

Erasmus University Rotterdam  
Erasmus School of Economics  
Master Thesis

**Earnings accounting conservatism**  
**West-European listed firms during crisis period**

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October 2011

## ***Abstract***

In this thesis the development over time of earnings accounting conservatism during the years 2006 till 2009 at West European listed firms is analyzed. It is assumed that this time span contains a crisis period. The earnings accounting conservatism degree is analyzed during the whole time span in which 2006 is a pre-crisis year and the years 2007 till 2009 a crisis period. The analysis describes the development of earnings conservatism throughout the entire time span. Prior to the analysis accounting conservatism is explained and motivations originating from literature to use conservatism are given. Different research approaches are discussed and the relation with accounting conservatism is described. Prior research concerning accounting conservatism is used to develop the hypotheses and an expectation for the development over time during the crisis period. Models to measure and detect conservatism are discussed and in the research design the used sample and models are given. The results of this thesis provide proof of the presence of earnings accounting conservatism during the years 2006-2009. During these years there is an indication of a decrease of the degree of earnings conservatism. However, no proof is provided of a decrease. This observation is linked to prior research and explanations of accounting conservatism.

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## ***1. Introduction***

### *1.1 Introduction*

Users of a firm's financial statement might expect that revenues and expenses recorded in the statement are verifiable to a certain degree. If not, the usefulness of the statement is questionable. When the degree of verifiability of revenues is equal to the degree used for expenses in the accounting records, the accounting record is subject to symmetry. If however expenses need less verification than revenues to be considered as recognized by the standards within a firm there is an asymmetry (Watts 2003). The presence of asymmetry is commonly known and generally called accounting conservatism. In the case of asymmetric recognition between expenses and revenues is spoken of earnings conservatism. In practice the asymmetry between the recognition of earnings and expenses has as consequence that losses and expenses will be recognized earlier than profits and revenues in the case of equal chances. Besides earnings conservatism the financial statement might be subjected to another form of accounting conservatism. This second form of accounting conservatism affects the magnitude of assets and liabilities on the balance sheet. Liabilities are overstated on the balance sheet and assets understated (Watts 2003). This form of accounting conservatism is called balance sheet conservatism. Balance sheet conservatism reduces the total value of the balance sheet and could influence the reported value of the firm. The difference in recognizing expenses and revenues in the case of earnings conservatism and in the value of assets and liabilities if it concerns balance sheet conservatism influences the reported numbers of the financial statements. Consequently, the usefulness and credibility of financial statements might be influenced.

Conservatism might change over time (Givoly and Hayn 2000). This could mean that an annual report of a certain year is less or more subjected to conservatism than the annual report from the year before and vice versa. This inconsistency might have a negative effect on the usefulness of the financial statements since users of the statements need to take into account the degree of conservatism. Since conservatism changes over time users of financial statements are forced to determine, or estimate, each year the degree of accounting conservatism in the financial statement.

The impact of accounting conservatism in a rather efficient market is of less magnitude than in an inefficient market. Though in both situation financial analyst need to form an opinion of the financial statement. However, in an efficient market there is perfect information and the financial analysts are more likely to make a correct judgement. Therefore the share prices of an efficient market reflect all relevant available information. Also the degree of accounting conservatism is incorporated in the share price.

Accounting conservatism has advantages and disadvantages for firms as well as the stakeholders. Further on in the thesis the market efficiency will be discussed and the opinion of the thesis, whether accounting conservatism is good or bad will be discussed.

This thesis contains firstly a discussion of theories about accounting conservatism and a discussion of prior research. Followed is an empirical analysis of the development of earnings conservatism during the most recent financial crisis (2006-2009) using Western European listed firms. The aim is to find whether the degree of earnings conservatism changed during the sample period and if the results can be linked to economic theories. Motivation of the search for a change in accounting conservatism during crisis period is that firms still have to meet debt-equity covenants with debt holders. Further might management of firms have an incentive to change the degree of conservatism to conceal bad performance due to management decisions.

## *1.2 Relevance*

Financial statements are meant to inform stakeholders about firm performances in a true and fair manner. Financial analyst can use the statements as point of departure for valuation of the firm. In order to make an accurate valuation it is important that the analysts are aware of the degree of conservatism in the financial statement.

Listed firms benefit by an accurately valuation of their stock since the interest that needs to be paid over a loan is often linked to their equity level. The link between the interest and the equity level of firms can be made by the leverage ratio. If the stock price of a listed firm is not valued accurate on the stock market the equity level of a firm is too high or too low compared to the book value. This causes a too high or low leverage ratio of the firm, which may influence the interest rate of the firm's debt. An

accurate valuation might give the firm and the debt holders more certainty about the interest that needs to be paid in the future. And debt holders might have more certainty about the expected interest income.

This study aims to give insight into the development of conservatism during a crisis period. Preparers of financial statements might be able to use the information from this study in future economic crises. Since this study searches how the degree of earnings conservatism develops in a crisis period preparers of financial statements can be more aware of what can happen. Therefore they are able to anticipate on events that might arise during a financial economic crisis since they have empirical knowledge of the development of conservatism during times of crisis.

Furthermore, standard setters of accounting rules and regulations can use the results of this study as input for the development of future rules and standards. Since this study tries to link the results of the empirical analysis to economic theories insight might be created in how mechanisms work in the reality. This insight between the theory and reality allows standard setters to create mechanisms that have the desired result.

### *1.3 Contributions of the study*

There is not a general 'agreed' starting and ending point of the financial crisis. So for this research a decision needs to be made about the starting point and ending point that will be used for the analysis. The time span for this study that will be used is 2006-2009. In 2007 the large-cap stock indices of Western Europe started to decrease in value. In the year 2009 most of the indices started to increase in value again. The consequences of the financial crisis are still not clear yet. If looking to the large-cap indices as indicator for the economic sentiment the economic downturn is left behind in 2009. (In between however, clear is that the economic crisis is not left behind yet and that the consequences are severe for the real economy, financial institutions and firm's.)

Since the crisis is very recent there are lots of research opportunities. By my best knowledge research concerning earnings conservatism during the period 2006-2009 with the geographical focus on Western Europe has not been done yet. Lara and Mora (2004) investigated Western Europe and accounting conservatism using the time span



1987-2000. The study of Lara and Mora (2004) presents evidence of the existence of accounting conservatism in Europe. This thesis contributes to existing literature on this topic since a crisis period is investigated. Further, a major difference between the study done by Lara and Mora (2004) and this analysis is the mandatory implementation of the International Financial Reporting Standards (IFRS) as of 2005. The introduction of the mandatory use of IFRS might have influenced the conservatism degree. Using prior research the effect of the implementation will be discussed. Since however the analysis focuses on the development of conservatism over time a more elaborate discussion of the impact is not useful for this thesis. Studies concerning accounting conservatism for the U.S.A. with the sample period in the second half of the 20<sup>th</sup> century are done by Basu (1997) and Givoly and Hayn (2000). The Asian crisis is investigated by Vichitsarawong et al. (2010) and a working paper of Wu investigates if shareholders have any benefits by accounting conservatism using the most recent financial crisis. As enumerated prior research has been done using Asia and the U.S.A.. Important differences between Europe and the U.S.A. are, the IFRS in Europe, which is more principle based. And US GAAP in the U.S.A., which is more rule based. Further, the business culture Anglo-American versus the Rhineland model is an important distinction between Europe and the U.S.A.. The difference in hierarchical organizational structure between Europe and the U.S.A. might be a cause of differences in results.

Given the differences of this study compared to prior literature this study will contribute to existing literature. Moreover the results can in the future be compared with studies that used another geographical focus or are done using a different time-span.

#### *1.4 Research proposal and research question*

The main question that will be attempted to answer in this study and will be central throughout the whole paper is as follows:

*How did the degree of earnings conservatism of listed Western European firms develop over time during 2006-2009?*

The years 2006 till 2009 are meant by the financial crisis in this study. Further, the countries Belgium, France, Germany, Italy, The Netherlands, Portugal and Spain are

in this thesis meant with Western Europe. Further on in the thesis will be explained why this group of countries is chosen to use. From these countries all firms that are listed are used to create the sample. The sample is discussed more elaborately further on in the paper.

In order to give the study a clear structure and to have a clear path towards the answers of the main question the following sub questions will be answered:

- *What is (earnings) accounting conservatism?*
- *From which approach can this research be conducted?*
- *Which theories could explain the presence of earnings accounting conservatism?*
- *Why should accounting conservatism change during crisis period?*
- *How can earnings accounting conservatism be measured?*
- *How did earnings accounting conservatism develop over time according to prior research?*
- *What kind of sample and research design are necessary for the study?*
- *What are the results of the analysis?*
- *What is the relation between the results and the theory?*
- *How did the conservatism develop over time?*

### *1.5 Structure*

The remainder of the thesis is structured as follows: firstly accounting conservatism and definitions will be explained. Briefly is discussed from which point of view the study can be conducted. Explanations and motivations of why earnings conservatism is used and the relation between conservatism and the usefulness of financial statements will be discussed. To conclude the first part discussed is why accounting conservatism might change during crisis period. Secondly, models to measure accounting conservatism are explained and discussed. Thirdly, a literature review of prior research is given. Fourthly, the research design is discussed together with the hypotheses development and the sample description. Fifthly, the results of the analysis are presented. Followed is a discussion of the results and the relation with the literature and prior research. The thesis will conclude with a summary of the study and conclusions will be drawn.

## **2. Accounting conservatism**

### *2.1 Introduction*

In this chapter accounting conservatism definitions that were used in prior research and definitions from standard setters are given and commented. Further, explained is what accounting conservatism is and which distinction can be made within accounting conservatism. Followed is a discussion on the relation of accounting conservatism and the usefulness of financial statements.

### *2.2 Definitions*

In the framework of International Financial Reporting Standards (IFRS) accounting conservatism is covered under prudence. Stated is: *“Prudence is the inclusion of a degree of caution in the exercise of uncertainty, such that assets or income are not overstated and liabilities or expenses are not understated.”* (International Accounting Standards Board (IASB), 2008, paragraph 37, page 80).

Originating from the Financial Accounting Standard Board (FASB) *“... if two estimates of amounts to be received or paid in the future are about equally likely, conservatism dictates using the less optimistic estimate”* (FASB, 1980).

A notable difference is that the definition on the FASB is of a normative character. It describes to use the less optimistic estimate in the case of equal chances. In the definition of the IFRS however is space for interpretation, for example; what should the magnitude of caution be? This might be dependent of the degree of uncertainty and influences by external factors. Further treat both the definitions all conservatism the same, a distinction between earnings and balance sheet conservatism (see paragraph 2.3) is not made.

Definitions from non-standard setters can be found in prior research. A traditional definition and maybe an extreme one is: *“anticipate no profit, but anticipate losses”* (Bliss 1924). Speaking about profit and losses might indicate that this definition focuses on earnings accounting conservatism. Another definition by Basu (1997) is: *“the tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses”*. This definition concerns earnings conservatism.

A definition of balance sheet conservatism from Feltham and Ohlson (1995) implies a persistent understatement of book value of shareholders' equity.

The study in this thesis focuses on earnings conservatism. The definition that will be used in the remainder of this thesis of conservatism is the one formulated by Basu (1997): *“the tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses”*. An important reason for the choice for this definition is that it leaves room for interpretation. The definition is - contrary to the definition of the FASB- not of a normative character. Furthermore, the chosen definition does not give strict borders for what is and what is not conservatism. Since research models only give an approximate display of conservatism the chosen definition is decided to be most suitable to use in this thesis because of the interpretation room the definition gives.

### *2.3 Earnings conservatism and balance sheet conservatism*

Within accounting conservatism a distinction was made between earnings conservatism and balance sheet conservatism. Earnings conservatism is an asymmetry in the recognition of good and bad news. Definitions of earnings conservatism are stated in the previous paragraph 2.2. Also stated in the previous paragraph is a definition of balance sheet conservatism. In general earnings conservatism affects the results of the firm and has therefore effect on the earnings per share if it concerns a listed firm.

In short the difference between the two forms of conservatism is as follows: earnings conservatism affects the income of a firm and balance sheet conservatism is conservatism that has the affect of consistent understatement on the firm's equity.

#### *2.3.1 Relations between earnings and balance sheet conservatism*

Balance sheet conservatism affects the book values of assets, liabilities and equity on the balance sheet. This form of conservatism can influence the equity level of a firm consistently as follows. For example, intangible assets that are not capitalized on the balance might reduce the equity level of the firm. Where balance sheet conservatism can affect the firms equity level consistently the effect of earnings conservatism is

temporary, in the long run the accounting earnings will result in economic earnings. (Lara and Mora, 2004). When assets are understated on the balance sheet earnings of the firm will be higher. Because of this interaction the presence of balance sheet conservatism might increase earnings therefore there is more likely to be overstatement of earnings than there will be earnings conservatism. This is in line with Lara and Mora (2004) that a reduced level of earnings conservatism is associated with the presence of balance sheet conservatism within a firm. And since the money of the understatement of the balance leaves the firm the difference is permanent.

When earnings conservatism is applied an understatement of earnings is made with the consequence that less dividend is paid out than without earnings conservatism. However, at the end of the firms' existence or by a take over the actual value of the firm needs to be paid. The understatements of earnings that were made in the past, the dividend that was not paid out in the past due to earnings conservatism, can increase the take over price. At that moment the money is divided to the shareholders. Differences due to earnings conservatism are temporary since they are reversed at this moment.

Important to notice is however that the presence of balance sheet conservatism does not exclude the presence of earnings conservatism and vice versa. Both forms of conservatism can be present in a firm at the same time.

#### *2.4 Usefulness and accounting conservatism*

Financial information as indicated by conceptual frameworks should be useful for economic decisions. Therefore the quality of the characteristics needs to be such that information is provided which is useful for decisions. The IASB framework identified the following primary quality characteristics: *comparability, verifiability, relevance, faithful representation, timeliness and understandability*. If accounting conservatism is applied, comparability and faithful representation might be affected. If for example firms use a different degree of conservatism the comparability is affected.

Assuming that conservatism affects financial information, questionable is if conservatism is good or bad. Furthermore, how does conservatism affect the usefulness of statements, does the usefulness increase or decrease.

Earnings conservatism has some positive consequences. A firm has more money than is reflected in the financial information. If a firm becomes financial distressed, management has a larger buffer to improve the financial condition of the firm. The financial buffer which is visible in the financial statement and the buffer that is not visible in the financial statement. Furthermore, because under conservatism fewer dividends are paid the firm value increases. This due to a decrease of managements' opportunistic behaviour such as payment to themselves and other parties, such as shareholders in constrained (Watts 2003). This implies that management is opportunistic. The increase in firm value argued by Watts (2003) due to conservatism is shared between all parties of the firm. Therefore everyone will benefit from the increase in firm value and not just opportunistic management. Conservatism might therefore be considered as good.

Other arguments, which support the statement that conservatism is good, are a reduction in income taxes and a possible reduction in litigation cost. In chapter 4 elaborately will be discussed why managers might or might not use conservatism.

Opponents of conservatism argue that understatement of assets is a consequence of balance sheet conservatism. The understatement of assets on the balance sheet can result in an overstatement of earnings in a future period (AICPA 1939). The overstatement of earnings that might occur in a future period is not desirable. When no conservatism is applied understatement of assets and overstatement of earnings is not an issue.

In the remainder of this thesis conservatism will be considered as a good thing. Understatement of assets and revenues reduces litigation cost and might result in an unexpected benefits for stakeholders in the future. Conservatism might influence the usefulness of statement negatively but as indicated an unexpected benefit is most likely the result and therefore not considered as a negative consequence.

## *2.5 Conclusion*

In this chapter several definitions of accounting conservatism are discussed and the distinction between earnings conservatism and balance sheet conservatism is explained. Further, discussed is if conservatism is good or bad and the relation between usefulness of financial statements. Accounting conservatism can affect the

usefulness of financial statements, however, if this has negative of positive consequences is not clear. As last the point of view of accounting conservatism that will be used in the remainder of this thesis is discussed.

### ***3. Research approach***

#### *3.1 Introduction*

Research can be conducted from different approaches and for different purposes. In this chapter three important research theories will be discussed. The theory that will be used to perform the research will be explained. Furthermore the Efficient Market Hypothesis (EMH) (Fama et al., 1969) will be discussed and the relation between the research explained. At the end of this chapter the relation between earnings conservatism and market-based research will be explained. This to support the choice of the theory that will be used in this thesis.

#### *3.2 Research approaches*

##### *3.2.1 Normative accounting theory*

Normative theories are not necessarily based on empirical observations. Often are the theories more based on the opinion of the researcher and propose or describe actions which need to be undertaken in particular situations according to the theory. The theories might also suggest changes to the current procedures. Since the theories are in principle based on opinions and not on observations it is probably not possible to test whether the theories reflect the reality. Normative theories that prescribe specific actions are often called prescriptive theories. (Deegan and Unerman, 2006)

The purpose of these theories might be to innovate or change existing procedures. In the belief of the researcher the theory might be an improvement to the current situation. Normative theories about accounting conservatism might for example prescribe if a degree of accounting conservatism should be applied in a specified situation. And whether this needs to be balance sheet conservatism or earnings conservatism.

##### *3.2.2 Positive accounting theory*

Positive research deducts theories from empirical observations. Rather than prescribing actions like normative research does, positive theories try to describe, explain and predict actions that are made in reality. (Deegan and Unerman, 2006) The positive accounting theory (PAT) of Watts and Zimmerman (1986) tries to search for



explanations of the used accounting practice. Besides explaining the accounting practice the PAT tries to predict which accounting methods firms' will use and which accounting choices management will make. However, the PAT does not tell anything about which method a firm should use, the theory does not prescribe as a normative theory does.

Decisions managers make might not be in the best interest of the other stakeholders, for example the shareholders. The problem between the management of a firm and its shareholders is described in the agency theory (Jensen and Meckling, 1976). The problem involves the information asymmetry between the firms' management (the agent) and the shareholders of a firm (the principal), the actual owners of a firm. This information asymmetry gives managers an advantage in decision-making. Self-interest of the managers might influence decisions management makes and because of the information asymmetry it can be costly to monitor the management to make sure the decisions are not only self-interest based.

An accounting conservatism related positive theory might explain why a firm's board might apply accounting conservatism. The theory also might predict future actions or decisions of a board concerning the degree of accounting conservatism in case an event occurs. Moreover, predictions might be made if a change in the firm's operational environment occurs.

### 3.2.3 Market based research

Capital market research is often used to investigate the reaction to financial information on stock markets (Deegan and Unerman, 2006). This form of market-based research is very broad; not just accounting related events can be analyzed but all sorts of events. For example: press releases, changes in executive board composition and supervisory board composition, press releases concerning future profit expectations. This research approach uses the reactions of the equity markets to determine whether new information is considered positive or negative for the firm value. A positive event or good news concerning a firm is accompanied with an increase in share price. The other way around, a decrease in share price is associated with a negative event or bad news.

A more narrow market-based research method and the most relevant method for the analysis that is performed in this thesis is market based accounting research. Market based accounting research uses just as capital market research the reaction of the market to determine how information is perceived by investors. Useful information might lead to changes in the opinion of the market and thus might lead to abnormal price changes and trading volumes. Analyzing the usefulness of financial information for decision-making can be done using the information perspective and stock returns. Stock prices only reflect publicly available information and at the moment of the information release the stock price reacts directly towards the new value of the firm. The incorporation of new information in the stock prices is explained more elaborately in the following subparagraph.

The information content of an annual report is designed by the firm. The annual report preparers make certain choices, for example the way of presenting items in the annual report. These reporting choices might influence the judgement of the users of the annual report. Models to perform market based accounting research use the judgement of the users of the annual report whether accounting conservatism is present in a financial statement.

Market based research or capital market research can be used to test whether a specific event provides new information to financial statement users. Further is possible to determine whether the information is judged positive or negative for the firm value. Using market based accounting research it is possible to identify for example accounting conservatism. The research method then further describes for example the development of accounting conservatism.

### *3.3 Efficient market hypothesis*

Propositions on how new available information is incorporated in the firm's share price are offered by the efficient market hypothesis by Fama et al. (1969). How efficient the market is depends on the proposition that is fulfilled. The following propositions are possible: the strong-, semi-strong- and weak- form of efficiency. When all the information of a firm is incorporated in the share price (perfect information: publically and privately information) the market fulfils the strong form of the EMH. When the market fulfils the strong form of the EMH realizing an

abnormal return is impossible. For the semi-strong form of the EMH a distinction is made between publicly and privately available information. Publicly available information is available for everybody. Privately available information is only available for firm insiders, for example the executive board. The semi-strong form of the EMH is fulfilled when the share prices reflect all the publicly available information. Furthermore will the market incorporate new publicly available information directly and efficiently, meaning that the share price instantly adopts the new value of the firm. Realizing an abnormal return is only possible for firm insiders when the market fulfils the semi-strong form of the EMH. In the weak form of the EMH it is assumed that the share prices reflect the historical publicly available information on the prices in the past.

### *3.4 Market based research and accounting conservatism*

Further on in the paper several models to measure accounting conservatism are explained. Useful to know is why market based research can be used to analyse accounting conservatism.

Accounting conservatism affects the balance sheet total and the reported profit of a firm. The dividend payment for listed firms is highly dependent on firm profit. Therefore earnings conservatism does not only affect the firm's profit but also the dividend payment. And also the earnings per share ratio is affected by earnings conservatism; with the presence of earnings conservatism the earnings per share ratio will be lower for the year in which the conservatism is applied than without earnings conservatism. Balance sheet conservatism affects the market-to-book ratio. Understatement of assets and overstatement of liabilities due to balance sheet conservatism results in a higher market-to-book value than a balance sheet that is not exposed to balance sheet conservatism.

As described, conservatism of financial statements is reflected in the market. Therefore, using a proper model, it is possible to identify and describe the development over time of accounting conservatism using market based accounting research. Furthermore, the development over time can be explained using explanations for accounting conservatism (explanations are provided in the next chapter). The main part of this thesis uses the market based accounting research

approach since it describes the development over time during a crisis period. Further, because explanations will be searched for the development of accounting conservatism in the analysis the PAT approach is used as well.

Important to notice is that research concerning accounting conservatism is not necessary if the strong form of the EMH is assumed. The strong form of the EMH namely assumes that all the information is incorporated in the share price (perfect information). Publicly and privately available information. And, also the applied degree of accounting conservatism and therefore, the use of accounting conservatism will be redundant. The market value of the firm matches in that case the value of the firm.

### *3.5 Conclusion*

In this chapter different research approaches are discussed and the choice to use the market based accounting research approach to perform the analysis in this thesis is supported. Important information concerning the efficiency of the market is provided and related to accounting conservatism. Finally in this chapter the relation between market-based research and accounting conservatism is explained. And how the PAT approach is involved in this thesis is.

## ***4. Theories and accounting conservatism***

### *4.1 Introduction*

This chapter discusses theory and several explanations that are related to accounting conservatism. First a brief explanation is provided about the relation of the agency theory and the PAT. Second a description and explanation of the agency theory is given. Followed are several explanations that show why firm managers apply accounting conservatism or why they do not apply conservatism. Furthermore, some examples are given why the degree of conservatism can change -increase or decrease- during a crisis period.

### *4.2 PAT and the agency theory*

In the previous chapter the PAT is discussed as well as market based research and the relation between accounting conservatism. Positive accounting theories try as noted before to describe, explain and predict. Concerning the explaining and predicting part of the PAT the agency theory cannot be ignored. When explaining why managers undertake certain actions it is necessary to know what motivated or motivates managers. Since the agency theory offers motivations for actions the PAT makes use of this theory in the search for explanations and to support predictions. In the explanations that are given later on in this chapter motivations are present. The agency theory provides the fundamentals to understand why for example managers or debt holders have different priorities.

### *4.3 Agency theory*

The agency theory describes, in the context of a firm, that managers undertake actions with consequences that are in the best interest of the managers. Managers might for example be motivated to apply conservatism in some situations. On the other hand, managers might want to reduce the degree of conservatism that is present in a firm.

A reason for managers to reduce earnings conservatism might be an improved result of earnings of the firm with possibly higher bonuses for firm's management. This however might not be in the best interest of the owners of the firm since maximization

of the management compensation does not necessarily mean firm value maximization. Jensen and Meckling (1976) elaborately discussed the conflict of interest between the shareholders and managers. The shareholders of a firm who are the actual owners are the principal. The managers who are appointed by the shareholders to manage the firm's activities fulfil the role of the agent. The conflict of interest will be explained next.

Firm value maximization is in the best interest of the owner(s) of a firm, the principal, which are in the case of a listed firm the shareholders. Management however does not necessarily strive to maximization of firm value. Managers of the firm, the agent(s), strive primarily to maximization of their reward for the services they provide since this is in the best interest of the managers. Maximization of the reward managers receive does not mean maximization of firm value. This might result in decisions of the management that are not supported by the shareholders. For example: managers might want to reduce the degree of accounting conservatism during a crisis to conceal bad firm performance as consequence of decisions they made. This way management tries to conceal the mismanagement of the firm to make sure not to get fired. However, this might have a negative effect on firm value since the reduction in conservatism does not need to lead to sustainable firm value which is bad for the shareholders of the firm.

#### *4.4 Contracting explanation*

As Watts (2003) argues, the contracting explanation is mostly related to formal contracts but they influence the organization of firm including the managerial accounting and control systems. Firms often have a lot of contracts with all kind of stakeholders. For example loan contracts with debt holders and management compensation contracts with managers. In contracts accounting numbers can be involved for different purposes. For example, with debt holders financial ratios can be used to determine the interest rate that needs to be paid over the loan to the debt holder. If the solvency of a firm decreases, the risk for the debt holder increases. As compensation for the increase in risk the debt holder may demand an increase in the interest rate over the loan. The boundaries of financial ratios and the corresponding interest rates can be agreed in advance and included in the loan contract. The included

accounting numbers in the contract make sure both parties act as they agreed.

Furthermore, when a firm cannot meet the lower bound of an agreed financial ratio the debt holder can demand an immediate repayment of the loan.

In contracts between firm and managers performance ratios may be used to determine management's compensation for their efforts. Using financial ratios the firm performance can be defined and the compensation can be based on this ratio.

During a crisis period managers might have an incentive to change the degree of earnings conservatism. For example, if management does not get the bonus because the firm performance is not good enough. Management can decide to increase the degree of conservatism in that year to reduce the firm performance in order to be able to enlarge the profit in the next year.

A motivation for a firm to lower the degree of conservatism in a crisis period can relate to ratios which are agreed upon in contracts with debt holders. For example, if a ratio is about to drop below an agreed boundary with the consequence of an increase in the interest that needs to be paid. The firms' management can in that case reduce the level of conservatism to avoid the interest increase.

#### *4.5 Litigation explanation*

A reason for management to apply conservatism is to reduce the chance of litigation. Understatement of assets is less likely to lead to litigation than overstatement. (Watts, 2003) Therefore management has an incentive to report the earnings and assets of the firm conservative. Also the audit firm has an incentive to audit a firm conservative. If the financial statement leads to litigation the audit firm might face negative consequences as well. Kellogg (1984) found that lawsuits of security buyers against firms and auditors outnumber lawsuits of sellers. This litigation explanation might be a good reason for firms to increase the degree of conservatism during a crisis period to decrease the chance of a lawsuit of security buyers. A lawsuit is never favourable, but if the firm already has a hard time a bit more caution might be useful. Note however that the findings of Kellogg (1984) are approximately 25 years old, therefore questionable is if the finding is still representative. Nevertheless, an increase in conservatism still might reduce the chance of litigation.

#### *4.6 Income tax explanation*

Reported earnings were for a long time linked to methods to calculate the taxable income of a firm. This might be a reason why reported earnings were influenced by the taxable income for a long time (Watts, 2003).

If for example the tax that needs to be paid over the income of a firm is calculated over the net income that is stated in the financial statement, conservatism can be used to reduce the income of the fiscal year. When earnings are reported conservative for a specific year the income of the firm will be lower than without conservatism. This lower income will reduce the tax amount that needs to be paid for that fiscal year. However, how the tax is calculated might be different per country. Therefore this explanation might not be valid in some settings.

#### *4.7 Regulatory explanation*

As of 2005 stock exchange listed firms in Europe are obliged to report earnings in accordance with the International Financial Reporting Standards (IFRS). The IFRS are often commented to be 'fair value based standards'. And, that the International Accounting Standards Board (IASB) is setting direction to full fair value accounting. (Cairns, 2006) The impact of the implementation of the mandatory use of IFRS on accounting conservatism will be discussed in the chapter '*6.3 Impact of IFRS on conservatism*'.

Standards can influence the degree of conservatism in the financial statements. If rules and regulations prescribe standard methods to use, for example depreciation methods or rules, the degree of conservatism is influenced by these standards. Since the IFRS strives to be fair value based, conservatism nor the opposite are not favourable since this is not fair value. This is applicable for the balance sheet and the income statement so neither balance sheet or earnings conservatism are encouraged by the IFRS.

#### *4.8 Conclusion*

In this chapter explanations are discussed that offer motivations for firm's management to apply accounting conservatism. Also discussed is why firm's



management might not want to apply conservatism. Furthermore a reason is given why conservatism within a firm cannot be applied due to rules and/or regulations. Also in this chapter discussed is a conflict of interest between shareholders and management which might lead to reduced accounting conservatism during crisis periods.

## ***5. How to measure accounting conservatism***

### *5.1 Introduction*

In prior chapters accounting conservatism is explained, research approaches discussed and motivations of the presence of accounting conservatism are given. In this chapter models to measure accounting conservatism will be discussed. Some of the models use information from the stock market as input while others use financial information from the firms' financial statement. The methods of the models will be discussed and formulas that are used in the different models are given and their variables are defined. Limitations of and critics on the models will be discussed. Information that is provided in this chapter will be used further on in the thesis to construct the research design.

### *5.2 Basu's regression model*

A model that often is used to detect and analyse earnings accounting conservatism is the regression model from Basu (1997). This market based model compares market earnings with accounting earnings. According to Basu (1997) all publicly available information is reflected in the market prices. This corresponds with the semi-strong form of the EMH. Of which can be concluded that the model assumes that the market is efficient in the semi-strong form of the EMH. This means that the share prices reflect all the publicly available information and not just the accounting information (Fama et al., 1969).

As described before, earnings conservatism is that bad news is reflected earlier than good news in the earnings. The method of the model is to use annual stock returns as proxy for the character of the news. A positive return represents good news and a negative return represents bad news. Basu (1997) finds using his model that the reaction of market earnings to bad news is greater than the reaction of market earnings to good news and hereby he shows an asymmetry.

### 5.2.1 Earnings method

The regression model to analyse the relation of income, which is measured using stock returns and accounting income is as follows:

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

Definition of variables:

$X_{it}/P_{it-1}$ : Earnings per share for firm 'i' in fiscal year 't' deflated by the beginning of the fiscal years' share price of firm 'i'.

$R_{it}$ : Return for firm 'i' over the fiscal year 't', starting 9 months before and 3 months after the firms' fiscal year end.

$DR_{it}$ : Dummy variable for firm 'i' in year 't', variable equals '1' to indicate 'bad' news and '0' to indicate 'good' news. 'Bad' news is characterized by  $R_{it} < 0$ , 'good' news is characterized by  $R_{it} > 0$ .

Definition of the constants and coefficients:

$\alpha_0$ : Constant value of the 'good' news slope.

$\alpha_0 + \alpha_1$ : Constant value of the 'bad' news slope.

$\beta_0$ : Slope of 'good' news.

$\beta_0 + \beta_1$ : Slope of 'bad' news.

The return,  $R_{it}$  variable, is calculated using the share price of 9 months before and 3 months after the starting and ending of the firms' fiscal years. The reason behind this choice of time is that information concerning a fiscal year usually becomes available approximately 3 months after the end of the firms' fiscal year. Therefore, the information concerning the past fiscal year is not incorporated at the moment of the fiscal year ending but approximately 3 months after the fiscal years ending. This is done to exclude the market response to previous years earnings with a certain confidence (Basu, 1997).

To indicate the presence of accounting conservatism there needs to be a difference between the slope of 'good' and 'bad' news. If the  $\beta$  coefficient for 'bad' news is bigger than the  $\beta$  for 'good' news the model shows an asymmetry that indicates accounting conservatism. The  $\beta$  for 'good' news is given by ' $\beta_0$ ' while the  $\beta$  for 'bad' news is given by ' $\beta_0 + \beta_1$ ' this is because of the dummy variable for 'bad' news which gives the additional slope for 'bad' news to 'good' news. According to Basu (1997) 'bad' news is reflected more quickly and completely in earnings than 'good' news, which results in a bigger  $\beta$  for 'bad' news in regression formula 1. Furthermore, he does not only expect a bigger  $\beta$  for 'bad' news but also a higher  $R^2$ .

#### 5.2.2 Critical comments on the Basu model

The Basu model has been used often to perform earnings accounting conservatism analysis. Nevertheless the model is not perfect and therefore criticized. A limitation of the model is that it can only perform analysis on listed firms and not on privately owned firms. This limitation comes from the lack of stock prices of privately owned firms, which makes it impossible to calculate returns of the firms (Ball and Shivakumar, 2005). A consequence of this limitation is that findings from an analysis, using the Basu model, that is performed on listed companies cannot be compared with an analysis on privately owned firms.

Another point of critics on the model originates also from the fact that the model uses share prices to determine if there is conservatism. When using the model implicitly assumed is that the share prices reflect news, or new information available without any bias. Dietrich et al. (2007) however, argue that the reflection of bad news is more quickly than good news in the accounting earnings due to conservatism. Another point made is that the approach suggests that when bad news has a stronger effect than good news on the earnings there is accounting conservatism. Taking all these points together would mean that the semi-strong form of the EMH does not apply. A solution would be to assume that the market is efficient as the weak form of the EMH describes when using the model. However, this makes it much harder to conduct research concerning accounting conservatism since it is very hard to determine which event is responsible for a share price change. Furthermore, Dietrich et al. (2007) provide evidence that the result of the presence of accounting conservatism is more due to biased test statistics than the actual presence of conservatism. The bias towards

conservatism is a consequence of the asymmetry in timeliness in the research design. Consequence is a consistent presence of conservatism.

A limitation brought up by Givoly and Hayn (2000) is that the character of the news highly depends on the share price. A correction for the overall sentiment of the market seems necessary, such a correction is however not made in formula 1. The imperfection which is therefore present is that 'bad' news can be classified as 'good' news in a bull market and vice versa in a bear market.

Although the model is not perfect and there is quite a bit of critic on the model it contributed a lot in research concerning accounting conservatism.

### *5.3 Method of Givoly and Hayn*

A limitation of the Basu model is that it cannot be used to analyse privately owned firms because of the lack of share prices. And, as discussed in the previous subparagraph, a limitation according to Givoly and Hayn (2000) is the determination of the character of the news on the share price. The model that Givoly and Hayn (2000) use in their research concerning accounting conservatism does not use share prices. The model makes use of information from financial statements, for example cash flow and accruals or Return on Assets (ROA). Therefore the model makes it possible to analyse privately owned firms because it makes use of financial information of privately owned firms that might be available.

#### *5.3.1 Skewness of earnings*

The method of Givoly and Hayn (2000) is based on asymmetry in recognition in positive and negative events. If the presence of accounting conservatism in a firm leads to delayed and gradual recognition of positive events and to immediate and complete recognition of negative events, a consequence likely to exist is a negative skewed distribution of earnings (Givoly and Hayn, 2000).

A negative distribution means that the majority of the observed values, for example Return on Assets (ROA), is at the right side of the mean and that the 'tail' of the distribution is at the left side. This left side visualizes the lower values of the distribution. If the skewness of the distribution becomes more negative there is an

indication of an increase in accounting conservatism. This because there are more lower ROA values. The explanation for this might be a more prudent recognition of earnings, thus an increase in conservatism.

The formula used by Givoly and Hayn (2000) to calculate the skewness of earnings is as follows:

$$Y = [E(x - \mu)^3] / \sigma^3 \quad (2)$$

Definition of variables:

$Y$ : Skewness value

$E$ :  $\sum$  Summation sign, taking the sum of all  $(x - \mu)^3$  values.

$x$ : ROA (Net Income/Total Assets, or Cash Flow from Operations (CFO)/Total Assets)

$\mu$ : Estimated mean of the distribution of ROA or CFO/Total assets

$\sigma$ : Estimated standard deviation of the distribution of ROA or CFO/Total Assets

The formula makes use of a to the power of three. This is to make sure that the 'x' value that is putted in the formula keeps its character. For example, if the ROA is -3% the negative character remains:  $(-0.03)^3 = (-0.03) \times (-0.03) \times (-0.03) = -0.00027$ . When using a to the power of for example two the character changes from negative to positive:  $(-0.03)^2 = (-0.03) \times (-0.03) = 0.0009$ .

When calculating the skewness value of several consecutive years the development over time of the conservatism degree becomes visible. Since this method does not rely on stock prices the results are not influenced by the overall sentiment of the market. However, this method does have some limitation as will be discussed next.

The method knows two major limitations. 1) Conservatism is a sort of earnings management of the managers for the firm's result. If earnings conservatism is used as earnings management it may influence the results of the analysis. Especially the big bath strategy might lead to a negatively skewed distribution. 2) When using the accruals variant the following is a limitation. If an asset bought in cash is written of as

an operating expense and not capitalized the cash flows might include these investment accruals. (Zhang, 2008)

#### *5.4 Beaver and Ryan model*

A model to detect balance sheet conservatism is used in Beaver and Ryan (2005). The model uses the difference between the book and market value of the firm, book-to-market ratio. If efficient market assumed, the actual value of the assets is reflected in the share price. Under balance sheet conservatism the book value of the assets are understated. Therefore, a low book-to-market ratio might be an indication for conservatism (Watts, 2003). Since however this model cannot be used to detect earnings accounting conservatism a further discussion of the model is not useful for this thesis.

#### *5.5 Conclusion*

In this chapter models which make it possible to measure accounting conservatism are discussed. As first the regression model of Basu (1997) is discussed and explained is how an analysis could be performed. Followed by the limitations and a discussion of points of criticism on the model. Second the model of Givoly and Hayn (2000) is discussed and explained. Important to notice is that the model of Basu can only perform analysis on listed firms since share prices are required. The Givoly and Hayn model on the other hand does not require share prices for the analysis. Therefore it is possible to perform analysis on privately owned firms and listed firms. The model of Basu and the model of Givoly and Hayn are designed to analyse earnings accounting conservatism. Both models have their limitations and points of criticism.

As last the model of Beaver and Ryan (2005) is discussed. This model is designed to detect and analyze balance sheet conservatism. Since this thesis concerns earnings accounting conservatism just a brief discussion is provided.

## ***6. Prior empirical research***

### *6.1 Introduction*

Numerous studies concerning accounting conservatism have been done in the past. The studies had different purposes and different model were used. Some studies have focussed on the long-term development over time while others have focussed on the development of conservatism during financial down turns or crisis periods. The impact of the mandatory implementation of the IFRS on accounting conservatism is studied as well. This chapter provides an overview of a selection of prior studies; the discussed prior literature is assessed to be the most relevant for the analysis that will be performed in this thesis.

First the development of accounting conservatism over time will be discussed. Second the impact of the IFRS on accounting conservatism and finally crisis related research will be discussed.

### *6.2 Development of accounting conservatism over time*

Basu (1997) performed an important long-term analysis. The time span of the analysis is 1963 till 1990 and the geographical focus the United States of America (USA). Using a sample size of approximately 43.000 fiscal year observations an analysis with the regression model of Basu (1997) model was performed. The regression model makes use of information of the stock markets. Result of the analysis was that the asymmetry between positive returns and earnings, and, negative returns and earnings relatively increased over time (Basu, 1997). This suggests an increase of conservatism during the sample period. As possible explanation of the increase in conservatism the increase in legal liability exposure of accountants is given.

Givoly and Hyan (2000) have done another long-term study concerning conservatism using the market based research approach. The time span used in the research is from 1950 till 1998. The sample was constructed using all firms that were incorporated in the 1999 Compustat database. The number of firms increased form 593 in 1950 to about 9000 in the late 1990s (Givoly and Hayn, 2000). To make the results of the different test in the research comparable a constant sample was created from the period 1968 till 1998 that consisted of 896 firms. The results suggested that there was



an unstable relation between firm economic performance and accounting earnings. Furthermore, taking all test results into account, suggested is that more conservatism was applied in the last two decades of the sample time span.

The interpretation of the results of both of the studies, Basu (1997) and Givoly and Hayn (2000), has the similar suggestion that conservatism increased over time.

### *6.3 Impact of IFRS on conservatism*

Hellmann (2008) states that the IASB and the Financial Accounting Standard Board (FASB) argue that prudence and conservatism are not desirable qualities of financial reporting information (IASB, 2006). The effect of the IFRS on accounting conservatism is examined by Hellmann (2008) using three specific IFRS standards. To examine the effect of the IFRS on conservatism Hellmann (2008) searched how conservatism could be applied within the boundaries of the three chosen standards (IAS 12, IAS38 and IAS 11 (Hellmann, 2008)).

A distinction is made between temporary and consistent conservatism. Consistent conservatism -balance sheet conservatism- is characterized by an action that leads to consistent understatement of assets. The temporary conservatism -earnings conservatism- is characterized by an action that can be reversed. An understatement, for example, of assets by creating hidden reserves or through making disproportional large provisions. A difference in accounting conservatism is made before. Earnings conservatism which leads to temporary understatement. And balance sheet conservatism that can lead to permanent understatement.

Results of the examination of Hellman (2008) were that there under the IFRS more opportunities are for temporary conservatism compared to more consistently conservative accounting treatments under many former jurisdictions to which the firms needed to apply to.

Questionable is if the IFRS reduced the phenomena accounting conservatism or just made firms shift from using consistent conservatism to temporary conservatism.

#### *6.4 Crisis related research*

The timeliness of earnings and accounting conservatism during the Asian financial crisis of 1997 is studied by Vichitsarawong et al. (2010). Countries that were included in the analysis are Hong Kong, Malaysia, Singapore and Thailand. The sample differs from 92 observations to 2760 observations respectively Hong Kong pre-crisis and Malaysia post-crisis. The time span that is used, which was defined as the period around the Asian crisis, is from 1995 till 2004. The regression model of Basu (1997) was used to analyse the data. The results of the analysis indicated that the countries had a low degree of conservatism and timeliness during the crisis period. After the Asian crisis the countries undertook actions with the desired result of a more stable financial system. For example measures of corporate governance were introduced to improve supervision. What the results of the analysis indicate was that the undertaken actions did have the desired result since an increase in conservatism was observed.

Another study concerning conservatism with the time span around the Asian crisis has been done by Herrmann et al. (2008). The exact time span used was from 1997 till 2003 using data from Thailand. Investigated was if firms audited by Big 4 audit firms and non Big 4 audit firm show a difference in conservatism. In general was found that there was less conservatism present at the firms that were audited by a non Big 4 audit firm than by firms that were audited by one of the Big 4 audit firms. An explanation given in the paper of Herrmann et al. (2008) is that firms wanted to conceal bad firm performance and that Big 4 audit firms were less likely to approve the asymmetrical reporting of the firms. In the post crisis period of the study no significant difference in accounting conservatism between the Big 4 and non Big 4 audit firms was found. Suggested is that this finding is related to the introduction of new rules and regulations that were implemented after the Asian financial crisis (for example corporate governance policies and improvements in accounting and audit enforcement).

Gul et al. (undated) investigated Hong Kong during the period 1990 till 1997. Evidence is provided that Hong Kong was subjected to a financial downturn in the years 1996-1997. Using the downturn period 1996-1997 and a non-downturn period 1994-1995 they find a significant difference in conservatism, using the regression model of Basu (1997). The decrease in accounting conservatism during the financial

downturn is classified in the study as hidden cost of a crisis. Furthermore, in crisis periods are managers more likely to report aggressively. This aggressive reporting has as consequence higher audit fees for the firms.

### *6.5 Conclusion*

This chapter provided an overview of important studies that have been done concerning accounting conservatism. First the long-term development over time is discussed. Taken the results of the discussed literature together there is an indication of increasing conservatism over the long-term.

Second the impact of the IFRS on conservatism is discussed. Not clear is whether the introduction of the IFRS has decreased the degree of accounting conservatism compared to prior jurisdictions that were applicable.

Finally in this chapter crisis related research is discussed. During crisis periods or times of financial downturn a decrease in conservatism is observed. A possible explanation given is that managers are reporting more aggressive to conceal bad company performance. This more aggressive reporting is associated with higher audit fees. However, Big 4 audit firms are less likely to approve more aggressive reporting than non Big 4 audit firms.

In post crisis periods an increase in accounting conservatism has been observed by some studies.

## ***7. Research design***

### *7.1 Introduction*

In the following chapter the research design to analyse earnings conservatism in West-European countries during crisis period will be presented. First the hypotheses will be developed based on the discussed literature. Second, the methodology to test the hypotheses is given. A step-by-step explanation is given how the data will be used to test the hypotheses. Furthermore, explained is which secondary test will be performed and why this test is chosen to use. Finally, the sample will be described. Explained will be what firms are incorporated in the sample and why some industries are excluded and the used definition of Western-Europe is discussed.

### *7.2 Hypotheses development*

The aim of the tests that will be performed in this thesis is to get insight in the development over time of earnings conservatism during a crisis period. Before the development of earnings conservatism over time can be tested, evidence needs to be provided that earnings conservatism is present in the sample during the chosen time span. The hypotheses that will be tested in this thesis will be developed in the following order. First the hypotheses to prove the presence of earnings conservatism will be presented. Based on results from prior research expectations about the presence of earnings conservatism will be given to support the developed hypotheses. Second, the hypotheses to test if the degree of earnings conservatism changed significantly during the time span will be presented. Expectations about the development of earnings conservatism over time will be given and supported using results from prior research that is provided earlier on in the thesis.

#### *7.2.1 Presence of accounting conservatism*

Prior research done over a long time span by Basu (1997) provides proof of the presence of earnings conservatism. Furthermore, findings of crisis related prior research done by Vichitsarawong et al. (2010) using the Asian financial crisis are a low degree of earnings conservatism during the crisis period and an increase in the post-crisis period. Another study during a crisis period in which differences of

earnings conservatism are measured is done by Herrmann et al. (2008). A change in the degree of earnings conservatism can only be measured if accounting conservatism was present. Since a change is observed earnings conservatism was present.

Furthermore, earnings conservatism is present in returns and earnings (for example: Basu, 1997 and Givoly and Hayn, 2000). Whether earnings conservatism is present or not can be tested using the Givoly and Hayn (2000) model of skewness of earnings.

Prior research provides proof of the presence of earnings conservatism over a long time period and during crisis periods. This nevertheless does not mean that the presence of earnings conservatism can be taken for granted during the used time span. Therefore the following hypotheses will be used to test whether there was a non-normal distribution in earnings during the sample period. A non-normal distribution proves that there is a skewness in the variable. If this skewness is of a negative character it indicates accounting conservatism because of the full and early recognition of unfavourable events compared to gradual and delayed recognition of favourable events (Givoly and Hayn, 2000).

The set of hypotheses is as follows:

*Hypothesis 1: Earnings conservatism is present during 2006.*

*Hypothesis 2: Earnings conservatism is present during 2007.*

*Hypothesis 3: Earnings conservatism is present during 2008.*

*Hypothesis 4: Earnings conservatism is present during 2009.*

The hypotheses will be tested using the skewness of earnings method of Givoly and Hayn, (2000). A general explanation of the model was given in this thesis. How this model will be used in this thesis to test the hypotheses is explained in paragraph '7.3 Methodology'.

#### 7.2.2 Development over time during crisis period

Prior research shows a decrease of the degree of earnings conservatism during crisis period (for example: Vichitsarawong et al., 2000 and Gull et al. Working paper series, undated). Furthermore, explanations for earnings conservatism that are provided in the chapter '4. Theories and accounting conservatism' motivations for

management to change the degree of earnings conservatism during a crisis period are given. This change can be an increase or decrease in earnings conservatism as will be explained. For example, lawsuits against the firm or the firm's management should be prevented. Therefore a reason to increase the degree of earnings conservatism is to reduce the chance of legal actions against the firm as the litigation explanation describes. Another reason to increase the degree of earnings conservatism is that fewer dividends are to be paid out and thus more money is retained in the firm. This retained money furthers liquidity and possibilities for investments.

On the other hand, numerous motivations for individual managers and the whole management to decrease the degree of earnings conservatism are provided by explanations of earnings conservatism as well. The example which is given before to conceal bad firm performance whether this bad performance is due to decisions managers made or not can be a motivation for decreasing the degree of earnings conservatism. This will have the effect of accelerating earnings and thus a higher income of the firm. Another motivation for decreasing the degree of earnings conservatism is provided by the contracting explanation. Debt holders demand certain performances of the firm and a sufficient solvability. If for example the profitability or the solvency of the firm is not sufficient or not above a specified level as agreed between firm and debt holder the debt holder can instantly demand its money back. Another consequence of an insufficient profitability or solvency might be an increase in interest rates that need to be paid on debt. Higher interest costs reduce the profitability of the firm and losing a loan because the debt holder demands it back could have severe financial consequences for a firm. A motivation to decrease the degree of earnings conservatism is to prevent the previous mentioned consequences. This because a decrease in earnings conservatism may improve profitability and/or solvability.

Explanations provide as illustrated motivations for an increase and decrease of the degree of earnings conservatism. Assumed in this thesis is that the chance of a litigation is neglectable since the financial statements of listed firms all have to comply with the IFRS and therefore presenting incorrect information is unlikely. Furthermore, assumed in this thesis is that shareholders do not mind having a few years lower dividend payments since the alternative could be a default of the firm, which is even worse for the shareholder. A reason to decrease the degree of earnings

conservatism is to make sure that the firm performance is sufficient to keep the loans. If the profitability or solvability is not sufficient enough a debt holder can demand its money back. Looing a loan during a crisis period in which the firm is already vulnerable can have in the worst-case default as consequence. Assumed is that the chance that a debt holder demands its money back if for example the solvability is not sufficient is very likely since nobody likes to lose money.

Based on the assumptions made and the results of crisis related prior research, Vichitsarawong et al., (2010) and Gull et al., (undated) found a lower degree of conservatism during a crisis period, expected is to observe a decrease of the degree of earnings conservatism. Based on this expectation the hypothesis to test the development over time of earnings conservatism is as follows:

*Hypothesis 5: The degree of earnings conservatism decreases during the years 2006 till 2009.*

How the hypotheses will be tested is explained in the following paragraph.

### *7.3 Methodology*

The hypotheses and development over time will be primary tested using the Return on Assets<sup>1</sup> (ROA) values as an independent variable. The used definition of the ROA is given in footnote 1.

The ROA variable is calculated using input from the financial statement and balance sheet of the firms. These reported numbers are subjected to the IFRS. This has as consequence that there is a certain equality amongst the ROA values since all the firms financial statements have to comply to the IFRS. This is an important reason for choosing the ROA values to use. The results will namely incorporate the effect of the rules and regulations of the IFRS and is therefore expected to provide credible and useful insight in the presence of conservatism and its development.

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<sup>1</sup> Definition of Return on Assets of the WorldScope database: RETURN ON ASSETS = (Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) \* (1-Tax Rate))) / Last Year's Total Assets \* 100. For exceptions see Field Defintions "ReturnOnAssets" of Thomson ONE Banker.

Next the tests that will be used to get insight in the development over time of conservatism are described and the approach is explained. Last in this paragraph the secondary analysis that will be performed is given.

### 7.3.1 Distribution test

To test the hypotheses to prove if earnings conservatism was present in the sample during the time-span the distribution of the ROA variable will be tested. If earnings conservatism was present during a year the distribution of the ROA will be significant different from a normal distribution with a negative skewness. The following step-by-step procedure will be done for each year separately.

- 1) The skewness of the ROA values will be calculated using the formula of Givoly and Hayn (2000). The formula to calculate the skewness is as follows:

$$Y = [E(x - \mu)^3] / \sigma^3 \quad (2)$$

Definition of variables:

$Y$ : Skewness value.

$E$ :  $\sum$  Summation sign, taking the sum of all  $(x - \mu)^3$  values.

$x$ : ROA value.

$\mu$ : Estimated mean of the distribution of ROA values.

$\sigma$ : Estimated standard deviation of the distribution of ROA values.

- 2) To test whether the distribution of the ROA variable is significant different from a normal distribution the Shapiro-Wilk test will be performed using the statistical software program SPSS. A significant result for this test means that there can be assumed that the variable is non-normal distributed. In the case of a significant result the skewness value calculated in step 1 can be used as a measure for earnings conservatism.



- 3) Rejecting or not rejecting the hypothesis. The hypothesis can not be rejected if: 1) the skewness value is negative and 2) the result of the Shapiro-Wilk test is significant. The hypothesis will be rejected if the Shapiro-Wilk test does not provide a significant result (5%) or if the skewness value is equal or larger than zero. If the hypotheses needs to be rejected no proof is provided of the presence of earnings conservatism. The consequence is that there needs to be concluded that the main question of this thesis can not be answered using the research design of this thesis.

### 7.3.2 Approach development over time

In the previous subparagraph is explained how will be tested if conservatism was present in the relevant years. If no proof can be provided of the presence of earnings conservatism testing the development of earnings conservatism is not possible. If that is the case there is no possibility to answer the main question of this thesis. What will be done however if no proof can be provided of the presence of earnings conservatism is that the asymmetry of the ROA variable will be tested.

The steps that will be performed to test the development over time of earnings conservatism or, the asymmetry of the ROA values if no proof of earnings conservatism can be provided are as follows:

- 1) The differences inbetween the consecutive years will be calculated. This will be done by subtracting the skewness value of year  $x_{-1}$  from the skewness value of year  $x_0$ . Example: (skewness value 2007)-(skewness value 2006). By executing this step the yearly changes of the skewness value becomes visible.
- 2) Of the yearly changes the mean value and the standard deviation of the sample will be calculated.

- 3) Using the calculated mean and standard deviation the *t statistic value* will be calculated as follows:

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}} \quad (3)^2$$

Definition of variables:

*t*: *t* statistic value

$\bar{x}$ : Sample mean, the mean value of the observed differences.

$\mu_0$ : Value that will be tested. In this thesis will be tested whether the degree of earnings conservatism decreases. Proof is provided when the observed mean change of earnings conservatism is significant lower than zero.

*s*: Sample standard deviation.

*n*: Sample size. Equals three since there are three changes observed.

- 4) The *t statistic value* will be compared with the critical value. The critical value is dependent of the degrees of freedom which is 2 (*n*-1) and the significant level that will be used. For this test a 5% one-tailed significant level will be used. The corresponding critical value is: 2.920. If the *t statistic value* is larger than 2.920 evidence is provided with a confidence level of 95% that there was a negative change of earnings conservatism that is significant different from zero.
- 5) Rejecting or not rejecting the hypothesis. The hypothesis will not be rejected if the *t statistic value* of the test larger is than the critical value. Vice versa, the hypothesis needs to be rejected if the *t statistic value* is smaller than the critical value.

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<sup>2</sup> Formula originates from: Moore, D.S., McCabe, G.P., Duckworth, W.M., Sclove, S.L. (2003), *The Practice of Business Statistics Using Data for Decisions (Comprehensive Version)*, Second Printing, New York: W. H. Freeman and Company.

- 6) To visualize the development over time of the degree of earnings conservatism the different skewness values of the separate years will be plot into a graph. Regardless of rejecting or not rejecting the hypothesis the development of the skewness of the ROA variable becomes visible. In the analysis the graph will be discussed.

### 7.3.3 Secondary analysis

The Basu (1997) model is used in prior research to perform tests concerning earnings conservatism, for example by Herrmann et al., (2008) and Vichitsarawong et al. (2010). The Basu (1997) model makes use of annual stock returns of firms to determine if there is an asymmetry in the recognition of earnings and losses. Due to the use of stock returns the results of the model are dependent of the overall market sentiment. A limitation brought up by Givoly and Hayn (2000) is that the model does not correct for this overall sentiment. Since the presence and the development of conservatism will be analyzed during a crisis period the limitation needs to be taken seriously. Consequence is therefore that the expectations of the regression that will be performed are very low, meaning that few significant coefficients and low r-square values are expected. However the reason to use the Basu (1997) model as a secondary analysis is to increase the comparability of this thesis with prior research, since prior research concerning earnings accounting often is done using the Basu (1997) model. The steps that will be done to perform the Basu (1997) are as follows:

- 1) The annual stock returns of the firms will be calculated and the datasets are provided with a dummy variable that equals '1' for a negative year return ('bad' news) and '0' for a positive year return ('good' news). There are four different datasets, for each year one. (How the datasets are created is explained in the following paragraph.)
- 2) Following step is to load the dataset into the statistical software program SPSS and run the following regression model:

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

Definition of variables:

$X_{it}/P_{it-1}$ : Earnings per share for firm 'i' in fiscal year 't' deflated by the beginning of the fiscal years' share price of firm 'i'.

$R_{it}$ : Return for firm 'i' over the fiscal year 't', starting 9 months before and 3 months after the firms' fiscal year end.

$DR_{it}$ : Dummy variable for firm 'i' in year 't', variable equals '1' to indicate 'bad' news and '0' to indicate 'good' news. 'Bad' news is characterized by  $R_{it} < 0$ , 'good' news is characterized by  $R_{it} > 0$ .

- 3) The presence of earnings conservatism is characterised by a difference between the slope of 'bad' news and 'good' news. In this step therefore will be checked whether the slope for 'good' news is significant and if the coefficient ' $\beta_1$ ' which is the additional slope of 'bad' news relative to 'good' news is significant. (levels of 5% and 1% are given by SPSS) If both the coefficients ' $\beta_0$ ' and ' $\beta_1$ ' are significant there is an asymmetry of earnings conservatism.
- 4) Based on the findings of step three will be concluded whether earnings conservatism was present in the separate years. Furthermore will be analyzed whether the asymmetry increases or decreases over the years by looking at the development of the ' $\beta_1$ ' coefficient.

#### *7.4 Sample description*

How the sample that is used in this thesis to analyse conservatism will be created is described in this subparagraph. The actions that will be executed with the dataset will all be described. Furthermore the definition of Western Europe that is used in this thesis is motivated.

##### 7.4.1 Data selection

- 1) First step is to select all listed firms of the relevant countries of the years 2006-2009, using Wharton Research Data Services (WRDS). The

COMPUSTAT database provided per country a file of all listed firms. Included in the file was, among other variables, the fiscal year-end month, International Security Identification Number (ISIN), status: active or inactive, the company name, Stock Exchange Daily Official List (SEDOL) and the Standard Industry Classification Code (SIC).

- 2) Second, all the files will be merged to one file. This results in a list with all firms there were listed in the years 2006, 2007, 2008 and 2009. This list also contained financial institutions and inactive firms.
- 3) Next, all the firms that have the character inactive will be deleted from the list. This in order to make a dataset that contained only firms that operated in the financial crisis and thus had to deal with the consequences.
- 4) Since the Basu (1997) model requires stock prices of specific days compared to the fiscal year-end of the firm this needs to be filtered. Therefore all the firms with a fiscal year-end month different than month 12 (December) will be deleted from the list.
- 5) During the financial crisis that is analyzed banks and other financial institutions had sometimes a hard time surviving. Furthermore, financial institutions, insurance and real estate industries have additional regulatory considerations (Herrmann et al., 2008). To filter for the financial, insurance and real estate industry all firms with an SIC code between or equal to the range 6000 to 6999 will be deleted.
- 6) To filter for cross-listed firms and firms that are present twice in the dataset due to another reason the filter for unique value will be used.
- 7) For the Basu (1997) model the share prices that are needed for the regression will be searched using Datastream. The data will be organized in four files (one for each year) with the necessary variables and firms of which not all necessary stock prices are available will be deleted. At this point the data is ready to run a regression analysis using SPSS. This resulted in 1199 observations for 2006, 1319 observations for 2007, 1403 observations for 2008 and 1391 observations for 2009. The original list contained 1503 firms.

- 8) For the skewness of earnings test the variable Return on Assets (ROA) will be used. The ROA value of the firms will be searched using the Thomson One Banker database. All the missing values of the return on assets will be deleted. After deleting all missing values a total of 1351 observations were left over. This list of firms between the years 2006 till 2009 does not change but is constant. Just as Givoly and Hayn (2000) use a constant sample for most analysis with the desired result to ensure the comparability of the results.

#### 7.4.2 Western Europe

The countries Belgium, France, Germany, Italy, The Netherlands, Portugal and Spain are defined as Western Europe in this thesis. The chosen countries have the Euro in common, which is the functional currency in Europe. Furthermore, all the countries are member of the European Union and are likely to have relatively small cultural differences. Notable countries that are not included in the definition of Western Europe that is used in this thesis are the United Kingdom, Ireland and Switzerland.

The United Kingdom and Ireland are not included in the definition of Western Europe due to their offshore location. An additional reason to exclude the United Kingdom is that they have an Anglo-Saxon economy and the British pound as currency. Reason to exclude Switzerland from the definition is the use of the Swiss Franc in Switzerland and the fact that Switzerland is not a member of the European Union.

#### 7.5 Conclusion

In this chapter the hypotheses to test the presence of earnings conservatism are presented as first. Followed is the hypothesis to test the development of earnings conservatism over time accompanied with expectations of the development over time. Next in this chapter the methodology is described. Explained is how the hypotheses will be tested in a step-by-step description. Third in this chapter the secondary analysis is presented. Described is which model will be used. Last in this chapter the sample selection is discussed followed by an explanation of the used definition of Western-Europe.

## **8. Results**

### *8.1 Introduction*

In this chapter the results of the tests will be presented. First the results of the distribution tests will be given, to try to determine if earnings conservatism was present during the time span. Based on the results of the first part the hypotheses concerning the presence of earnings conservatism can be accepted or rejected. Second, the results and necessary steps to test the development over time of the degree of earnings conservatism test will be presented. Using this result it is possible to test whether there has been a decrease in the degree of earnings conservatism in the relevant time span, if earnings conservatism was present. If however is concluded, based on the test concerning the presence of earnings conservatism, that earnings conservatism was not present in the used time span the results of the skewness plot of the ROA variable might provide insight in the found results. Therefore, as third in this chapter, the development of the skewness of the ROA variable is presented and briefly discussed. Finally in this chapter the results of the secondary analysis are presented and explained.

### *8.2 Results distribution tests*

First step of the analysis was to calculate the skewness of the Return on Assets (ROA) variable using the following formula:  $Y = [E(x - \mu)^3] / \sigma^3$  originating from Givoly and Hayn (2000). The formula expresses the distribution of the ROA variable in a value. If the ROA variable is normally distributed the skewness has the value 'zero'. If however the distribution of the ROA variable is negatively skewed there is an indication for earnings conservatism since the difference in recognizing earnings and profits, and, expenses and losses results in a negative skewed distribution of the ROA variable. In table 1 the skewness values of the separate years are summarized. More elaborate information of the datasets can be found in *Appendix B*. Also provided in *Appendix B* are the calculations of the skewness values.

Table 1: Skewness value of Return on Assets variable

|             | <i>Skewness Value ROA<sup>3</sup></i> |
|-------------|---------------------------------------|
| <i>Year</i> | <i>Y</i>                              |
| 2006        | -18764                                |
| 2007        | -23351                                |
| 2008        | -14168                                |
| 2009        | -3075                                 |

As can be seen in table 1 is that all the skewness values are negative which indicates an asymmetry in favour of earnings conservatism. Based on this result can be concluded that there is a difference in the recognition of earnings and profits, and expenses and losses. To test if the distribution of the ROA variable is significant different from a normal distribution the Shapiro-Wilk test is performed as second step. If the Shapiro-Wilk test provides a significant result the distribution of the ROA variable is significant different from a normal distribution. In that case the skewness of the distribution is significant different from a normal distribution. Meaning that there is a difference in the recognition of earnings and profits, and, expenses and losses. If the Shapiro-Wilk test does not provide a significant result the distribution is not significant different from a normal distribution with the consequence that there needs to be concluded that there is no earnings conservatism present. The results of the Shapiro-Wilk tests of the separate years are summarized in table 2. The SPSS output of the Shapiro-Wilk test can be found in *Appendix B*.

Table 2 Shapiro-Wilk Test of Normality on Return of Assets variable

|             | <i>Shapiro-Wilk ROA</i> |
|-------------|-------------------------|
| <i>Year</i> | <i>Significance</i>     |
| 2006        | 0.000                   |
| 2007        | 0.000                   |
| 2008        | 0.000                   |
| 2009        | 0.000                   |

<sup>3</sup> Definition of Return on Assets of the WorldScope database: RETURN ON ASSETS = (Net Income before Preferred Dividends + ((Interest Expense on Debt-Interest Capitalized) \* (1-Tax Rate))) / Last Year's Total Assets \* 100. For exceptions see Field Definitions "ReturnOnAssets" of Thomson ONE Banker.



The Shapiro-Wilk test provides significant results for all years of the time span. Meaning that the distribution of the ROA variable is significant different from a normal distribution for all the relevant years.

Already concluded was that there was a difference in the recognition of earnings and profit, and, expenses and losses based on a skewness value different from zero. Given the significant results of the Shapiro-Wilk tests concluded can be that the skewness of the ROA variable is significantly different from a normal distribution and thus that the skewness due to the difference between the recognition of earnings and profits, and, expenses and losses is earnings conservatism.

Last step was to accept or reject the formulated hypotheses concerning the presence of earnings conservatism. The set of hypotheses to provide proof of the presence of earnings conservatism in the years 2006-2009 at Western European listed firms was as follows:

*Hypothesis 1: Earnings conservatism is present during 2006.*

*Hypothesis 2: Earnings conservatism is present during 2007.*

*Hypothesis 3: Earnings conservatism is present during 2008.*

*Hypothesis 4: Earnings conservatism is present during 2009.*

The results of the skewness value calculation were respectively -18764 for 2006, -23351 for 2007, -14168 for 2008 and -3075 for 2010. This negative character of the values was concluded to be a difference in the recognition of earnings and profits, and, expenses and losses. Next using the Shapiro-Wilk test that had a significant result of 0.000 for all the relevant years concluded was that the distribution of the ROA variable is significant different from a normal distribution. Taken the results together, a skewness in favour of earnings conservatism and a significant different distribution than normal of the ROA variable concluded can be that earnings conservatism was present in the tested years. Thus, hypothesis 1 till 4 can be accepted, earnings conservatism was present in the years 2006, 2007, 2008 and 2009.

### 8.3 Result development over time test

In the previous subparagraph results of the tests concerning the presence of earnings conservatism are presented. Concluded is that the tests provide proof of the presence of earnings conservatism in the time span used and thus the formulated hypotheses concerning earnings conservatism are accepted. In this paragraph the results of the development over time test will be presented accompanied with the results of the necessary intermediate steps. Tested is whether the mean change of the time span in the degree of earnings conservatism is significant different from zero. First step was to calculate the differences of the skewness values between the consecutive years. This has been done using the formula: (skewness value 2007)-(skewness value 2006). The results of this step are summarized in table 3, calculations can be found in *Appendix B*.

Table 3 Differences between the Skewness values of the consecutive years

| <i>Years</i> | <i>Difference</i> |
|--------------|-------------------|
| 2006-2007    | -4587             |
| 2007-2008    | 9183              |
| 2008-2009    | 11093             |

As can be seen in table 3 is that the skewness of the ROA variable from 2006 to 2007 increased<sup>4</sup>. Meaning that the difference in the recognition of earnings and profits, and, expenses and losses increases, thus an increase in earnings conservatism. Furthermore visible in the table is a positive change in the skewness value from 2007 to 2008 and from 2008 to 2009. This indicates a decrease in the skewness and thus a decrease in the difference between the recognition of earnings and profits, and, expenses and losses indicating a decrease in the degree of earnings conservatism from 2007 till 2009.

Second step was to determine the standard deviation and mean of the changes in earnings conservatism. The mean change and standard deviation are necessary to test whether the degree of earnings conservatism changes significant different from zero during the time span. The mean change and standard deviation are given in table 4.

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<sup>4</sup> The skewness values of the years was already negative, respectively -18764 for 2006, -23351 for 2007, -14168 for 2008 and -3075 for 2010. Therefore a negative change means an increase in skewness and a positive change means a decrease of the skewness of the ROA variable.

Table 4 Mean and Standard deviation of the differences

|                    |         |
|--------------------|---------|
| Mean               | 5229.67 |
| Standard deviation | 8554.95 |

Using the mean and standard deviation the *t statistic value* will be calculated. The *t statistic value* in combination with a critical value makes it possible to determine whether the observed mean change of the skewness value is significant larger than zero. The formula that is used to calculate the *t statistic value* is as follows:

$$t = \frac{\bar{x} - \mu_0}{\frac{s}{\sqrt{n}}} \quad (3)^5$$

In which *t* is the *t statistic value*,  $\bar{x}$  the sample mean (5229.67),  $\mu_0$  equals zero since tested is whether the observed mean change is significant different from zero, *s* is the sample standard deviation (8554.95), *n* is the sample size which equals three since there are three changes observed. Result of the calculation:

*t statistic value*: 1.0588

To determine if the observed mean change is significant different larger than zero the *t statistic value* is compared with the critical value. The critical value is 2.920. If the calculated *t statistic value* is larger than the critical value evidence is provided that the observed mean change is larger than zero with 95% confidence. Next step is to compare the calculated *t statistic value* with the critical t value and conclude which of the values is the largest.

Table 5 Comparing the observed *t statistic value* with the critical t value

|                            |   |                  |
|----------------------------|---|------------------|
| Observed t statistic value |   | Critical t value |
| 1.059                      | < | 2.920            |

As can be seen in table 5 is that the observed *t statistic value* is smaller than the critical t value. This means that the mean change of the skewness value is not significant higher than zero. In terms of earnings conservatism it means that during

<sup>5</sup> Formula originates from: Moore, D.S., McCabe, G.P., Duckworth, W.M., Sclove, S.L. (2003), *The Practice of Business Statistics Using Data for Decisions (Comprehensive Version)*, Second Printing, New York: W. H. Freeman and Company.

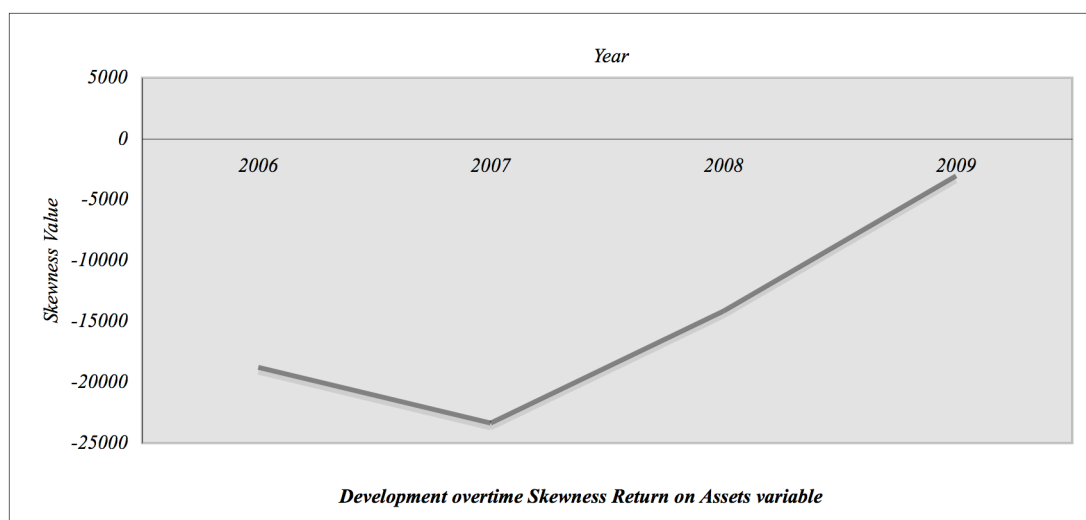
the research period, from the beginning till the end, no significant change in the degree of earnings conservatism is observed. Based on this finding the next step can be done. Rejecting or accepting the hypotheses, which was as follows:

*Hypothesis 5: The degree of earnings conservatism decreases during the years 2006 till 2009.*

The hypothesis would be accepted if the calculated *t statistic value* (1.0588) were larger than the determined critical value (2.920). Since the observed *t statistic value* is smaller than the critical value, the hypothesis needs to be rejected. This has as consequence that there is no significant proof of a decrease of earnings conservatism during the years 2006 till 2009.

Final step of the development over time approach was to plot the skewness values is a graph. This would be done to visualize the development over time of the skewness of the ROA variable and can be done regardless of accepting or rejecting the hypothesis. Since the presence of earnings conservatism is proven, not just the development of the skewness value of the ROA variable over time becomes visible but the development of the degree conservatism as well. The plot of the skewness values is given in graph 1.

Graph 1: Development over time plot of Skewness Value Return on Assets



As can be seen in graph 1 is that the skewness of the earnings decreases if taken the whole time span, from 2006 till 2009. This indicates a decrease during the crisis of the degree of conservatism. However, the statistical test did not provide proof of a

significant decrease, the formulated hypothesis is rejected. Noticeable is that the skewness of earnings increases from 2006 to 2007, meaning that the degree of conservatism increases. From 2007 to 2009 the skewness of earnings decreases, thus the distribution of earnings comes closer to a normal distribution. This means that there is an indication that the degree of conservatism decreases during the years 2006 to 2009. A discussion concerning the development of the degree of conservatism and the theory is done in chapter '9. Analysis of the results'.

#### 8.4 Results secondary analysis

As secondary analysis the Basu (1997) model is used. Despite the low expectations of this model in financial downturns, since the model does not correct for the overall stock market sentiment, this model was used to increase the comparability of this thesis with prior research. First step was to calculate the annual returns of the firms share prices. Next, the data has been provided with a dummy variable. The dummy variable has the purpose to give the model the information whether it concerns 'good' or 'bad' news. The dummy variable equals '1' for a negative annual return for 'bad' news and '0' for a positive return, 'good' news. This step is executed in the data files. Second step was to run the following regression using SPSS:

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

Definition of variables:

$X_{it}/P_{it-1}$ : Earnings per share for firm 'i' in fiscal year 't' deflated by the beginning of the fiscal years' share price of firm 'i'.

$R_{it}$ : Return for firm 'i' over the fiscal year 't', starting 9 months before and 3 months after the firms' fiscal year end.

$DR_{it}$ : Dummy variable for firm 'i' in year 't', variable equals '1' to indicate 'bad' news and '0' to indicate 'good' news. 'Bad' news is characterized by  $R_{it} < 0$ , 'good' news is characterized by  $R_{it} > 0$ .

The results of the regression analysis are summarized in table 6. SPSS Descriptive statistics, model summary and the coefficients output can be found in *Appendix C*.

Table 6 Results of the performed regression

| Year | <i>Statistics of the regression model</i> |            |           |           |       |      |
|------|---|------------|-----------|-----------|-------|------|
|      | $\alpha_0$                                | $\alpha_1$ | $\beta_0$ | $\beta_1$ | $R^2$ | $N$  |
| 2006 | 0.130*                                    | 0.093      | -0.028    | 1.803**   | 0.025 | 1199 |
| 2007 | 0.107                                     | -0.033     | -0.036    | 0.397     | 0.002 | 1319 |
| 2008 | -0.058                                    | 0.298      | -0.160    | 0.846**   | 0.013 | 1403 |
| 2009 | -0.099*                                   | 0.185      | 0.002     | 2.043**   | 0.024 | 1391 |

\*Significant at 5% confidence level

\*\*Significant at 1% confidence level

Using the output of the performed regression analysis there will be checked if there is earnings conservatism. The coefficient for positive events is given by ' $\beta_0$ ' and the coefficient for negative events by ' $\beta_0 + \beta_1$ '. As can be seen in the table 6 ' $\beta_1$ ' gives in the years 2006, 2008 and 2009 a significant addition for the coefficient of negative events relative to the coefficients for positive events (' $\beta_0$ '). Nevertheless, the coefficients for positive events (' $\beta_0$ ') are in none of the years significant.

Most of the ' $\beta_1$ ' coefficients are significant, meaning that there is a significant addition for 'bad' news relative to 'good' news, which indicates an asymmetry. However, none of the ' $\beta_0$ ' coefficients are significant. These coefficients give the slope for 'good' news. Taken all years and looking to all  $\beta$  coefficients an asymmetry is present, the slope for 'good' news has a different coefficient than the slope for 'bad' news, and thus there is an indication for earnings conservatism. However, only the ' $\beta_1$ ' coefficients are significant. The significance of the slope that represents 'bad' news, which is the result if ' $\beta_1$ ' and ' $\beta_0$ ' coefficient are combined, is not tested. Therefore it is unknown if the slope for 'bad' news is significant. Furthermore, the coefficient for 'good' news is not significant, which means that the slope for 'good' news is not significant. What is known is that there is a significant addition for 'bad' news relative to 'good' news. An indication of earnings conservatism is present since there is an asymmetry. The results of the model however do not provide proof of earnings conservatism.

The model provides no proof of earnings conservatism. To discuss the development of earnings conservatism first proof needs to be provided that earnings conservatism is present. Therefore, unfortunately it is not possible to discuss the development over time of earnings conservatism based on the results of the model.

Some discussion about the  $\alpha$  constant values can be done. As can be seen in table 6 is that a few  $\alpha$  constant values are significant. The  $\alpha$  constants give the point at which the Y axel is crossed. For example, in the case of 'good' news in 2006 the slope will cross the Y axel in the point 0.130. In reality this means the following: if a firm's stock return in 2006 is approaching nil but still positive, the news will be characterised as 'good' and thus the dummy variable equals '0'. The earnings per share for that firm in 2006 deflated by the beginning of 2006-share price of the firm will equal 0.130.

Very important to bear in mind looking to the results is that all the  $R^2$  values are very low. Meaning that the power to predict future outcomes using the coefficients of table 6 is low.

### *8.5 Conclusion*

In this chapter the results of the tests are presented and commented. The first tests provide proof of the presence of earnings conservatism during the relevant time span. The second test to falsify a decrease of the degree of earnings conservatism during the time span was not significant. However, an increase of conservatism in the first year is visible and in the rest of the years a decrease. The secondary analysis showed an indication of the presence of conservatism. As noted before, the Basu (1997) model is criticized that it does not correct for the overall sentiment of the stock market. Since the analysis of earnings conservatism is done during a crisis period this is a limitation and noted previously in the thesis the expectations of the secondary analysis were low. Major reason to perform the Basu (1997) regression analysis is to increase the comparability of this thesis with prior research.

## ***9. Analysis of the results***

### *9.1 Introduction*

The results of the tests are briefly discussed in the previous chapter. In this chapter first the results of the test concerning the presence of earnings conservatism will be discussed. Second, the development over time test will be discussed in relation with theory and prior research. Third, the development of the skewness of the ROA variable will be discussed using earnings conservatism theories. Fourth the results of the secondary analysis will be discussed. Finally in this chapter some limitations will be given and discussed.

### *9.2 Presence of earnings conservatism*

The results of the tests related with the presence of earnings conservatism were significant, thus the presence of earnings conservatism in Western Europe during the time span 2006-2009 is proven. This result is similar with prior research that is performed in the U.S.A. and proved the presence of earnings conservatism in the U.S.A. (for example: Givoly and Hayn, 2000 and Basu, 1997).

Furthermore, the presence of earnings conservatism can be explained using the litigation explanation. According to the litigation explanation applying earnings conservatism can decrease the chance of litigation. An interpretation taken the explanation and the results of the tests is that earnings conservatism is used to try to prevent lawsuits and litigation.

Another explanation why earnings conservatism is present is that it can be used as earnings management. Changes in the degree of earnings conservatism can have income smoothing as result. Assuming that income smoothing is applied within firms another explanation for earnings conservatism is provided.

### *9.3 Development over time*

The result of the development over time test did not provide proof of a significant decrease in the degree of earnings conservatism. Expected was to observe a decrease in the degree of earnings conservatism with the desired result of keeping a sufficient



firm performance to satisfy for example debt holders. This expectation was based on the contracting explanation. Furthermore is the finding that there has not been a decrease of earnings conservatism in contrast with findings of prior research. Crisis related prior research found a lower degree of earnings conservatism during a crisis period (for example: Vichitsarawong et al., 2010 and Gull et al., undated).

The test does not provide evidence of a decrease in the degree of earnings conservatism. Possible interpretation is that the degree of earnings conservatism remains the same during crisis period to improve liquidity or at least keep liquidity sufficiently. Not changing the degree of conservatism might have as consequence a lower reported profit and thus fewer dividends could be paid out. Other side of paying fewer dividends is that more earnings are retained in the firm, which can improve future investment opportunities.

Only tested is a decrease in the degree of earnings conservatism. An increase however is possible as well. Studies done by Basu (1997) and Givoly and Hayn (2000) found an increase of conservatism over time. The result of the test performed in this thesis did not prove a decrease of the degree earnings conservatism meaning than an increase in the degree of earnings conservatism is possible as well. An increase however was not expected since crisis related prior research often found a decrease in earnings conservatism. Furthermore, an increase in the degree of earnings conservatism is considered to be unlikely to be observed since the performed test focused on a crisis period while Basu (1997) and Givoly and Hayn (2000) concerned a long-term development over time analysis.

Nevertheless, an increase of the degree of earning conservatism in the in this thesis used time span could be interpreted using the litigation explanation. Increasing the degree of earnings conservatism might decrease the chance of litigation.

#### *9.4 Skewness plot*

The skewness plot had the purpose to visualize the development of the skewness of the Return on Assets variable. Since however the presence of earnings conservatism is proven the plot visualizes the development of earnings conservatism. The development however can only be used as an indication of the direction between the

separate years since the significance between the years could not be tested; this was not possible since there is just one skewness value per year.

From 2006 to 2007 an increase of skewness can be observed, followed by a structural decrease. The highest level of skewness is observed in the year 2007, in this year the large West European stock markets started to decrease in value.<sup>6</sup> After 2007 further into the crisis the level of conservatism decreases. Possibly the contracting explanation can provide insight in motivations for the decrease in conservatism from the year 2007 till 2009. Firms have to deal with debt holders that want some degree of certainty that the interest will be paid and the loans will be refunded. Therefore, as explained earlier on in this thesis, financial ratios can be included in debt contract with specified boundaries and consequences if the boundaries are exceeded. The decrease of earnings conservatism could indicate an action of managers to improve the profitability for the years 2008 and 2009 to make sure the ratios are of sufficient quality so that the firm will not face negative consequences as agreed in contracts.

### *9.5 Secondary analysis*

The results of the secondary analysis give an indication of earnings conservatism. This indication comes from a significant addition for ‘bad’ news relative to ‘good’ news. However, the coefficients for ‘good’ news are not significant. Proof therefore of an asymmetry is not provided. As consequence the model does not provide proof of the presence of earnings conservatism. The lack of proof of earnings conservatism is contradicting with the primary tests of this thesis. Possibly the limitation that the model does not correct for the overall stock market sentiment is of such magnitude that the model does not provide representative results of the research period.

### *9.6 Limitations*

An obvious limitation of the analysis that has been done in this thesis is that no proof is provided that there was a crisis period in the used time span. Only the direction of the large stock markets was vaguely used to determine that there was a crisis period.

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<sup>6</sup> In Appendix D graphs of the development of West European stock markets during the sample period are provided.

However, the relevant crisis was of such magnitude and at the moment of writing the consequences are still severe for the real economy. Still questionable is if the crisis at moment of writing is left behind or that the western economy still is in a crisis period. Therefore this limitation is not aught to be a real problem, assumed is that there is agreed unanimous that there was a crisis period around the relevant time span. Nevertheless it is difficult to determine what a crisis period is. A solution would be to choose a measure for economic crisis and use this measure to determine the crisis period. Since no proof of an economic crisis is provided in this thesis the chosen start and ending moment of the used time span that is defined as the crisis period in this thesis can be criticized.

The used time span could possibly explain why the result of the development over time test is contradicting with results from prior research. Taking the large West European stock markets in account the year 2006 is more of a pre-crisis year than a crisis year (see *Appendix D*). When research concerning the development of conservatism in a crisis period will be done in the future recommendable is first, to proof that there is a crisis or economic downturn. Two, proof the presence of conservatism, which is done in the thesis, finally analyze the development over time.

Another limitation is that just one variable is used to analyze the distribution and skewness of earnings. Alternatively accruals can be used to do a sort of similar analysis. A lot of information is incorporated in financial statements but not in large databases. Since the analysis used 1351 observations per year checking all financial statements to create a dataset is not a reasonable option.

In the tests there is not controlled for earnings management. If conservatism is used to manipulate the earnings this has effect on the results of the tests. Implicitly assumed in the tests done in this thesis is that conservatism is not used to manipulate earnings with the desired result of earnings management.

### *9.7 Conclusion*

In this chapter the results of the performed tests are discussed in relation with earnings conservatism theories and prior research. The tests concerning the presence of earnings conservatism are similar with findings from prior research. The result of the development over time test however is contradicting with prior research.

Nevertheless, using earnings conservatism theories the finding of the development over time test can be interpreted. Furthermore the development of the skewness of the ROA variable and the secondary analysis are discussed. Last in this chapter some limitations of the study, which is done in this thesis, are given and discussed.

## ***10. Summary and Conclusions***

The literature review that is provided in this thesis and the tests that are performed are done to search for an answers for the following question:

*How did the degree of earnings conservatism of listed Western European firms develop over time during 2006-2009?*

Earnings conservatism is an asymmetry between the degree of verification that is required within a firm to realize earnings and revenues, and, losses and expenses. To investigate if an asymmetry between this recognition exists in Western European firms the market based accounting research approach can be used. To explain the development over time of the degree of accounting conservatism several explanations are present in existing literature. These explanations provide motivations to apply conservatism in some situations. Simultaneously explanations provide motivations to not to apply conservatism in different situations. Furthermore, motivations for a change in the degree of conservatism during a crisis period are provide as well. For example: the contracting explanation. Based on motivations from the literature the change of the degree can be an increase or a decrease.

A review of prior research showed the presence of accounting conservatism in different continents and time spans. The prior studies used different models with advantages, disadvantages and limitations. The overall conclusion of the long-term development of conservatism over time is an increase in the degree of conservatism. Furthermore, crisis related prior research show that a lower level of conservatism was present during the analyzed crisis or financial downturn.

To answer the main question of this thesis first the presence of accounting conservatism is proven. By analyzing the distribution of the Return on Assets of West European firms proof is provided that there is an asymmetry in the recognition of earnings and revenues, and, losses and expenses.

The development of earnings conservatism of listed West European firms is tested next. The test showed that there has not been a decrease in asymmetry of the ROA variable that is significant different from zero. Since the presence of earnings

conservatism is proven concluded needs to be that the degree of earnings conservatism did not decrease using the time span 2006 – 2009.

Based on all finding in this thesis the following answer to the main question concerning the development over time of accounting conservatism is formulated: Earnings conservatism at West European listed firms did not decrease during the years 2006 to 2009. Whether the degree of earnings conservatism did not change or increased is not tested.

Knowing that there has not been a decrease in earnings conservatism is useful for standard setters. Knowing that the degree of earnings conservatism does not decrease can be used in the development of future standards. Another group for who the knowledge is useful are investors. Now that a decrease has not been present during the time span and knowing that earnings conservatism is present investor now know that the degree can still decrease to improve firm performance. Yet, if the crisis continues for a while there will be a moment that there is no earnings conservatism anymore. At that moment only the actual profits and losses can reported since the annual reports need to comply with the IFRS and thus accelerate earnings or delay losses will not be possible with large magnitudes.

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#### *Databases*

Wharton Research Data Services

Thomson Onebanker

Datastream

COMPUSTAT

WorldScope

#### *Online sources*

<http://www.iasplus.com/agenda/framework-a.htm> Visited the 29<sup>th</sup> June, 2011

[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=315062](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=315062) Visited the 5<sup>th</sup> of July, 2011

## Appendix A

### Schematic literature overview

| <b>Author(s), Year</b>      | <b>Object of Study</b>   | <b>Sample</b>   | <b>Time-span</b>  | <b>Methodology</b>  | <b>Result</b>  |
|-----------------------------|--|---|---|---|--|
| Basu, 1997                  | The effect of the conservatism principle on reported financial statements  | Country: USA<br>Fiscal year returns: 25,665<br>Positive returns.<br>17,453 Negative returns.  | 1963-1990   | Basu's reversed regression model: Earnings on returns.  | An asymmetry in recognition between earnings and losses in the return. An increasing degree of conservatism over time.   |
| Givoly & Hayn, 2000         | The development over time of conservatism. Analyzing using cash flows and accruals. Has financial reporting become more conservative?                | Country: USA<br>Firms: 593 in the 1950's.<br>Increasing to approximately 9000 in the late 90's because of an increase in firms in the COMPUSTAT database.<br>Constant sample of 896 firms in the years 1968-1998. | 1950-1998   | Skewness measure of various financials. (ROA, CFO). Using financial statement numbers the results are not influenced by the overall sentiment on the stock market (important difference/critic to the Basu 1997 model). A negative skewness indicates conservatism.                                       | Results over the years are comparable since use is made of a constant sample. Suggested by the results, unstable relation between firm performance and accounting earnings. Furthermore indication of increasing degree of accounting conservatism in the last two decades of the used times-span. |
| Hellman, 2008               | IFRS and accounting conservatism. Is there a decrease in conservatism under IFRS? Or, is there a shift between consistent and temporary differences. | Accounting standards IAS 12, IAS 38, IAS 11.  | Dated 2008. Used the accounting standards of that time. | Using three different accounting standards (IAS 12, IAS 38, IAS 11) illustrations of income shifting is given. Also, illustrated is how a mix of consistent and temporary conservatism might lead to wrong interpretation of the firms' activities. The result is less relevant information for the user. |  |
| Vichitsarawong et al., 2010 | Crisis related empirical research. Accounting conservatism and earnings, the impact of the Asian financial crisis.                                   | Countries: Hong Kong, Malaysia, Singapore and Thailand.<br>Sample size differs from 92 observations in Hong Kong  | Pre-crisis: 1995-1996.<br>Crisis: 1997-1998.            | Used is the regression model of Basu (1997). Also used as measure are the accumulation of non-operating accruals as stated  | Results showed a low degree of conservatism and timeliness of earnings in the crisis period and an improvement in the post-crisis period. The  |

|  |  |  |   |   |  |
|--|--|--|---|---|--|
|  | The relevant countries introduced corporate governance guidelines/rules for firm after the crisis. Did this improve the financial information?                               | during pre-crisis period to 2760 observations in Malaysia in the post-crisis period.                       | Post-Crisis: 1999-2004.                                       | in the paper suggested by Givoly and Hayn.  | conservatism degree and timeliness in the post-crisis period is higher than in the pre-crisis period. Overall finding; increase in conservatism after crisis; corporate governance reforms had positive influence on conservatism and timeliness.  |
| Herrman et al., 2008                         | An analysis whether there is a difference in the degree of accounting conservatism between firms that are audited by one of the Big-4 audit firms or a non Big-4 audit firm. | Country: Thailand<br>311 observations during crisis period.<br>978 observations in the post-crisis period. | Crisis period: 1997-1998<br><br>Post-crisis period: 1999-2003 | The reverse regression model of Basu (1997). By introducing an extra dummy variable in the original Basu (1997) model for the character of the audit firm (non-Big 4 or Big 4 firm) the relation can be analyzed. | Overall finding of the paper is that firms that are audited by a Big 4 audit firm report more conservative than firms that are audited by a non-Big 4 audit firm. Post crisis no difference was found.   |
| Gul et al.<br>Working paper series (undated) | To provide proof that Hong Kong was in a financial downturn in the years 1996-1997. Analyzed is the degree of accounting conservatism and the a relation with audit fees.    | Country: Hong Kong<br>2061 firm year observations.   | 1990-1997   | The Basu (1997) regression model.   | Proof is provided that Hong Kong was in a financial down turn in the years 1996-1997. This financial down turn was associated with a significant decrease in conservatism compared to the non-down turn period of the research. Furthermore, the results show that a decrease in conservatism results in an increase of the audit fees during the financial down turn. |

## ***Appendix B***

SPSS output of the years 2006, 2007, 2008 and 2009. Descriptive statistics and Skewness calculation of the Return on Assets variable used to analyse the distribution of earnings. And, the SPSS output of the Shapiro-Wilk test of normality.

### *SPSS Output 2006 Descriptive Statistics and Skewness Calculation*

| <b>Descriptive Statistics</b> |           |            |           |           |                |
|-------------------------------|-----------|------------|-----------|-----------|----------------|
|                               | N         | Minimum    | Maximum   | Mean      | Std. Deviation |
|                               | Statistic | Statistic  | Statistic | Statistic | Statistic      |
| Y2006ROA                      | 1351      | -633.33333 | 113.41004 | 3.8498308 | 25.13398550    |
| Valid N (listwise)            | 1351      |            |           |           |                |

Skewness calculation:  $-297928700/25.1340^3=-18764$

### *SPSS Output 2007 Descriptive Statistics and Skewness Calculation*

| <b>Descriptive Statistics</b> |           |            |           |           |                |
|-------------------------------|-----------|------------|-----------|-----------|----------------|
|                               | N         | Minimum    | Maximum   | Mean      | Std. Deviation |
|                               | Statistic | Statistic  | Statistic | Statistic | Statistic      |
| Y2007ROA                      | 1351      | -653.33333 | 79.85180  | 3.6022343 | 23.64904479    |
| Valid N (listwise)            | 1351      |            |           |           |                |

Skewness calculation:  $-308844655/23.6490^3=-23351$

*SPSS Output 2008 Descriptive Statistics and Skewness Calculation*

| <b>Descriptive Statistics</b> |           |            |           |           |                |
|-------------------------------|-----------|------------|-----------|-----------|----------------|
|                               | N         | Minimum    | Maximum   | Mean      | Std. Deviation |
|                               | Statistic | Statistic  | Statistic | Statistic | Statistic      |
| Y2008ROA                      | 1351      | -481.81818 | 104.47958 | .7483489  | 20.88660962    |
| Valid N (listwise)            | 1351      |            |           |           |                |

Skewness calculation:  $-129093247/20.8866^3 = -14168$

*SPSS Output 2009 Descriptive Statistics and Skewness Calculation*

| <b>Descriptive Statistics</b> |           |            |           |           |                |
|-------------------------------|-----------|------------|-----------|-----------|----------------|
|                               | N         | Minimum    | Maximum   | Mean      | Std. Deviation |
|                               | Statistic | Statistic  | Statistic | Statistic | Statistic      |
| Y2009ROA                      | 1351      | -136.23188 | 130.44481 | .2666432  | 14.29651293    |
| Valid N (listwise)            | 1351      |            |           |           |                |

Skewness calculation:  $-8985781/14.2965^3 = -3075$

*SPSS Output 2006 Shapiro-Wilk test*

| <b>Tests of Normality</b> |              |      |      |
|---------------------------|--------------|------|------|
|                           | Shapiro-Wilk |      |      |
|                           | Statistic    | df   | Sig. |
| Y2006ROA                  | .373         | 1351 | .000 |

*SPSS Output 2007 Shapiro-Wilk test*

| Tests of Normality |              |      |      |
|--------------------|--------------|------|------|
|                    | Shapiro-Wilk |      |      |
|                    | Statistic    | df   | Sig. |
| Y2007ROA           | .336         | 1351 | .000 |

*SPSS Output 2008 Shapiro-Wilk test*

| Tests of Normality |              |      |      |
|--------------------|--------------|------|------|
|                    | Shapiro-Wilk |      |      |
|                    | Statistic    | df   | Sig. |
| Y2008ROA           | .491         | 1351 | .000 |

*SPSS Output 2009 Shapiro-Wilk test*

| Tests of Normality |              |      |      |
|--------------------|--------------|------|------|
|                    | Shapiro-Wilk |      |      |
|                    | Statistic    | df   | Sig. |
| Y2009ROA           | .713         | 1351 | .000 |

*Difference calculations*

2007-2006:  $(-23351) - (-18764) = -4587$

2008-2007:  $(-14168) - (-23351) = 9183$

2009-2008:  $(-3075) - (-14168) = 11093$

## Appendix C

### SPSS Output Regression model 2006

#### Descriptive Statistics

|      | Mean            | Std. Deviation    | N    |
|------|-----------------|-------------------|------|
| X/P  | .02858804545586 | 1.355953019663858 | 1199 |
| DR   | .37             | .484              | 1199 |
| R    | .1665093864882  | .90000244392886   | 1199 |
| R*DR | -.07            | .138              | 1199 |

#### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .158 <sup>a</sup> | .025     | .023              | 1.340524128742172          |

a. Predictors: (Constant), R\*DR, R, DR

**Coefficients<sup>a</sup>**

| Model |      | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. | 95.0% Confidence Interval for B |             | Correlations |         |       |
|-------|------|-----------------------------|------------|---------------------------|-------|------|---------------------------------|-------------|--------------|---------|-------|
|       |      | B                           | Std. Error | Beta                      |       |      | Lower Bound                     | Upper Bound | Zero-order   | Partial | Part  |
|       |      | 1                           | (Constant) | .130                      |       |      | .052                            |             | 2.507        | .012    | .028  |
|       | DR   | .093                        | .111       | .033                      | .834  | .405 | -.125                           | .311        | -.087        | .024    | .024  |
|       | R    | -.028                       | .046       | -.019                     | -.621 | .535 | -.118                           | .061        | .025         | -.018   | -.018 |
|       | R*DR | 1.803                       | .388       | .183                      | 4.640 | .000 | 1.040                           | 2.565       | .155         | .133    | .133  |

a. Dependent Variable: X/P

*SPSS Output Regression model 2007*

**Descriptive Statistics**

|      | Mean             | Std. Deviation    | N    |
|------|------------------|-------------------|------|
| X/P  | -.00810214524669 | 1.873844583417097 | 1319 |
| DR   | .79              | .405              | 1319 |
| R    | -.18532727962329 | .334117989162118  | 1319 |
| R*DR | -.23991752452761 | .211626653809418  | 1319 |



**Model Summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .044 <sup>a</sup> | .002     | .000              | 1.874154355249816          |

a. Predictors: (Constant), R\*DR, DR, R

**Coefficients<sup>a</sup>**

| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. | 95.0% Confidence Interval for B |             | Correlations |         |       |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|---------------------------------|-------------|--------------|---------|-------|
|       |            | B                           | Std. Error | Beta                      |       |      | Lower Bound                     | Upper Bound | Zero-order   | Partial | Part  |
| 1     | (Constant) | .107                        | .139       |                           | .770  | .441 | -.165                           | .379        |              |         |       |
|       | DR         | -.033                       | .175       | -.007                     | -.188 | .851 | -.377                           | .311        | -.029        | -.005   | -.005 |
|       | R          | -.036                       | .302       | -.006                     | -.118 | .906 | -.628                           | .557        | .035         | -.003   | -.003 |
|       | R*DR       | .397                        | .425       | .045                      | .934  | .351 | -.437                           | 1.231       | .044         | .026    | .026  |

a. Dependent Variable: X/P

*SPSS Output Regression model 2008*

**Descriptive Statistics**

|      | Mean             | Std. Deviation    | N    |
|------|------------------|-------------------|------|
| X/P  | -.08689584736762 | 1.290031097949858 | 1403 |
| DR   | .93              | .256              | 1403 |
| R    | -.40926478989186 | .329272532022473  | 1403 |
| R*DR | -.43             | .239              | 1403 |

**Descriptive Statistics**

|      | Mean             | Std. Deviation    | N    |
|------|------------------|-------------------|------|
| X/P  | -.08689584736762 | 1.290031097949858 | 1403 |
| DR   | .93              | .256              | 1403 |
| R    | -.40926478989186 | .329272532022473  | 1403 |
| R*DR | -.43             | .239              | 1403 |

**Coefficients<sup>a</sup>**

| Model | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig.  | 95.0% Confidence Interval for B |             | Correlations |         |       |       |
|-------|-----------------------------|------------|---------------------------|-------|-------|---------------------------------|-------------|--------------|---------|-------|-------|
|       | B                           | Std. Error | Beta                      |       |       | Lower Bound                     | Upper Bound | Zero-order   | Partial | Part  |       |
|       | 1                           | (Constant) | -.058                     |       |       | .143                            |             |              |         |       |       |
|       | DR                          | .298       | .166                      | .059  | 1.794 | .073                            | -.028       | .624         | .004    | .048  | .048  |
|       | R                           | -.160      | .208                      | -.041 | -7.67 | .443                            | -.568       | .249         | .059    | -.021 | -.020 |
|       | R*DR                        | .864       | .266                      | .160  | 3.252 | .001                            | .343        | 1.385        | .096    | .087  | .086  |

a. Dependent Variable: X/P

*SPSS Output Regression model 2009*

**Descriptive Statistics**

|      | Mean             | Std. Deviation   | N    |
|------|------------------|------------------|------|
| X/P  | -.1364333462907  | 1.21851344296868 | 1391 |
| DR   | .15              | .360             | 1391 |
| R    | .60827832081372  | .934096959977105 | 1391 |
| R*DR | -.03296498592671 | .111184766569488 | 1391 |

**Model Summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .154 <sup>a</sup> | .024     | .022              | 1.20530832582264           |

a. Predictors: (Constant), R\*DR, R, DR

**Coefficients<sup>a</sup>**

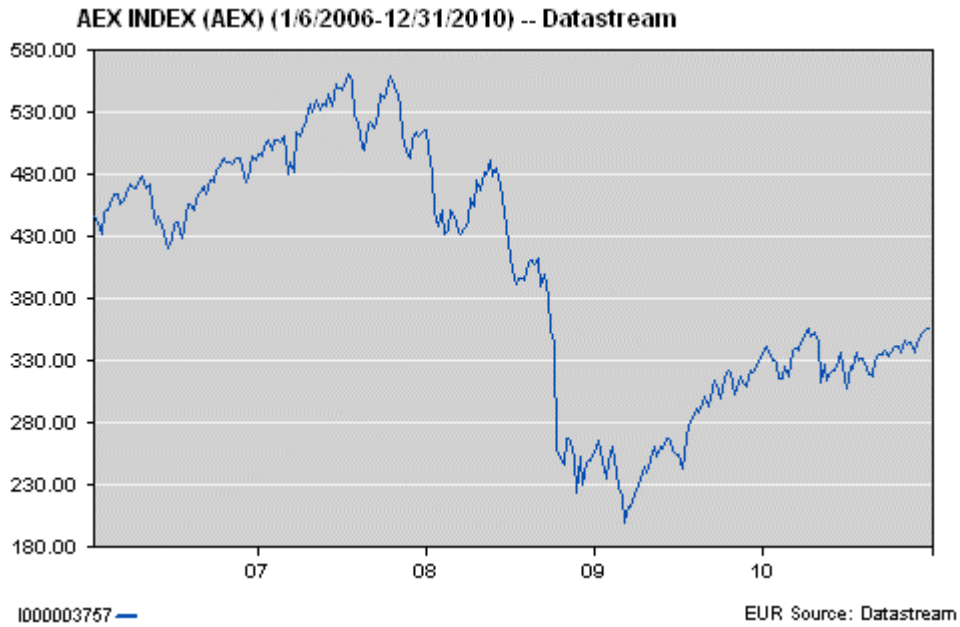
| Model |            | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig. | 95.0% Confidence Interval for B |             | Correlations |         |      |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|---------------------------------|-------------|--------------|---------|------|
|       |            | B                           | Std. Error | Beta                      |        |      | Lower Bound                     | Upper Bound | Zero-order   | Partial | Part |
| 1     | (Constant) | -.099                       | .045       |                           | -2.185 | .029 | -.187                           | -.010       |              |         |      |
|       | DR         | .185                        | .128       | .055                      | 1.439  | .150 | -.067                           | .437        | -.076        | .039    | .038 |
|       | R          | .002                        | .037       | .002                      | .057   | .954 | -.071                           | .076        | .041         | .002    | .002 |
|       | R*DR       | 2.043                       | .407       | .186                      | 5.014  | .000 | 1.244                           | 2.843       | .149         | .133    | .133 |

a. Dependent Variable: X/P

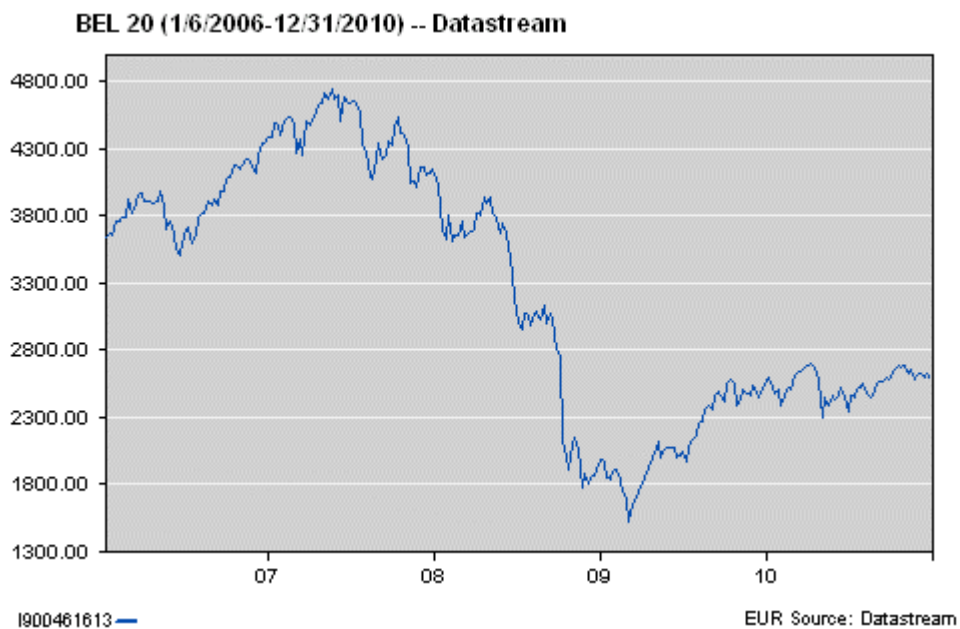
## Appendix D

Development of West European stock markets during the sample period.

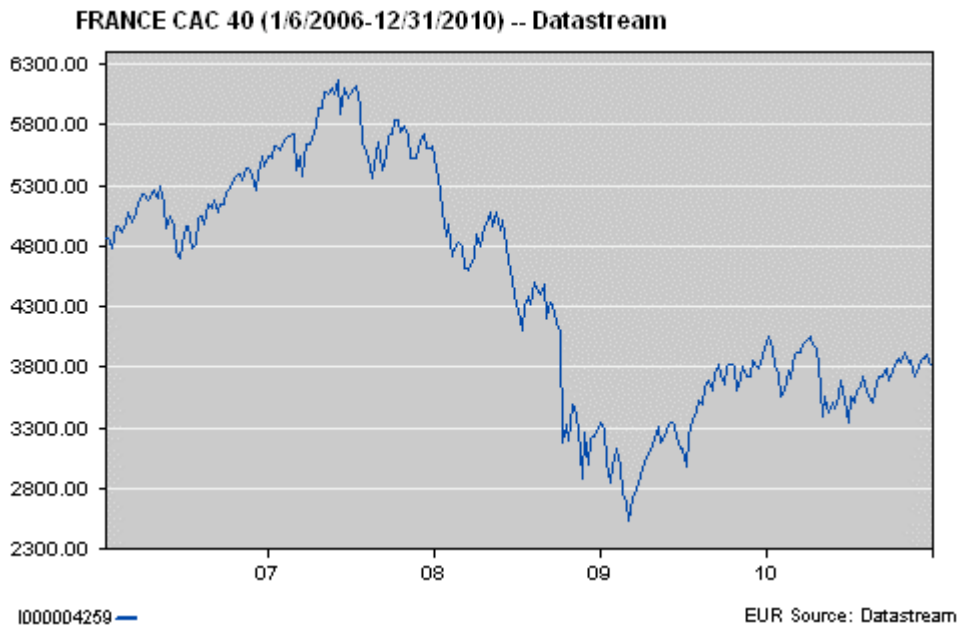
### *The Netherlands*



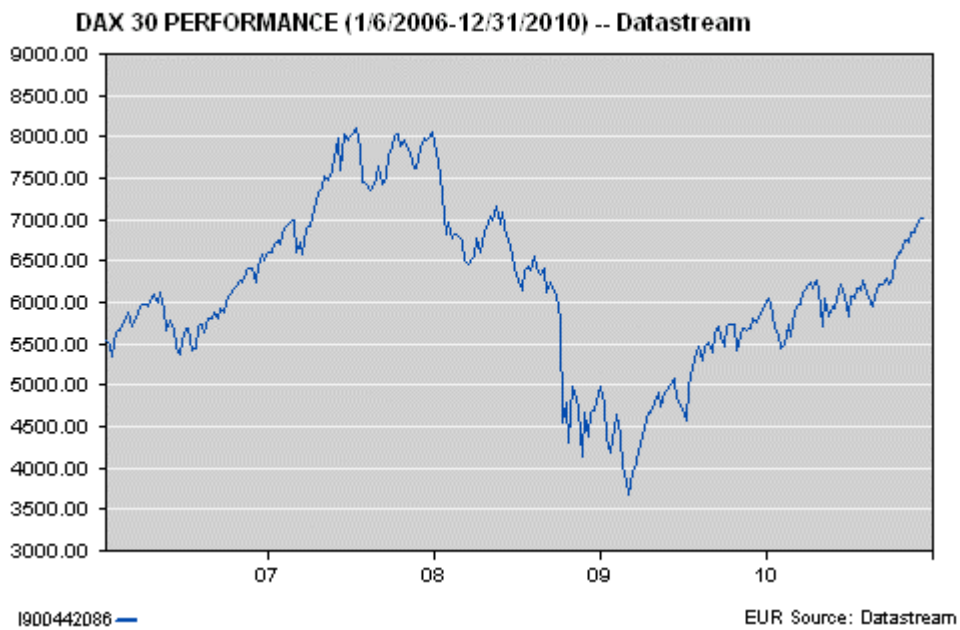
### *Belgium*



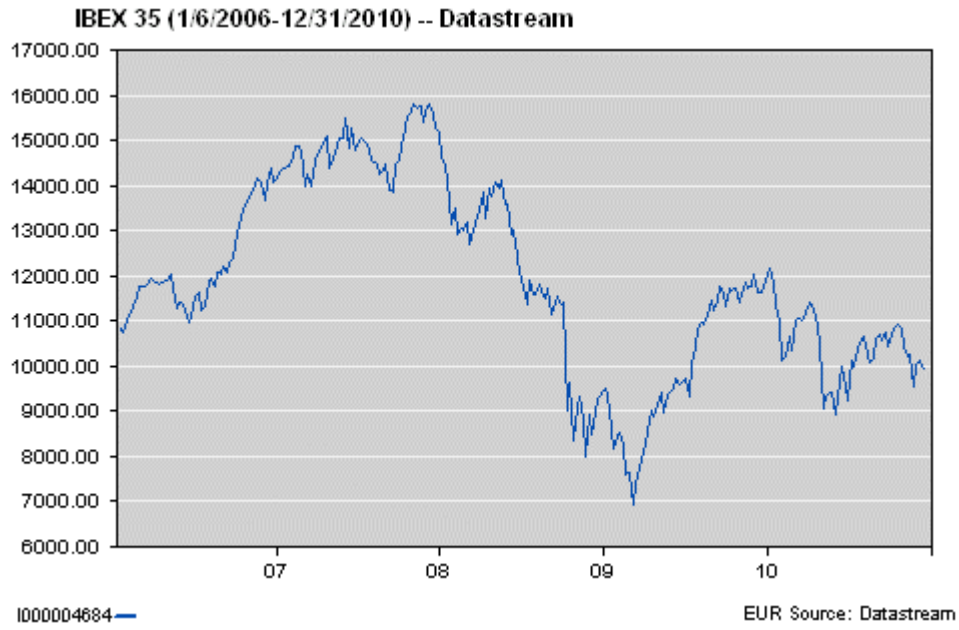
## France



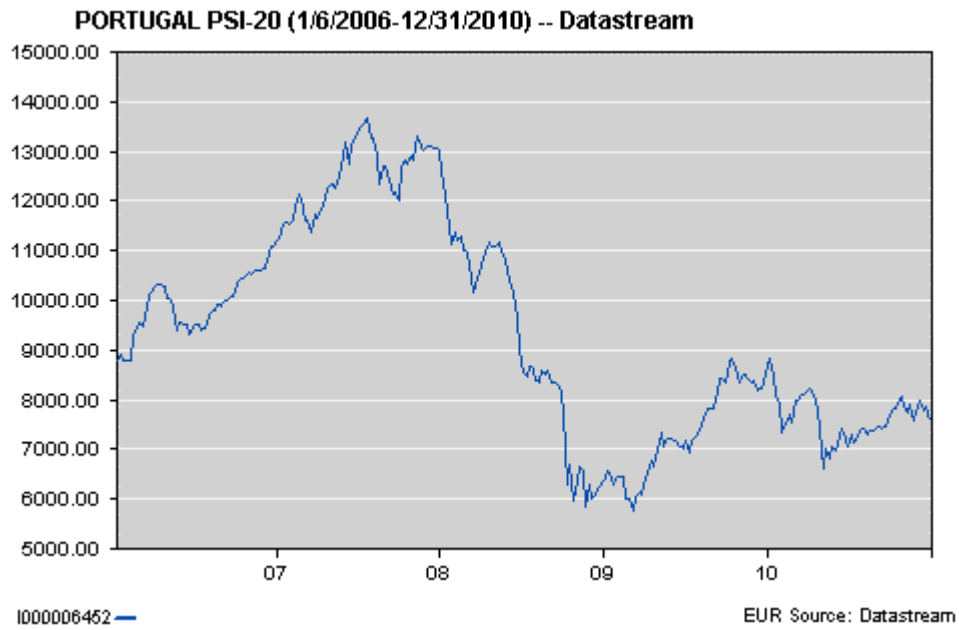
## Germany



*Spain*



*Portugal*



*Italy*

