therefore you will get a negative stock return with losses/bad news.

Basu(1997) uses the following formula for his reverse earnings-returns regression method:

$$X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$$

Basu (1997) provides the following explanations for the variables: X_{it} / P_{it-1} means the earnings per share for firm i in the fiscal year t/ price per share at the beginning of the fiscal year. The DR_{it} is the dummy variable in the regression. The dummy variable is 1 or 0. This depends on the R. If R is positive then it will be 0 but when R is negative dummy variable is

1. R stands for the return. The return is the dividend and the increase or decrease of the share price. R_{it} stand for the firm i in the period starting 9 months before the end of the fiscal year t and ending 3 months after the fiscal year end. Basu have made this distinction of 9 and 3 months because the annual report is expected between those two periods. This formula is also referred to as reverse earnings-return regression.

Basu expects that earnings are more sensitive for bad news than for goods news. The bad news is measured with the unexpected negative returns on stocks. “ β_1 measures this difference in sensitivity of earnings to negative and positive returns” (Basu, 1997). When a company is more conservative the β_1 will be higher indicating that the earnings are more sensitive for bad news than for good news. When the stock returns are positive (an indication of good news) the dummy variable is 0, therefore only β_0 measures the sensitivity of positive returns (good news) on earnings. The total sensitivity is measured by $\beta_1 + \beta_0$.

To further indicate the relative sensitivity Basu (1997) uses the following ratio $(\beta_1 + \beta_0) / \beta_0$. Basu (1997) found that “*earnings are four and a half times as sensitive to negative returns as it is to positive returns*”. Basu also found that the adjusted R^2 is higher for negative returns than for positive returns. This means that the negative returns are a better explanation for the earnings of a company than the positive returns are. This result is in line with conservative accounting meaning that earnings are more sensitive for bad news than for good news.

In his paper Basu made several predictions and models. I have only discussed the first prediction and model, because the other predictions and models are related to the first one. The reverse earnings-returns regression from Basu (1997) is the most frequently used measure for timely loss recognition (Dechow et al., 2010). And in other papers like (Givoly and Hayn, 2000; Khan and Watts, 2009) the reverse earnings-return regression is the only used or criticized method.

2.4.2.2 Limitation of the Basu model

Although the method of Basu (1997) with some variations on his methodology is used in many other studies (Watts, 2003b), there exist some critics on his method. In this section I will outline some of the criticism on the Basu method.

The first limitation of the method is that it depends on the stock price movements for bad news and good news (Givoly and Hayn, 2000). The limitation of this is the fact that bad news

is only reflected by negative stock returns. In other words Basu assumes that every negative stock returns is bad news and therefore a signal for conservatism.

But negative stock returns could also be caused by different things such as disasters, war, or by an trend in the market. Ball and Shivakumar (2005) provided some more limitations. The model can only identify the existence of gains and losses, not whether they are timely or not. And second, the model can not distinguish between the profit and loss components into earnings from random errors.

Huang et al. (2008) say that the Basu model implicated that the firm-specific characteristics (size, leverage e.g.) are homogenous, but those characteristics are heterogeneous. This means that the firm-specific characteristics change over time, and Basu assumed that they were constant. Finally Givoly et al. (2007) and Dietrich et al. (2007) provide some more criticism. Givoly et al. (2007) found other factors like time periods, countries and reporting regimes that influence the measurement method of Basu. Dietrich et al. (2007) conclude that the method of Basu results in biases and because of those biases conservatism is measured. In subsection 2.5.3 the results of the papers in this paragraph will be further elaborated.

2.4.3 Givoly and Hayn model

Givoly and Hayn (2000) use four methods to measure conservatism. One of those methods is the method from Basu discussed in the previous subsection. The other three methods are level of accumulated negative non-operating accruals, measures based on the time-series properties of earnings and cash flows, and market-to-book ratio. I will elaborate each method in the next subsections.

2.4.3.1 Non-operating accrual method

With accrual accounting you match the cost and gains with actual cash flows of income and expenses. Cash flows are unaffected by accruals (Givoly and Hayn, 2000). Therefore the accruals could be seen as the difference of what the company actually earns (income) and the cash flows. As a result of this you can use the accruals as a measure for conservatism which implicates that more negative accruals lead to more conservatism and the other way around. Givoly and Hayn (2000) use the non-operating accruals for measuring accounting conservatism. Givoly and Hayn (2000) distinguish non-operating accruals and operating accruals. The operating accruals occur with the normal (core) businesses of the companies. The non-operating accruals are all other accruals that are not operating accruals.

Givoly and Hayn (2000) use the following formulas: non-operating accruals= total accruals (before depreciation) – operating accruals.

Total accruals (before depreciation)are: (net income + depreciation)- cash flow from operation.

Operating accruals are: Δ account receivable + Δ inventories + Δ prepaid expenses – Δ account payable – Δ taxes payable. Givoly and Hayn (2000) use total accruals before depreciation because the accruals left are those of bad debt provision and loss provision.

One limitation of the non-operating accrual method as a measure of conservatism is, that this method actually measures ‘big bath’ accounting. Big bath is a result of earnings management and not of accounting conservatism (Zhang, 2008). Big bath theory is based on Healy (1985), meaning that new managers will take extra losses and blame their predecessor. The result is that the managers have a bigger change of reaching their target profit the following year because of the extra write off/ losses they have already recognized. The problem that the method is consistent with ‘big bath’ is, that you measure conservatism when a company uses big bath. But what the method actually measures is in fact caused by big bath and thus not a result of conservative accounting. The big bath is a result of earnings management from the management, therefore measuring big bath is seen as a limitation of the non-operating accrual method.

2.4.3.2 Measures based on the time-series properties of earnings and cash flows

This method consists of two measurement methods. I will discuss those two methods separately. The first method is skewness and the second is variability.

Conservatism leads to full recognition of losses/cost and partial recognition or recognition with a delay of profits/ gains. Because of this asymmetry in recognizing losses and gains there exists a negative skewed distribution of earnings (Givoly and Hayn, 2000). This means that earnings do not have a normal distribution. With a normal distribution the skewness is 0. With a negative skewness the left tail of the distribution is longer. And with a positive skewness it is the other way around. A negative skewness will indicate conservatism.

Givoly and Hayn (2000) use the following formula to measure conservatism: $[E(x-\mu)^3]/\sigma^3$

The x stands for return on assets (ROA) or cash flow from operation (CFO)/assets. The μ is estimated by the mean of the x distribution. The σ is estimated as the standard deviation of the distribution of x .

One limitation of this measure of conservatism is, that this method actually measures 'big bath' accounting (Zhang, 2008). Big bath accounting is based on earnings management, therefore this is a limitation in measuring accounting conservatism.

The second method is the variability method. Conservatism is measurement by the standard deviation of net income to total assets (ROA). A high standard deviation is linked to conservatism, because with accounting conservatism the losses are fully recognized and the recognizing of gains is delayed. As a result the variability of the ROA will also be higher (Givoly and Hayn, 2000). Therefore a higher standard deviation leads to higher accounting conservatism.

2.4.3.3 The market-to-book ratio

The final measurement method of accounting conservatism provided by Givoly and Hayn (2000) is the market-to-book ratio. They use the theoretical framework of Feltham and Ohlson (1995). With this method market-to-book ratio is used as a proxy for accounting conservatism. Through accounting conservatism assets are undervalued because losses are fully incorporated and gains partially or fully delayed in recognizing. This results in an undervaluation of book value against market value. This undervaluation is accounting conservatism. When the market-to-book ratio increases the level of conservatism in accounting will also increase.

One limitation of this method is that the market-to-book ratio could reflect market growth expectation instead of conservatism (Givoly and Hayn, 2000). The increase of the ratio could indicate that the company simply has grown, instead of increasing conservatism.

2.4.4 Khan and Watts model

The final measurement method I will discuss is the measurement of Khan and Watts (2009). Their method is based on the regression method of Basu (1997), but they have modified the method so that they can measure firm year level conservatism. One of the limitations of the Basu model was that it does not look at firm specific characteristics (Huang et al., 2008).

Khan and Watts (2009) use the following measurement of conservatism. They use the standard regression formula of Basu (1997).

$$X_i = \beta_1 + \beta_2 DR_i + \beta_3 R_i + \beta_4 R_i * DR_i + e_i . e \text{ indicates the residual error.}$$

Khan and Watts (2009) substitute β_3 and β_4 for the following formulas:

$$G_score = \beta_3 = \mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i$$

$$C_score = \beta_4 = \lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i$$

Khan and Watts (2009) present the following explanations for the variables. The C_score measures the firm-year conservatism. The G_score measures the timeliness of good news. The total bad news timeliness is measured by the sum of the G_score and the C_score. The empirical estimators μ and λ are constant across firms. However, they vary over time because they are estimated from the annual cross-sectional regressions. $i =$ between 1-4. Size stands for the natural log of market value of equity. Lev stands for the leverage. Leverage is the long term debt and short term debt deflated by the market value of equity. The M/B is the market-to-book ratio. The C_score and G_score are not regressions methods, they are substituted into the regression of Basu (1997) (Khan and Watts, 2009), therefore the λ 's and μ 's are calculated at the same time as the β during the regression. Specifying the conservatism coefficient as a linear function of these three variables results in a set of weights that can then be applied to construct the C_score (Lai and Taylor, 2008). The C-score and G_score are substituted because they are dependent on all other variables.

Khan and Watts (2009) have used those firm-specific characteristics because those characteristics are a proxy for accounting conservatism. And more importantly those characteristics vary with conservatism (Khan and Watts, 2009). Therefore they are important firm-specific characteristics that have an influence on the level of accounting conservatism in a firm. Khan and Watts (2009) have also looked at other important variables such as credit ratings and business cycles. The problem with using credit ratings as a variable is the fact that not all firms have credit rates changes available. Also the ratings are not timely, therefore they are available with a time lag. The problem with using business cycles as a variable in the regression is, that the business cycles affect the whole cross-sectional sample. When this variable is used, the time-series variation will be picked up but the cross-sectional variation in conservatism will not be reflected (Khan and Watts, 2009). There exist many more firm-specific characteristics but, Khan and Watts have limited those variables for the reason of

parsimony. Meaning that with fewer variables they can use a bigger and complete sample size.

The method of Khan and Watts (2009) works the same as the method of Basu (1997), because it is based on the same method. Therefore the regression is still based on the dependent variable earnings and the independent variable return. The only difference is that β_3 is measured with the G_score and β_4 is measured with the C_score. The β 's are still the same, meaning that “ β_3 is the good news timeliness, and β_4 is the incremental timeliness for bad news over good news, or conservatism” (Wu, 2010). With the introduction of the firm-specific characteristics in the regression formula, the time series variation and the cross-sectional variation are controlled (Wu, 2010).

The C_score and the G_score are substituted into the regression formula. The final formula is then:

$$X_i = \beta_1 + \beta_2 DR_i + R_i (\mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i) + DR_i (\lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i) + (\delta_1 Size_i + \delta_2 M/B_i + \delta_3 Lev_i + \delta_4 D_i Size_i + \delta_5 D_i M/B_i + \delta_6 D_i Lev_i) + e_i$$

In the final formula there are some extra terms included, because this formula includes interaction terms between returns and firm characteristics. Therefore the firm characteristics have to be separately controlled (Khan and Watts, 2009).

One limitation of the Khan and Watts (2009) method is that it only uses three firm-specific characteristics. Therefore the model is limited in the way that the model does not capture the influence of other firm-specific characteristics. This could potentially lead to biases in the measurements of accounting conservatism.

2.5 Overview of prior research on conservatism

2.5.1 Introduction

In this section an overview of prior studies will be discussed. Each subsection will discuss another topic of conservatism. First, the progress of conservatism will be discussed, then criticism on models will be more elaborated. This is followed by the explanations of conservatism. Then, the differences between the level of conservatism and different countries is discussed. Finally conservatism and crisis will be discussed.

2.5.2 The progress of conservatism

The first paper in this category is the paper from Basu (1997). He used the reverse regression method to measure conservatism. He found that earnings were four and a half times as sensitive for negative returns than for positive returns. Therefore, he concluded that accounting conservatism exists. The results were robust for several other methods. Basu also concluded that positive earnings are more persistent than negative earnings. This difference implies that positive earnings have a higher earnings response coefficient, meaning that the unexpected abnormal earnings are bigger for positive earnings. Finally, he concluded that accounting conservatism, in the United States of America (USA), has increased in time. For the last three decades (the period 1963-1990) conservatism has increased, a possible reason could be auditor's increased legal liability exposure (Basu, 1997).

Givoly and Hayn (2000) used several methods to measure conservatism, as stated in chapter three. They used several methods because of the fact that an accepted definition of conservatism is missing. Givoly and Hayn found a trend that over time conservatism in accounting has increased. That is consistent with the findings of Basu (1997). However Givoly and Hayn used several methods for measuring conservatism and they investigated a longer period 49 years (1950-1998) for firms in the USA. Givoly and Hayn think that the increasing conservatism is a result of the accountant's tendency to omit the intangibles from the accounting books of the firm. And intangible assets have become more prominent for firms. Therefore, the increasing conservatism could be explained by this factor.

Both papers are consistent with each other finding that accounting conservatism has grown over time for firm in the USA. But Basu (1997) thinks that the increase could be caused by the litigation risk and Givoly and Hayn (2000) think that not recognizing intangible assets could be the reason of increasing conservatism in accounting.

2.5.3 Criticism on methods that measure conservatism

Dietrich et al. (2007) examined the relationship between earnings and stock returns as a measurement method for accounting conservatism. Many papers such as Basu (1997) found that bad news is timelier incorporated than good news and therefore asymmetrical timeliness indicates accounting conservatism. Dietrich et al. (2007) found empirical evidence that the method of timely loss recognition is biased. And those biases are interpreted as evidence that accounting conservatism exists. Those biases are inherently related to the timely loss recognition method and therefore irresolvable (Dietrich et al., 2007). This means that the reverse regression method of Basu (1997) has some mathematical limitations that results in

biases. Those biases are seen as evidence for conservatism, and thus timely loss recognition cannot measure conservatism in accounting. Dietrich et al. (2007) use an economic model that indicates the relation among the economic income, accounting earnings, non-earnings information and stock returns. With this model, accounting conservatism can be included or excluded. To prove that accounting conservatism is biased they used two test sample of the year 1963-1990 (the same as Basu 1997) and 1991-2001. Both test samples were tested with actual data and simulated data, as a result they could prove the biases of timely loss recognition. Therefore the results of this regression cannot be interpreted as accounting conservatism. Finally Dietrich et al. (2007) suggested that a researcher who wants to measure conservatism should use different methods such as the market-to-book ratio or the negative non-operating accrual method.

The next paper that has also some critics on the Basu (1997) timely loss recognition (TLR) is that of Givoly et al. (2007). They have tested the power and the reliability of the TLR. To test this they have used the regression formula of Basu (section 2.4.2.1) for the test period of 1950-2001 for firms in the USA, and have checked the sensitivity of this TLR against certain unrelated conservatism characteristics. In other words, they have checked if the TLR could be influenced by other factors than accounting conservatism. If the TLR could be influenced by those factors, then the results of this measurement method are wrong, because the method is influenced by other factors that do not have any relation with conservative accounting. Those other characteristics are: aggregation effect, the nature of the economic events effect and the disclosure policy effect (Givoly et al., 2007). The aggregation effect is caused, because all accounting data that is used in the TLR is based on aggregated accounting data. However conservatism is also applied to individual accounting events (such as new orders, and acquisitions). Because the accounting data is aggregated the individual effect is lost. Examples of economic events are: new long turn contracts, and approval of new drugs. These economic events all influence the current earnings of a company, therefore the TLR is also affected. The TLR is also influenced by the disclosure policy rules, because when a firm is allowed to disclose good or bad information more promptly, then this will affect the TLR for the level of conservatism.

Givoly et al. (2007) found evidence that the TLR is influenced by those characteristics. Thus the TLR method leads to biased results, because the level of conservatism is influenced by characteristics that are unrelated to conservatism. Their final conclusion was that the TLR measures only a small fraction of conservatism. For that reason researchers should use more

measurement methods to capture conservatism. The TLR measures the conditional conservatism while another measurement method measures unconditional conservatism. Thus when a researcher relies only on a single measurement method the result could lead to incorrect conclusion, because that method does not measure all kinds of conservatism (Givoly et al., 2007).

The final paper of this category is the paper of Huang et al. (2008). They investigated the heterogeneity of the firm specific characteristics in the TLR. They used a modified regression model of Basu (1997) which includes some firm-specific characteristics to measure the level of conservatism of firms in de USA in the period 1976-2005. Huang et al. (2008) conclude that the level of conservatism is much lower as indicated in prior research and that the level of conservatism did not increase over time. This is inconsistent with the finding of Basu (1997) and Givoly and Hayn (2000). The reason could be that the sample period is different and more importantly Huang et al. (2008) take into account that firm-specific characteristics are not homogenous. As a result of that, the characteristics will change and are therefore not the same for every firm.

All three papers have comments on the timely loss recognition method. They are consistent that this method has several shortcomings. However, the papers indicate different shortcomings, varying from biases that are inherent on the method, to characteristics that influence the method, and finally not controlling for heterogeneity of characteristics.

2.5.4 Explanations of conservatism

The first paper in this category is the paper of Lobo and Zhou (2006). They used the modified Jones model to measure discretionary accruals and the reverse regression method of Basu (1997) to measure conservative accounting. Lobo and Zhou (2006) used firms in the USA for the period of two years before and two years after the introduction of the SOx. They found the following evidence: *“We present empirical evidence that firms on average are more conservative in their financial reporting after SOx. We find significant reduction in discretionary accruals in the post-SOX period relative to the pre-SOX period. Additionally, using the Basu (1997) measure, we find a significant increase in conservatism in the post-SOX period”* (Lobo and Zhou, 2006). These results indicate that regulations are an explanation for conservative accounting as stated by Watts (2003).

The second paper in this category is Beatty et al. (2008). Beatty et al. (2008) used several methods to measure conservatism from the period 1994-2004 and link them to agency costs. Agency costs are measured by contract-specific and firm-specific variables. They found evidence that conservative reporting is used with conservative debt covenants¹, by firms and lenders, to resolve their agency conflicts. Finally Beatty et al. (2008) concluded that contractual modifications alone do not fulfil lenders demands for conservatism. Meaning that lenders are in favour of conservatism and that they prefer conservatism in debt covenants and in financial reporting.

Zhang (2008) investigates the benefits of conservatism in the debt contracting process. He measures conservatism with several different methods for the period 1994-2003 and loan information for the debt contracting process. Zhang (2008) found evidence that conservatism leads to lower interest rates. This suggests that both lenders and borrowers benefit of conservatism. Otherwise lenders would not provide a lower interest rate. These findings are consistent with Beatty et al. (2008), that debt contracting in conservatism is useful. However the conclusions made by Zhang (2008) are based on a restricted sample. Therefore his conclusion could be biased through the small sample size.

Chung and Wynn (2008) conducted research on the link between conservatism and litigation. They have measured conservatism through the TLR and the litigation risk was measured through the sum of liability insurance coverage and the cash for indemnification for Canadian firms for the years 1998-2004. Indemnifications are provisions taken by the company to compensate their managers for legal liability costs. As a result, when managers acted honestly they do not have to pay the liability costs for themselves. Chung and Wynn (2008) used Canadian firms because for those firms insurance data is publicly available. They found that firms with a high legal liability coverage are less conservative. Meaning that the risk for legal liability for managers becomes lower when they have a high legal liability coverage and therefore the earnings became less conservative. The conclusion is that when a company has a high legal liability risk, the company will be more conservative (Chung and Wynn, 2008).

Lafond and Watts (2008) studied the impact of information asymmetry on conservatism. They used the TLR of Basu (1997) to measure conservatism and information asymmetry was measured through the PIN score and the bid-ask spread for USA firms in the period 1983-

¹ Conservative debt covenants are agreements between the firms and the lenders. Those covenants are more prudent with the estimations of the assets and profits, therefore the lenders have less risk that the firms cannot pay back their debts.

2001. The PIN score is a measure of abnormal order flow, which indicates that private information is used to sell or buy stocks (Lafond and Watts, 2008). Lafond and Watts (2008) found evidence that asymmetry is positively correlated to conservatism. This means that when asymmetry of information is high, than conservatism in accounting will also be high.

Khan and Watts (2009) have developed a firm year measure of conservatism. Khan and Watts have used the C_score method (section 2.4.4) for a sample of USA firms for the period 1962-2005. They found that with the C-score they can predict the flow of conservatism for a period of three years ahead. They found evidence that companies with a high information asymmetry have a higher level of accounting conservatism. Khan and Watts also found that when a company has a high chance of litigation the company is more conservative. These results are consistent with prior research of Chung and Wynn (2008) and Lafond and Watts (2008).

Finally Nikoleav (2010) investigated the relationship between debt covenants and the level of conservatism (the timeliness of recognizing bad news/ losses). He used the Basu regression model and included debt covenants as a variable. He found that the companies in his sample for the period 1980-2006 were more conservative. This means that companies with debt covenants were more timelier in recognizing bad news / losses.

All papers discussed in this category provide evidence that conservatism exists for a reason. Although the papers provide different explanations. They all concluded that conservatism in accounting has some benefits and therefore conservatism is used in accounting.

2.5.5 Conservatism and differences between countries

Ball et al. (2000) have done research to the possible international differences in demand for accounting income. They used a sample of listed companies for the period 1985 until 1995 and found that companies in common law countries have a higher level of conservatism than companies in code law countries. They also found evidence that the level of conservatism will be higher in common law than in code law countries due to the fact of litigation risk. The litigation in code law countries is rarely compared to the common law countries. Also the amount of settlements in lawsuits are small in code law countries compared to the common law countries. For this reason the level of conservatism will be higher in common law countries than in code law countries (Ball et al. 2000). Overall they found evidence that common law countries are more conservative than code law countries.

Giner and Rees (2001) investigated the asymmetric timeliness between different countries. They looked at France, Germany and UK for the period 1990-1998. They concluded that there is no significant evidence that the level of conservatism differs between those three countries. This is inconsistent with the result of Ball et al. (2000).

Garcia Lara et al. (2004) studied the level of conservatism for several European countries for the period 1987-2000. With a regression method that is based on the adjusted book value of equity, they found that the level of balance sheet conservatism is higher for code law countries than for common law countries. This is consistent with Ball et al. (2000). Balance sheet conservatism could be seen as the difference of the market value and book value of equity or the market to book ratio (2.4.3.3). They also found no big differences in the level of earnings conservatism (asymmetric timelessness of bad news) between those countries.

According to Raonic et al. (2004) capital market pressure and regulatory impact influence the level of accounting conservatism. They used European listed firms that are listed in more than one country in Europe. Higher capital market pressure and regulatory impact cause higher risk for the companies in overstating gains and delaying bad news and therefore the level of conservative accounting will increase.

Finally Bushman and Piotroski (2006) investigated how the accounting numbers are influenced by the institutional structures of that country. They found that the country's legal system, securities laws, political economy and tax can create incentives that influence the behaviour of management, investors and regulators. Countries with a high quality level of legal systems companies are more conservative.

The papers in this section indicate that the level of conservatism differs between countries. This is caused by several factors such as: common law/ code law, litigation risk, capital market pressure, regulatory impact and the level of the legal system. According to Giner and Rees (2001) there is no difference in the level of conservatism for the countries Germany, France and the UK.

2.5.6 Conservatism and crisis

Gul et al.² have done research to the link between conservatism and audit fees in a period of a crisis. They have used the TLR of Basu (1997) to measure conservatism and used an audit fee regression model to capture the audit fee, because the amount of the audit fee depends on several different variables. The audit fee regression model captures those different variables and therefore the audit fee can be measured. Gul et al. looked at listed Hong Kong firms for the period 1990-1997. They measured the level of accounting conservatism for the whole period of 1990-1997. Then they divided the sample into two periods (1994-1995) and (1996-1997). The first period includes the non-downturn years and the latter are the downturn years which indicate the crisis years (Gul et al.). Gul et al. found evidence that the level of conservatism for companies is lower during the crisis than the period before the crisis. And they found that the audit fees increase when conservatism decreases.

Herrmann et al. (2008) studied the impact of the Asian crisis on the level of conservatism of auditors. To measure conservatism they used a modified Basu (1997) model which includes dummy variables for big 4 audit firms. Herrmann et al. (2008) looked at listed companies in Thailand for the period 1997-2003. They found that companies that are audited by a big 4 audit firm are more conservative than companies who are audited by non-big 4 audit firms. Herrmann et al. (2008) found that Thai companies, in general, are less conservative during a crisis and report more conservatively after the crisis. The evidence that firms are less conservative during crisis is consistent with the findings of Gul et al.

Vichitsarawong et al. (2010) also found evidence that is consistent with the findings of Herrmann et al. (2008) and Gul et al. According to Vichitsarawong et al. (2010) companies are less conservative during a crisis and they are more conservative after the crisis. Only Vichitsarawong et al. (2010) found evidence that companies are even more conservative after the crisis than before the crisis. Their conclusions were based on a sample of listed firms in Hong Kong, Malaysia, Singapore and Thailand for the period 1995-2004. To measure conservatism they use the Basu (1997) model and non-operating accrual method from Givoly and Hayn (2000).

Wu (2010) does not investigate if companies are less conservative during a crisis, but instead he studied the consequences of conservatism during the financial crisis. He found evidence that companies that are more conservative, suffer less during the financial crisis than

² The paper of Gul et al. is undated. Therefore I will refer to this paper as Gul et al. For the whole reference look at the reference list

companies that are less conservative. Therefore, conservative accounting is an efficient mechanism to control the agency costs (Wu, 2010). Therefore, conservatism benefits the shareholders, because the agency problem is mitigated with conservatism. This finding is consistent with the explanation of conservatism (section 2.3 and section 2.5.4) that conservative accounting has benefits, therefore companies still apply accounting conservatism. Wu (2010) used the C_score method (Khan and Watts), the non-operating accruals method and the market to book ratio (Givoly and Hayn, 2000) to measure conservatism. He looked at listed firms in the USA for the period October 2007- December 2008. He used this specific period because there is no official date that indicates that the credit crisis has begun. Therefore he started in October 2007 and ended in 2008, because the data of 2009 was not yet available. As a result of the small sample size the finding of Wu (2010) could be biased and a possibly wrong conclusion might be made.

The first three papers provided evidence that companies are less conservative during a crisis. Meaning that companies provide more good news and wait with their bad news during a crisis. And they found evidence that companies become more conservative after the crisis. Finally Wu (2010) provided evidence that more conservative firms suffer less during a crisis than less conservative firms. He also contributes some evidence that conservatism brings benefits to shareholders.

2.5.7 Overview of literature

From the overview of prior research, I can conclude that the level of accounting conservatism had grown for the period of 1950 until 1998 for firms in the USA. The studies provide different reasons for this increase, but those results are interesting to investigate further for different countries. Also studies conclude that the timely loss recognition of Basu (1997) has many shortcomings and biases, which can influence the measured level of conservatism. As a result of those studies I can conclude that the timely loss recognition is an inaccurate method. Although this method is widely accepted and used in many studies, I will choose another method. Further studies have provided evidence for the usefulness of conservative accounting, because conservatism in accounting has several benefits for companies. As the results indicate that companies use conservative accounting because of the benefits, it is relevant to investigate the level of conservatism of companies. The final studies in this overview provided evidence that companies are less conservative during a crisis and that companies that are more conservative before a crisis have a better performance than less conservative

companies. These results are interesting to investigate if they hold for a different period and companies.

2.6: Summary

At the beginning of this chapter accounting conservatism was discussed. Several definitions were provided. Although a generally accepted definition of conservatism is missing, conservatism can be seen as the higher verification requirement for good news/ gains than the verification requirement for bad news/ losses.

Conservatism is an important factor in accounting. People already used conservative accounting in the early 15th century. Therefore, there has to be a reason why conservative accounting exists. Those reasons are: contracting, litigation, taxation and accounting regulation.

There are several methods to measure conservatism in accounting. The Basu (1997) model is the most popular one in studies. One can also measure conservatism with market-to-book ratio, non-operating accruals (Givoly and Hayn, 2000) or C_score (Khan and Watts, 2010). All methods have some limitations. But more important is the fact that the methods only measure a single part of accounting conservatism. Therefore one can not measure conservatism in totality, when only one single method to measure conservatism is used (Givoly et al., 2007).

There has been a lot of research on the topic conservatism. The prior research of accounting conservatism indicates that conservatism has grown over time. Also, studies showed that there are limitations on the timely loss recognition method. Further, the prior research resulted in evidence that conservative accounting has benefits and that accounting conservatism differs between countries. Finally, prior research indicated that companies are less conservative during a crisis and more conservative after a crisis.

Chapter 3 Institutional factors

3.1 Introduction

In this chapter the institutional factors with regard to the credit crisis and the Asian crisis will be elaborated. The Asian crisis will be discussed because in section 2.5.5 some literature is used that has investigated the relationship between the Asian crisis and accounting conservatism. And for comparison of the results the institutional factors have to be discussed. In the next section the institutional factors which have an influence on the level of conservatism between the different West-European countries will be discussed. In the final section a short summary of this chapter will be provided.

3.2 Institutional factors crisis

3.2.1 The Asian crisis

The Asian crisis begun in Thailand in the year 1997. The crisis spread fast to other Asian countries such as: Malaysia, Indonesia, Singapore and Hong Kong (Herrmann et al., 2008). Thailand had an enormous economic performance in the preceding years of the crisis. *“Growth in per capita GDP, property and stock market bubbles, and maintenance of a pegged exchange rate helped mask an underlying weak growth in the economy”* (Herrmann et al., 2008). And *“The Thai economy attracted large foreign capital inflows and used unhedged debts to expand domestic lending and investments in properties that were overpriced”* (Vichitsarawong et al., 2010). This situation was untenable and therefore the Baht³ was tremendously devaluated. Before the depreciation the exchange rate was 25 Bath/US dollar, after the depreciation the exchange rate had dropped to 60 Bath/US dollar (Vichitsarawong et al., 2010). The depreciation of the local currency had spread to different countries in Asia, therefore the crisis in Asia was expanded to different countries resulting in the Asian crisis.

The Asian crisis caused a tremendous impact on several participants. Investors had to deal with large losses. Those losses were based on the declining stock markets and the depreciation of the exchange rates. Investors (domestic and foreign) had lost confidence and this resulted in a decrease in capital inflow and an increase in capital outflow Also, a lot of companies and

³ The Bath is the official currency of Thailand.

financial institutions went bankrupt, and thus lenders were unable to collect the money from their loans (Vichitsarawong et al., 2010).

As financial institutions in Thailand went bankrupt and others were going to be bankrupt, therefore the central bank of Thailand provided support to some financial institutions. The Bank of Thailand bailed out these institutions for 430 billion baht (Fuller and Suwanraks, 1997). Also the interbank lending rates increased from 10.28 % on January 1997 to 22.93 % on September 1997⁴.

3.2.2 The credit crisis

The first signs of the credit crisis were in June 2007. Two hedge funds from Bear Stearns collapsed⁵. Those hedge funds were heavily investing in subprime markets. They were buying collateralized debt obligations and other sub-prime market securities. Collateralized debts obligations (CDO's) are a type of bonds where the value and payments are derived from a group of fixed assets. The goal of the CDO's was to diversify the risk of those loans⁶ provided to buy those fixed assets. The banks of those CDO's sold them to other financial institutions, therefore those banks could provide more mortgages because the risks of the mortgages were sold. Some of the CDO's were sub-prime mortgages. Sub-prime mortgages are mortgages for high risk lenders. Those lenders have bad credit histories or no solid income. In other words, the sub-prime mortgages have a big risk that the lenders cannot pay their mortgages back. The risk of default of payments was not important, because the housing prices were increasing. With the increasing value of houses people could pay off their mortgages and banks had little risk because the underlying assets of the loans were appreciating. The Federal Reserve had lowered the interest rates after the internet bubble to stimulate the economy. The low interest rates made it relatively cheap to get a mortgage. *“As the mortgages industry ramped up, the quality of the mortgages went down”*⁷. The problems occurred when the housing prices did

⁴ Source: Bank of Thailand <http://www2.bot.or.th/statistics/ReportPage.aspx?reportID=222&language=eng>

⁵ Credit Crisis-The Essentials, The New York Times, updated Jan. 10, 2011

⁶ One example of a CDO: a bundled portfolio of mortgages of houses.

⁷ Credit Crisis-The Essentials, The New York Times, updated Jan. 10, 2011

not increase anymore. When the hedge funds of Bearn Stearns collapsed, banks became aware that the CDO's were not that safe as they thought they would be⁸.

When the Federal Reserve increased the interest rates, as a result the interest rates for the mortgages became higher resulting in fewer sales of mortgages. The demand of houses therefore decreased as a result of that the housing prices decreased as well. This resulted in less demand for houses, therefore the housing prices further decreased.

The consequence of this was that financial institutions had securities in their portfolios that did not receive any payments and lacking valuable housing collateral. Therefore, the financial institutions had to make impairments on their securities. As a result, the financial institutions made substantial losses. In the USA this has led to the bankruptcy of Lehman Brothers, the government had taken over Fannie Mae and Freddie Mac, and other banks needed financial support of the government⁹.

Other financial institutions over the world had also invested in the sub-prime securities of the USA. The securities depreciations were spread over the world, resulting in the credit crisis.

3.2.3 Institutional factors of the crises

In the previous subsections the crises are briefly discussed. In this subsection both crises will be compared with each other.

The main difference between the credit crisis and the Asian crisis is the fact that: the Asian crisis started with the devaluation of the exchanges rates and the credit crisis started with the devaluations of the sub-prime securities.

Also the impact of the crises differs. The Asian crisis had a tremendous impact on the Asian geographical region. But the impact on other parts in the world (for instance USA or Europe) was limited, as the stock markets in Europe and USA had quickly recovered (Nanto, 1998). Looking at the credit crisis the impact was spread over other countries than only USA. Another difference between the crises was the fact that the Asian companies, that suffered

⁸ Credit rating agencies provide rates on the CDO and other securities. Some of those securities received a triple A rating, that is the highest rating, but they were not that safe. The credit rating agencies had wrongly given safe credit ratings. Investors thought they were buying relatively safe investments, but those investments turned out to be not that safe at all.

⁹ Credit Crisis-The Essentials, The New York Times, updated Jan. 10,2011

from the Asian crisis, did not have any global accounting regulations such as the IFRS or the US GAAP.

Other differences are a bit more generally such as different time periods, the credit crisis occurred in from the year 2007, which is a decade later then the Asian crisis. Another difference is the culture. “*The business culture in Asia relies heavily on personal relationships*” (Nanto, 1998). Companies that had good connections with government agencies or banks had the best access to financing. As a result, those well connected companies were lending more money than that was economically efficient for those companies. Another common practice in Asia was the fact of buying influence of government officials (Nanto, 1998). This business culture of Asia is unknown for the US business culture, because bribing government officials is uncommon within the US.

However, there are also some similarities. Both crises have led to tremendous decreases of the stock markets and increases in bankruptcy of companies. And if you look at the interbank rates of Europe then you will also see an increase of this rate, which is consistent with the Asian crisis. In Europe the interbank rate changed from 3.634 on 28 December of the year 2006¹⁰ to 4.294 on 28 December in the year 2007¹¹.

Another similarity is the fact that the central banks have bailed out some financial institutions to prevent further bankruptcy in this sector. Also, both crises have caused countries needing support of the International Monetary Fund (IMF). In the Asian crisis, countries like Thailand, Indonesia and Korea made a request for support of the IMF (Vichitsarawong et al., 2010). In the credit crisis, countries like Ireland¹² and Greece¹³ received support of the IMF and the EU.

A further similarity between the Asian crisis and the credit crisis is that there was a need for more transparency and a better corporate governance control. In the Asian crisis this need for more transparency resulted in the adoption of the IFRS standards and improvements in regulations (Vichitsarawong et al., 2010). The credit crisis resulted also in a need for more transparency in the financial sector. This sector had created tremendous difficulties regarding

¹⁰ ‘*there is no general agreement on the beginning and ending of the Financial crisis*’ (Wu, 2010), therefore I have looked at the end of 2006/ beginning of 2007 compared with the rate at the end of 2007.

¹¹ Source: Euribor <http://www.euribor-ebf.eu/euribor-org/euribor-rates.html>

¹² Labayani D. , 2010, Ireland to receive €85 billion bailout at 5.8% interest rate, *Irish Time*, 28 November 2010.

¹³ IMF Survey online may 9, 2010, IMF Approves €30 Bln Loan for Greece on Fast Track.

credit swaps¹⁴ and collateralized debt obligations, and financial institutions had put these obligations outside their balance sheets. During the credit crisis those CDS's and CDO's suffered a lot, therefore companies had to write-off on those CDS's and CDO's which caused enormous losses for companies. The FASB made a new standard SFAS 157, which prohibited companies to hide their losses and liabilities outside their balance sheets, therefore general public could now see what the real liabilities and losses are of those companies.

According to Khor and Kee (2008) there are many similarities between all crises, therefore there exist also similarities between the Asian crisis and the credit crisis. They suggest that every crisis has the same three common early warning signs: abundant liquidity, rapid credit growth, and sustained asset price inflation (Khor and Kee, 2008).

Khor and Kee (2008) have also made a figure (figure 1) which provides an overview of the similarities between the two crises.

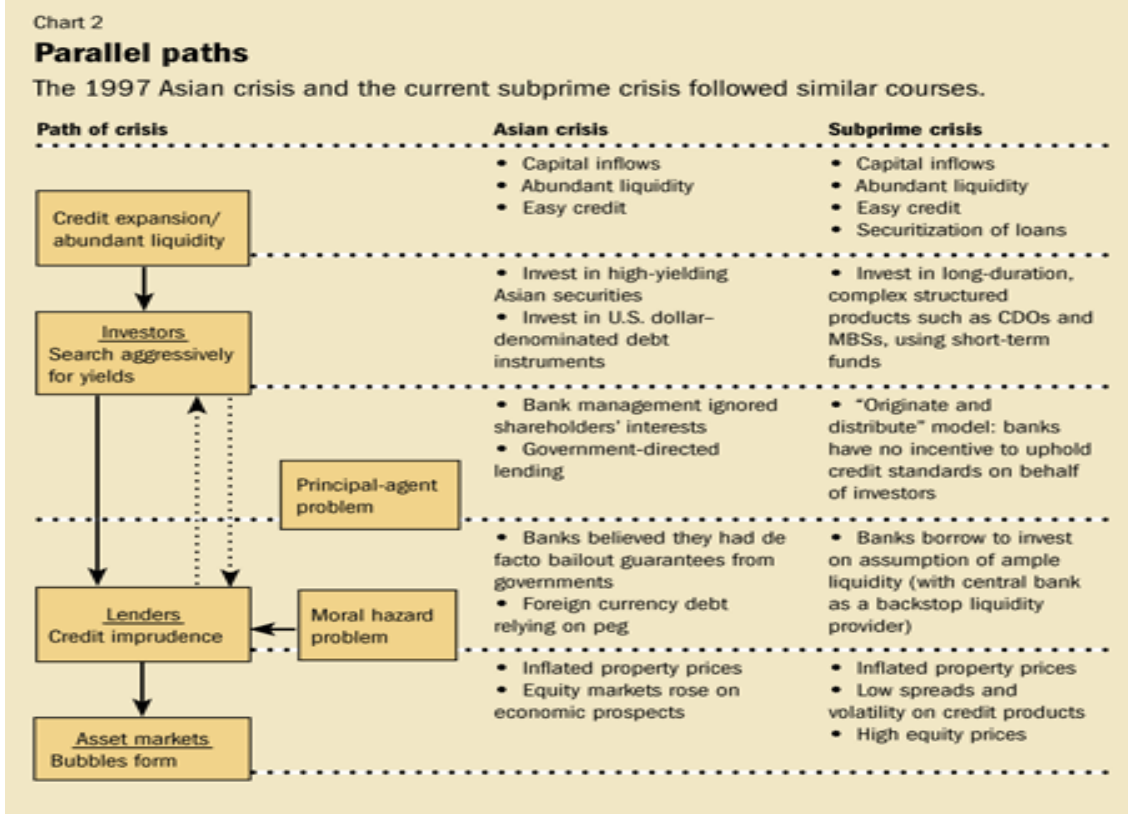


Figure 1: Parallel paths Asia and credit crisis. source (Khor and Kee, 2008)

¹⁴ Credit default swap (CDS) could be seen as a kind of insurance. The CDS is a swap contract and agreement whereby the buyer of the contract makes some payment to the seller of the contract. With this CDS the buyer is protected if anything happened to his loan or bond. The buyer of the CDS gets a guaranteed payoff from the seller of the CDS when something happens to his loan or bond.

3.3 Institutional factors countries

My sample consists of seven European countries. Those countries include: Belgium, England, France, Germany, Ireland, Luxembourg and Netherlands. The reason and size of the sample will be discussed in chapter 4. Although these countries are located in Europe and also are members of the European Union, there are still some institutional factors between them that could influence the level of accounting conservatism.

Common law versus code law

The first institutional factor is the different legal system of the countries. According to Ball et al. (2000) you can distinguish two main legal systems, the common law countries and the code law countries.

“*The common law arises from individual action in the private sector*” (Ball et al., 2000). The common law countries have a shareholder orientation, therefore those countries are more focussed on public disclosures. Accounting practices in those countries are developed by the private sectors and the legal enforcement is also a private matter (Ball et al., 2000).

“*Code law originates from collective planning in the public sector*” (Ball et al., 2000). The code law countries have a stakeholder orientation. Those stakeholders could be political groups, banks or unions, therefore those countries are more influenced on the payments (Ball et al., 2000). The common law countries are more focussed on shareholders than code law countries. “*Code law countries have endogenously lower market liquidity and public disclosure standards*” (Ball et al., 2000).

Corporate Governance

Ball et al. (2000) distinguish more institutional factors. They argue that the level of corporate governance plays also a role. For common law countries the corporate governance mechanism demands a greater level of conservatism compared to code law governance (Ball et al., 2000). This difference is caused because code law countries have less information asymmetry, and thus less need for monitoring than common law countries.

Information asymmetry

Ball et al. (2000) found that the level of information asymmetry is different between those legal systems. The code law countries are stakeholder orientated. The stakeholders are more

informed by the managers of those companies, because the company has to deal with those stakeholders (for private debt). Ball et al. (2000) conjecture that public debt (shareholders) is less informed than private debt. As a result, the information asymmetry is bigger for common law countries than for code law countries. Therefore the demand for conservatism is higher in common law countries than in code law countries.

Financing

The next institutional factor financing is related to both the information asymmetry factor and the legal system. The difference with financing can be made with public financing (shareholders) or private financing (lending from financial institutions). Common law countries tend to be more publicly financed than code law countries. Thus, this regards the shareholder versus the stakeholder approach whereby the first is more publicly financed and the latter more privately.

Tax

Another institutional factor according to Ball et al. (2000) and Giner and Rees (2001) is corporate tax. In code law countries it is usually common that a deduction in taxable income is allowed when this deduction is also taken into the reported income. Thus taxable income is decreased only when the operation income is also decreased. The common law countries do not have that deduction of taxable income. As a result conservatism is in favour for code law countries compared to common law countries, because lower reported income causes a lower taxable income.

Litigation

Finally Ball et al. (2000) indicate litigation as an institutional factor. Litigation in code law countries is rarely compared to the common law countries. Also the amount of awards in the lawsuits are small in code law countries compared to the common law countries.

Investor protection and legal enforcement

La Porta et al. (1997, 1998 and 1999) indicate that the level of investor protection differs between countries. As a result of the poor investor protection and legal enforcement the capital markets will be less developed or smaller. They also found that common law countries have commonly better investor protection than code law countries. Therefore the common law countries have generally a bigger capital market than code law countries. Another result of

poor investor protection is seen in ownership concentration. Ownership concentration will be high when investor protection is low (La Porta et al., 1998). Finally, countries with poor investor protection have relatively less companies which are widely held (La Porta et al., 1999). This is consistent with the fact that those countries have a high ownership concentration.

Change in institutional factors

Giner and Rees (2001) found no significant difference between the countries France, Germany and UK in the asymmetric recognition of earnings. This result is in contradiction with Ball et al. (2000). They found a different level of conservatism between common law and code law countries. A possible explanation could be that the institutional factors change over time like Ball et al. (2000) found in their results. This could indicate that previous institutional factors between the European firms do not have any influence nowadays.

One possible change in institutional factors includes accounting regulations. In 2005 the European Union made it mandatory for European listed firms to apply IFRS for their annual reports. Therefore the accounting regulations are the same for the whole sample since the year 2005. The goal of the IASB is to provide and foster comparable financial statements across the world¹⁵. However Kvaal and Nobes (2010) have found evidence that there still exist some systematic differences in practices of IFRS accounting between countries. They found that for listed firms in France, Germany, Spain, UK and Australia there exist a difference in IFRS reporting. The reason is that pre-IFRS standards (national GAAP's) are continued if allowed within the rules of IFRS. Because of those continuing of pre-IFRS standards in the current IFRS there are systematic differences in IFRS accounting policies (Kvaal and Nobes, 2010).

3.4 Summary

In this chapter the institutional factors of the crises and the countries were discussed. First the Asian crisis was further elaborated. The Asian crisis started in 1997 with the devaluation of the local exchange currencies. This devaluation spread to other countries, which caused eventually the Asian crisis. In the next subsection the credit crisis was discussed. The credit crisis was caused by the sub-prime mortgages/securities. When eventually the housing prices decreased in the US, buyers of the securities became aware that the securities were not that

¹⁵ IASB's *Preface to International Financial Reporting Standards*, para. 6.

safe as they thought those would be. As a result many financial institutions had to depreciate their securities causing substantial losses. This resulted in the credit crisis.

In the following subsection the institutional factors of the crises were discussed. Both crises have some differences such as different cause, culture, accounting rules, time periods. But there are many similarities. For instance, the bailouts of financial institutions, bankruptcies of companies, support from the IMF and increased focus on transparency.

According to Khor and Kee (2008) there exist more similarities such as the moral hazard problem and abundant liquidity to inflated property prices.

In the final subsection the institutional factors of the West-European countries of the sample were discussed. The institutional factors are common/ code law, corporate governance, information asymmetry, financing, tax, litigation, investor protection and legal enforcement. Ball et al. (2000) found evidence that the institutional factors change during time and Giner and Rees (2001) found no difference in the level of conservatism between common law and code law countries. The introduction of the IFRS in 2005 could also have led to a diminishing effect of the institutional factors. However there are still some systematic differences in IFRS accounting between countries. Even in countries within the EU, where IFRS became mandatory for all listed companies.

Chapter 4: Research Design

4.1 Introduction

In this chapter I will discuss the research design of this thesis. In the first subsection the development of the hypotheses is discussed. After the hypotheses the methodology is explained. In the next subsection the sample will be discussed. And finally a small summary will be provided in the last subsection.

4.2 Hypotheses

As stated in the second chapter, accounting conservatism has been an important principle in accounting. There exists evidence that people in the 15th century applied conservative accounting (Penndorf, 1930). And since there does not exist a generally accepted definition of conservatism, researchers have interpreted accounting conservatism in different ways as discussed in chapter 2.1.

Several researchers have done research to discover the reasons why accounting conservatism exists. Watts (2003) provided in his literature review four reasons for accounting conservatism. Those reasons are contracting, litigation, taxation and accounting regulation. Beatty et al. (2008) and Zhang (2008) found empirical evidence that conservative accounting has some benefits for debt contracting. This might result in that conservative companies can receive lower interest rate and therefore their cost of capital will be lower.

Lafond and Watts (2007) found evidence that when the information asymmetry between shareholders and the company is high, the level of conservatism in accounting will also be high. And when the legal liability is high, companies have incentives to be conservative in accounting (Chung and Wynn, 2008).

Those results are evidence that accounting conservatism is an important factor in accounting. This principle can be important for the companies and even for the shareholders¹⁶ of that company. Although those results were based on samples of American firms, I expect that those results also hold for other firms in different countries such as Europe. Other countries

¹⁶ Shareholders have lower risk when the company is more conservative in times of high information asymmetry.

face the same agency - and moral hazard problem as with the firms in America. The managers are leading the firms and the shareholders are depending on the information provided by those managers, therefore the same information asymmetry exists. Also the managers are using funds provided by the shareholders, which could cause a moral hazard problem. Therefore I think that the results of the studies in America can be used for my expectations on firms in Europe. I also expect that firms in other countries can receive lower cost of capital when they are more conservative, because the risks of the lenders are lower when the company is more conservative¹⁷.

As a result I expect that companies are being conservative in accounting records, therefore my first hypothesis in this paper will be:

H1: companies use conservatism in accounting

With this hypothesis I will try to provide evidence that companies are being conservative in accounting. I expect that companies will be conservative in accounting, but this assumption has to be tested. And more important is that the rest of the paper depends on the fact that companies are conservative with accounting. In this paper I want to look at what the impact of the credit crisis was on accounting conservatism. If I found evidence that companies are not conservative anymore, then the possible effect of the credit crisis on accounting conservative is useless to investigate. For this reason I will try to provide evidence with my first hypothesis that accounting conservative is still applied.

In prior research there has been found that accounting conservatism has increased over time (Basu, 1997 ; Givoly and Hayn, 2000). Meaning that companies became more and more conservative in the last decades. Those results are based on listed firms in the United States of America for the periods 1963-1990 and 1950-1998.

I expect that conservative accounting has also increased in the period before the credit crisis. This expectation is based on the results of Basu (1997) and Givoly and Hayn (2000). Although those results were based on a different sample, I expect that conservatism is important and has increased in time.

¹⁷ When companies are more conservative, the risk for lenders is decreased. The risk is lower because, the assets and the profits of the company are not overstated and the liabilities are fully incorporated, therefore the change that the company can pay back is debt is much higher.

Indeed, intangible assets are more and more important nowadays. Companies are much more depending on technology for their business and they are using more technology than in the prior period of 1950-1998. This technology is in many cases developed by the companies itself, therefore the intangibles assets have increased. Companies are not allowed to recognize their own developed intangible assets. According to IFRS development cost have to be recognized if certain strict criteria are met, whilst research cost need to be expensed. Under US GAAP, both R&D are expensed. Also, companies can only recognize intangible assets when they acquire another firm. As the company has some assets that are not recognized in the balance sheets, the financial statements are conservative. Because of the increase of intangibles assets, I expect that the level of accounting conservatism has also been increased. Givoly and Hayn (2000) thought that a possible explanation for the increasing accounting conservatism could be the increase in intangible assets, my expectations are thus consistent with the possible explanations of Givoly and Hayn (2000).

The second hypothesis for my research will therefore be:

H2: conservatism in accounting has increased before the credit crisis

With this hypothesis, I will try to answer the question whether accounting conservatism has increased in time. If the results indicate that there exists a trend¹⁸ in the level of accounting conservatism, then you would expect that this trend would continue in the following years. This trend might have been broken because of the credit crisis.

The result following from the studies on the influence of the Asian crisis on the level of conservatism was that companies became less conservative during the crisis than they were before the crisis. Also, companies became more conservative after the crisis than before the crisis.

I expect that companies were less conservative during the credit crisis then they were before the credit crisis. This expectation is consistent with the prior results. Although there are many differences between the Asian crisis and the credit crisis, there are also some similarities.

Because of the similarities between the Asian crisis and the credit crisis mentioned in chapter 3, I expect that the companies in the credit crisis have acted consistent with the companies during the Asian crisis. Therefore I think that companies became less conservative during the

¹⁸ The trend that companies are reporting more and more conservative of the time.

credit crisis. The change of conservatism may not be as big as with the Asian crisis, because of the difference between those crises.

Another factor that had an influence on the level of accounting conservatism during the credit crisis is the change in accounting regulation of the IASB. The IASB has changed the accounting rules of the IAS 39 (reclassification of financial assets) under big political pressure. Companies had to use fair value accounting for some of their financial assets, but the amendment of IAS 39 has made it possible for companies to reclassify their financial assets into another category (Ter Hoeven and Bout, 2010). The change of category have made it possible to use cost accounting instead of fair value accounting, because there are different valuation method for each category. As a result of the change in accounting, companies have become less conservative, because companies did not need to incorporate losses that were based on market values/ fair values (Ter Hoeven and Bout, 2010). Companies are therefore less conservative, because they do not anticipate the losses.

As a result of the change in accounting regulation and the evidence of prior research I expect that companies are less conservative during the crisis. Therefore the third hypothesis will be:

H 3: companies are less conservative during the credit crisis

Wu (2010) was the first who tried to find a link between conservatism and the credit crisis. He found evidence that companies that were more conservative before the crisis, suffer less during the credit crisis. Wu (2010) had taken a small sample period of one year for US listed firms, therefore his conclusions could be biased.

Nevertheless companies that have a higher level of conservatism are more prudent, whilst those companies have a lower risk over overstating the assets and profits. When those companies are in a crisis then they have less chance in extra write offs, because of the fact that they have already incorporated the losses and write offs by being conservative.

Another reason why conservative firms suffer less during a crisis is the fact that they postpone their gains and profits, therefore when those companies are in a crisis they do not have to restate their results or make an announcement that the profits will be lower, because they did not anticipate any profit before there are fully realizable.

For these reasons and the results of the study of Wu (2010) I expect that firms that are more conservative before the credit crisis suffer less during the credit crisis. Therefore the last hypothesis will be:

H 4: conservative companies have a better performance in the credit crisis than less conservative companies.

4.3 Methodology and robustness checks

As stated earlier, the Basu (1997) reversed regression method/ timely loss recognition is the most used method to measure the level of accounting conservatism in prior research. Also the research about the link between the Asian crisis and the level of conservatism was based on the method of Basu (1997). Considering these facts, it would be logical to make use of the Basu (1997) method, but this method has also some limitations as stated in a prior subsection (3.2.1.1). Those limitations vary from inherent limitations of the method that cause biases in the measurements to not taking into account that firm-specific characteristics are heterogeneous. Therefore I would like to use a newer measurement method for conservatism in accounting.

The method that I want to use for this paper is the C_score method of Khan and Watts (2009). This method is based on the reversed regression method of Basu (1997), but it takes firm-specific characteristics into account. The modified reversed regression method is as follows:

$$X_i = \beta_1 + \beta_2 DR_i + R_i (\mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i) + DR_i (\lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i) + (\delta_1 Size_i + \delta_2 M/B_i + \delta_3 Lev_i + \delta_4 D_i Size_i + \delta_5 D_i M/B_i + \delta_6 D_i Lev_i) + e_i$$

With C_score method I will try to measure the level of conservatism in accounting, in order to provide answers for the hypothesis.

The C_score method has a lot of benefits compared to other measurement methods such as the timely loss recognition or the skewness method, but there always remains a problem in measuring accounting conservatism. This problem is the fact that one measurement method can lead to wrong results, because it measures only a part of the total level of conservatism (conditional, unconditional) in accounting (Givoly et al., 2007). In this thesis I am concentrating on earnings conservatism and not unconditional conservatism. As a result I want to use a different measurement method for measuring earnings conservatism. This different method is used for robustness checks of the results.

The different measurement method will be regression of Basu (1997). With the Basu method I can examine whether the results with the C_score (which is partially based on the Basu regression) are consistent with the results of regression method from Basu (1997). And I can compare my results better with previous studies which used the same method. Another reason why I choose for this measurement method is the fact that the Basu regression uses partially the same data as needed for the C_score method. The advantage of this is that I can use the same sample size for both methods, therefore this method will be much better than for instance the non-operation accrual method. For the non-operation accrual method different data is needed, therefore the possibility exists that the sample has to be adjusted because of the lack of data.

For all hypotheses the C_score and the regression method of Basu (1997) will be used. With the first hypothesis the whole sample over the years 2002-2010 will be taken. The level of conservatism will be measured with the two methods. For the second hypothesis both methods will measure the level of conservatism for each year for the period 2002-2006. With the third hypothesis the sample will be divided into two periods. The first period consists of all firms from 2002-2006 and the second period will consist of all firms for the years 2007-2010. The second period represents the crisis period and the first period pre-crisis years. Both methods will be used to measure the level of conservatism in the two sample periods. Then those two levels of conservatism will be compared with each other. For the final hypothesis the sample will be divided into two groups. One group with good performing companies and another group with bad performing companies. The bad performing companies will be the firms that have a negative total annual returns for the period 2007-2010 and the good performing companies will be the firms that have positive total annual returns for the period 2007-2010. For both groups the level of conservatism for the period 2002-2006 will be measured with the C_score and the Basu method (1997). Then the levels of conservatism of the two groups will be compared.

4.4 Sample, data and period

For this paper I want to investigate the possible impact of the credit crisis on accounting conservatism for European companies. I have limited the countries of Europe, because all countries in Europe would be too broad for my thesis, therefore I want to look at North-West European countries. There has not been any research done regarding the possible impact of the credit crisis on accounting conservatism for this region. Also for that reason I have chosen

to investigate these countries. The North-West European countries in this paper are: Belgium, England, France, Germany, Ireland, Luxembourg, and the Netherlands. With those countries I have a mix of common and code law countries. Since there is no research done with a mix of those countries I have chosen to use this sample.

In order to conduct my research I have to look at listed companies, because the C_score measurement method uses stock returns among other variables to measure the level of conservatism. As a result the sample of firms is limited to listed firms. Nevertheless there are many listed firms in those European countries that I want to investigate. Therefore I want to limit the sample size to the main stock indices of those countries. An advantage of this is that the data for small listed companies is limited and by excluding these companies it is easier to collect a sample which contains all the necessary data, and every country is then represented by only one single index. It could be that for small companies in indices the data is available but for other countries the data is unavailable for these small listed companies. This could result in a country that is represented by three indices and other countries have only one single index. For this reason I choose only to use the main indices of those countries.

The main indices include the most important and popular companies of that country. And the companies that are listed on the main indices are usually the most traded companies of those countries. By using the most important companies of the countries, I can investigate what the possible impact is of the credit crisis on accounting conservatism for companies that are the most traded and important ones in their country. Those companies have a lot of stakeholders and therefore they have a big impact on the society. Because of the size of those companies and the many stakeholders they have, those companies are an important part of the economy of those countries.

Finally “*larger firms are more attentive than smaller firms for the requirements of global investors community*” Kvaal and Nobes (2010). Meaning that larger firms have more analysts following the companies, therefore the disclosures of the companies will be more checked than with smaller firms which have less investors that follow the companies. As a result the risk of misstatements and litigation risk is higher. In theory this would result in the fact that larger firms have more incentive to be conservative than smaller firms.

For those reasons I want to take the main indices of these countries as my data sample.

The main indices are: AEX from the Netherlands, BEL 20 for Belgium, CAC 40 from France, DAX from Germany, FTSE 100 from England, Iseq overall from Ireland and the LuxX index from Luxembourg.

Indices	Listed firms
AEX (NL)	26 ¹⁹
BEL 20 (B)	20 ²⁰
CAC 40 (FR)	40 ²¹
DAX (Ger)	30 ²²
FTSE 100 ²³ (UK)	100 ²⁴
Iseq overall (Ire)	52 ²⁵
LuxX index (Lux)	11 ²⁶
Total listed firms	279

From the sample of this paper Ball et al. (2000) and Giner and Rees (2001) classify the UK as a common law country and France and Germany as code law countries. Further Ball et al. (2000) classify Ireland and the Netherlands as common law countries and Belgium as a code law country. Those classifications are based on the differences between the British-American and Continental accounting model (Ball et al., 2000). They argue that the classifications are

¹⁹ <http://www.euronext.com/fic/000/050/113/501138.pdf>

²⁰ <http://www.euronext.com/fic/000/058/147/581474.pdf>

²¹ <http://www.euronext.com/fic/000/058/147/581475.pdf>

²² [http://deutsche-](http://deutsche-boerse.com/dbag/dispatch/en/isg/gdb_navigation/home?active=constituents&module=InConstituents_Index&wp=DE0008469008&wplist=null&foldertype=_Index&wpbpl=ETR)

[boerse.com/dbag/dispatch/en/isg/gdb_navigation/home?active=constituents&module=InConstituents_Index&wp=DE0008469008&wplist=null&foldertype=_Index&wpbpl=ETR](http://deutsche-boerse.com/dbag/dispatch/en/isg/gdb_navigation/home?active=constituents&module=InConstituents_Index&wp=DE0008469008&wplist=null&foldertype=_Index&wpbpl=ETR)

²³ The FTSE 100 consists of 100 companies. There are 102 listed on FTSE 100, because Royal Dutch Shell and Schroders got each two listings.

²⁴ http://www.ftse.com/objects/csv_to_table.jsp?infoCode=100a&theseFilters=&csvAll=&theseColumns=Mw==&theseTitles=&tableTitle=FTSE 100 Index Constituents&dl=&p_encoded=1

²⁵ http://www.ise.ie/app/constituentList.asp?ACTIVEGROUP=1&list_type=O

²⁶ http://www.bourse.lu/application?_flowId=IndiceTauxCompoFlow&cdVal=45&cdTypeVal=IND

not flawless, because many countries have some overlap between code and common law factors, therefore it is difficult to classify a country correctly into just one legal system.

Luxembourg is the only country in the sample that has not been classified in previous papers. Luxembourg could also be seen as a code law country²⁷. The legal system of Luxembourg is based on French law and Belgium law. Both laws are seen as code law countries, therefore a classify Luxembourg also as a code law country.

Thus the sample will consist of three common law countries (England, Ireland and Netherlands) and four code law countries (Belgium, France, Germany and Luxembourg).

For the sample period I have looked at the period of 2002-2010 for the listed firms. The reason that I want to start at 2002 is for the fact that 2002 is after the internet bubble and the disaster of 9/11. After 2002 the economy went up and also the volatility of the stock market decreased. This period became much more stable, therefore I think that this would be a good starting point. The reason for 2010 is the fact that this will be the most up to date year, were companies have announced their annual results.

The data is obtained from Thomson One Banker database for the period 2001-2010. The reason that 2001 is for the fact that lagged data is needed for calculating the earnings. The data consists of annual returns, net income, leverage, market-to-book ratio and market capitalization.

The original sample of 279 firms over the period 2002-2010 would contain 2511 firm years. After deleting firms with missing values, negative market-to-book ratios, and the top and bottom 1 % of total firms net income, annual returns, leverage, market-to-book ratio and market capitalization, the final sample consist of 181 firms which represent 1629 firm years from the period 2002-2010. The descriptive statistics will be presented in table 1. The distribution is comparable to the distributions of Khan and Watts (2009). The returns are less negative and the size and inherently the market-to-book are bigger compared to Khan and Watts (2009). Table 2 provides a correlation matrix. The correlations are comparable with Khan and Watts (2009). But the market-to-book ratio has a positive correlation with earnings, Khan and Watts (2009) found a negative correlation. This could be caused by the differences in size and market-to-book ratio as stated in table 1. But there are no signs of

²⁷ <http://jurist.law.pitt.edu/world/lux.htm>

multicollinearity, because the variables do not correlate that much with each other (meaning a correlations of above 0.8 or 0.9).²⁸

Table 1: Descriptive statistics for period 2002-2010

	N	Mean	Std. Dev.	Q1	Median	Q3
Earnings	1629	0,058	0,095	0,039	0,064	0,089
Returns	1629	0,134	0,370	-0,074	0,129	0,328
Size	1629	8,888	1,373	8,093	8,953	9,808
M/B	1629	2,551	1,898	1,285	2,043	3,135
Leverage	1629	0,584	0,958	0,154	0,325	0,646

Earnings are net income before extraordinary items, deflated by lagged yearend market capitalization. Returns are annual returns. Size is the natural log of yearend market capitalization. M/B is market-to-book ratio defined as the year end market capitalization deflated by total equity. Leverage is defined as total debt deflated by yearend market capitalization.

Table 2: Pearson correlation matrix for period 2002-2010

	Earnings	Size	M/B	Leverage
Earnings	1	0,050**	,039	-,073***
Size	,050**	1	,202***	,103***
M/B	,039	,202***	1	-,263***
Leverage	-,073***	,103***	-,263***	1

*Earnings are net income before extraordinary items, deflated by lagged yearend market capitalization. Returns are annual returns. Size is the natural log of yearend market capitalization. M/B is market-to-book ratio defined as the year end market capitalization deflated by total equity. Leverage is defined as total debt deflated by yearend market capitalization. *Significance at 10%, **significance at 5% and *** significance at 1 %.*

4.5 Summary

At the beginning of this research design a short introduction was provided. Then the development of the hypotheses was discussed.

Prior research had found many evidence for the usefulness of conservative accounting, therefore I expect that companies are still conservative in accounting. The first hypothesis of this paper is thus, *H1: companies are still using conservative accounting.*

²⁸ Field, A. (2005), Discovering statistics using SPSS, p. 175.

The finding of this hypothesis is very important, because the research is based on the fact that companies are conservative in accounting.

The second hypothesis is as follows, *H2: conservatism in accounting has increased before the credit crisis*. This hypothesis is based on prior research that found evidence that companies became more and more conservative over time. In this paper I want to look whether this trend of increasing level of conservatism is still true.

The third hypothesis of this paper is, *H3: companies are less conservative during the credit crisis*. This hypothesis is based on the expectations that I think that companies are less conservative during a crisis. Those expectations are derived from the results of prior research. Prior research found evidence that companies became less conservative during the Asian crisis. I also expect that by the change of the accounting rules of the IFRS for financial assets the level of conservatism in accounting has decreased.

The final hypothesis, *H4: conservative companies suffer less during the credit crisis*. This hypothesis is derived from the research of Wu (2010). He found evidence that companies who are more conservative before the credit crisis suffer less during the credit crisis. I want to look whether/if these findings are consistent for West European listed firms.

The main measurement method that I want to use in this paper is the C_ score method of Khan and Watts (2009). Because of the fact that one measurement method can only measure a part of conservatism, I want to use a different measurement method for the robustness check. The other measurement method will be the regression of Basu (1997), because the same sample size can be used as with the C_ score method.

The sample consists the following countries: Belgium, England, France, Germany, Ireland, Luxembourg and the Netherlands. For those countries I take only the main indices, therefore every country is represented by one single index. The final sample consists 1629 firm years for the period of 2002 until 2010. The data is obtained from the Thomson ONE Banker database.

Chapter 5: Results and analyses

5.1 Introduction

In this chapter the results of the tested hypotheses will be presented. Each subsection will discuss one hypothesis followed by the analysis. In the next subsection includes the analysis followed by the limitations of this thesis. Finally, a short summary of this chapter will be provided.

5.2 Hypothesis 1

The hypothesis states that companies use accounting conservatism. As mentioned in section 4.3 both methods will be used to test the level of conservatism for the period 2002-2010.

The first method will be the C_score method. The results from the regression are presented in table 3 and 4. The results in table 3 indicate that only the intercept is significant at 10 % level. All other coefficients are insignificant. Annually some coefficients were significant only not for the whole period. The coefficients from Khan and Watts (2009) are almost all significant for the whole period. Therefore my coefficient results are inconsistent with previous literature. But when looking at the R^2 the average of the annual regressions is 0,271 indicating that 27,1% of earnings is explained by the variables in the regressions and also the annual regressions were all significant for the 1 % level except for the years 2004 where the regression was insignificant for the 10 % level and the year 2008 where it is significant at the 5 % level. Also the Durbin-Watson test suggests that the residual terms are uncorrelated when it has a value of 2²⁹. The average value is 1,954 indicates that there is a very small positive correlation between residual terms, meaning that there is autocorrelation.

From the coefficients the G_score and C_score are made by using the following formulas $G_score = \beta_3 = \mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i$ $C_score = \beta_4 = \lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i$. The results of the G_score and C-score are presented in table 4. The correlation between the G_score and the C_score is negative. “*This is consistent with higher asymmetric timeliness (incremental timeliness of bad news over good news) stemming partially from lower good news timeliness*” (Khan and Watts, 2009). The mean of the C_score is 0,123 indicating that companies were conservative in the period 2002-2010. But these outcomes of the G_score

²⁹ Field, A. (2005), Discovering statistics using SPSS, p. 170.

and C_score are based on insignificant coefficients, therefore the results could not be representative levels of conservatism.

Table 3: Mean coefficients from regressions

Indep. variable	coefficient	Std. Dev.	T-value	Sig.
Intercept (β_1)	0,061	0,085	2,160	0,063
Dummy (β_2)	-0,034	0,409	-0,246	0,812
Return (μ_1)	0,177	0,344	1,542	0,162
Return*size (μ_2)	-0,007	0,045	-0,471	0,650
Return*m/b (μ_3)	-0,018	0,027	-2,003	0,080
Return*leverage (μ_4)	-0,048	0,198	-0,722	0,491
Dummy*return (λ_1)	-0,254	2,619	-0,291	0,779
Dummy*return*size (λ_2)	0,027	0,215	0,382	0,712
Dummy*return*m/b (λ_3)	-0,013	0,295	-0,135	0,896
Dummy*returns*leverage (λ_4)	0,286	0,943	0,910	0,389
Size (δ_1)	0,000	0,009	-0,107	0,917
M/B (δ_2)	-0,001	0,006	-0,576	0,580
Leverage (δ_3)	0,014	0,056	0,767	0,465
Dummy*size (δ_4)	0,004	0,041	0,267	0,796
Dummy*m/b (δ_5)	0,001	0,023	0,107	0,917
Dummy*leverage (δ_6)	-0,023	0,076	-0,897	0,396
R	0,508			
R2	0,271			
Adjusted R2	0,205			
Durbin-Watson	1,954			

This table shows the results for the 1629 firm years from the following regression: $X_i = \beta_1 + \beta_2 DR_i + R_i (\mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i) + DR_i (\lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i) + (\delta_1 Size_i + \delta_2 M/B_i + \delta_3 Lev_i + \delta_4 D_i Size_i + \delta_5 D_i M/B_i + \delta_6 D_i Lev_i) + e_i$. The coefficients are the average coefficients from the nine annual regressions. The independent variables are based on the regression formula when the bracket are mathematical be removed. Dummy is 1 when returns are negative and 0 when positive. X is the dependent variable earnings. R, R², adjusted R² and Durbin-Watson are the average result from nine annual regressions. All other variables are the same as in previous tables.

Table 4: G_score and C_score from 2002-2010

	Mean	Std.Dev.	Q1	Median	Q3
Panel A: Descriptive statistics of G_score and C_score					
G_score	0,041	0,052	0,030	0,053	0,069
C_score	0,123	0,287	-0,004	0,061	0,152
Panel B: Pearson correlation matrix					
	G_score	C_score			
G_score	1,000	-0,703***			
C_score	-0,703***	1,000			

*This table presents the descriptive statistics of the G and C scores for 1629 firm years. ***significant at the 1 % level*

For the robustness check the Basu method is used for the same sample period. In table 5 the value of R^2 is 0,121. Meaning that 12,1% of earnings are explained by the independent variables. The Durbin-Watson result is 1,691, which means that the residual terms are positively auto correlated, but the value is relatively close to 2 meaning that the correlations is low.

The coefficients of the regression are stated in table 6. The coefficients are all significant at the 1 % level except for the dummy variable. The dummy*return represents the β_4 in the regression. The β_4 measures the incremental timeliness of bad news compared to good news, in other words the level of conservatism. The β_4 is 0.133 indicating that the companies were conservative in the period 2002-2010.

Table 5: Outcome regression for the years 2002-2010

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,34725975	0,12058933	0,11896581	0,08900076	1,69082945

*This table shows the results of the 1629 firm years with the following regression: $X_{it} / P_{it-1} = \beta_0 + \beta_1 DR_{it} + \beta_3 R_{it} + \beta_4 R_{it} * DR_{it}$. where X is the dependent variable earnings. Earnings are calculated by net income deflated by lagged yearend market capitalization. The other independent variables are Dummy, Return and Dummy*Return. Dummy is 1 when returns are negative and 0 when positive. Returns are annual returns.*

Table 6: Coefficients of the regression for the years 2002-2010

Indep. Variables	Coefficients	Std. Error	t-value	Sig.
(Constant)	0,068	0,004	16,589	0,000
Dummy	-0,009	0,008	-1,126	0,260
Return	0,026	0,010	2,700	0,007
Dummy*return	0,133	0,022	6,036	0,000

*In this table the coefficients of the regression $X_{it} / P_{it-1} = \beta_0 + \beta_1 DR_{it} + \beta_3 R_{it} + \beta_4 R_{it} * DR_{it}$ are presented. The corresponding standard error, t-value and significant level are also provided.*

In short both methods have measured conservatism for the firms in the years 2002-2010, which is consistent with my expectations and with previous research Basu (1997), Givoly and Hayn (2000), Khan and Watts (2009). They all found evidence that companies use conservative accounting.

5.3 Hypothesis 2

The second hypothesis states that the level of accounting conservatism has increased for the period before the credit crisis. The crisis period is defined as the years 2007-2010, therefore to test this hypothesis the sample period will be from 2002-2006.

The first results will be from the C_score method. The results in table 3 are the average from the annual regression for the years 2002-2010, therefore the individual results will not be presented in this chapter but will be available in the appendix. The coefficients are used to calculate the C_score. This score is used for the level of conservatism, therefore the G_score and C_score will be presented in table 7. The C_score is based on insignificant coefficients, therefore the results could be biased. After the year 2002 the level of conservatism is increased and this level stays the same until the 2006. In 2006 the level of conservatism tremendously increased compared with the previous years. In table 8 the correlations between the scores are presented. These correlations are positive, therefore they are inconsistent with higher asymmetric timelines.

Table 7: descriptive statistics of G_score and C_score

	Mean	Std. Deviation	Q1	Median	Q3
Gscore2002	0,292	0,355	0,101	0,248	0,378
Cscore2002	-0,088	0,346	-0,192	-0,067	0,104
Gscore2003	-0,046	0,113	-0,116	-0,048	0,031
Cscore2003	0,161	1,051	-0,248	0,279	0,784
Gscore2004	0,008	0,026	-0,006	0,007	0,021
Cscore2004	0,132	0,134	0,090	0,168	0,212
Gscore2005	0,056	0,071	0,019	0,061	0,099
Cscore2005	0,163	1,063	-0,504	-0,085	0,609
Gscore2006	0,152	0,093	0,116	0,175	0,215
Cscore2006	0,741	1,742	0,053	0,341	0,933

This table shows the descriptive statistics of the G_score and the C_score for 905 firm years in total for the years 2002-2006.

Table 8: Pearson correlation for the annual G and C scores

	gscore02	cscore02	Column2	gscore03	cscore03	Column3	gscore04	cscore04
gscore02	1,000	0,962***	gscore03	1,000	0,697***	gscore04	1,000	0,718***
cscore02	0,962***	1,000	cscore03	0,697***	1,000	cscore04	0,718***	1,000
	gscore05	cscore05		gscore06	cscore06			
gscore05	1,000	0,445***	gscore06	1,000	0,545***			
cscore05	0,445***	1,000	cscore06	0,545***	1,000			

This table shows the annual Pearson correlation for the period 2002-2006. All correlations are significant at the 1 % level.

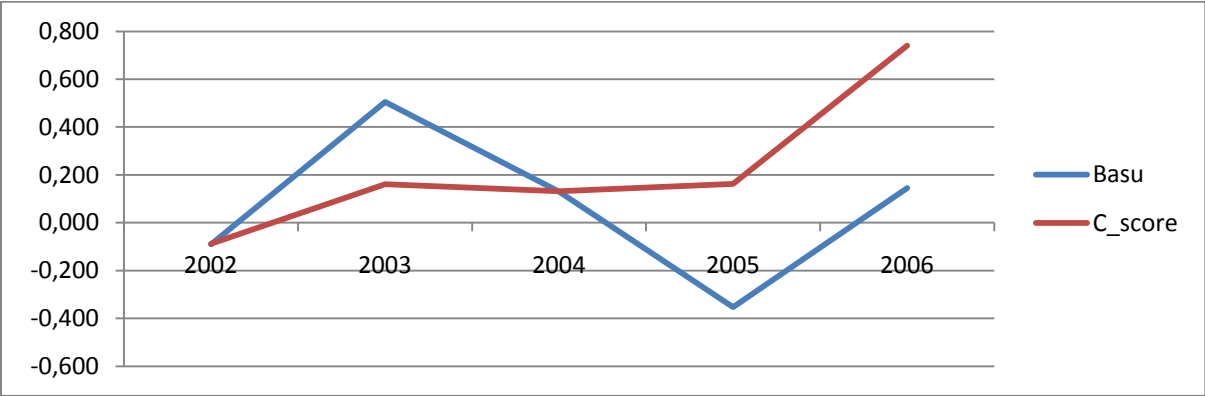
The results of the level of conservatism for each year measured with the Basu method are presented in table 9. Only the β_4 of the regression will be discussed, because this Beta measures the level of conservatism. The annual regressions with the Basu method are all significant and they have an average R^2 of 0.145. For the annual details of the other coefficients and the R, R^2 and their significance see appendix. The coefficients in table 9 are all insignificant except for the year 2003, therefore the measured level of conservatism is biased. As a results the levels of conservatism have a high change that they have happened by change, therefore they are possibly not representative values of the level of conservatism.

Table 9: coefficients of β_4 's for the years 2002-2006

Indep. Variables	Coefficient	Std. Error	t-value	Sig.
dummy*return02	-0,091	0,066	-1,368	0,173
dummy*return03	0,505	0,111	4,560	0,000
dummy*return04	0,130	0,087	1,492	0,137
dummy*return05	-0,353	0,293	-1,205	0,230
dummy*return06	0,145	0,266	0,546	0,586

*This table shows the annual β_4 coefficients from the Basu regression for the period 2002-2006. Dummy*returns represents the β_4 in the regression formula.*

Graph 1: The C_score and the β_4 of the Basu regression for the years 2002-2006



This Graph presents the annual outcomes of the C_score and Basu methods for the period 2002-2006.

According to the C_score method the level of conservatism is increasing in the period of 2002-2006. The Basu method shows an increase in the level of conservatism for the periods 2002-2003 and 2005-2006. These results of the C_score method are consistent with my expectations and with prior research (Basu, 1997; Givoly and Hayn, 2000) that accounting conservatism is increasing over time. The Basu method is partly consistent, because of the decline in the period 2003-2005. However the results presented in Graph 1 are based on insignificant results, meaning that the results have a high change of not being representative values of the level of conservatism.

5.4 Hypothesis 3

Hypothesis 3 states that firms are less conservative during the credit crisis. Which means that companies should have been more conservative before the credit crisis. Therefore the sample is divided into two sample period. The first period is the pre-crisis sample from the years 2002-2006 and the second sample is the crisis sample from the years 2007-2010.

Once more, the first method used is the C_score. The G and C scores are calculated by the means of the average annual regressions. Thus the annual regression coefficients from the years 2002-2006 are taken to calculate the average coefficients. From those average coefficients the G and C scores are derived with the linear functions (see table 3).

The results of the G and C score are presented in table 10. The C_score before the crisis is 3.003 and during the crisis it is 0.051. This clearly indicates a drop of the level of conservatism as expected. But looking at the correlations, the C_score has a positive correlation with the G_score in 2006 and a negative correlation in 2007. This means that in 2007 there is a higher asymmetric timeliness for bad news than for good news. But for 2006 the opposite is true. Although the C_score presents a drop in the level of conservatism, these levels of conservatism are all based on insignificant results. As a results those levels of conservatism have a high change of not being representative levels of conservatism.

The results of the Basu method are presented in table 11. Both regressions are significant, only the regression of the pre-crisis sample has a more positive correlation of the residual than the crisis sample. Further, the R^2 of the crisis sample is lower than that of the pre-crisis sample. This means that the independent variables of the crisis sample explain less the dependent variable than that that the independent variables of the pre-crisis do.

The β_4 's of the regression presented in panel B, are both significant and positive. This means that the companies were conservative in the period before the crisis and during the crisis. Before the crisis the level of conservatism was 0.136 and during the crisis 0.141. The companies were approximately 1,04 times more conservative during the credit crisis than before the crisis.

Table 10: Output G_score and C_score for periods 2002-2006 and 2007-2010

	Mean	Std. Deviation	Q1	Median	Q3
Panel A: descriptive statistics					
Gscore2002until2006	-0,905	0,271	-1,042	-0,894	-0,744
Cscore2002until2006	3,003	1,954	2,140	2,579	3,081
Gscore2007until2010	-0,004	0,527	-0,049	0,098	0,228
Cscore2007until2010	0,051	0,875	-0,374	0,177	0,631
Panel B: Pearson correlations					
	Gscore02-06	Cscore02-06	Gscore07-10	Cscore07-10	
Gscore02-06	1,000	0,141*	Gscore07-10	1,000	-0,375***
Cscore02-06	0,141*	1,000	Cscore07-10	-0,375***	1,000

*This table presents the descriptive statistics and the correlation of the G_score and C-score based on a sample of 905 and 724 firms years. The G and Cscores are based on the average coefficients of the annual regressions of the two sample periods. *significant at 10 % *** significant at 1 %*

Table 11: Output Basu regression for periods 2002-2006 and 2007-2010

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Panel A: regression model summary					
2002-2006	0,382	0,146	0,143	0,081	1,549
2007-2010	0,315	0,099	0,095	0,098	1,913
Panel B: coefficients from regressions					
Indep. Variable	Coefficients	Std. Error	t-value	Sig.	
Dummy*return2002-2006	0,136	0,031	4,395	0,000	
Dummy*return2006-2010	0,141	0,032	4,396	0,000	

*This table presents the regression results and the coefficients from the Basu regression based a sample of 905 and 724 firms years. Where dummy*returns stands for the β_4 in the regression formula.*

According to the C_score method there was a decrease in the level of conservatism but with the Basu method a slight increase was measured. The decrease of the C_score method is consistent with my expectations and prior literature (Gul et al.; Herrmann et al.,2008; Vichitsarawong et al., 2010). However the results of the C_score are based on insignificant coefficients, therefore those results have a high change of not being representative levels of conservatism for the companies.

The slight increase of conservatism is inconsistent with prior literature. Gul et al.; Herrmann et al., 2008 and Vichitsarawong et al., 2010 found evidence that the level of conservatism decreased during the Asia crisis. They all used the Basu method to measure the level of conservatism, therefore the measurement method could not have been the reason of the different results. When looking at the β_4 of the Basu regression method, Gul et al. found a

significant β_4 pre-crisis 0.207 and a significant β_4 during the crisis of 0.146. Vichitsarawong et al. (2010) found a significant β_4 pre-crisis of 0.063 and 0.092, and insignificant β_4 's of -0.004 and -0.029. Vichitsarawong et al. (2010) found levels of conservatism that are much lower than the levels of conservatism in this paper. Gul et al. found opposite results. Their results were higher than in this paper. But those results are much closer to the results in this paper. This could be caused by the fact that Gul et al. uses a sample that consist of eight years, while Vichitsarawong et al. (2010) uses only a period of four years that includes the pre-crisis and crisis period.

When looking at the descriptive statistics of Vichitsarawong et al. (2010) the mean of the earnings for the pre-crisis and crisis periods is (0.04) and the standard deviation is (0.236). The mean is lower than the mean of this sample (0.058) and the standard deviation is much higher than of this sample (0.095). The return of Vichitsarawong et al. (2010) for the pre-crisis and crisis periods is (-0.214). For this sample the mean of the return is (0.134). This indicates that the returns were much more negative for the companies during the Asia crisis for the sample of Vichitsarawong et al. (2010) than the sample used in this paper. These differences could have caused the different results.

Other obvious reasons of the differences could be the different time period and sample. Moreover different institutional factors discussed in chapter 3 could have caused the difference in the results. Different accounting rules could have played a more important role. During the Asia crisis there was a lack of good accounting rules. The companies from the sample are all required to use IFRS for their consolidating financial statements. Therefore these companies could not choose another accounting method that is more favourable during the credit crisis. This could have resulted in the fact that the level of accounting conservatism did not decrease during the credit crisis, because the accounting rules are stricter and they do not allow any deviation from the standards.

Another important factor that could have caused discrepancies is the inclusion of common and code law countries. The sample in this paper is a mix of common law countries and code law countries (see chapter 4). The level of conservatism between common and code law countries differ. This could have caused the difference in the measured level of conservatism.

Also corporate governance and information asymmetry differ. The Asia crisis had a lack of good corporate governance, therefore IFRS and other governance rules were adopted after the crisis. In this sample the companies had already adopted the IFRS before the credit crisis.

Also the information asymmetry was much bigger during the Asia crisis than for this sample. Before and during the Asia crisis there were no good accounting rules or corporate governance, therefore the disclosures were not sufficient to decrease the level of information asymmetry. The companies in this sample have rules about disclosures and they have to use IFRS, therefore the information that these companies provide is more useful and decreases the information asymmetry.

Another factor that could have caused the differences is the legal enforcement. When looking for instance at the efficiency of the judicial system of Thailand it only scores a 3.25, whilst on the other hand Belgium scores a 9,5 and the UK and the Netherlands even a 10 (Garcia Lara et al., 1998 table 5). This indicates that the level of enforcement is much lower in Thailand than for the other countries. As a result the level of conservatism will be higher for the countries in this sample than for instance Thailand. As stated in chapter 3 the legal enforcement also influence the capital markets. Thus the capital market are lower for the Asian countries than for the countries in this sample.

The factors mentioned in this section could all have caused the differences in the outcomes of the regressions.

5.5 Hypothesis 4

The final hypothesis states that firms that are more conservative before the credit crisis have a better performance during the credit crisis than firms that are less conservative before the credit crisis. To investigate this hypothesis the sample is divided into two groups. The first group includes firms that have a good performance during the credit crisis. The second group consist of firms that have a bad performance during the crisis. Bad performance is defined as a negative total stock return for the period 2007-2010. Good performance is therefore defined as a positive total stock return for the 4 years. This classification resulted in the following two samples: 123 firms in group 1 and 58 firms in group 2. The level of conservatism before the credit crisis of those two groups is measured, therefore the years of 2002 until 2006 are taken into account resulting in 615 firm years for group 1 and 290 firm years for group 2.

The results of the C_score of the two groups are presented in table 12. In panel A of table 12 the means of the C_scores are stated. The level of conservatism for the good performing companies is 2,881 and for the bad performing companies 3,261. This means that companies who are bad performing during the credit crisis had a higher level of conservatism before the

credit crisis than good performing companies. Nevertheless the C_scores are based on insignificant coefficients, therefore there is a high chance that these are not representative levels of conservatism. The correlations in panel B indicates that for group 1 there is an asymmetric timeliness for bad news, because of the negative correlation. But for the group 2 the opposite is true since the correlation is positive. However these correlations are both insignificant.

The results of the second measurement method are presented in table 13. The regressions on group 1 and 2 were both significant. The R^2 for group 2 is much higher than of group 1. Also the Durbin-Watson value is closer to 2, which indicates better autocorrelation compared with group 1.

Also the level of conservatism, which is stated in panel B, is higher for group 2 (0,955) than for group 1 (0,141). Both coefficients are significant. Again this means that companies that are bad performing during the credit crisis had a higher level of conservatism in the period before the credit crisis compared to companies that were good performing during the credit crisis.

Table 12: Output C_score method for group 1 and 2

	Mean	Std. Deviation	Q1	Median	Q3
Panel A: descriptive statistics					
Gscoregroup1	1,222	0,948	0,610	1,001	1,557
Cscoregroup1	2,881	1,561	2,121	2,504	3,149
Gscoregroup2	0,788	0,513	0,467	0,901	1,115
Cscoregroup2	3,261	2,596	2,157	2,608	2,992
Panel B: Pearson correlation matrix					
	Gscoregroup1	Cscoregroup1	Gscoregroup2	Cscoregroup2	
Gscoregroup1	1,000	-0,094	Gscoregroup2	1,000	0,101
Cscoregroup1	-0,094	1,000	Cscoregroup2	0,101	1,000

This table presents the G and Cscores of group 1 and 2 of the period 2002-2006 and their correlations. Group 1 are the good performing companies and group 2 the bad performing companies. Group 1 consist of 615 firms years and group 2 of 290. The correlations are insignificant for the 1,5 and 10 % levels.

Table 13: Output Basu method for group 1 and 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
Panel A: regression model summary					
Group1	0,359	0,129	0,124	0,083	1,539
Group2	0,793	0,629	0,625	0,200	1,923
Panel B: coefficients from regressions					
Indep. Variable	Coefficients	Std. Error	t-value	Sig.	
dummy*returngroup1	0,141	0,039	3,596	0,000	
dummy*returngroup2	0,955	0,124	7,682	0,000	
Panel C: average of total assets for 2002-2006					
Group1	32291,112				
Group2	89690,661				

*This table presents the outcomes of the Basu regression for group 1 and 2 for the years 2002-2006. The coefficient dummy*return is the β_4 of the regression formula. In panel C the average of the total assets of both groups are presented.*

The results of both measurement methods indicate that group 2 was more conservative in the period before the credit crisis. This is inconsistent with my expectations and prior literature. Wu (2010) found evidence that conservative firms perform better during the credit crisis. The different results could be caused by the different sample and sample period. Wu (2010) looks at American listed companies during one 1 year. The sample in this thesis consists of seven different countries and looks at a nine year time period.

Also when looking at the descriptive statistics, the means all differ from the means in this sample. The means of Wu (2010) are: Earnings (-0,207) Returns (0,126) Size (35920,135) M/B (1,967) Leverage (0,208). The means in this sample are: Earnings (0,058) Returns (0,134) Size (8,888) M/B (2,551) Leverage (0,584). The sample of Wu (2010) consists of much bigger companies than the sample used in this paper. Also the mean of the earnings is negative compared with positive earnings in this paper. Finally the leverage for the sample in this paper is more than two times bigger than the leverage of the sample from Wu (2010).

Another difference is the fact that my sample is a mix of common and code law countries whereas the sample of Wu (2010) only uses a common law country. Therefore the level of conservatism could be different between the two samples.

Another institutional factor is litigation. The litigation risk is much higher in the USA than for the sample in this paper. Another factor includes/regards accounting rules. The US firms use US GAAP and companies in this sample use IFRS. US GAAP is more rule based than the IFRS, which is more principle based. These factors might have caused the different outcomes.

In table 13 panel C the average total assets for both groups are stated. The average assets of the bad performing companies are approximately 2,78 times higher compared with the average assets of the good performing companies. This means that the bad performing companies are much more capital intensive firms than the good performing companies. When a company possesses a lot of assets it is easier to be conservative by keeping its assets valued at historical costs. The book value of the company will therefore be much lower than the market value (which incorporates market values of assets) of the company. As a result, a possible lurking variable in both measurement methods could be the total assets of the companies.

5.6 Analysis of both measurement methods

The C_score method is based on the Basu method as described in section 2.4.4, therefore one would expect to find some similar results. For hypotheses 1 and 4 similar results were found. For hypothesis 1 both methods have measured conservatism. For hypothesis 4 both methods measured a higher level of conservatism for group 2. But looking at hypothesis 3 and 4 there were some inconsistencies between the two methods. With hypothesis 3 the C_score method measured a decrease of conservatism during the crisis and the Basu method a slight increase. With hypothesis 2 the C_score measured an increase in the period before the credit crisis, whilst the second method measured a decrease in that period. Those inconsistencies could be explained by the fact that all measured levels of conservatism according to the C_score method were based on insignificant coefficients. Whereas the Basu method found significant results for all hypotheses except for the second hypothesis.

Although the theory suggests that the C_score method measures the level of conservatism more accurately, because it takes three firm-specific variables into account, the results for this sample suggest the opposite. For this sample the Basu method found more significant results compared to the C_score method. This could be explained by the fact that the C_score method uses much more independent variables in the regression, therefore the C_score method needs a bigger sample compared to the Basu method. However it is more difficult for the C_score

method to get a large sample, because the extra three variables can result in missing values and the outliers of those extra variables have to be deleted.

A possible explanation for the insignificant values of the C-score method could be that the sample used in this thesis is too small and consists of a mix of common and code law countries. All prior literature that has used the C_score method used common law countries and they have only looked at one single country.

Thus the use of the Basu method resulted in more significant results than with the C_score method for this sample. Therefore the Basu method is more useful method for this sample than the C_score method.

5.7 Limitations

Every research faces some limitations unfortunately this thesis is no exception to that. The limitations of this thesis will be classified into data limitations and research method limitations.

5.7.1 Sample limitations

The fact that I only have taken listed firms in my sample is a limitation, as therefore the outcomes can not be generalized to all companies in the credit crisis. Another limitation is that only firms from the large indexes are used in this sample, therefore the results cannot be generalized for firms listed on smaller indexes.

Regarding the data, sample firms with missing data will be deleted. As a result, only the firms that have enough data for the period of 2002-2010 will be taken into account, usually these are companies that are not bankrupt, leading to a possible survivor bias.

Another limitation of the sample is its size. The sample could be too little to get significant annual results.

Finally, the sample period has got some limitations. It is still unsure if the credit crisis is over, therefore the sample is limited. The year 2011 is not taken into account, this could lead to wrong conclusions or biases in the results.

5.7.2 methodology limitations

One limitation of the research is that the method that I used does not take all firm-specific characteristics into account, because the C_score method is only using three characteristics. This could lead to biases in the outcomes.

A final limitation of the measurement method is that it takes stock returns as an indication for reflection of good and bad news. The fluctuations of the stock returns could also be caused by other factors as stated earlier, therefore the measured level of accounting conservatism could be biased. This could result in inaccurate conclusions.

According to Givoly et al. (2007) using only one single measurement method for conservatism could lead to incorrect conclusions. For this thesis I have used only two measurement methods for earnings conservatism. The C_score method is also based on the Basu method, therefore the measured levels of conservatism might not be accurate for different kinds of conservatism.

5.8 Summary

The results from the C_score and Basu method for hypothesis 1 indicate that the firms of the sample were conservative for the period 2002-2010. This is consistent with my expectations and prior research. Only the results of the Basu method were significant.

The outcomes from both methods for the second hypothesis show some contradictions. The C_score results showed an increased level of conservatism for the period 2002-2006 which is consistent with my expectations and prior literature. But the Basu results had shown only an increase during 2002-2003 and 2005-2006. The results from both methods were based on insignificant coefficients.

For the third hypothesis the results were contradicted. The C_score method showed a decrease in the level of conservatism for firms during the credit crisis compared to the level of conservatism in the period before the credit crisis. However, the Basu method resulted in a slight increase of the level of conservatism during the credit crisis compared to the period before the credit crisis. Again only the results from the second method were significant. The results from the second method were inconsistent with the expectations and prior research. Possible explanations for those differences could be the institutional factors discussed in chapter 3. Also the different sample and period or the lack of accounting rules during the Asian crisis could have caused different outcomes.

The results from both methods for the fourth hypothesis were consistent with each other. Both methods found that firms who were bad performing during the credit crisis were more conservative in the period before the crisis than companies who were good performing during the credit crisis. This findings were inconsistent with the expectations and prior research. The mix of common and code law countries could have caused this difference, but a possible lurking variable could be the total assets of the firms. The total assets of the firms from the bad performing companies were approximately 2,78 higher than those of the good performing companies.

Both measurement methods found a lot of consistent results. This was expected because the C_score method is based on the Basu method. However, the results from the C_score method were all insignificant, whilst the second method found more significant results. As a result the Basu method is a more useful method for this sample compared to the C_score method.

The thesis has several limitations. For the sample only firms listed on large indexes were used, this results in the fact that the outcomes cannot be generalized for private firms and firms listed on smaller indexes. All firms with missing values were deleted, which could result in a survivor bias. Finally in this thesis only two measurement methods for conservatism were used. This could have led to inaccurate results, because those methods do not capture all conservatism.

Chapter 6: Conclusion

6.1 Summary

Although a generally accepted definition of conservatism is missing, conservatism can be seen as the higher verification requirement for good news/ gains than the verification requirement for bad news/ losses. Evidence is found that conservatism is an important factor in accounting. There are four explanations for accounting conservatism: contracting, litigation, taxation and accounting regulation. Researchers have developed several methods to measure the level of conservatism.

In this thesis the level of conservatism in relation with the credit crisis is examined. To measure conservatism two models are used in this thesis. The first model is that of Khan and Watts (2009), the C_score method, which is based on the Basu regression method (1997), only it uses three extra variables in the regression. The second method used is the Basu regression. Both measurement methods use a regression based on firms 'earnings and their annual returns to define the level of conservatism.

The sample used in this thesis consists of seven European countries: Belgium, France, Germany, Ireland, Luxembourg, UK and The Netherlands. From every country the companies listed on the largest index were used for this sample. The research is conducted over a sample of 181 firms for the period 2002-2010, resulting in a total sample of 1629 firm years.

Since the sample consists of several different countries there are some institutional factors. Those factors are common law and code law countries, litigation, and tax. But research found that institutional factors change over time and other research found no difference between common and code law countries for the level of conservatism. The institutional factors of the Asia crisis and the credit crisis were also elaborated, because prior literature had investigated the level of conservatism during the Asia crisis. Clearly there are differences regarding the time period, accounting rules, and culture. But according to research all crisis have similarities such as the moral hazard problem, abundant liquidity and inflated property prices.

Analysis of the C_score method showed that companies are conservative in the period of 2002-2010. Also the results of the Basu method showed that companies are conservative in that period. However, the results of the Basu method were significant. The results were consistent with the expectations and prior literature.

Further analyses showed that the level of conservatism according to the results of the C_score method increased in the period 2002-2006, which is consistent with the expectations and prior research. The other method found only increases from 2002-2003 and 2005-2006. From 2003-2005 there was a decrease. The results of both methods were insignificant.

Analyses of the level of conservatism before (2002-2006) and during the credit crisis (2007-2010) resulted in a decrease according to the C_score method and a slight increase according to the Basu method. Again only the results of the Basu method were significant. The results of the Basu method are inconsistent with the expectations and prior literature. The difference could be caused by the institutional factors such as the different time period, accounting rules or the common and code law difference.

Finally, analyses have showed that companies who were bad performing (a negative total return for the years 2007-2010) during the credit crisis were more conservative in the period before the credit crisis than companies who were good performing (positive total returns for the years 2007-2010) during the credit crisis. Only the results from the Basu method were significant. These results were inconsistent with the expectations and prior literature. A possible lurking variable could be the total assets of the companies. Indeed, the bad performing companies had approximately 2,78 higher total assets than the good performing companies.

The C_score method showed only insignificant results, therefore the Basu method is a better measurement method for the sample used in this thesis.

The thesis has several limitations. The sample might have survivor bias and also the sample size is a limitation of this research. Finally, the fact that only two measurement methods were used to measure conservatism leads to limitations.

6.2 Conclusion

The research question of this thesis is ‘*What was the impact of the credit crisis on accounting conservatism?*’

Analyses have showed that companies were conservative in the period 2002-2010. According to the C_score method the credit crisis caused a decrease in the level of accounting conservatism. However, these results are based on insignificant results, therefore there is a high chance that these results are not representative for the level of conservatism. However,

the Basu method found significant results. Those results indicate that the credit crisis had almost no impact on the level of accounting conservatism. The crisis period showed a slight increase of approximately 1,04 compared with the pre-crisis period. Based on this result the credit crisis had almost no impact on the level of accounting conservatism for firms used in this sample. The Basu did not find any decrease in the level of conservatism during the crisis as prior literature had found.

Furthermore I found evidence that firms with a negative total return in the years 2007-2010 were more conservative than firms who had a positive total return in those years. This means that the level of conservatism did not help the companies to lower the bad performance during the credit crisis.

To conclude, accounting conservatism is still used by companies listed on large indexes in the countries Belgium, France, Germany, Ireland, Luxembourg, UK and The Netherlands. And the credit crisis had almost no effect on the level of conservatism. Firms that had a bad performance during the credit crisis were more conservative than firms with a good performance.

6.3 Further research

Given the limitations of the research conducted and to extend the results of this research, I will discuss opportunities for further research.

First of all I suggest that further research with a bigger and/or a different sample will be setup to investigate whether the credit crisis had an impact on the level of conservatism.

Another possibility could be that more research will be conducted to investigate if the C_score method provides significant data when using a bigger or different sample that includes both code law and common law countries or just a sample with merely common or code law countries. The single research that has been done with the C_score method, excluding this paper, has used the C_score method only for one country. For that reason I suggest that further research includes more countries in the sample.

A variant on the previous suggestions could be that research will be conducted to investigate if the C_score method can be used for a code law country. There is no research done with the C_score method which examined a code law country. I think that it will be interesting to find out whether the C_score method is also usable for code law countries.

References

Accounting Principles Board (APB), 1965. Accounting Principles Board Opinion No. 6, Status of Accounting Research Bulletins. American Institute of Certified Public Accountants (AICPA), New York.

Ball, R., S.P. Kothari, and A. Robin, 2000. The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics*, Vol. 29, pp. 1-51.

Ball, R. and L. Shivakumar 2005. Earnings quality in UK private firms: comparative loss recognition timeliness, *Journal of Accounting and Economics*, Vol. 39, pp. 83-128.

Basu, S., 1997. The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, Vol. 24, No. 1, pp. 3 – 37.

Beatty, A., J. Weber and J.J. Yu, 2008. Conservatism and Debt, *Journal of Accounting and Economics*, Vol. 45, pp. 154-174.

Beaver, W.H. and S.G. Ryan, 2005. Conditional and unconditional conservatism: concepts and modeling, *Review of Accounting Studies*, Vol. 10, pp. 269-309.

Bliss, J.H. 1924. Management through Accounts. New York, NY: The Ronald Press Co.

Bushman, R.M. and J.D. Piotroski, 2006. Financial Reporting Incentives for Conservative Accounting: The influence of Legal and Political Institutions, *Journal of Accounting and Economics*, Vol. 42, pp. 107-148.

Chung, H.H. and J.P. Wynn, 2008. Managerial legal liability coverage and earnings conservatism, *Journal of Accounting and Economics*, Vol. 46, pp. 135-153.

Dechow, P., W. Ge, and C. Schrand, 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences, *Journal of Accounting and Economics*, Vol. 50, pp. 344-401

Dietrich, J.R., K.A. Muller III, and E.J. Riedl, 2007. Asymmetric timeliness tests of accounting conservatism, *Review of Accounting Studies*, Vol. 12, pp. 95-124.

Fama, E.F., L. Fischer, M.C. Jensen, and R. Roll, 1969. The adjustment of stock prices to new information, *International Economic Review*, Vol. 10 (1), pp. 1-21.

Feltham, G., and J. A. Ohlson. 1995. Valuation and clean surplus accounting for operating and financial activities. *Contemporary Accounting Research*, Vol. 11 (Spring), pp. 689-731.

Field, A., 2005. *Discovering Statistics using SPSS*, Sage Publications.

Financial Accounting Standard Board, 'Qualitative Characteristics of Accounting Information. Statement of Financial Accounting Concept No. 2, Stamford, CT. (1980) .

Fuller B. and R. Suwanraks, 1997. Mexico 1994 versus Thailand 1997 The current economic crisis here has been compared to the Mexican crisis in 1994. Ivory Tower takes a closer look at the two cases. *TDR Quarterly Review*, Vol. 12, No. 3 (September), pp. 9-14.

Garcia Lara, J.M., A. Mora, 2004. Balance Sheet versus Earnings conservatism in Europe. *European Accounting Review*, Vol. 13, No. 2, pp. 261-292.

Giner, B. and W. Rees, 2001. On the Asymmetric Recognition of Good and Bad News in France, Germany and the United Kingdom. *Journal of Business Finance & Accounting*, Vol. 28, Issue 9-10, pp. 1285-1331.

Givoly, D. and C. Hayn, 2000. The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting and Economics*, Vol. 29, No. 3, pp. 287-320.

Givoly, D., C.K. Hayn and A. Natarajan, 2007. Measuring reporting conservatism, *The Accounting Review*, Vol. 82, pp. 65-106.

Gul, F.A., B. Srinidhi, and T. Shieh. The Asian Financial Crisis, Accounting Conservatism and Audit Fees: Evidence from Hong Kong (Undated). Available at SSRN: <http://ssrn.com/abstract=315062> or doi:10.2139/ssrn.315062.

Healy, P.M., 1985. The effect of bonus schemes on accounting decisions, *Journal of Accounting and Economics*, Vol. 7, pp.85-107.

Herrmann, D.R., S. Pornupatham and T. Vichitsarawong, 2008. The impact of the Asian Financial Crisis on Auditors' Conservatism, *Journal of International Accounting Research*, Vol. 7, pp. 43-63.

Hoeven, R. L. ter and J.L. Bout, 2010. Herclassificatie van financiële activa: Aanleiding, inhoud en toepassing van een politiek gedreven IAS 39-amendement, *Maandblad voor Accountancy en Bedrijfseconomie*, Vol. 84, No. 3 (March), pp. 133-142.

Huang, A., Y. Tian, and T. S. Wirjanto, 2008. Re-examing Accounting Conservatism: The importance of Adjusting for Firm Heterogeneity. (working paper).

International Financial Reporting Standards (IFRS). Framework for the Preparation and Presentation of Financial Statements (London: IASCF, 2004).

Jensen, M. C., and W. H. Meckling, 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics*: pp. 305-360.

Kahn, M. and R.L. Watts, 2009. Estimation and empirical properties of a firm-year measure of accounting conservatism, *Journal of Accounting and Economics*, Vol. 48, pp. 132-150.

Khor, H. E and R. X. Kee, 2008. Asia: A Perspective on the Subprime Crisis. *Finance and Development*, Vol. 45, No. 2.

Kvaal, E., and C. Nobes, 2010. International differences in IFRS policy choice: a research note. *Accounting and Business Research*, Vol. 40, No. 2, pp. 173-187.

Lafond, R. and R.L. Watts, 2008. The Information Role of Conservatism, *The accounting Review*, Vol. 83, No. 2, pp. 447-478.

La Porta, R., F. Lopez-De-Silanes, A. Shleifer and R.W. Vishny, 1997. Legal Determinants of External Finance. *The Journal of Finance*, Vol. 52, No. 3, pp., 1131-1150.

La Porta, R., F. Lopez-De-Silanes and A. Shleifer, 1998. Law and Finance. *Journal of Political Economy*, Vol. 106, No. 6, pp. 1113-1155.

La Porta, R., F. Lopez-De-Silanes and A. Shleifer, 1999. Corporate Ownership Around the World. *The Journal of Finance*, Vol. 54, No. 2, pp. 471- 517.

Lobo, G. J. and J. Zhou, 2006. Did conservatism in financial reporting increase after the Sarbanes-Oxley Act? Initial Evidence. *Accounting Horizons*, Vol. 20, No. 1 (March), pp. 57-73.

Nanto, D. K., 1998. CRS Report The 1997-98 Asian Financial Crisis.

Nikoleav, V.V., 2010. Debt Covenants and Accounting Conservatism. *Journal of Accounting Research*, Vol. 48, No. 1, pp. 137-176.

Penndorf, B., 1930. The relation of taxation to the history of the Balance Sheet. *The Accounting Review*, Vol. 5, pp. 243-251.

Raonic, I, S. McLeay, and I. Asimakopoulus, 2004. The Timeliness of Income Recognition by European Companies: An analysis of Institutional and Market Complexity. *Journal of Business Finance & Accounting*, Vol. 31, Issue 1&2, pp. 115-148.

Ryan, S.G., 2006. Identifying conditional conservatism, *European Accounting Review*, Vol. 15, pp. 511-525.

Scott, W. R., 2008. *Financial Accounting Theory*, Prentice Hall Edition.

Vichitsarawong, T., L.L. Eng, and G.M. Meek, 2010. The impact of the Asian Financial Crisis on Conservatism and Timeliness of Earnings: Evidence from Hong Kong, Malaysia, Singapore, and Thailand, *Journal of International Financial Management and Accounting*, Vol. 21, pp. 32-61.

Watts, R.L., 2003. Conservatism in accounting. Part I: explanations and implications, Part II: evidence and research opportunities, *Accounting Horizons*, Vol. 17, No. 3, pp. 207-221, and Vol. 7, No. 4, pp. 287-301.

Wu, Q., 2010. Accounting Association Annual Meeting -- *The Benefits of Conservative Accounting to Shareholders: Evidence from the Financial Crisis*, August 1, 2010

Zhang, J., 2008. The contracting benefits of accounting conservatism to lenders and borrowers, *Journal of Accounting and Economics*, Vol. 45, pp. 27-54.

Internet

<http://news.bbc.co.uk/2/hi/business/7086909.stm>

<http://www2.bot.or.th/statistics/ReportPage.aspx?reportID=222&language=eng>

http://www.bourse.lu/application?_flowId=IndiceTauxCompoFlow&cdVal=45&cdTypeVal=I
ND

http://deutsche-boerse.com/dbag/dispatch/en/isg/gdb_navigation/home?active=constituents&module=InConstituents_Index&wp=DE0008469008&wplist=null&foldertype=_Index&wpbpl=ETR

<http://www.euribor-ebf.eu/euribor-org/euribor-rates.html>

<http://www.euronext.com/fic/000/050/113/501138.pdf>

<http://www.euronext.com/fic/000/058/147/581474.pdf>

<http://www.euronext.com/fic/000/058/147/581475.pdf>

http://www.ftse.com/objects/csv_to_table.jsp?infoCode=100a&theseFilters=&csvAll=&theseColumns=Mw==&theseTitles=&tableTitle=FTSE 100 IndexConstituents&dl=&p_encoded=1

<http://www.guardian.co.uk/business/2008/sep/15/lehmanbrothers.creditcrunch>

http://www.ise.ie/app/constituentList.asp?ACTIVEGROUP=1&list_type=O

<http://jurist.law.pitt.edu/world/lux.htm>

http://online.wsj.com/article/SB122142278543033525.html?mod=special_coverage

<http://online.wsj.com/article/SB122156561931242905.html>

http://www.trouw.nl/nieuws/economie/article1882081.ece/ING_krijgt_injectie_van_10_miljard_.html

http://topics.nytimes.com/top/reference/timestopics/subjects/c/credit_crisis/index.html

Appendix 1: Overview of the composition of the indices

Companies listed on AEX:	
AEGON	ING GROEP
AHOLD KON	KPN KON
AIR FRANCE –KLM	PHILIPS KON
AKZO NOBEL	RANDSTAD
APERAM	REED ELSEVIER
ARCELORMITTAL	ROYAL DUTCH SHELLA
ASML HOLDING	SBM OFFSHORE
BAM GROEP KON	TNT
BOSKALIS WESTMIN	TOMTOM
CORIO	UNIBAIL-RODAMCO
DSM KON	UNILEVER
FUGRO	WERELDHAVE
HEINEKEN	WOLTERS KLUWER

Companies listed on Bel20:	
AB INBEV	GBL
ACKERMANS V HAAREN	GDF SUEZ
AGEAS (EX-FORTIS)	KBC
BEFIMMO-SICAFI	MOBISTAR
BEKAERT	NAT PORTEFEUIL (D)
BELGACOM	OMEGA PHARMA
COFINIMMO-SICAFI	SOLVAY
COLRUYT	TELENET GROUP
DELHAIZE GROUP	UCB
DEXIA	UMICORE (D)

Companies listed on CAC40:

ACCOR	CREDIT AGRICOLE	MICHELIN	SOCIETE GENERALE
AIR LIQUIDE	DANONE	NATIXIS	STMICROELECTRONICS
ALCATEL-LUCENT	EADS	PERNOD	SUEZ
ALSTOM	EDF	RICARD	ENVIRONNEMENT
ARCELORMITTAL	ESSILOR	PEUGEOT	TECHNIP
AXA	INTL	PPR	TOTAL
BNP PARIBAS ACT A	FRANCE TELECOM	PUBLICIS GROUPE SA	UNIBAIL-RODAMCO
BOUYGUES	GDF SUEZ	RENAULT	VALLOUREC
CAP GEMIN	LAFARGE	SANOFI-AVENTIS	VEOLIA ENVIRON
CARREFOUR	L'OREAL	SCHNEIDER ELECTRIC	VINCI
	LVMH		VIVENDI

Companies listed on DAX:

adidas AG	Deutsche Lufthansa AG	Linde AG
Allianz SE	Deutsche Post AG	MAN SE St
BASF SE	Deutsche Telekom AG	Merck KGaA
BAYER AG	E.ON AG	METRO AG St
Beiersdorf Aktiengesellschaft	Fresenius Medical Care AG & Co. KGaA St	Münchener Rück AG
BMW AG St	Fresenius SE & Co. KGaA	RWE AG St
Commerzbank AG	HeidelbergCement AG	SAP AG
Daimler AG	Henkel AG & Co. KGaA Vz	Siemens AG
Deutsche Bank AG	Infineon Technologies AG	ThyssenKrupp AG
Deutsche Börse AG	K+S Aktiengesellschaft	Volkswagen AG Vz

**Companies listed
on FTSE-100:**

3i Group	AstraZeneca	British Land Co	Diageo	ICAP
ARM Holdings	Autonomy Corporation	British Sky Broadcasting Group	Essar Energy	IMI
Admiral Group	Aviva	Bunzl	Eurasian Natural Resources Corporation	Imperial Tobacco Group
African Barrick Gold	BAE Systems	Burberry Group	Experian	Inmarsat
Aggreko	BG Group	Cairn Energy	Fresnillo	InterContinental Hotels Group
Alliance Trust (The)	BHP Billiton	Capita Group	G4S	International Consolidated Airlines Group
Amec	BP	Capital Shopping Centres Group	GKN	International Power
Anglo American	BT Group	Carnival	GlaxoSmithKline	Intertek Group
Antofagasta	Barclays	Centrica	HSBC Hldgs	Invensys
Associated British Foods	British American Tobacco	Compass Group	Hammerson	Investec
Johnson Matthey	National Grid	Resolution	Schroders	TUI Travel
Kazakhmys	Next	Rexam	Schroders N/V	Tesco
Kingfisher	Old Mutual	Rio Tinto	Scottish & Southern Energy	Tullow Oil
Land Securities Group	Pearson	Rolls-Royce Group	Serco Group	Unilever
Legal & General Group	Petrofac	Royal Bank Of Scotland Group	Severn Trent	United Utilities Group
Lloyds Banking Group	Prudential	Royal Dutch Shell A	Shire	Vedanta Resources
Lonmin	RSA Insurance Group	Royal Dutch Shell B	Smith & Nephew	Vodafone Group
Man Group	Randgold Resources	SABMiller	Smiths Group	WPP
Marks & Spencer Group	Reckitt Benckiser Group	Sage Group	Standard Chartered	Weir Group
Morrison (Wm) Supermarkets	Reed Elsevier	Sainsbury (J)	Standard Life	Whitbread

Companies listed on Iseq- overall:	Column2	Column3	Column4
ABBEY PLC - ESM	DCC PLC	IRISH CONTINENTAL GROUP PLC	PETRONEFT RESOURCES PLC - ESM
AER LINGUS GROUP PLC	DONEGAL CREAMERIES PLC - ESM	IRISH LIFE & PERMANENT GROUP HOLDINGS PLC	PRIME ACTIVE CAPITAL PLC - ESM
AGI THERAPEUTICS PLC - ESM	DRAGON OIL PLC	KARELIAN DIAMOND RESOURCES PLC - ESM	PROVIDENCE RESOURCES PLC - ESM
ALLIED IRISH BANKS PLC - ESM	ELAN CORPORATION PLC	KENMARE RESOURCES PLC	READYMIX PLC
AMINEX PLC	FBD HOLDINGS PLC	KERRY GROUP PLC	RYANAIR HOLDINGS PLC
ARYZTA AG	FIRST DERIVATIVES PLC - ESM	KINGSPAN GROUP PLC	SITESERV PLC - ESM
BALMORAL INTERNATIONAL LAND PLC - ESM	FYFFES PLC - ESM	MERRION PHARMACEUTICALS PLC - ESM	SMURFIT KAPPA GROUP PLC
BANK OF IRELAND	GLANBIA PLC	NORKOM GROUP PLC - ESM	TOTAL PRODUCE PLC - ESM
C&C GROUP PLC	GRAFTON GROUP PLC	ORIGIN ENTERPRISES PLC - ESM	TVC HOLDINGS PLC - ESM
CONROY GOLD & NATURAL RESOURCES PLC - ESM	GREENCORE GROUP PLC	ORMONDE MINING PLC - ESM	UNITED DRUG PLC
CPL RESOURCES PLC - ESM	ICON PLC	OVOCA GOLD PLC - ESM	UTV MEDIA PLC
CRH PLC	IFG GROUP PLC	PADDY POWER PLC	WORLDSREADS GROUP PLC - ESM
DATALEX PLC	INDEPENDENT NEWS & MEDIA PLC	PETROCELTIC INTERNATIONAL PLC - ESM	ZAMANO PLC - ESM

Companies listed on LuxX index:

ArcMit ne

BIP pe

Dexia p+n (nd)

"Foyer p+n (nd)"

KBCGroup pe+ne

Luxempar p+n

ReinetIn ne

RTLGroup p+n

SESG FDR pe

Socfinaf p+n (nd)

Socfinas p+n

Appendix 2: Tables of prior research

Author	Object of the research	Sample	Methodology	Results/comments
<i>the progress of conservatism</i>				
Basu (1997)	Conservatism in accounting and the development over time	All firm-year observations from 1963-1990 with return data on the CRSP NYSE/AMEX monthly files, and with accounting data from COMPUSTAT for firm in the USA.	Reverse regression of earnings on stock returns.	Earnings are more sensitive for bad news than for goods news. Conservatism has increased over time. Conservatism could be increased by the increase of liability.
Givoly and Hayn (2000)	“The changes in patterns of earnings, cash flows and accruals over the last four decades” (Givoly and Hayn, 2000). Accounting conservatism development over time	All firms on the 1999 COMPUSTAT database for the years 1950-1998 for firms in the USA.	Regression of earnings on stock returns, non-operating accrual method, skewness and variability and market-to-book ratio.	Conservatism has increased over time. This could be caused by intangible assets that aren't recognized in the accounting books.
<i>criticism on method that measures conservatism</i>				
Dietrich et al., (2007)	“Test the reliability of the regression method of earnings of stock returns as a measurement for conservative accounting”. (Dietrich et al., 2007)	All firm-year observations that have return data on the CRSP Monthly files and with necessary accounting data on COMPUSTAT for the period of 1963-1990 for USA firms.	General model of the casual relations among economic income, accounting earnings, non-earnings information, and stock returns. With a regression of earnings on stock returns with simulated data and real data.	The method regression of earnings on stock returns has inherent biases. Those biases are previously seen as conservatism. Therefore this method cannot be used to measure conservatism in accounting.
Givoly et al. (2007)	“The examine the power and reliability of the regression	All firms on Standard & Poor's COMPUSTAT 2001	The regression of earnings on stock returns of Basu	The regression method from Basu (1997) is influenced by

	of earnings on stock returns method from Basu (1997)''(Givoly et al., 2007)	database. For the period 1951-2001 for firms in the USA.	(1997) for simulated data and actual data.	aggregated effect, economic events effect and disclosure policies. Those factors are unrelated to accounting conservatism but they have an impact on the magnitude of conservatism that is measured with the Basu (1997) method.
Huang et al. (2008)	''To show that the firm specific characteristics which, are assumed to be homogenous in the Basu (1997) method, are in fact heterogeneous'' (Huang et al., 2008).	Firms from the NYSE/AMEX/NASDAQ for the period 1976-2005. For firms in the USA.	A modified regression method of Basu (1997) which includes some firm specific characteristics.	That the level of conservatism is much lower as indicated in prior research and that the level of conservatism did not increase over time.
<i>explanations of conservatism</i>				
Lobo and Zhou (2006)	''focuses on changes in conservatism, a discretionary choice to report lower earnings, following enactment of SOX'' (Lobo and Zhou, 2006).	Data that is available on COMPUSTAT for listed firms in the United States of America for the period of two years before the SOX introduction and two years after the SOX introduction.	The modified Jones model to measure the discretionary accruals and the reverse regression method of Basu (1997) to measure conservatism.	They found evidence that firms were more conservative after the introduction of the SOX and have lower discretionary accruals after the introduction of the SOX.
Beatty et al. (2008)	To provide evidence that conservative contract modifications exist with lender's demands for reporting conservatism.	Necessary data available on COMPUSTAT and loan data from SDC database, LPC database and LEXIS/NEXIS database. For the period of 1994-2004 for firms in the	Market-to-book ratio, modified regression of earnings on stock returns from Basu (1997), skewness in cash flows and non-operating accruals method.	They found evidence that conservative reporting is used with conservative debt covenants, by firms and lender, to resolve their agency conflicts. Finally they

		USA.	And the IncEscalator.	concluded that contractual modifications alone do not fulfil lenders demands for conservatism.
Chung and Wynn (2008)	“To examine the effect of managerial legal liability coverage on earnings conservatism” (Chung and Wynn, 2008)	Data from listed firms on the Toronto Stock Exchange (TSX) for the period 1998-2004 for firms in Canada.	Asymmetric timeliness in earnings as measurement for conservatism. And they measure managerial legal liability as the sum of directors’ and officers’ liability insurance coverage and cash for indemnification.	Firms with high legal liability coverage are less conservative. When a company has a high legal liability risk, the company will be more conservative.
Lafond and Watts (2008)	To provide evidence that information asymmetry between firm insiders and outside equity investors generates conservatism (Lafond and Watts, 2008).	NYSE and AMEX stocks with December fiscal year-ends for the period 1983-2001. COMPUSTAT for the market-to-book ratio	Conservatism was measured with Basu coefficient (1997) and market-to-book ratio. Information asymmetry with the Pin score and the bid and ask spread.	That asymmetry is positively correlated to conservatism. This means that when asymmetry of information is high, than conservatism in accounting will also be high.
Zhang (2008)	“examines the ex post and ex ante benefits of accounting conservatism for lenders and borrowers in the debt contracting process” (Zhang, 2008).	CRSP universe firm for the period of 1994-2003 for firms in the USA. Loan information is obtained from the Securities Database Corporation.	The regression of earnings on stock returns (Basu, 1997), the skewness of earnings and the non-operation accrual method to measure conservatism.	Found evidence that conservatism leads to lower interest rates. This suggest that both lenders and borrowers benefit of conservatism
Khan and Watts (2009)	To develop a firm-year measure of conservatism	All firms with accounting data on COMPUSTAT and CRSP for the period 1962-2005 for firms in the USA.	They used the C_score method that is based on the regression of earnings on stock returns (Basu, 1997) event studies and regression.	They found that with the C-score they can predict the flow of conservatism for a period of three years ahead. They also found evidence that companies with a high

				information asymmetry have higher level of accounting conservatism and they found that when a company has a high chance of litigation the company is more conservative.
Nikolaev (2010)	To examine if companies with covenants are more conservative, timelier in recognising bad news.	Companies that have enough data obtained from the Mergent Fixed Investment Securities Database (FISD), Compustat and CRSP. The final sample contains 2466 companies for the period 1980-2006.	The Basu regression model (1997) extended with debt covenants.	He found evidence that companies that rely more on private debt covenants are more conservative. In other words the level of conservatism and the level of debt covenants are positively correlated with each other.
<i>conservatism and differences between countries:</i>				
Ball et al. (2000)	They show that there exist differences internationally in the demand for accounting income.	Listed firms in Australia, Canada, UK, USA, New Zealand, France, Germany and Japan. Accounting income, dividends and cash flows over the period 1985-1995 were obtained from the Global Vantage Industrial/Commercial (IC).	The Basu (1997) model is used.	That companies in common law countries have a higher level of accounting conservatism compared with companies in code law countries.
Giner and Rees (2001)	The asymmetric timeliness of bad news between different countries	Companies from Germany, France and UK for the period 1990-1998.	They use three different models. First the association between contemporaneous news and timely loss recognition. Then this model	They found evidence that there is a stronger contemporaneous relation for bad news and earnings than for good news. They were

			is extended with prior earnings. Followed by another extended which includes the good and bad news for the two previous years.	unable to found significant differences between the three countries.
Garcia Lara et al. (2004)	The level of conservatism in European countries.	Companies from Belgium, France, Germany, Italy, Spain, Switzerland, the Netherlands and the UK for the period of 1987-2000.	They use a regression method that is based on the adjusted book value of equity.	They found that the level of balance sheet conservatism is higher for code law countries than for common law countries.
Raonic et al. (2004)	To indicate the differences in the timely loss recognition between different countries	All European firms that are listed in more than one country in Europe.	The Basu regression model. And several extensions on that model which includes the following extra variables: Enforcement, Market, Disclosure.	They found evidence that conservative accounting is not the same in different regulatory environments. The capital market pressure and regulatory impact leads to more conservatism in accounting.
Bushman and Piotroski (2006)	They investigate how reported accounting numbers are influenced by the institutional structures of the countries where the companies are located.	All countries with sufficient accounting data on the Global Vantage for the period 1992-2001.	Regression models that investigate the relation between economic income and conditional on country-level institutions that can the earnings number Bushman and Piotroski (2006).	They found that a country's legal system, securities laws, political economy and tax can create incentives that influence the behaviour of management, investors and regulators. They also found evidence that high quality legal systems results in more conservative. And that public enforcement also demands a higher level of conservatism

				than private enforcement.
<i>conservatism and crisis</i>				
Gul et al.	To examine the financial downturn in Hong Kong to provide evidence that conservative accounting has decreased in economic downturn period.	Hong Kong listed firm. Data is collected from the PACAP database for the period of 1990-1997.	The Basu model (1997) and the audit fee model are used.	They found evidence that conservatism is lower during the crisis then the period before the crisis. And they found that the audit fees increases when conservatism decreases.
Herrmann et al. (2008)	“The difference of conservatism between companies who are audited by a big 4 and non-big 4 audit firm during a financial crisis” (Herrmann et al., 2008).	Listed companies in Thailand for the period 1997-2003. Accounting data and stock price data is obtained from Global Vantage database. The size of audit firm is gathered from the I-SIMS cd-rom.	The reverse regression model of Basu (1997) is used.	They found that companies who are audited by a big 4 audit firm are more conservative then companies who are audited by non-big 4 audit firms. And that Thai’s companies, in general, are less conservative during a crisis and report more conservative after the crisis.
Vichitsarawong et al. (2010)	“To examine conservatism and timeliness of earnings in the period of the Asian crisis” (Li Eng et al., 2010).	Data from listed companies in Hong Kong, Malaysia, Singapore and Thailand is obtained for the Global Vantage database for the period 1995-2004.	The Basu model (1997) is used.	Companies are less conservative during a crisis and they are more conservative after the crisis. They also found evidence That companies are even more conservative after the crisis then before the crisis.
Wu (2010)	To examine the effect of conservative accounting on shareholders’ value. (Wu,	Monthly stock data from CRSP. And accounting and specific data from	The C_score method of Khan and Watts (2009), the non-operating accruals method	Companies who are more conservative suffer less during the financial crisis

	2010)	COMPUSTAT for the period 2007-2008. For firms in the USA.	and the market to book ratio.	then companies who are less conservative. Therefore conservatism benefits the shareholders, because the agency problem is mitigated with conservatism.
<i>Institutional factors:</i>				
La Porta et al. (1997)	To investigate the impact of legal difference between countries on the development level of the capital markets.	The sample consist of 49 countries and is obtained from the WorldScope database for the year 1996.	A regression between the capital market size and several variables.	The found evidence that the legal environment (consist of the investor protection rules and enforcements) influence the size and extent of the capital market.
La Porta et al. (1998)	To investigate the impact of legal difference between countries on the development level of the capital markets and the level of ownership concentration of companies.	The sample consist of 49 countries that have publicly traded companies obtained from the WorldScope and Moody's International databases for the year 1993.	Countries are categorized based on their available legal rights/rules in those countries. Then those scores are compared.	They found evidence that common law countries have the strongest investor protections. France has the weakest protection. Code law countries are in the middle of those two. They also found that the concentration of ownership is high when the legal protection of investors is poor.
La Porta et al. (1999)	They investigate the corporate ownership for controlling shareholder.	Large listed companies in 27 wealthy countries. For the period 1995-1996.	Comparing different sample groups with each other by a t-test.	That shareholder distribution is only common for large companies in the wealthy countries which have good shareholder protection. Countries with low

				shareholder protection have also large controlling shareholders.
Kvaal and Nobes (2010)	Examine whether there are differences between countries in the IFRS accounting policies.	The large listed companies in Germany, UK, Australia, France and Spain. For the period 2005-2006.	Testing if the null hypothesis is by the chi-square tests.	They found evidence that there is a difference between countries in their national practice of the IFRS.

Appendix 3: Tables of the results of the regressions

Annual regression output according to the C_score method:

2002:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,581a	,337	,277	,08699	,337	5,592	15	165	,000	2,064

a. Predictors: (Constant), dlev02, dmtb02, dreturn02, size02, dummy02, returnmtb02, mtb02, returnlev02, dreturnmtb02, lev02, returnsize02, returns02, dsize02, dreturnsize02, dreturnlev02

b. Dependent Variable: earnings02

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,069	,088		,783	,435
	dummy02	,049	,139	,229	,355	,723
	returns02	,736	,300	2,240	2,456	,015
	returnsize02	-,076	,047	-1,859	-1,615	,108
	returnmtb02	-,005	,060	-,048	-,082	,935
	returnlev02	,298	,301	1,741	,990	,324
	dreturn02	-,762	,405	-1,643	-1,884	,061
	dreturnsize02	,116	,057	2,105	2,029	,044
	dreturnmtb02	-,038	,063	-,272	-,595	,553
	dreturnlev02	-,300	,302	-1,720	-,993	,322
	size02	,001	,013	,020	,108	,914
	mtb02	-,010	,011	-,221	-,897	,371
	lev02	-,077	,055	-,885	-1,414	,159
	dsize02	-,004	,018	-,188	-,251	,802
	dmtb02	,002	,013	,047	,164	,870
	dlev02	,090	,056	1,059	1,611	,109

a. Dependent Variable: earnings02

2003:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,577a	,333	,272	,09871	,333	5,485	15	165	,000	2,016

a. Predictors: (Constant), dlev03, dmtb03, dreturn03, size03, dummy03, returnmtb03, mtb03, returnlev03, dreturnmtb03, lev03, returnsize03, returns03, dsize03, dreturnsize03, dreturnlev03

b. Dependent Variable: earnings03

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,083	,081		-1,031	,304
	dummy03	,887	,223	3,298	3,974	,000
	returns03	,641	,167	2,005	3,849	,000
	returnsize03	-,083	,022	-2,117	-3,813	,000
	returnmtb03	,001	,011	,019	,124	,902
	returnlev03	,036	,074	,108	,485	,628
	dreturn03	5,068	1,392	4,712	3,642	,000
	dreturnsize03	-,463	,171	-3,583	-2,714	,007
	dreturnmtb03	-,216	,131	-,421	-1,649	,101
	dreturnlev03	-,599	,190	-,636	-3,148	,002
	size03	,018	,010	,220	1,814	,072
	mtb03	-,002	,007	-,042	-,322	,748
	lev03	,000	,025	-,001	-,004	,997
	dsize03	-,094	,027	-3,062	-3,450	,001
	dmtb03	-,016	,017	-,239	-,908	,365
	dlev03	-,112	,053	-,334	-2,119	,036

a. Dependent Variable: earnings03

2004:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,317a	,100	,019	,05436	,100	1,228	15	165	,255	1,925

a. Predictors: (Constant), dlev04, dmtb04, dreturn04, size04, dummy04, returnmtb04, mtb04, returnlev04, dreturnmtb04, lev04, returnsize04, returns04, dsize04, dreturnsize04, dreturnlev04

b. Dependent Variable: earnings04

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,146	,053		2,754	,007
	dummy04	-,108	,126	-,742	-,852	,396
	returns04	-,108	,159	-,548	-,678	,499
	returnsize04	,012	,018	,511	,664	,508
	returnmtb04	,007	,012	,119	,553	,581
	returnlev04	-,013	,048	-,044	-,276	,783
	dreturn04	,454	,595	,570	,762	,447
	dreturnsize04	-,015	,073	-,164	-,207	,837
	dreturnmtb04	-,065	,064	-,210	-1,013	,313
	dreturnlev04	-,027	,092	-,041	-,297	,767
	size04	-,008	,006	-,193	-1,323	,188
	mtb04	-,003	,004	-,102	-,672	,502
	lev04	,011	,009	,184	1,165	,246
	dsize04	,014	,015	,900	,955	,341
	dmtb04	-,004	,007	-,130	-,622	,535
	dlev04	-,017	,013	-,212	-1,256	,211

a. Dependent Variable: earnings04

2005:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,458a	,209	,138	,05021	,209	2,914	15	165	,000	2,144

a. Predictors: (Constant), dlev04, dmtb04, dreturn04, size04, dummy04, returnmtb04, mtb04, returnlev04, dreturnmtb04, lev04, returnsize04, returns04, dsize04, dreturnsize04, dreturnlev04

b. Dependent Variable: earnings04

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,145	,046		3,129	,002
	dummy05	-,699	,611	-,3098	-1,145	,254
	returns05	-,122	,106	-,578	-1,147	,253
	returnsize05	,033	,013	1,315	2,501	,013
	returnmtb05	-,026	,014	-,479	-1,941	,054
	returnlev05	-,094	,050	-,418	-1,879	,062
	dreturn05	-4,434	8,509	-1,724	-,521	,603
	dreturnsize05	,326	,840	1,100	,388	,699
	dreturnmtb05	,465	,524	,643	,887	,376
	dreturnlev05	,656	1,492	,127	,439	,661
	size05	-,012	,006	-,278	-2,103	,037
	mtb05	,002	,004	,087	,563	,574
	lev05	,042	,018	,504	2,300	,023
	dsize05	,061	,064	2,314	,955	,341
	dmtb05	,055	,039	,666	1,392	,166
	dlev05	,045	,078	,156	,569	,570

a. Dependent Variable: earnings05

2006:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,639a	,408	,354	,06465	,408	7,579	15	165	,000	1,781

a. Predictors: (Constant), dlev06 dmtb06, dreturn06, size06, dummy06, returnmtb06, mtb06, returnlev06, dreturnmtb06, lev06, returnsize06, returns06, dsize06, dreturnsize06, dreturnlev06

b. Dependent Variable: earnings06

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,052	,069		,753	,452
	dummy06	-,171	,279	-,637	-,612	,542
	returns06	,442	,257	1,202	1,722	,087
	returnsize06	-,012	,029	-,290	-,404	,687
	returnmtb06	-,051	,015	-,644	-3,368	,001
	returnlev06	-,069	,068	-,186	-1,010	,314
	dreturn06	-2,556	2,322	-1,081	-1,101	,273
	dreturnsize06	,156	,174	,593	,894	,372
	dreturnmtb06	,262	,410	,298	,640	,523
	dreturnlev06	2,593	2,034	,389	1,275	,204
	size06	,000	,008	-,005	-,039	,969
	mtb06	-,001	,006	-,024	-,197	,844
	lev06	,023	,019	,191	1,223	,223
	dsize06	,011	,023	,384	,461	,645
	dmtb06	,016	,028	,216	,586	,559
	dlev06	,039	,238	,052	,162	,871

a. Dependent Variable: earnings06

2007:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,449a	,201	,129	,05357	,201	2,775	15	165	,001	1,851

a. Predictors: (Constant), dlev07 dmtb07, dreturn07, size07, dummy07, returnmtb07, mtb07, returnlev07, dreturnmtb07, lev07, returnsize07, returns07, dsize07, dreturnsize07, dreturnlev07

b. Dependent Variable: earnings07

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,160	,071		2,245	,026
	dummy07	-,126	,102	-1,019	-1,229	,221
	returns07	-,056	,171	-,294	-,330	,742
	returnsize07	,006	,019	,266	,292	,770
	dreturnmtb07	,007	,010	,154	,695	,488
	dreturnlev07	,058	,069	,149	,831	,407
	dreturn07	-,780	,417	-1,570	-1,869	,063
	dreturnsize07	,127	,053	2,100	2,413	,017
	dreturnmtb07	-,069	,039	-,338	-1,765	,079
	dreturnlev07	-,019	,119	-,030	-,160	,873
	size07	-,006	,008	-,126	-,737	,462
	mtb07	-,010	,005	-,328	-2,133	,034
	lev07	-,005	,018	-,051	-,272	,786
	dsize07	,013	,012	,971	1,132	,259
	dmtb07	,000	,010	-,007	-,033	,974
	dlev07	,016	,023	,157	,689	,492

a. Dependent Variable: earnings07

2008:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,369a	,136	,058	,08594	,136	1,735	15	165	,049	1,920

a. Predictors: (Constant), dlev08 dmtb08, dreturn08, size08, dummy08, returnmtb08, mtb08, returnlev08, dreturnmtb08, lev08, returnsize08, returns08, dsize08, dreturnsize08, dreturnlev08

b. Dependent Variable: earnings08

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,049	,220		,224	,823
	dummy08	-,034	,243	-,120	-,139	,889
	returns08	-,148	,893	-,415	-,166	,869
	returnsize08	,044	,104	1,072	,427	,670
	returnmtb08	-,048	,167	-,380	-,287	,775
	returnlev08	-,251	,772	-2,116	-,325	,746
	dreturn08	,353	,923	,824	,382	,703
	dreturnsize08	-,042	,108	-,802	-,385	,701
	dreturnmtb08	,007	,170	,047	,044	,965
	dreturnlev08	,150	,774	1,262	,194	,846
	size08	-,002	,026	-,024	-,061	,951
	mtb08	,001	,018	,019	,055	,956
	lev08	,020	,085	,284	,241	,810
	dsize08	,013	,029	,439	,452	,652
	dmtb08	-,013	,021	-,247	-,626	,532
	dlev08	-,080	,088	-1,127	-,910	,364

a. Dependent Variable: earnings08

2009:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,525a	,276	,210	,12641	,276	4,186	15	165	,000	2,155

a. Predictors: (Constant), dlev09 dmtb09, dreturn09, size09, dummy09, returnmtb09, mtb09, returnlev09, dreturnmtb09, lev09, returnsize09, returns09, dsize09, dreturnsize09, dreturnlev09

b. Dependent Variable: earnings09

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-,049	,136		-,360	,719
	dummy09	,002	,214	,006	,010	,992
	returns09	,041	,217	,125	,188	,851
	returnsize09	-,004	,024	-,107	-,167	,867
	returnmtb09	,008	,022	,068	,371	,711
	returnlev09	,012	,036	,070	,334	,739
	dreturn09	1,185	,686	1,176	1,728	,086
	dreturnsize09	,004	,081	,028	,043	,966
	dreturnmtb09	-,586	,154	-,846	-3,803	,000
	dreturnlev09	-,272	,122	-,644	-2,229	,027
	size09	,010	,015	,096	,678	,499
	mtb09	,003	,012	,026	,213	,832
	lev09	-,018	,028	-,142	-,664	,507
	dsize09	,001	,025	,024	,038	,970
	dmtb09	-,018	,028	-,119	-,644	,520
	dlev09	-,055	,051	-,280	-1,084	,280

a. Dependent Variable: earnings09

2010:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,663a	,439	,388	,06892	,439	8,608	15	165	,000	1,729

a. Predictors: (Constant), dlev10 dmtb10, dreturn10, size10, dummy10, returnmtb10, mtb10, returnlev10, dreturnmtb10, lev10, returnsize10, returns10, dsize10, dreturnsize10, dreturnlev10

b. Dependent Variable: earnings10

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,059	,064		,912	,363
	dummy10	-,103	,138	-,479	-,750	,454
	returns10	,166	,187	,618	,888	,376
	returnsize10	,017	,020	,549	,836	,405
	returnmtb10	-,053	,019	-,615	-2,824	,005
	returnlev10	-,406	,041	-1,448	-9,835	,000
	dreturn10	-,815	1,022	-,440	-,797	,426
	dreturnsize10	,039	,122	,185	,317	,751
	dreturnmtb10	,119	,230	,089	,516	,607
	dreturnlev10	,393	,238	,611	1,655	,100
	size10	-,006	,007	-,085	-,777	,438
	mtb10	,010	,007	,151	1,275	,204
	lev10	,132	,022	1,607	6,083	,000
	dsize10	,017	,016	,727	1,080	,282
	dmtb10	-,014	,015	-,161	-,977	,330
	dlev10	-,131	,037	-1,572	-3,552	,000

a. Dependent Variable: earnings10

Annual regression output according to the Basu method:

2002:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,488a	,238	,225	,09002	,238	18,460	3	177	,000	1,978

a. Predictors: Constant, Dummy02, return03, dummy*return03

b. Dependent variable: earnings 02

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,014	,015		,934	,352		
	dummy02	,057	,021	,263	2,670	,008	,443	2,256
	returns02	,268	,052	,815	5,155	,000	,172	5,812
	dreturn02	-,091	,066	-,196	-1,368	,173	,210	4,760

a. Dependent variable: earnings 02

2003:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,394a	,155	,141	,10722	,155	10,855	3	177	,000	1,970

a. Predictors: Constant, Dummy03, return03, dummy*return03

b. Dependent variable: earnings 03

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,060	,014		4,322	,000		
	dummy03	,030	,029	,111	1,046	,297	,422	2,372
	returns03	-,002	,030	-,005	-,059	,953	,560	1,786
	dreturn03	,505	,111	,469	4,560	,000	,451	2,219

a. Dependent variable: earnings 03

2004:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,243a	,059	,043	,05368	,059	3,698	3	177	,013	1,838

a. Predictors: Constant, Dummy04, return04, dummy*return04

b. Dependent variable: earnings 04

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,073	,007		10,611	,000		
	dummy04	-,007	,016	-,047	-,412	,681	,417	2,398
	returns04	,013	,018	,065	,711	,478	,635	1,575
	dreturn04	,130	,087	,163	1,492	,137	,446	2,243

a. Dependent variable: earnings 04

2005:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,277a	,077	,061	,05239	,077	4,892	3	177	,003	2,185

a. Predictors: Constant, Dummy05, return05, dummy*return05

b. Dependent variable: earnings 05

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,071	,007		10,233	,000		
	dummy05	-,049	,026	-,218	-1,872	,063	,385	2,594
	returns05	,043	,017	,202	2,586	,011	,851	1,175
	dreturn05	-,353	,293	-,137	-1,205	,230	,403	2,483

a. Dependent variable: earnings 05

2006:

Model Summary b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,441a	,195	,181	,07280	,195	14,265	3	177	,000	1,944

a. Predictors: Constant, Dummy06, return06, dummy*return06

b. Dependent variable: earnings 06

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,064	,010		6,418	,000		
	dummy06	-,037	,031	-,140	-1,205	,230	,339	2,954
	returns06	,114	,029	,310	3,918	,000	,729	1,372
	dreturn06	,145	,266	,061	,546	,586	,360	2,781

a. Dependent variable: earnings 06

Output coefficients C_score method for period 2002-2006:

Indep. Variable	coefficient	Std. Dev.	T-stat	Sig.
Intercept (β_1)	0,085	0,099	1,904	0,093
Dummy (β_2)	-0,114	0,655	-0,389	0,707
Return (μ_1)	0,318	0,409	1,737	0,121
Return*size (μ_2)	-0,025	0,052	-1,077	0,313
Return*m/b (μ_3)	-0,015	0,024	-1,398	0,200
Return*leverage (μ_4)	0,032	0,157	0,449	0,665
Dummy*return (λ_1)	-0,446	3,594	-0,277	0,789
Dummy*return*size (λ_2)	0,024	0,298	0,179	0,862
Dummy*return*m/b (λ_3)	0,082	0,276	0,664	0,525

Dummy*returns*leverage (λ_4)	0,465	1,277	0,813	0,440
Size (δ_1)	-0,002	0,013	-0,409	0,693
M/B (δ_2)	-0,002	0,005	-0,893	0,398
Leverage (δ_3)	0,004	0,049	0,167	0,872
Dummy*size (δ_4)	0,008	0,064	0,274	0,791
Dummy*m/b (δ_5)	0,018	0,034	1,215	0,259
Dummy*leverage (δ_6)	0,010	0,078	0,289	0,780
R	0,514			
R2	0,278			
Adjusted R2	0,212			
Durbin-Watson	1,986			

Output coefficients Basu method for period 2002-2006:

Coefficients a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,064	,005		13,144	,000		
	dummy	-,005	,010	-,023	-,480	,631	,403	2,481
	returns	,047	,012	,179	3,821	,000	,431	2,319
	dummyreturn	,136	,031	,215	4,395	,000	,397	2,522

a. Dependent variable: earnings 02-06

Output coefficients C_score method for period 2007-2010:

Indep. variable	coefficient	Std. Dev.	T-value	Sig.
Intercept (β_1)	0,055	0,085	1,282	0,236
Dummy (β_2)	-0,065	0,059	-2,193	0,060
Return (μ_1)	0,001	0,135	0,010	0,992
Return*size (μ_2)	0,016	0,021	1,498	0,173
Return*m/b (μ_3)	-0,021	0,033	-1,289	0,233
Return*leverage (μ_4)	-0,147	0,220	-1,336	0,218
Dummy*return (λ_1)	-0,015	0,966	-0,030	0,977
Dummy*return*size (λ_2)	0,032	0,071	0,894	0,397
Dummy*return*m/b (λ_3)	-0,132	0,312	-0,847	0,422
Dummy*returns*leverage (λ_4)	0,063	0,280	0,450	0,665
Size (δ_1)	-0,001	0,007	-0,185	0,858
M/B (δ_2)	0,001	0,008	0,162	0,875
Leverage (δ_3)	0,032	0,068	0,945	0,372
Dummy*size (δ_4)	0,011	0,007	3,151	0,014
Dummy*m/b (δ_5)	-0,011	0,008	-2,960	0,018
Dummy*leverage (δ_6)	-0,063	0,061	-2,043	0,075
R	0,501			
R2	0,263			
Adjusted R2	0,196			
Durbin-Watson	1,914			

Output coefficients Basu method for period 2007-2010:

Coefficients a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	,071	,007		9,986	,000		
dummy	-,011	,012	-,051	-,889	,375	,379	2,640
returns	,006	,015	,022	,363	,717	,336	2,979
dummyreturn	,141	,032	,258	4,396	,000	,364	2,748

a. Dependent variable: earnings 07-10

Output coefficients Basu method for group 1:

Coefficients a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	,058	,006		9,652	,000		
dummy	,005	,012	,027	,456	,649	,418	2,394
returns	,054	,015	,204	3,646	,000	,457	2,190
dummyreturn	,141	,039	,209	3,596	,000	,422	2,372

a. Dependent variable: earnings 02-06

Output coefficients Basu method for group 2:

Coefficients a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	-23,455	18,966		-1,237	,217		
dummy	,012	,009	,051	1,252	,212	,770	1,298
returns	-,284	,043	-,371	-6,653	,000	,418	2,394
dummyreturn	,955	,124	,446	7,682	,000	,385	2,596

a. Dependent variable: earnings 02-06