



Erasmus School of Economics
Accounting, Auditing and Control

Master Thesis

**Why Are Not All Economic Risks Captured in the Financial Statements?
An Exploratory Study.**

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Abstract

This thesis aims at explaining why not all firms apply accounting conservatism or what circumstances cause that not all business risks are visible in the financial statements. This thesis is exploratory. To find the explanations, data from Compustat North America is used for the years 1986 until 2017. The main findings of this thesis suggest that big firms and highly leveraged firms are less conservative compared to small firms and lower leveraged firms respectively. Also, levels of accounting conservatism differ significantly between different industries. There is no relation found between conditional accounting conservatism and unconditional accounting conservatism within industries.

Keywords: accounting conservatism, market to book ratio, industry, risks

1. Introduction

Accounting conservatism is a topic broadly researched. A measure used to observe accounting conservatism is the net asset measure (Watts, 2003a). A consequence of accounting conservatism is that the net assets of a firm are understated because of the asymmetrical recognition of profits and losses. This understatement of net assets causes that the market to book ratio (MTB) is expected to be higher than one. The market to book ratio is calculated by *Market to book ratio (MTB) = $\frac{\text{Market capitalization}}{\text{Total book value of equity}}$* . So since the total book value of equity is understated the market capitalization is expected to be higher than the total book value of equity and therefore the market to book ratio is expected to be higher than 1. However, as illustrated in graph 1 in the tables and graphs section, the market to book ratio is not always higher than 1. This graph shows us that in 23.04 % of the cases the market to book ratio is lower than 1 and that in 13.3 % the market to book ratio is even lower than 0.75. This graph also shows us that in 4.2 % of the cases a firm remains to have a market to book ratio lower than 1 for five years in a row and in 1.49 % of the cases this market to book ratio remains lower than 0.75 for five years in a row. This is inconsistent with the idea of accounting conservatism.

When a firm has a market to book ratio lower than one this means that the firm estimated the total book value of their equity higher than the market capitalization. This could mean that the market has assessed some risks for the firm that the firm did not assess itself. This would mean that not all risks are incorporated in the financial statements of the firm. Other explanations might be possible as well. Therefore this research aims at providing explanations for this phenomena and the research question therefore is: ‘Why is the market to book ratio sometimes lower than one?’ By answering this question I hope to find underlying causes and circumstances that can explain why not all risks are captured in the financial statements and which industries, firm sizes and firm structures are likely to overstate their total book value of equity even though they might apply accounting conservatism.

Accounting conservatism is defined by Bliss (1924) as “anticipate no profit, but anticipate all losses.” Anticipate no profit means that you should not recognize revenues until the moment that you have a legal right to these revenues. Anticipate all losses means that you are allowed to recognize losses earlier than profits. This causes asymmetrical requirements for the recognition of profits and losses and is interpreted at the accountants tendency to require a higher degree of confirmation to recognize good news as gains than to recognize bad news as losses (Basu, 1997).

There are multiple explanations for the difference between the market capitalization and the total book value of equity. When R&D expenses are expensed instead of capitalized the total book value of equity is expected to be lower than the market capitalization. This is because when past R&D expenses would be capitalized this would result in an increased value for total assets and therefore also an increased value in equity. Expensing R&D expenses instead of capitalizing them is a form of unconditional accounting conservatism (Beaver & Ryan, 2005). Lev (2003) tells that the market to book ratio had an

average value of 7.5 in 2000 and 4.2 in 2002. This tells us that about 50% to 66.7% of a market value consist of the value of intangible assets. So expensing of R&D expenses instead of capitalizing them, which is a form of unconditional accounting conservatism, is one of the reasons why the market to book ratio is expected to be higher than one.

Just like accounting conservatism another accounting method is fair value accounting. Fair value accounting is a form of accounting that uses current market values to value both assets and liabilities. The current market value for an asset is the value for which an asset can be sold at that moment to a third party. The current market value for a liability is the value for which the liability can be settled to a third party at that moment. IFRS defines fair value accounting as ‘the amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties, in an arm’s length transaction’. Laux & Leuz (2019) wrap up comments about fair value accounting in their paper. They conclude that tradeoffs have to be made and fair value accounting knows positive and negative aspects. They mention that it is important to find real evidence whether fair value accounting caused the economic crisis. Policymakers are in favor of neutral, fair value accounting. Fair value accounting increased in the last decades. In fair value accounting intangible assets for instance would be capitalized which would result in the expectation that the market to book ratio is close to one.

None of these explain a market to book ratio lower than one. Barth, Israeli & Sridharan (2018) research the book to market ratio. Which is the same as the market to book ratio but then the other way around, which is why they expect the book to market ratio to be below one. They research whether overstating the book value of equity explains for a book to market ratio higher than one. They find that an overstatement of the book value of equity is not an explanation for a book to market ratio higher than one. This means that it is not important whether for example R&D expenses are capitalized or expensed in finding explanations for a market to book ratio lower than one and a book to market ratio higher than one.

Empirical research in 1998 shows that financial reporting has become more conservative over the period from 1978 until 1998 (Givoly & Hayn, 2000). This shows that firms make use of accounting conservatism. Accounting conservatism knows four explanations which all suggests benefits for the users of the financial statements and disclosures. Those explanations are contracting, litigation, taxation and regulation and will be further explained in chapter two (Watts, 2003a). Those four reasons make conservatism an accounting method with benefits and therefore a logical accounting method for firms. Therefore it should be explained why the market to book ratio is sometimes lower than one. This research will pay close attention to the firms which assess their book value of equity above the market value. In these situations, the market seems to have assessed some risks which are not incorporated in the financial statements even though the firms might think they apply accounting conservatism. This

research aims to give more information about these risks that the market assesses but of which the accountants are most likely not aware.

Knowing whether all economic risks are captured within the financial statements is important to know. Also, in which industries it is likely that not all risks are captured in the financial statements is important to know. Preferably we even know which risks these are. It is important for investors, as they make decisions using the financial statements it is important to know whether the financial statements reflects all economic risks. It is also important for the firms itself. When forming the financial statements firms apply conservative accounting. Still, they overstate the book value of their equity. This could mean that the firm is not aware of some of the risks. This might expose them to risks that they try to avoid and this is bad for the value of the firm, therefore it is important that the firms are aware of all of the risks the firm faces. Policymakers might also be interested in the results since policymakers are in favor of neutral information which accounting conservatism is not (Mora & Walker, 2015). To summarize this research will explore the reasons how it is possible that firms overstate their book value (incidentally) while you would expect them to understate it.

To answer the research question of why the market to book ratio is sometimes lower than one data from Compustat North America will be used. The data will be collected for the years 1986 until 2017. Using this data descriptive graphs will give an overview of characteristics that go along with a market to book ratio lower than one. The c-score from Khan & Watts (2009) will measure conditional accounting conservatism and the Standard Industrial Classification code will identify different major industries. Different measures based on the market to book ratio will be used to measure accounting conservatism and a longer period of accounting conservatism. A regression will be used to see whether characteristics such as the size, the amount of leverage and the amount of conditional accounting conservatism can explain unconditional accounting conservatism.

The findings suggest that the size of a firm, the leverage structure of a firm and conditional accounting conservatism effect unconditional accounting conservatism in a firm. Big firms are less conservative compared to small firms and SME's. The findings also suggest that highly leveraged firms are less conservative compared to lower leveraged firms. Industries that are particularly unconservative are the construction general contractors & operative builders industry, the agricultural production livestock and animal specialties industry, the fishing, hunting and trapping industry, the nondepository credit institutions industry and the textile mill industry. In the first five mentioned industries this could be due to unpredictable uncertainties while in the textile mill industry the explanations for accounting conservatism might not be relevant. There is no relation found between conditional accounting conservatism and unconditional accounting conservatism within industries.

This study will contribute to the existing literature by explaining why market to book ratios are lower than 1 when expected to be above one. Also, this research focusses on differences in industries and

accounting conservatism. The findings in this thesis might help in the implementation of accounting conservatism by giving more information about economic risks.

The remainder of this paper is organized as follows: The next section provides background literature on accounting conservatism and business risks. In the third section, the hypotheses are developed. The fourth section explains the research design and the sample selection. The fifth section presents the descriptive statistics and the results. The final section presents the concluding results and will give recommendations for future research.

2. Literature review

In this chapter, the main concepts will be explained. Some important definitions will be explained and there will be a discussion of the previous research about the topic. Also, different measurement styles will be discussed. The objective of this literature review is to see what is already known about the research question and find differences or similarities among prior research. Also, this literature review will look at gaps in the literature. Different methodologies, measurements and proxies will be discussed.

2.1 Accounting conservatism

Accounting conservatism is a well-known and long-existing concept within financial accounting. According to Basu (1997) the concept exists for over 500 years already. There is no consensus on the definition of accounting conservatism but there are multiple definitions. Accounting conservatism can be defined traditionally as 'anticipate no profit, but anticipate all losses' (Bliss,1924). Accounting conservatism is interpreted as 'the accountant's tendency to require a higher degree of confirmation to recognize good news as gains than to recognize bad news as losses' (Basu, 1997). The result of accounting conservatism is an understatement of the net assets consequently, this leads to an overstatement of income in the next periods. Accounting conservatism is growing over the years and is becoming more important even though policymakers are in favor of neutral accounting information which is not consistent with accounting conservatism (Mora & Walker, 2015).

2.2 Explanations for accounting conservatism

Research shows that the explanations for accounting conservatism all suggest benefits for the users of the financial statements and disclosures. The fact that accounting conservatism has existed so long and is still there nevertheless that there has repeatedly been strong criticism suggests that the benefits of conservatism outweigh the criticism on it. Accounting conservatism is a logical accounting policy and knows four explanations that will be carefully explained in this section (Watts, 2003a).

2.2.1 Contracting explanation

First of all accounting conservatism can be explained by contracting. Contracting is the earliest explanation of accounting conservatism. The contracting explanation claims that accounting conservatism is an efficient technology for the firms its contracts with different parties that arises naturally. Three attributes of accounting measures are timeliness, verifiability and asymmetric verifiability. The contracting explanation addresses moral hazard problems and therefore reduces agency costs. The moral hazard problem can be explained as a situation where the agent chooses the option to benefit his self-interest over the interest of the firm (Mirrlees, 1999). Contracting lowers agency costs. Lowering agency cost results in a higher value of the firm and this value increase is shared by all parties of the firm. Debt contracts increase the value of the firm by making sure that there are no dividend payments to shareholders which will be negative for the debt holders. Compensation contracts increase the value of the firm by making sure agents act in the interest of the firm instead of in their self-

interest, this way agent costs are decreased. Corporate governance increases the value of the firm by timely signals about the net assets. This allows shareholders to use their property rights (Watts, 2003a).

2.2.2 Litigation explanation

Second accounting conservatism can be explained by shareholder litigation when understating a firm's net assets it is less likely that there are litigation consequences compared to overstating a firm's net assets. This gives an incentive for a firm to understate its net assets. So by understating a firm's net assets, the firm aims to minimize its litigation cost (Watts, 2003). As explained before the contracting explanation is the oldest explanation for accounting conservatism. The litigation explanation is relatively new and became important around 1966 when Rule 23 of the Federal Rules of Civil Procedures changed. This rule says that a potential plaintiff is part of the class nevertheless they appear in court as a plaintiff or not (Federal rules of civil procedures).

2.2.3 Taxation explanation

The third reason for accounting conservatism is taxation, when a firm is making a profit and has an income over which it has to pay taxes there is an incentive to understate the net assets so that the present value of taxes is lower. This also increases the value of a business. Also, this incentive results in an understatement of the net assets of a firm (Watts, 2003a).

2.2.4 Regulation explanation

The fourth and last reason to explain accounting conservatism is the accounting regulation, it is likely that policymakers will receive criticism faster for policy's that make firms overstate their net assets compared to policy's that make firms understate their net assets. This results in an incentive for policymakers to create conservative standards. But even though there is an incentive for policymakers to be in favor of accounting conservatism sometimes policymakers seem to ignore accounting conservatism. Instead of accounting conservatism, policymakers seem to be in favor of 'neutrality' in accounting. This is mainly because they argue that an understatement in the net assets in the current year results in an overstatement of net assets in the next year.

All the previous named explanations have in common that verifiability of the accounting numbers is of high importance, without verifiability of the accounting numbers there are no consequences such as payments to management, fines and tax payments (Watts, 2003a).

2.3 Conditional versus unconditional accounting conservatism

A distinction in accounting conservatism can be made between unconditional accounting conservatism and conditional accounting conservatism. These types of accounting conservatism have many purposes in common, the main difference between these types of accounting conservatism is that unconditional accounting conservatism is news independent and ex-ante and conditional accounting conservatism is news dependent and ex-post (Beaver & Ryan, 2005).

Unconditional accounting conservatism affects all firms equally and is news independent, this means that the book value of the net assets is understated due to predetermined aspects of the accounting process. It is used because it is hard to estimate the value of the assets of a firm and therefore tries to minimize the consequences of the explanations mentioned above for accounting conservatism. Some examples of unconditional accounting conservatism are immediate expensing the cost of intangible assets that are internally developed and faster depreciation of property plant and equipment than that is necessary according to the economic life of the property plant and equipment. The literature on unconditional accounting conservatism emphasizes the hardness of giving value to special kinds of assets and liabilities and their effect on future earnings (Beaver & Ryan, 2005). The results of the research of Qiang (2007) show that the litigation, regulation and taxation explanations for accounting conservatism apply to unconditional accounting conservatism.

In contrast to unconditional accounting conservatism, conditional accounting conservatism is news dependent, which means that the book value immediately goes down when there is bad news but does not go up when there is good news. Conditional accounting conservatism is, therefore, news dependent. Some examples of unconditional accounting conservatism are accounting for the inventory with the lower value of the cost of the inventory and impairment accounting for long-lived assets. The literature on conditional accounting conservatism emphasizes on improving the contracts explanation of accounting conservatism (Beaver & Ryan, 2005). The results of the research of Qiang (2007) show that the contracting and litigation explanation of accounting conservatism applies to conditional accounting conservatism. This is in accordance with Beaver & Ryan (2005).

2.4 Accounting conservatism over time

External circumstances can be explanations for how much accounting conservatism there is at the time. Therefore accounting conservatism is not expected to be stable over time. There are some important economic and political events that could influence the level of accounting conservatism over time. Anecdotal evidence from the business press suggests that in 2001 a firm named Enron, one of the highest performing energy companies at the time was caught in a huge scandal concerning fraud. Managers left the firm with millions of dollars and accountants made the prove vanish. Soon after that in 2002 also WorldCom got caught in a similar scandal. Billions of dollars were lost. Both of the companies went bankrupt and so did the accountancy office acting at the moment in which the fraud was performed. The accountancy office was the same one for both Enron and WorldCom, Arthur Anderson. An incredible amount of money and jobs were lost. In reaction to this, the Sarbanes Oxley Act (SOX) was enacted in 2002. The purpose of SOX was to increase both transparency and disclosure within financial reporting. Because of these events, Ball & Shivakumar (2005) expect accounting conservatism to increase after 2002.

In the years 2007 and 2008 there was a financial crisis. This financial crisis is seen as the worst breakdown of the economy since the great depression in 1930. The financial crisis started in 2007 with

the sub-prime housing crisis. At the beginning of the twenty-first century, almost everybody was able to apply for a mortgage. These mortgages were given on houses with inflated prices, the interest got higher and higher and adjustable rates rose as well. While this process continued the people were no longer able to make the payments. This resulted in banks with a worthless portfolio of loans. Eventually, all these banks having a worthless portfolio of loans resulted in an international banking crisis. This was followed by an economic downturn and is called the great recession.

2.5 Measurement of accounting conservatism

As explained before a difference can be made between unconditional accounting conservatism and conditional accounting conservatism. Therefore different measures are used for unconditional and conditional accounting conservatism and it is important to understand those differences. According to Xie (2015) there is a huge misunderstanding of the difference in measures between conditional accounting conservatism and unconditional accounting conservatism which has led to a mixed interpretation of conservatism. Watts (2003b) already provides an overview of measurements for accounting conservatism. According to Watts (2003b) researchers use three different kinds of measures. Net measures, earnings & accrual measures and measures with the earnings/stock relation. Xie (2015) classifies four groups of measures for accounting conservatism. Book-to-market based measures, accrual-based measures, cash-flow-based measures and Basu-based measures. Xie (2015) identifies the market-to-book ratio as a right and easily interpretable measure for unconditional accounting conservatism because the market-to-book ratio can reflect a persistence difference between the market value of equity and the book value of equity and therefore can be used to capture the effect of accounting conservatism. This is because unconditional accounting conservatism is about the ex-ante understatement of the book value of net assets. It only uses information that is there at the beginning of the lifetime of an asset and is news independent.

To measure conditional accounting conservatism other measures are appropriate. In prior literature, the conditional accounting conservatism measures are usually based on the differential time model developed by Basu in 1997. This model is usually used in prior research, but there is also some criticism on the model. The Basu measure can either be used as an industry-year using a cross-section in the industry or as a firm using a time-series of firm-years (Khan & Watts, 2009). So one of the limitations of the Basu model is the fact that it does not allow for firm-specific measurements. For this reason, Khan & Watts (2009) developed the c-score, which is a firm-specific measure. This measure allows estimates for individual companies and individual years. This model takes size, leverage and the market-to-book ratio into account which are important factors within accounting conservatism. The c-score of Khan & Watts is based on the previously explained explanations named by Watts (2003a). Therefore Khan & Watts (2009) mention that a limitation of their measure is that it might not be an appropriate matter in all cases. They mention that the c-score might not be appropriate for countries that have significant differences in institutional features from the United States. Countries that do not have strong legal

enforcement might use a different measure since the c-score is based on the contracting explanation. Since the United States have a strong legal system the measure is appropriate for the region.

2.6 Capturing risks in financial statements

2.6.1 Firm size

Firm size is a fundamental firm characteristic. Lafond & Watts (2008) argue that information asymmetry between insiders and outsiders of firm results in accounting conservatism in financial statements. When there is accounting conservatism the manager has less opportunity's to manipulate the numbers and because of that, the information asymmetry is reduced. In general large firms produce more public information compared to small firms and small and medium-sized firms. The generation of more public information results in a reduction of information asymmetry between insiders and outsiders. This results in less conservative accounting because conservative accounting is less necessary when the information asymmetry is smaller.

Firm size is a variable used in a lot of research. Different research uses different proxies to measure firm size. Back in the days, the consideration was that it did not matter which proxy was used for firm size because all the measures are highly intercorrelated. Smyth, Boyes & Peseau (1975) are the first researches that criticize this view. They imply that it matters which alternative measure is used to measure the size of the firm and that research that picks the most convenient measure is not valid. This is because there is more necessary than only a correlation between the different measures of firm size to be interchangeable. Shalit & Sankar (1997) research aims at helping future researchers to pick the right measure for the purpose of their research. They find that there is no single right measure of firm size and that the right measure of firm size depends on the purpose of the research. The alternative firm size measures that are used in this research are assets, stockholders equity, sales, market value and employment. Dang, Li & Yang (2018) agree that firm size is widely used in empirical research and is an important fundamental firm characteristic. Their research looks at the three most important measures for firm size; total assets, total sales and market capitalization. They look at the different proxies for firm size in 20 areas within empirical corporate finance research. According to them, the choice for a firm size measure has to be justified twice, in an empirical way and in a theoretical way.

2.6.2 Leverage

The amount of leverage within a firm is an important factor to consider when assessing the amount and kind of risks within a firm (Bowman, 1980). The amount of leverage within a firm has a positive relationship with the number of conflicts between shareholders and bondholders. Next to that, the number of conflicts between shareholder and bondholders have a positive relation with the amount of accounting conservatism that is included in the debt contracts (Ahmed & Duellman, 2007). In their research Ahmed, Billings, Morton & Stanford-Harris (2002) conclude that accounting conservatism policies reduce conflicts between shareholders and bondholders concerning dividend policy. This results in an overall lower cost of debt for the firm. The research of Zhang (2008) comes up with the same

results as Ahmed et al. (2002). Zhang (2008) finds that both lenders and borrowers benefit from accounting conservatism. Lenders benefit through accelerated violations of debt contracts and borrowers benefit through lower interest rates. Beatty et al. (2006) discuss in their research that the decline in contract cost alone will probably not satisfy the lenders and that financial reporting conservatism is necessary to reduce agency costs. The market to book ratio is also often used as a measure for growth opportunities. Literature such as Welch (2004) and Baker & Wurgler (2002) describes the relation between growth opportunities, measured by the market to book ratio and leverage as negative. This relation is in contrast with the reasoning above mentioned. Chen & Zhao (2006) research the relation between growth opportunities and leverage, because it is a widely documented regularity in the capital structure literature. They claim that the relation between the market to book ratio and leverage is significantly positive for most firms and that the more accepted negative relation is caused by a subset of firms with extremely high market to book ratios.

Financial leverage is defined as the ratio of debt divided by equity. According to Bowman (1980) the market value of equity should be used and not the book value of equity to calculate financial leverage.

2.6.3 The industry

Different industries have different characteristics, face different problems, have different risk areas and operate differently. This paragraph explains some industries and their risks and characteristics.

One of the main risks of the construction general contractors & operative builders industry is the risk that a project will face a delay. Sambasivan & Soon (2007) research the main causes and effects in the Malaysian construction industry. They find six main effects; time overrun, cost overrun, disputes, arbitration, litigation and total abandonment. They mention that some causes and effects might be unique to the Malaysian construction industry but that those causes and effects are a good point to start. Litigation is used to settle disputes and disputes occur when construction is facing a delay. This means that the litigation reason that explains accounting conservatism is important for the construction industry. Contracts are used as well to settle disputes and the litigation that is faced follows accordingly from the contracts. Therefore the contract explanation that explains the level of accounting conservatism is also present in the construction industry. Dubois & Gadde (2002) state that previous research finds that the construction industry has two specific characteristics. The industry has some complexity factors which they owe due to industry-specific uncertainties and the construction industry has inefficient operations. The research from Dubois & Gadde (2002) itself is to see how the industry deals with these complexity factors. They analyze how activities, resources and actors work together. They conclude that the entire industry functionates as a 'loosely coupled system', because of short term productivity which has a negative influence on innovation and learning.

The agricultural production livestock and animal specialties industry also deals with risks and uncertainties. According to Debertin (2012) economists make some assumptions about the agricultural

production industry that are untrue. Economic models about the agricultural production industry assume that managers have certainty about the production function and the prices for their input and output. In practice, it turns out that the expected production function is never realized. In this sector weather is a big factor of uncertainty, but also nature faces some challenges. Farmers are aware of the input prices when they buy their input material but at this moment, they are not aware yet for what price they will be selling their output. Farmers have to make decisions about the process before they are aware of the selling price. Another assumption made by economists is that this industry is the closest to the traditional economic model of competition, but this assumption is not always fared because the way the market competes is heavily dependent on the produced product.

The agricultural production crops industry is another major industry within the agricultural industry. This industry deals especially with crops. Oerke & Dehne (2004) researched the crop industry, they focused on the protection of crops. The safety of crops is threatened by weeds, viruses, pathogens and animal pests. The potential losses because of these threats are big and therefore crop protection is necessary to meet the supply in crops. Oerke & Dehne (2004) state that the human population is estimated to grow with 80 million per annum. Together with the changes in food habits the demand for grains is expected to double. It will be a challenge to meet those demands. Teixeira, Fischer, Van Velthuizen, Walter & Ewert (2013) research heat stress at a global level for four major crops rice, maize, wheat and soybean. They state that when crops are exposed to short periods of high temperatures during their reproductive period the productivity is significantly dropped. They find that subtropical areas deal with crop yield losses due to the warm weather periods. They argue that it is necessary to develop strategies that mitigate the impact of heat stress on global crop production. Just like the weeds, viruses, pathogens and animal pests, heat stress is a challenge for the industry.

The chemicals and allied products industry produce basic chemicals such as acids and organic chemicals, chemicals parts that are part of an end product such as fibers and pigments and end products for consumption such as soaps and drugs. Manassaram, Orr & Kaye (2003) state that the industry of chemical products and allied products often releases hazardous substances. More than 33% of the reported accidents happened in the chemicals and allied products industry. The most frequent reason for the release of hazardous substances was the malfunctioning of the equipment. This release of hazardous substances causes injuries for employees. The manufacturing of the products is a big risk in the chemicals and allied products industry. The injury of employees could lead to serious litigation and the production process faces detailed regulatory instructions on how to have a safe working environment. This can be reasons for firms in the chemicals and allied products industry to be conservative in their accounting methods.

The fishing hunting and trapping industry harvest wild animals from their natural living environment. This industry fully relies on and is dependent on the continuous supply of the natural resource. Fishing

is from an economic perspective the most important for this industry. This fishing is done using specific vessels that can only be used for the purpose of fishing. Being dependent on natural resources comes with certain risks. Fishing also deals with a lot of regulation (Arnason, 1995).

The textile mill products industry is a big industry in which fiber is transformed into yarn. This industry is becoming more and more aware of the social impact that they have. The industry has a responsibility to keep the environment clean. Chen & Burns (2006) state that every year more than 300 million tons of textile is consumed by consumers. They discuss that independent from the manufacturing process all textile products in some way harm the environment. The textile industry deals with regulation about the manufacturing process and how to store and destroy the finished goods, which bring extra cost to the industry. This industry does not deal with huge uncertainties that would make accounting conservatism specifically necessary.

Forestry is the science of managing and repairing forest. The forestry industry is primarily engaged in the operation of timber tracts. D'Aveni & Ilinitch (1992) find that systematic and bankruptcy risk in the forest product industry is higher in integrated firms. This is because of their disability to change when the environment is turbulent. Richardson (1998) states that some so called 'alien trees' are planted and used for commercial forestry. These trees are used because of their rapid growth rates. They find that some of these 'alien trees' cause major problems in the natural ecosystem. They argue that there are more natural trees that grow fast which should be used.

The real estate industry is about operators, owners and lessors of real property. The group also includes buyers, sellers, brokers, agents and developers. For the real estate industry, two markets are relevant. These are the space market and the asset market. The space market determines the cash flows that properties can generate. The value of the property assets depends on this. So the asset market determines the valuation of property assets. The flow of financial capital to the real estate is again dependent on this. The real estate industry is characterized by a so called 'kink' in the supply function, which means that it has a break in the supply function. This is because buildings have a long life time and are not just torn down when demand decreases (Geltner, Miller, Clayton & Eichholtz, 2001). This could be a risk or a characteristic that influences accounting conservatism.

The leather and leather products industry takes care of the skins and finishes them and converts the leather into finished goods. This industry is highly fashion orientated. Kolomaznik, Adamek, Anđel & Uhlírova (2008) state that the waste that is generated by the leather industry contains compounds with a negative effect on the health of humans. This is mainly for secondary waste. Exotic leather is becoming more and more popular in the fashion industry of the United States thanks to fashion leaders (Belleau & Nowlin, 2001). Decouple (1979) finds that female workers in the leather shoe manufacturing industry have a relatively high chance to get bladder cancer. Also, lung cancer is strongly associated with leather tanning.

The non-depository credit institutions industry is an industry that extends credit in the form of loans, but does not engage in deposit banking. Credit risks are a huge risk in this industry and knows several factors that influence these risks. The company can fail to see al the risks in their clients and the risks in the portfolio of their clients. A risk can also be that the clients are not diverse enough, this results in a concentration risk. It is also risky to have borrowers that are already highly leveraged and that only have a small own capital, still this happens a lot because of the steady cash flows of these companies.

3. Hypotheses development

During a period of financial crisis investors usually, do not have a lot of trust in the firms. To restore this trust, the firms might be under a lot of pressure to be more optimistic about their own numbers and might present these numbers more optimistic in the financial statements (Kodres & Pritsker, 2002).

After the financial crisis, the regulation for financial reporting changed. The Financial Accounting Standard Board (FASB), is in favor of neutral accounting conservatism because they think that this is in the best interest of the different users of the financial statements. This means that the FASB is in favor of fair value accounting. By using fair value accounting the asymmetric recognition of bad news versus good news becomes less asymmetric. Therefore you could argue that in the period after the financial crisis there is less accounting conservatism expected compared to the period before the financial crisis. But as explained before accounting conservatism knows different explanations which are contracting, litigation, taxation and regulation. So these regulations of the FASB are only one explanation. Vyas (2011) mentions that the financial crisis caused a lot of litigation actions against banks and other financial institutions. Next to that contacting conflicts with debtholders are more likely during a period of a financial crisis. Therefore it is expected that the level of accounting conservatism changes over time.

H1: Accounting conservatism changes over time because of economic events such as a financial crisis and business scandals.

The corresponding null hypothesis to this alternative hypothesis is that accounting conservatism is stable over time and is not influenced by economic events and business scandals.

Different industries have different characteristics, face different problems, have different risk areas and operate differently. Because of these major differences, the level of accounting conservatism is also expected to differ between all those different industries. Explanations of the level of accounting conservatism within a firm are contracting, taxation, regulation and litigation. Those factors differ among different industries. Some industries have to deal with a huge amount of regulations, while other industries experience more freedom. Some industries make use of a lot of debt contracts, compensation contracts and corporate governance while others might not even have contracts with other parties. Some industries deal with a great amount of litigation and media attention while other industries do not get the attention of claimers and can operate more freely. Some industries face complex taxation structures while others do not.

The construction general contractors & operative builders industry have contracts with different parties. These contracts are used to deal with for example what happens if a project is delayed. These contracts are needed because of the nature and the size of the projects. Because of these contracts and the litigation

that follows from these contracts the construction general contractors & operative builders industry is expected to be conservative in their accounting methods.

As described in the literature review the agricultural production livestock and animal specialties industry faces quite some risks and challenges, which provides reasons for the agricultural production livestock and animal specialties industry to be conservative in their accounting methods. It is also important to be aware of the fact that economist make assumptions about the industry that do not always turn about to be true. This might lead to false estimations and a wrong understanding of the industry. Which could lead to underestimating the risk and not understanding all the risks. Because of the risks the agricultural production livestock and animal specialties industry is expected to be conservative in their accounting methods.

The agricultural production crops industry faces some of the same challenges as mentioned above for the agricultural production livestock and animal specialties industry. The threats of the crops such as weeds, viruses, pathogens and animal pests together with the growing demand in crops cause that it is a huge challenge to produce enough crops. The demand, in general, is therefore expected to be higher than the supply. Therefore the crops will be sold almost certain. Therefore this industry is expected to a bit more unconservative compared to the agricultural production livestock and animal specialties industry but still relatively conservative.

The chemicals and allied products industry operates in a dangerous manufacturing process. Sometimes hazardous substances are released. This is a big risk for the industry because this release injures employees and harms the environment. Litigations accusations follow from the release of hazardous substances. Therefore this industry is expected to be conservative in their accounting methods.

The fishing, hunting and trapping industry depends on natural resources. They always have to be aware of risks such as environmental change, natural disasters and environmental policy changes. The industry has to control itself to make sure that the natural resources will still be available in the future. Therefore in some periods, they cannot use as many natural resources as they would like to. Unlike most other industries the resources in this industry are limited. This industry works with animal lives and therefore it is expected to receive compassion from people and it is likely to relatively receive a lot of media attention. Therefore this industry is expected to be conservative in their accounting methods.

The non-depository credit institutions industry is a risky industry. The industry has to be aware of the risks within the firms of their borrowers and the portfolio of their borrowers. It is always hard to estimate policies and the efficiency of controls within other firms. The non-depository credit institutions industry deals with a lot of uncertainties and therefore this industry is expected to be conservative in their accounting methods.

The leather and leather products industry wastes material that is bad for the environment and the health of humans. With the rising attention for sustainability, the industry should find a way to get sustainably rid of their waste. The industry has already caught media attention when leather tanning turned out to harm human health. Nowadays a trend is focusing on sustainability and animal rights. Since real leather comes from animals this sector is nowadays as well exposed to media attention. They need good policies regarding sustainability and animal rights. Because of this the industry has a motivation to be conservative in their accounting methods and is therefore expected to be conservative compared to other industries.

The forestry industry faces some critics about their choice in trees used for commercial purposes. Together with the sustainability trend mentioned before this industry could get media attention and has a litigation risk. Therefore this industry is expected to be conservative compared to other industries.

The textile mill products industry has a big impact on the environment. This industry should be aware of their impact. Further this industry does not face big risks that come with great uncertainties. Therefore this industry is expected to be relatively unconservative in their accounting methods.

The real estate industry is known as a very profitable industry. Anecdotal evidence from the business press often mentions the real estate industry as one of the most profitable industries. Because of the certain high profits in this industry, this industry is expected to be unconservative compared to other industries.

All reasons mentioned above result in the expectation that different industries will have a different level of accounting conservatism.

H2: Different industries have a different level of accounting conservatism.

The corresponding null hypothesis to this alternative hypothesis is that all industries have the same level of accounting conservatism.

As explained in the literature review a distinction can be made between unconditional accounting conservatism and conditional accounting conservatism. With unconditional accounting conservatism, the book value is understated because of predetermined aspects of the accounting process, while with conditional accounting conservatism the book value immediately goes down when there is bad news but does not go up when there is good news and is, therefore, news dependent. This means that when their uncertainties become certain this news is immediately visible in the book value of equity of the firm. Therefore it is expected that firms with conditional accounting conservatism are better able to capture the economic risks in the financial statements.

H3: The chance that the financial statements do not capture all the economic risks is smaller in industries where firms are conditionally conservative compared to unconditional conservative.

The corresponding null hypothesis to this alternative hypotheses is that the chance that the financial statements do not capture all the economic risks is as big in industries where firms are conditionally conservative as when the firms are unconditionally conservative.

4. Research design

In this chapter, the idea behind the research design will be explained. Also, the measurement of the variables will be explained. Furthermore, the data collection process and the sample selection process will be discussed.

4.1 Research idea

This study is an exploratory study. An exploratory study tries to explain certain phenomena that we observe. This study aims to explain why it is that firms have a market to book ratio of lower than 1 in the presence of accounting conservatism while expected the other way around and why firms have this for multiple years in a row. An exploratory study also means that the results of this study will not be conclusive.

4.2 Research period

The sample will consist of the fiscal year end of 1986 until the fiscal year end of 2017. The data of Compustat North America goes back until 1950, the sample will go back until 1986 because of two reasons, first, this is the year in which Compustat North America considerably improved its coverage of shares outstanding (WRDS, 2001). Second, the sample goes back until the fiscal year end of 1986 because the data of Compustat global goes back until 1986. The sample finishes at the year end of 2017 because this is the latest data available at this moment.

4.2 Measures

The following section explains the measurement of different variables.

4.2.1 Unconditional accounting conservatism

To measure unconditional accounting conservatism the market-to-book ratio will be used. The market-to-book ratio is calculated as $Market\ to\ book\ ratio\ (MTB) = \frac{Market\ capitalization}{Total\ book\ value\ of\ equity}$. Some other variables will be used based on the market to book ratio to measure unconditional accounting conservatism. UNDER1MTB, LOWMTB, UNDER1MTB_5 and LOWMTB_5 will all be dummy variables that will either have a value of 0 or 1. A value of 0 for UNDER1MTB means that the market to book ratio is higher than 1, a value of 1 means that the market to book ratio is lower than 1. A value of 0 for LOWMTB means that the market to book ratio is higher than 0.75, a value of 1 means that the market to book ratio is lower than 0.75. A value of 0 for UNDER1MTB_5 means that the market to book ratio is higher than 1 for five years in a row, a value of 1 means that the market to book ratio is lower than 1 for five years in a row. A value of 0 for LOWMTB_5 means that the market to book ratio is higher than 0.75 for five years in a row, a value of 1 means that the market to book ratio is lower than 0.75 for five years in a row.

4.2.2 Conditional accounting conservatism

To measure conditional accounting conservatism the c-score by Khan & Watts (2009) will be used. The C-score is based on the differential timeliness model of Basu (1997). The model of Basu is as follows:

$$X_i = \beta_1 + \beta_2 D_i + \beta_3 R_i + \beta_4 D_i R_i + e_i \quad (1)$$

To create estimates for conditional conservatism at the firm-year level timeliness of good news is specified as the G-Score and the incremental timeliness of bad news is specified as the C-score. These are linear functions of firm-specific characteristics every single year.

$$C_{Score} = \beta_4 = \lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i \quad (2)$$

$$G_{Score} = \beta_3 = \mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i \quad (3)$$

The C-Score and the G-score are not regression models and can be put in the first regression. If you do this the following regression occurs.

$$X_i = \beta_1 + \beta_2 D_i + R_i(\mu_1 + \mu_2 Size_i + \mu_3 M/B_i + \mu_4 Lev_i) + D_i R_i(\lambda_1 + \lambda_2 Size_i + \lambda_3 M/B_i + \lambda_4 Lev_i) + (\delta_1 Size_i + \delta_2 M/B_i + \delta_3 Lev_i + \delta_4 D_i Size_i + \delta_5 D_i M/B_i + \delta_6 D_i Lev_i) + e_i \quad (4)$$

A dummy variable will make a distinction between observations with a lot of conditional accounting conservatism and observations with less conditional accounting conservatism.

4.2.3 Firm size

As explained in chapter two there are multiple proxies to measure firm size. In this study, total assets will be used as a proxy for firm size. Total assets measure the firm's total resources. Dang et al. (2018) found that total assets are one of the most robust areas is the capital structure area. That this area is robust means that the choice for which measure is used to measure firm size probably will not matter much in this area and all three measures, which are total assets, total sales and market capitalization, for firm size examined in the research could be used. Nevertheless, market capitalization might not be a good measure because this is correlated with the market capitalization in the nominator of the market to book ratio. Dang et al. (2018) also find that the measure for total assets might be most relevant in certain areas of which one is capital structure. Therefore in this study total assets will be used as a proxy for firm size. To reduce the impact of outliers in the data the natural logarithm of the total assets will be used. Using the numbers of the natural logarithm of the total assets a distinction will be made between 'small firms', 'SME's' and 'big firms'.

4.2.4 Leverage

Financial leverage will be measured using the following formula:

$$Financial\ leverage = \frac{debt}{market\ value\ of\ equity} \quad (5)$$

The values of debt and the market value of equity will be obtained using Compustat North America. After identifying this ratio a distinction will be made between 'high levered firms' and 'low levered firms'. All firms with a financial leverage ratio of higher than 0.5 will be identified as high levered firms. All firms with a financial leverage ratio lower than 0.5 will be identified as low levered firms.

4.2.5 The industry

The data measuring the industry will be obtained from Compustat. Compustat provides different variables that indicate in which industry a firm is operating. The Standard Industry Classification Code with code 'sic' will be used. This variable classifies industries with a four digit code. This four digit code represents a very specific industry. The first two digits out of the four identify the major industry. Using the first two digits only will result in about 100 industries, therefore the first two digits of the sic code will be used to classify the industries in this research. A complete list is provided within Compustat to identify the industries. A dummy variable called INDUS will name the different major industry groups.

4.3 Regressions

To see whether firm size, financial leverage and conditional accounting conservatism explain whether there is unconditional accounting conservatism or not a regression will be used for the variable LOWMTB_5. This variable will be used because it's the most extreme value for unconditional accounting conservatism because it looks at market to book ratios lower than 0.75 for five years in a row. The value 1 for the variable LOWMTB_5 indicates the most extreme form of no accounting conservatism.

4.4 Sample selection

The data to conduct this research is available through databases on which the Erasmus University Rotterdam holds subscriptions. The Erasmus University Rotterdam subscribes to the Wharton Research Data Services (WRDS). WRDS provides the Compustat Global database and the Compustat North America database. Compustat Global provides data covering publicly traded companies in over 80 countries representing more than 90% of the world's market capitalization. Data from the United states and Canada are not included in this database, this data is held in the Compustat North America database which provides market information about more than 24,000 active and inactive publicly held companies. The data from Compustat North America is used within this research. Table 2 illustrates the sample selection process. The sample starts with the download of all observations from Compustat North America for the period 1986 until 2017. After that the missing values for the annual closing share price, the book value of equity and the common shares outstanding are deleted, this is because those variables are part of the market to book ratio. Then all observations with a negative book value of equity are deleted because this would results in strange market to book ratios. Next, the missing values for the market to book ratio are deleted because this is a key variable. After that all observations with an incorporation code other than the United States and Canada will be deleted, because the sample is about

North America. Lastly missing observations of financial leverage and firm size will be deleted. This results in a final sample of 209,952 observations.

Table 2: Sample selection

Panel A: Sample COMPUSTAT North America from 1986 until 2017	Observations
Firms from COMPUSTAT North America (1986-2017)	383,068
Drop missing values from annual closing share price	(56,285)
Drop missing values from book value of equity	(43,237)
Drop missing values from common shares outstanding	(31,228)
Drop if book value of equity is lower than 0	(22,820)
Drop missing values from MTB	(118)
Drop if fic is other than USA or CAN	(18,979)
Drop missing values from SIZE	(2)
Drop missing values from LEV	(447)
Final sample	209,952

Note: This table contains the sample selection process. Parentheses indicate negative values.

5 Results

This chapter will summarize the results of the thesis. First, some descriptive statistics on the variables will be provided. After that the differences in size, leverage and country will be discussed. This will be followed by the results of all hypotheses. In the end, a summary will be given on what these results in total say about accounting conservatism and market risks.

5.1 Descriptive statistics

Table 3 provides descriptive statistics on the quantitative variables of panel A. All variables are winsorized at the 1% and 99% level. This way the effect of extreme values on the outcome is reduced. This panel observes 209,952 observations within the United States and Canada. On average the firms have a size of 5.162 with a minimum value of -0.180 and a maximum value of 10.967. The same firms have an average financial leverage of 2.114 with a minimum value of 0.004 and a maximum value of 28.306. On average the firms in this sample have a market to book ratio of 3.622 with a minimum value of 0.169 and a maximum value of 53.713. The firms have an average c-score of 4.006 with a minimum value of -49.439 and a maximum value of 127.433. The higher the c-score the more a firm uses conditional accounting conservatism. Important to note is that the average c-score is different from Khan & Watts (2009). There the average is 0.105. This difference is probably because of extreme high values. This is likely because the median of the c-score is 0.136, this is close to 0.105.

Table 3: Descriptive statistics panel A.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	N	Mean	Sd	Min	P25	Median	p75	Max
SIZE	209,952	5.162	2.406	(0.180)	3.436	5.128	6.823	10.967
LEV	209,952	2.114	4.311	0.004	0.172	0.559	1.713	28.306
MTB	209,952	3.622	6.905	0.169	1.049	1.755	3.253	53.713
C_SCORE	208,849	4.006	21.634	(49.439)	(2.069)	0.136	6.369	127.433

Note: This table contains descriptive statistics of the quantitative variables used in panel A which are used to generate dummy variables and discover the relationship with accounting conservatism. The c-score obtains fewer observations, because this score is based on a lagged variable. This means that there is no c-score in the fiscal year 1986. Parentheses indicate negative values.

Table 4 provides the Pearson correlation coefficients between the quantitative variables. A correlation shows the extent in which the variables fluctuate together. A negative correlation indicates the extent to which one variable moves up when the other variable moves down. SIZE and LEV have a correlation of 0.2538. SIZE and MTB have a negative correlation of 0.2173. SIZE and C_SCORE have a correlation of 0.0516. LEV and MTB have a negative correlation of 0.1507 and LEV and C_SCORE have a correlation of 0.0270. MTB and C_SCORE have a correlation of 0.1721. This

means that MTB will go up when SIZE and LEV go down, this also counts the other way around. All other variables move together.

Table 4 correlation matrix for continuous variables (n = 208,849)

	1	2	3	4
1. SIZE	1.0000			
2. LEV	0.2538	1.0000		
3. MTB	(0.2173)	(0.1507)	1.0000	
4. C_SCORE	0.0516	0.0270	0.1721	1.0000

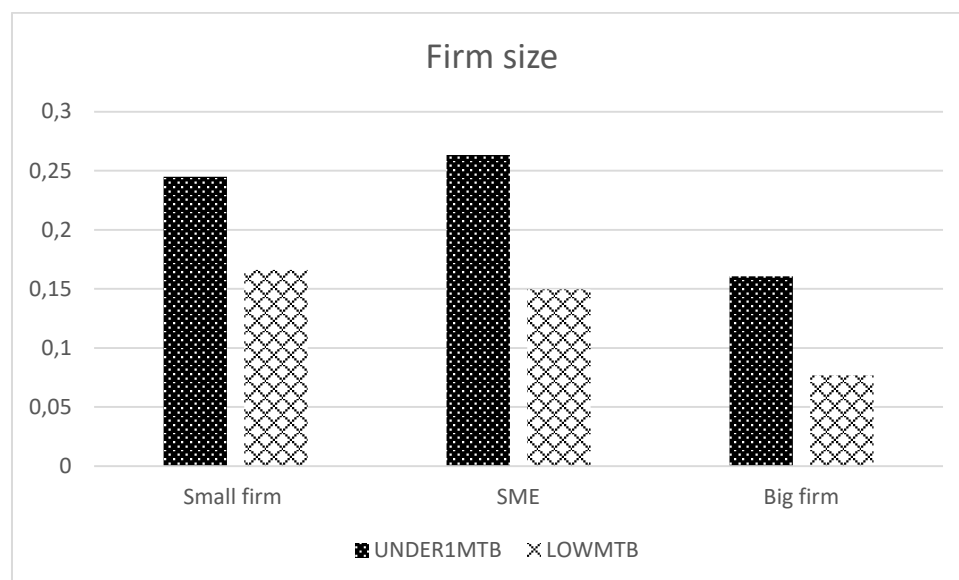
Note: This table shows the correlation coefficients between the quantitative variables.

Parentheses indicate negative values.

5.2 Firm Size

Graph 3 shows that big firms are more conservative compared to small firms and SME's. For big firms, 16.07% of the observations has a market to book ratio below 1. Small firms are a bit more conservative than SME's but this difference is very small. Small firms have 24.51% of observations with a market to book ratio lower than 1 and SME's have 26.35% of these observations. This means that big firms are the most conservative and SME's are the most unconservative. Those results are inconsistent with what would be expected after reading the literature.

Graph 3: Firm size and the market to book ratio



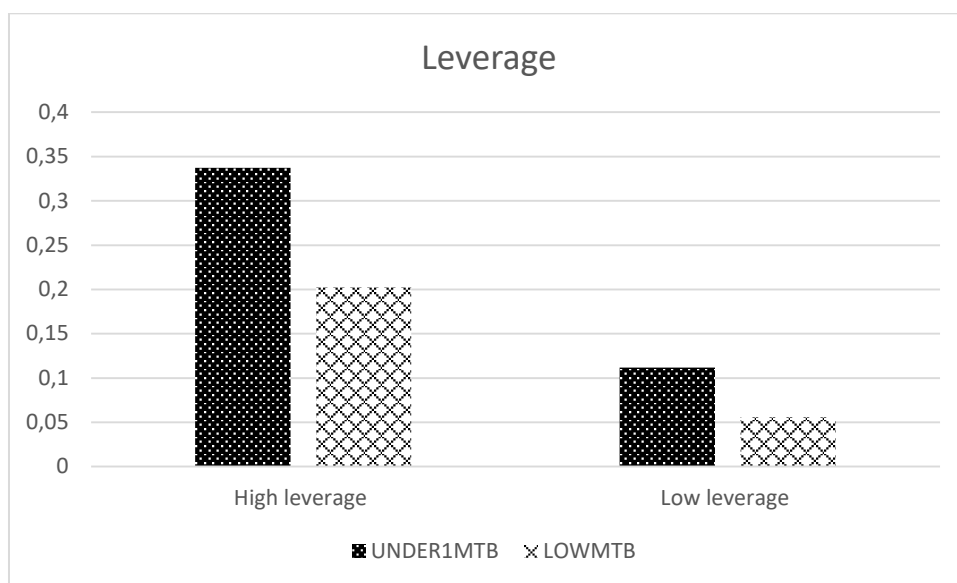
Note: This graph shows the distribution between small firms, SME's and big firms and their relation with unconditional accounting conservatism.

5.3 Leverage

The results show that in highly leveraged firms a market to book ratio of lower than 1 and lower than 0.75 is more common than in lower leveraged firms. These results are visible in graph 2. 33.37 % of the

highly leveraged firms have a market to book ratio of lower than one and 20.42 % of the highly leveraged firms have a market to book ratio of lower than 0.75. Within the lower leveraged firms 11.17 % of the observations have a market to book ratio lower than one and 5.57 % of the lower leveraged firms have a market to book ratio lower than 0.75. This means that the difference between highly leveraged firms and lower leveraged firms that have a market to book ratio of lower than one is 22.20 % and that the difference for a market to book ratio lower than 0.75 is 14.85 %. Highly leveraged firms are less conservative compared to lower leveraged firms. These results are inconsistent with the literature on leverage and accounting conservatism. This could be explained by the fact that the market to book ratio is also commonly used to measure growth opportunities within a firm. The results are consistent with what the literature says about growth opportunities. There is a negative relation between growth opportunities, measured by the market to book ratio and leverage. This means that when there is a high market to book ratio mainly above 1, the leverage is low. In this thesis, market to book ratios above 1 equals zero. The average of LOWMTB is lower in lower leveraged firms so these results are consistent.

Graph 2: Leverage and the market to book ratio



Note: This graph shows the distribution between high leveraged firms and low leveraged firms and their relation with unconditional accounting conservatism.

5.4 Results from the regression

Table 5 shows the output of the regression and suggests that firm size, financial leverage and conditional accounting conservatism are all meaningful to predict whether companies have a market to book ratio lower than 0.75 for five years in a row. This is because the p-value of all variables is smaller than 0.01. The R-squared suggests that 2% of LOWMTB_5 is explained by firm size, financial leverage and conditional accounting conservatism. The F value of 1389.77 tells us that the change to observe a value

higher than 1389.77 is smaller than 0.001. This means that the regression model contains significantly explaining variables.

The same regression is done again, but without the c-score for conditional accounting conservatism. This is done because the average of the c-score in this research is 4.006 and the average for Khan & Watts (2009) is 0.105. To make sure the results are still correct without the c-score the second regression will be done.

Table 6 shows the output from the same regression as the previous one but excludes the c-score. The results suggests that firm size and financial leverage are still meaningful in predicting whether companies have a market to book ratio lower than 0.75 for five years in a row. This is because the p-value of all variables is smaller than 0.01. The R-squared suggests that 1.88% of LOWMTB_5 is explained by firm size and financial leverage. The F value of 1967.48 tells us that the change to observe a value higher than 1967.48 is smaller than 0.001. This means that the regression model contains significantly explaining variables.

Table 5: Regression output

	(1) LOWMTB_5
SIZE	-0.0039*** (-34.04)
LEV	0.0040*** (59.26)
C_SCORE	-0.0002*** (-15.50)
constant	0.0279*** (44.11)
R-squared	0.0200
F	1389.77

t statistics in parentheses
*** p<0.001

Note: This table includes the output from the regression

Table 6: Regression output

	(1) LOWMTB_5
SIZE	-0.0039*** (-34.59)
LEV	0.0040*** (59.57)
constant	0.0273*** (43.34)
R-squared	0.0188
F	1967.48

t statistics in parentheses
*** p<0.001

Note: This table includes the output from the regression excluding the c-score

5.5 The market to book ratio over time

Graph 2 below shows the movement of accounting conservatism over time in the period between the fiscal year end of 1986 and 2017. The graph makes visible that there are periods with more accounting conservatism and periods with less accounting conservatism. The lower the line points the more accounting conservatism is in place compared to a line that points higher.

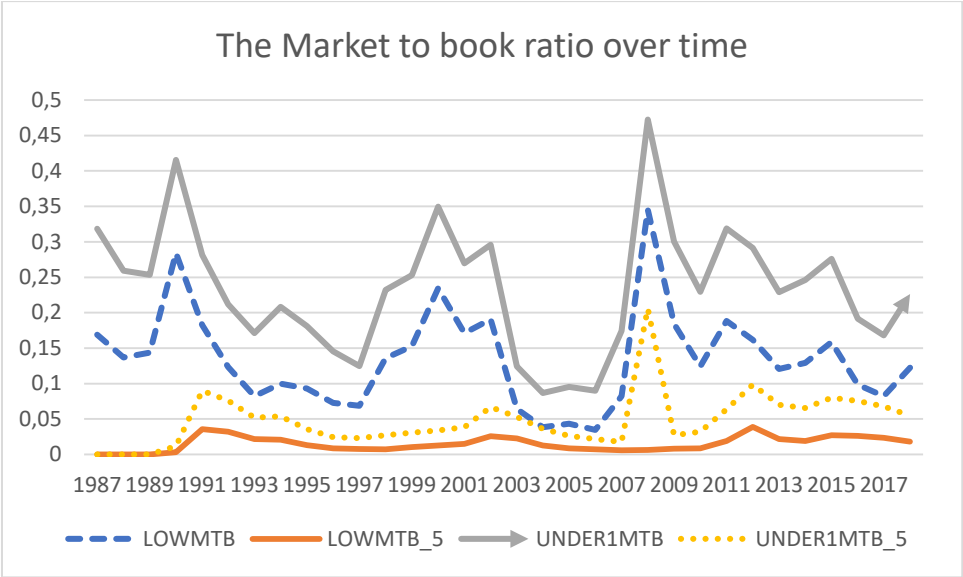
The results are in confirmation of hypothesis 1. There is a big peak in the year 2008 for all the variables except for the variable LOWMTB_5. This variable does not have any real peaks at all. Those peaks in 2008 mean that there is less accounting conservatism during the 2008 financial crisis compared to a more stable economic time, the years before the financial crisis.

H1: Accounting conservatism changes over time because of economic events such as a financial crisis and business scandals.

The lines are higher for the years 2009 until 2013 than that the lines are for the period 2003 until 2007. This means that there is more accounting conservatism in the period of 2003 until 2007 compared to the period 2009 until 2013. This could be due to the regulation explanation of accounting conservatism. Another explanation could be that in the years 2009 until 2013 firms were still trying to recover the lost trust from investors. The results are also in accordance with hypotheses 1.

The higher lines around 2001 and 2002 and thus the little amount of accounting conservatism could have something to do with the Enron and WorldCom fraud scandals.

Graph 2: The market to book ratio over time



Note: The numbers should be interpreted as percentages. Example: a value of LOWMTB of 0.2 means that 20% of the observations had a market to book ratio lower than 0.75 in that year. Also, the sample starts in 1986 which means that the first year where it is possible that there is a value for the variables that measure a five year in a row period is 1990, therefore the mean of 1986 until 1999 equals zero.

5.6 Industry

The first two digits of the sic code provide us with 83 different industries. The 209,902 observations big sample gives results in 73 out of these 83 different industries. There are no observations in the following industries; administration of economic programs, administration of human resource programs, administration of environmental quality and housing programs, executive, legislative & general government, except finance, justice, public order and safety, museums, art galleries and botanical and

zoological gardens, national security and international affairs, private households, public finance, taxation and monetary policy and United States postal service. The industry that stands out because it has a lot of market to book ratio's lower than one and therefore is considered not to be conservative is the fishing hunting & strapping industry. Other industries that score high in the amount of market to book ratios lower than one and are therefore not conservative are the textile mill products, non-depository credit institutions, construction, general contractors and operative builders and the agricultural production livestock and animal specialties.

Table 7 shows the result. The fishing, hunting and trapping industry has the highest percentage of market to book values lower than 1. In this industry, 90.0% of the observations have a market to book value lower than 1, but it is important to notice that this industry only has six observations. After that, the agricultural production livestock and animal specialties industry has the highest percentage of market to book values lower than 1. In this industry, 51.55% of the observations have a market to book value lower than 1. The membership organizations industry and the industry classified as services not elsewhere classified have the lowest percentage of market to book ratios lower than 1. In those two industries have 0% of the observations have a market to book ratio lower than 1. Important to notice here as well is that the membership organizations industry consists of three observations and the services not elsewhere classified consists of five observations. After that, the tobacco industry is the most conservative. This industry has 8.94% of observations with a market to book ratio lower than 1. This means that the results are in line with hypothesis 2.

H2: Different industries have a different level of accounting conservatism.

The textile mill products industry and the real estate industry are expected to be relatively unconservative. The textile mill industry and the real estate industry respectively have 43.17% and 39.82% of observations with a market to book ratio lower than 1, which is considered as relatively unconservative.

The construction general contractors & operative builders industry, the agricultural production livestock and animal specialties industry, the agricultural production crops industry, the chemicals and allied products industry, the fishing, hunting and trapping industry, the nondepository credit institutions industry, the leather and leather products industry and the forestry industry respectively have 43.53%, 51.55%, 30.92%, 9.89%, 90.00%, 45,15%, 35,51% and 38,18% of observations with a market to book ratio lower than 1, which are except for the chemicals and allied products industry with 9.89% considered as relatively unconservative.

Those industries had a lot of industry-specific risks and deal with great uncertainties, and in the first place were therefore expected to be conservative.

A big risk in the construction general contractors & operative builders industry is that a project will face a delay. What happens in case of a delay is recorded in contracts with different parties. Therefore the litigation and contract explanation of accounting conservatism applies to this industry. It could be the case that the industry indeed tries to be conservative in their accounting methods, but that it still overestimates the book value of their equity because they cannot accurately estimate how many projects will face delays and what the consequences of the delay will exactly be.

The agricultural production livestock and animal specialties industry deals with a lot of prejudices and a lot of assumptions are made about the working models of the industry. Also, nature is a challenge in this industry and comes with uncertainties. It could be the case that this industry tries to be conservative in their accounting methods but are still not able to see the risks and uncertainties accurately and have a hard time estimating numbers.

The fishing, hunting and trapping industry relies heavily on natural resources. It is hard to estimate the number of animals available for fishing and hunting. Fishing makes use of special vessels that can only be used for fishing. An explanation that this industry turns out to be not conservative could be that the industry relies that much on natural resources that it is not able to estimate the numbers correctly. Also, environmental change and natural disasters could make it even more difficult to make the right estimation.

The nondepository credit institutions industry faces different risks with a lot of uncertainties. This includes risks that the clients of the non-depository credit institutions face. There is a need to fully understand the business and the portfolio of the client. Information asymmetry always makes it hard to fully know and understand everything about your clients. Often clients hide negative aspects about themselves and not the positive aspects. Therefore it could be the case that the non-depository credit institutions industry is not fully aware of the status of their customers and therefore overstates their own book value of equity.

The chemical products and allied products industry sometimes have to deal with the release of hazardous substances. This causes employee injuries and this can lead to serious litigation risk and is therefore expected to be conservative in their accounting methods. This industry turns out to be indeed conservative. Because of the injured employees rule changes are made to prevent more incidents from happening. This could help the industry to make the right estimation. Only 9.89 % of the observations in this industry has a market to book ratio lower than 1.

The leather and leather products industry needs to find the right ways to manage their waste. An explanation for this industry being relatively unconservative could be that they are just in favor of neutral accounting, it could also be the case that they would like to present their numbers as optimistic as possible because that might be necessary now that there is a lot of critics on sustainability and animal rights. The same explanation could count for the forestry industry.

5.7 No accounting conservatism for five years in a row

The top five industries that have the highest percentage of observations with a market to book ratio lower than 1 for five years in a row are the fishing, hunting and trapping industry, the agricultural production livestock and animal specialties industry, the forestry industry, the nondepository credit institutions industry and the real estate industry. Those industries have a percentage of observations with a market to book ratio lower than 1 for five years in a row of 83.33%, 20.99%, 13.98%, 13.72% and 12.88% respectively. Because the Fishing, hunting and trapping industry only knows ten observations the results are not seen as reliable. The sixth industry with the highest percentage of observations with a market to book ratio lower than 1 for five years in a row is the leather and leather products industry with 12.15%.

Next to that, there is top-five industries that have the highest percentage of observations with a market to book ratio lower than 0.75 for five years in a row. Those industries are the fishing, hunting and trapping industry, the agricultural production livestock and animal specialties industry, the agricultural production crops industry, the construction general contractors and operative builders industry and the real estate industry. Those industries have a percentage of observations with a market to book ratio lower than 1 for five years in a row of 83.33%, 17.98%, 5.91%, 5.65% and 5.52% respectively. Because of the low amount of observations in the Fishing, hunting and trapping industry the results in this industry are not seen as reliable again. The sixth industry with the highest percentage of observations with a market to book ratio lower than 0.75 for five years in a row is the forestry industry with 4.85%.

5.8 Conditional and unconditional accounting conservatism within industries

To differentiate between observations with a lot of conditional accounting conservatism and less conditional accounting conservatism a dummy variable is created. All observations with a c-score lower than 0.136 are seen as observations with less conditional accounting conservatism. All observations that have a c-score of 0.136 or higher are seen as observations that apply conditional accounting conservatism. The distinction point of 0.136 has been picked because this is the median of the c-score. The average of 4.006 is not chosen because this number is probably influenced by extreme high values.

In every industry the amount of observations with a high score for conditional accounting conservatism and a low score for accounting conservatism is about equal. Membership organizations have only 33.33% of observations with a high score but this industry only has three observations. After that the only industry where the scores are not about equal is the depository institutions industry. This industry has 61.48% of observations with a high score for conditional accounting conservatism. This industry has 29.22% of observations with a market to book ratio lower than 1. The average amount of observations with a market to book ratio lower than 1 is 25.50%, this is close to 29.22%. Therefore

nothing can be said about the relation between unconditional accounting conservatism and conditional accounting conservatism within an industry, and therefore about hypothesis three.

H3: The chance that the financial statements do not capture all the economic risks is smaller in industries where firms are conditionally conservative compared to unconditional conservative.

Table 7: Conditional and unconditional accounting conservatism among different industries

Industry	UNDER1 MTB	LOW MTB	UNDER1 MTB_5	LOW MTB_5	C_ SCORE	N
Agricultural production - Crops	0.3092	0.2259	0.1135	0.0591	0.4627	456
Agricultural Production - Livestock and Animal Specialties	0.5155	0.4330	0.2099	0.1798	0.4845	97
Agricultural Services	0.3068	0.2222	0.0845	0.0000	0.4568	81
Amusement and Recreation Services	0.2303	0.1615	0.0477	0.0224	0.5156	1,789
Apparel and Accessory Stores	0.1971	0.1221	0.0224	0.0090	0.4971	1,573
Apparel. Finished Products from Fabrics & Similar Materials	0.2861	0.1816	0.0628	0.0197	0.4801	1,454
Automotive Dealers and Gasoline Service Stations	0.2569	0.1456	0.0162	0.0028	0.4918	728
Automotive Repair. Services and Parking	0.2547	0.1706	0.0633	0.0360	0.5070	428
Building Materials. Hardware. Garden Supplies & Mobile Homes	0.3655	0.2398	0.0955	0.0299	0.5117	342
Business Services	0.1389	0.0804	0.0159	0.0055	0.4961	19,007
Chemicals and Allied Products	0.0989	0.0605	0.0115	0.0054	0.5067	15,214
Coal Mining	0.2783	0.2146	0.0129	0.0100	0.5118	424
Communications	0.1329	0.0782	0.0141	0.0040	0.5041	4,771
Construction - General Contractors & Operative Builders	0.4353	0.2869	0.1030	0.0565	0.4991	1,098
Construction - Special Trade Contractors	0.2645	0.1880	0.0558	0.0257	0.4752	484
Depository Institutions	0.2922	0.1263	0.0526	0.0113	0.6148	19,584
Eating and Drinking Places	0.2269	0.1405	0.0308	0.0140	0.4742	2,499
Educational Services	0.1836	0.1175	0.0198	0.0044	0.4831	681
Electric. Gas and Sanitary Services	0.1261	0.0663	0.0178	0.0065	0.4853	7,002
Electronic & Other Electrical Equipment & Components	0.2187	0.1235	0.0356	0.0126	0.4815	12,481
Engineering. Accounting. Research. and Management Services	0.1836	0.1018	0.0168	0.0037	0.4978	2,985
Fabricated Metal Products	0.2993	0.1727	0.0610	0.0205	0.4673	2,553
Fishing. Hunting and Trapping	0.9000	0.9000	0.8333	0.8333	0.5000	10
Food and Kindred Products	0.1813	0.1056	0.0474	0.0180	0.4856	4,071
Food Stores	0.1739	0.1073	0.0433	0.0215	0.4820	1,081
Forestry	0.3818	0.2182	0.1398	0.0485	0.4727	110
Furniture and Fixtures	0.2706	0.1579	0.0498	0.0144	0.4869	994
General Merchandise Stores	0.3110	0.1981	0.0618	0.0197	0.5100	1,045
Health Services	0.1598	0.1005	0.0136	0.0057	0.4843	3,223
Heavy Construction. Except Building Construction. Contractor	0.2350	0.1214	0.0275	0.0110	0.4854	651
Holding and Other Investment Offices	0.3224	0.1631	0.0916	0.0316	0.4877	10,472
Home Furniture. Furnishings and Equipment Stores	0.2883	0.2044	0.0474	0.0235	0.5158	822
Hotels. Rooming Houses. Camps. and Other Lodging Places	0.3246	0.2086	0.0684	0.0152	0.5098	767
Industrial and Commercial Machinery and Computer Equipment	0.1868	0.1035	0.0302	0.0122	0.4826	9,321
Insurance Agents. Brokers and Service	0.1261	0.0717	0.0222	0.0127	0.4969	809
Insurance Carriers	0.3544	0.1734	0.1210	0.0254	0.5417	4,602
Leather and Leather Products	0.3551	0.2246	0.1215	0.0358	0.4722	521

Legal Services	0.2414	0.0345	0.0000	0.0000	0.4828	29
Local & Suburban Transit & Interurban Highway Transportation	0.1316	0.0877	0.0000	0.0000	0.5439	114
Lumber and Wood Products. Except Furniture	0.2841	0.1675	0.0638	0.0155	0.4825	1,260
Measuring. Photographic. Medical. & Optical Goods. & Clocks	0.1448	0.0805	0.0191	0.0061	0.4837	10,218
Membership Organizations	0.0000	0.0000	0.0000	0.0000	0.3333	3
Metal Mining	0.3221	0.2388	0.0478	0.0230	0.4813	9,541
Mining and Quarrying of Nonmetallic Minerals. Except Fuels	0.2702	0.1942	0.0483	0.0169	0.4596	855
Miscellaneous Manufacturing Industries	0.2648	0.1757	0.0527	0.0220	0.4796	1,639
Miscellaneous Repair Services	0.1687	0.1084	0.0000	0.0000	0.4458	83
Miscellaneous Retail	0.2186	0.1346	0.0234	0.0097	0.5082	3,038
Motion Pictures	0.2377	0.1439	0.0282	0.0052	0.4921	1,195
Motor Freight Transportation	0.2050	0.1281	0.0127	0.0026	0.5175	1,171
Nonclassifiable Establishments	0.2994	0.1985	0.0510	0.0179	0.4941	2,902
Nondepository Credit Institutions	0.4515	0.1860	0.1372	0.0346	0.4605	2,990
Oil and Gas Extraction	0.2739	0.1756	0.0312	0.0121	0.4781	10,699
Paper and Allied Products	0.2449	0.1472	0.0531	0.0221	0.4977	1,760
Personal Services	0.1888	0.1049	0.0290	0.0023	0.5152	429
Petroleum Refining and Related Industries	0.1720	0.0968	0.0368	0.0095	0.4809	971
Pipelines. Except Natural Gas	0.1206	0.0739	0.0123	0.0120	0.4864	257
Primary Metal Industries	0.3223	0.2045	0.0751	0.0283	0.5075	2,274
Printing. Publishing and Allied Industries	0.2223	0.1409	0.0493	0.0247	0.4917	1,930
Railroad Transportation	0.2178	0.0916	0.0401	0.0253	0.4851	404
Real Estate	0.3982	0.2730	0.1288	0.0552	0.4763	2,637
Rubber and Miscellaneous Plastic Products	0.2127	0.1223	0.0275	0.0052	0.4936	1,791
Security & Commodity Brokers. Dealers. Exchanges & Services	0.2458	0.1295	0.0596	0.0185	0.5005	3,035
Services. Not Elsewhere Classified	0.0000	0.0000	0.0000	0.0000	0.4000	5
Social Services	0.2436	0.1496	0.0133	0.0000	0.5043	234
Stone. Clay. Glass. and Concrete Products	0.2710	0.1715	0.0468	0.0303	0.4990	974
Textile Mill Products	0.4317	0.2829	0.1121	0.0385	0.4793	820
Tobacco Products	0.0894	0.0894	0.0085	0.0085	0.5203	123
Transportation by Air	0.2380	0.1280	0.0299	0.0081	0.5060	1,000
Transportation Equipment	0.2047	0.1139	0.0333	0.0111	0.4993	3,547
Transportation Services	0.1967	0.1232	0.0097	0.0037	0.4871	544
Water Transportation	0.3517	0.2004	0.0738	0.0224	0.4912	509
Wholesale Trade - Durable Goods	0.3266	0.2154	0.0878	0.0372	0.4852	4,378
Wholesale Trade - Nondurable Goods	0.2311	0.1320	0.0356	0.0169	0.4972	2,363
Total						209,952
Average	0.2550	0.1611	0.0597	0.0303	0.4899	2,876

Note: This table shows the industries classified in the two digit standard industrial classification code. The numbers showed in the two rows after show which percentage of the observations within that industry have a market to book ratio lower than 1 and lower than 0.75 respectively. The numbers showed in the last two rows show which percentage of the observations within that industry have a market to book ratio lower than 1 for five years in a row and lower than 0.75 for five years in a row respectively. Observations with a market to book ratio lower than 1 are considered not unconditional conservative. The column with the c-score contains the percentage of observations with a high c-score. The last column contain the amount of observations in the industry.

6 Conclusion & Discussion

In this chapter, the main answer to the research question will be summarized and the findings will be discussed. After that, the limitations and implications of this research will be discussed and a recommendation will be given on topics for future research

The main purpose of this thesis was to explore why it is that firms have a market to book ratio lower than 1, for one year and for multiple years in a row. These firms are not considered conservative in their accounting methods, even though there are a lot of benefits in accounting conservatism which makes accounting conservatism a logical accounting method to use. This thesis finds that the size of a firm, the amount of leverage within a firm, and the amount of conditional accounting conservatism significantly influences the amount of unconditional accounting conservatism within a firm. Big firms turn out to be most conservative and SME's turn out to be most unconservative. The results of the small firms are in the middle of big firms and SME's but the result is very close to those of SME's. Highly leveraged firms turn out to be less conservative compared to lower leveraged firms. The time period is also an indicator for the amount of accounting conservatism. In the periods 1999 until 2001 and 2007 until 2009, on average firms are unconservative. This might be explained by the accounting scandals of Enron and WorldCom and the financial crisis respectively. Another indicator for which amount of accounting conservatism is expected within a firm is the kind of industry the firm operates in. The amount of accounting conservatism differs within industries. So is the agricultural production livestock and Animal Specialties industry the most unconservative industry. The tobacco products is the most conservative industry, based on the amount of observations with a market to book ratio lower than one. This might be explained by industry-specific risks and characteristics

This thesis contributes by indicating which industries and firm characteristics might face severe unknown risks. No accounting conservatism could indicate that most of the firms within this industry just do not have a conservative accounting policy but it might also indicate that most of the firms within this industry are not aware of all the risks they face and therefore overestimate the book value of their equity. This thesis contributes by warning investors about those industries. This thesis is also useful to the industries that turn out to be unconservative. These industries might realize that they should renew their risk assessment or apply accounting conservatism.

This research has a relatively high external validity. This is because the sample has 209,952 observations and the sample reflects real world data. The market to book ratio is a very well-known and correct measure for unconditional accounting conservatism, therefore the construct validity in this research is also relatively high.

This thesis is exploratory, which means that the results are not conclusive. There is no causal relationship tested. Future research could investigate the market to book ratio and accounting conservatism in one or multiple specific industries. To get deeper insights they could also look into sub-categories of the major

industries. A limitation is the measure of conditional accounting conservatism, the c-score, which could contain some estimation error and has a different mean than in the article of Khan & Watts (2009) who developed the c-score. This thesis only contains data from North America, results could be different in other areas. Therefore it is also a suggestion for future research to explore accounting conservatism in different regions. Another limitation is that within this sample not all industries are included. Nothing can be said about those industries.

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Tables & Graphs

Table 1: Variable descriptions

Variable	Description
MTB	The market to book ratio
LOWMTB	A dummy variable that equals one if the firm has a market to book ratio lower than 0.75 in that year and zero otherwise
LOWMTB_5	A dummy variable that equals one if this year is the fifth year that the market to book ratio is lower than 0.75 and zero otherwise
UNDER1MTB	A dummy variable that equals one if the firm has a market to book ratio lower than 1.00 in that year and zero otherwise
UNDER1MTB_5	A dummy variable that equals one if this year is the fifth year that the market to book ratio is lower than 1.0 and zero otherwise
SIZE	Firms size measured as the logarithm of total assets
DSIZE	A dummy variable that is labeled small firm, big firm of SME
LEV	Financial leverage calculated as debt / market value of equity
DLEV	A dummy variable that is labeled high leveraged when $LEV > 0.5$ and is labeled low leveraged otherwise
fic	A dummy variable that identifies the country
INDUS	A dummy variable that identifies the two digit SIC.
C_SCORE	Based on Khan & Watts (2009)
DSCORE	A dummy variable that is labeled high when C_SCORE is > 0.136 and low otherwise

Note: This table contains the variables and their descriptions

Graph 1: General information about the market to book ratio



Note: This graph shows some general information about the market to book ratio.