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**Conditional conservatism and internal control quality:  
a deeper explanation of the association, incorporating  
auditors' characteristics**

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## **ABSTRACT**

This thesis investigates the association between internal control quality and conditional conservatism at a deeper level, incorporating specific auditors' qualitative characteristics (audit fees, auditor size, and auditor specialization). First, I document that audit fees and auditor size are negatively and significantly associated with accounting conservatism, providing a deeper insight in the positive association between internal control quality and conservatism. However, I do not find sufficient evidence that auditor specialization also does. In order to provide more robustness and reliability to my results, I further examine the aforementioned findings using a different approach concerning the measurement of conditional accounting conservatism.

Keywords : internal control quality; conservatism; audit quality; auditors' characteristics

JEL classification : M41; M42

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## **1. Introduction**

This thesis aims to examine the possible effect of specific auditors' qualitative characteristics on the association between internal control quality and conditional conservatism. I predict that audit fees, auditor size and auditors' specialization strengthen the association I mentioned above, due to the Agency Theory and the enhancement of auditors' role as mediators between the firms and the public, resulted from The Sarbanes–Oxley Act of 2002 (SOX) sections 302 and 404 and the updated standards issued by International Standards on Auditing (ISAs). Before going deeper into the themes, I am giving an overview of the concepts included in the study, the background literature, the motivation behind my study, the methodology I am going to use and in general, the structure of the paper.

### **1.1 Background**

This study examines the association between internal control quality and conditional conservatism at a deeper level, incorporating specific auditors' qualitative characteristics. According to Basu (1997), accounting conservatism has been influencing financial reporting for the last 500 years. In order to define it, he argues that conservatism is the tendency of auditors to require a higher degree of verification to recognize good news as gains than to recognize unwelcome news as losses (Basu, 1997). Further, Ball and Shivakumar (2005) provided an extension on Basu's definition, focusing on the importance of the accounting accruals in the timely gains and loss recognition and stating that they are an important part of conditional conservatism. Watts (2003) states that there are four main explanations for the use of conservative accounting, based on the assumption that the users of financial statements are them who are benefited the most. The reasons for the use of conservatism given by Watts are the contracting, litigation, income tax and regulatory explanations, which have been a matter of discussion for other researchers as well. The main distinction in academic literature regarding accounting conservatism is the distinction between conditional and unconditional conservatism. The primary difference between these two categories is that conditional conservatism depends on news, while unconditional conservatism does not (Beaver & Ryan, 2005). More precisely, conditional conservatism is defined as follows: "Conditional conservatism occurs when negative economic news is recognized in accounting earnings in a timelier manner than positive eco-

conomic news” (Ruch & Taylor, 2015). Unconditional conservatism is defined as “the downward tendency of the book value relative to the market value” (Qianq, 2007). Consequently, the two major types of conservatism affect firms in a different way. Conditional conservatism, which will be used in my study, can prove an effective tool for debt contracting and compensation purposes, whereas unconditional conservatism cannot.

According to Hogan and Wilkins (2008), an internal controls system is regarded as effective if it can ensure that material misstatements will not occur or will be detected and corrected before the publication of the financial statement. Moreover, COSO (2012) defines internal control as “a process designed to provide reasonable, but not absolute assurance that the firm will achieve its objectives in terms of effectiveness and efficiency of operations, reliability of financial reporting and compliance with laws and regulations”.

Audit quality is a term which has been discussed a lot during the past years but used to remain relatively undetermined. The most commonly quoted definition, which correlates audit quality with financial reporting quality is De Angelo’s one: *“The quality of the audit services is defined to be the market-assessed joint probability that a given auditor both (a) discovers a breach in the client’s accounting system, and (b) report the breach. The probability that a given auditor will discover a breach depends on the auditor’s technological capabilities, the audit procedures employed on a given audit, the extent of sampling, etc.”*. The distinction of audit quality definitions is made between two main categories: direct and indirect definitions. Definitions of audit quality fall into the first category if they do not use any proxies resulted from research findings to define the term. Otherwise, they are included in the indirect definitions category. Due to the fact that audit quality is a controversial term, this is the case for audit quality measurement as well. DeFond and Zhang (2014) separate audit quality measurement into two categories: the output-based and the input-based category.

Goh and Li (2011) provided evidence that firms with internal control systems of low quality exhibit lower conditional conservatism than firms which have no material weaknesses within their internal control systems. However, they failed to incorporate factors resulted from the current requirements of SOX and ISAs. SOX was instituted after some big corporate scandals took place between the late 90’s and early

2000's, in order to provide a guidance for auditors, managements and public accounting firms. It issued new regulations for them and redefined their responsibilities, so as to mitigate fraud margins and improve the quality of internal control. Section 404 of SOX, which is the most relative in terms of auditors, was introduced in 2004 and mandated them to evaluate management's assessment of the firm's internal controls and disclose their findings to the public. Apart from SOX, the updated auditing standards, issued by International Standards on Auditing (ISA), oblige auditors to provide more details about the audit procedure to the users of financial statements, as well as issue their opinion about key audit matters, with respect to the audited firm. As a result, auditors' responsibilities have been increased and the importance of their role as mediators between firms and the public has been obviously enhanced. Although SOX and ISAs have resulted in the increase of financial reporting quality, the exact costs and benefits of it remain questionable. However, it is plausible that after the increase of auditors' responsibilities and the enhancement of their role, audit quality should play an important role in the association mentioned above.

## **1.2 Contribution**

This thesis contributes to existing literature by providing insight in the association between auditors' qualitative characteristics and conditional conservatism during the post-crisis period. Also, the timeframe of this thesis refers to the period after the latest SOX internal control reporting requirements, as well as the latest, updated international auditing standards issued by International Federation of Accountants (IFAC). While prior studies focus on one audit quality characteristic (Lee et al. 2014, Lennox 1999, Weber & Willenborg 2003, Goh & Li 2011), this thesis brings internal control quality, plus the different auditors' characteristics together. Hereby, the understanding of how different auditors' characteristics are associated with conservative accounting policies within companies can be increased. Apart from that, a deeper understanding of the association between internal control quality and the use of conditional conservatism by firms can be provided, incorporating the effect that auditors' characteristics may have on it, after the latest updates in auditing standards and regulators' perceptions about accounting conservatism (IASB, FASB).

This study could be of value for the different users of financial statements, like investors, shareholders, and creditors, since it, can provide them insights in how different auditors' characteristics are associated with conditional conservatism. As al-



ready explained, conditional conservatism results in the understatement of accounting numbers, which reduces the risk of bankruptcy and hence, the risk of litigation (Basu, 1997). Nevertheless, there is evidence that, conditional conservatism is positively associated with information asymmetry (Ruch & Taylor, 2015) and less earnings quality (Bandyopadhyay, 2011). Moreover, the proposed framework of the International Accounting and Standards Board (IASB) and the Financial Accounting Standards Board (FASB) does not include asymmetric prudence or conditional conservatism as desirable qualities of financial reporting information. The exclusion of conservatism resulted from the fact that, according to IASB and FASB, the asymmetric verification of good versus bad news conflicts with the concept of neutrality and could mislead the users of financial statements in terms of forming a fair and accurate opinion about the financial condition of the firm.

Other than that, this study could be of value for standard setters, like the IASB and FASB. These organizations could be potentially able to revise previous and current legislation, so as to achieve their goals, like the reduction of information asymmetry and the promotion of neutrality instead of conservatism, by being provided a view of how certain auditors' qualitative characteristics are associated with the level of conditional conservatism within firms.

### **1.3 Research question**

**What is the association between specific auditors' qualitative characteristics and conditional accounting conservatism?**

*Sub-questions:*

- I. What is internal control quality, accounting conservatism and auditors' qualitative characteristics and how do they relate to each other?
- II. How does internal control quality affect conditional conservatism?
- III. Which are the auditors' characteristics which explain the association between internal control quality and conditional conservatism at a deeper level and at what extent?

### **1.4 Methodology**

This research investigates the association firms' internal control quality and certain auditors' qualitative characteristics with the level of conditional conservatism

applied within firms. In order to measure the level of conditional conservatism, I will use two different measures. By doing so, the internal validity of the thesis, as well as the strength of the findings that will be given will be increased. This, because there is not a single conditional conservatism measure that absolutely captures the level of conservatism within firms. Each model has its own limitations. The first measure that will be used is the measure by Basu (1997), which looks at the firms' timeliness of earnings to news. As for the second measure, it is the measure by Ball and Shivakumar (2005), which relies on the differential timeliness of gain and loss recognition, focusing on the correlation between accruals and contemporaneous cash flows.

The sample of this thesis consists of all U.S. publicly listed firms in the period 2010-2016. Financial institutions are excluded from my sample, since they have different accounting rules and this will may bias the results of the research. Moreover, a sample period stretched over seven years is chosen to be used, in order to diminish potential problems resulting from the reverse effect of accruals. Also, industry-fixed effects will be included, so as to control for systematic differences in risk and performance across sector types.

Accounting data for my analysis will be extracted from the COMPUSTAT North America database, while stock related data will be extracted from CRSP database. At last, data with regard to auditors' characteristics will be extracted from Audit Analytics database.

## **1.5 Findings**

With respect to the results of my regression analyses, two of the three auditors' characteristics included in this thesis are found to be significantly associated with the level of conditional conservatism. More precisely, a higher level of conditional conservatism within firms is found to be associated with lower audit fees. Furthermore, it is found that firms audited by a Big-4 auditor tend to apply lower level of conservative accounting techniques. Besides, auditor specialization has not been found to be significantly associated with the level of conditional conservatism. These results imply that certain auditors' qualitative characteristics are associated with conditional conservatism. At last, it is given that a high level of firms' internal control quality is associated with higher level of conditional conservatism.

## **1.6 Structure**

Chapter 1 contains a summary of the following chapters. Also, the main research question is included, and the hypotheses of my study are briefly presented as well. Chapter 2 consists of the background theory which serves as a base for my study. The different types of accounting conservatism are discussed, as well as definitions of internal control and audit quality. Furthermore, the framework of COSO report and SOX sections 302 and 404 is explained, before finally distinguishing and describing several audit quality measures used in prior studies. Chapter 3 thoroughly describes the hypotheses I am going to test in my study, amongst with the research design I am going to follow, the motivation behind my study and the validity of my research, plus the sample of the firms I am going to use. Moreover, chapter 4 consists of the analysis of my models' assumptions testing, as well as the analysis of the regression results, so as to provide an answer to my hypotheses and the research question. Finally, in chapter 5, conclusions are drawn, as well as the contribution of this thesis, limitations of the study and suggestions for future research are given.

## **2. Background Theory and Literature Review**

In this chapter, I begin my discussion with the definition and commentary of accounting conservatism. Further, I explain what accounting conservatism is and which distinction can be made. Finally, I will describe the potential association between the level of conservative accounting combined with the auditors' characteristics, and the internal control quality, after describing and commenting the latter.

### **2.1 Positive Accounting Theory**

Some of the accounting policies applied by firms' boards could be predicted and explained by Positive Accounting Theory (Healy et al., 2001; Deegan, 2011). Positive Accounting Theory was introduced by Watts and Zimmerman (1978) and uses methodological individualism and the neoclassical hypothesis as a basis of its conception. As far as the former is concerned, it supports that every empirical observation can be resulted from an individual's decision making, while the latter asserts that the maximization of an individual's own expected utility leads every decision-making (Boland and Gordon, 1992). As mentioned in the Agency Theory section, the main problem between the firms' management and the shareholders of a firm is the information asymmetry between the two parts. Instead of prescribing optimal solutions like normative theories do, or just describing the Accounting Practice, Positive Accounting Theory tries to describe and predict which accounting techniques will be used under specific circumstances in real life (Deegan and Unerman, 2006). Due to the fact that information asymmetry can result in excessive costs regarding the monitoring of management's decisions and the assurance that those are not made on a self-interest base, a Positive Accounting Theory related to conservatism could explain and might predict the reason why a firm's managers apply accounting conservatism. The explanations and the implications of the use of accounting conservatism will be discussed precisely in section 2.14.

### **2.2 Agency Theory**

Agency Theory was originally proposed by Watts and Zimmerman in 1978. Within its framework, it is explained that several types of complexities arise in the relation between management and the users of financial statements (shareholders, investors and creditors). One of the most important amongst them is information asymmetry, since management has a considerable advantage over them regarding in-

formation about the company's real financial condition. Although management (agent) is hired by the shareholders (principals) to act on their behalf, the agency theory predicts that it tries to primarily operate according to its own interests (mainly for compensation and regulatory reasons), which are not in line with the principals' ones. The aforementioned opportunistic behavior of firms' management could result in a moral hazard problem, where management acts based on the level of its benefit and not on what is right for both parties. On the other hand, although each party of this association acts primarily to satisfy its own self-interests, managers need the users of financial statements to look favorably on them, since they ultimately depend on them for running the business which the management supervises. This need emerges from the fact that getting the contribution of the users under optimum conditions for it, is of great importance for management (low interest rates from bankers, high share prices for shareholders, low wages for employees). In the above case, a reputable auditor is appointed not only in the interest of third parties, but also in the interest of management, and acts like an agent of the former, trying to minimize the possibility that the management will operate primarily in its own interest and ensure that the reporting of financial information to shareholders reflects the true financial position of the company.

### **2.3 Information and Expectation gap**

Apart from the information asymmetry which exists between management and the users of financial statements and was described in section 2.2, many studies suggest that there is also an information and expectation gap between auditors and users. According to IAASB, information gap is *"the existence of a gap between what information users believe is needed to make informed investment and fiduciary decisions, and what is available to them through the entity's audited financial statements or other publicly available information"* (IAASB, 2011). According to Gray et al. (2011), audit reports have nothing more to offer than stating whether the financial statements are free of material misstatements. Nevertheless, Vanstraelen (2012) found that although investors are not interested in areas referring to the audit process, they are interested to receive more information about key areas of risk, internal control quality and crucial accounting policies. He also supports that external auditors' knowledge, combined with the unique inside information of the companies they have, can shed light to those areas and should be communicated to the public. To put

it differently, he stated that an explanatory paragraph regarding those issues could reduce the information gap and enhance users' confidence about their investing decisions. In sum, it has been found that the users of audit reports already perceive them as useful in terms of their decision-making (Gommez-Guillamon, 2003; Vanstraelen et al, 2011). However, prior research has also shown that an extension of auditors' report would result in the mitigation of the information gap between auditors and the public (Vanstraelen et al, 2011).

With respect to the expectation gap, "*it exists when auditors and the public hold different beliefs about the auditors' duties and responsibilities and the messages conveyed by audit reports*" (Chye Koh and Woo, 1998). Although the role of the auditor as the provider of reasonable assurance regarding the accuracy and reliability of firms' financial statements is clear, there is still a gap between what public expects and what is eventually provided. Although auditors seemingly provide reasonable assurance to the financial statements users, it is not true (Hasan et al., 2005). Gay et al. (1998) argue that there are inherent audit limitations which prevent auditors to do so. However, users wrongly assume audits to provide assurance on a broader scope than they do and due to that, an expectation gap exists between the auditors and the users of financial statements (Frank et al. 2001). According to IAASB (2011), several investors tend to believe that the information they need in order to take investment decisions does not exist in the audited financial statements.

With respect to the mitigation of the communication gap between auditors and the public, Bailey et al. (1983) provided evidence that wording changes audit report knowledge can prove helpful. Also, it has been found that an extended audit report can enhance public's understanding of the scope, significance and nature of the audit, as well as to make the role of the auditor clearer to it (Miller et al., 1990). Although De Muylder (2012) does not find evidence which support the aforementioned, it is believed that an incline of the amount and kind of information provided to the financial statements users by expanding the audit report and incorporating key risk areas, internal control quality and crucial accounting policies, would prove an effective solution to the communication problem (Vanstraelen et al., 2011).

## **2.4 International Standards on Auditing**

Following the necessity for the mitigation of the information and expectation gap between the auditors and the users of financial statements, the IFAC (Intern-

tional Federation of Accountants) came up with some new regulations, which resulted in the extended auditor's report and the incorporation of different elements into it.

#### ISA 700:

ISA 700 is a professional set of auditing standards with regards to forming an opinion and reporting on financial statements, issued by IFAC through IAASB. The major objective of ISA 700 is that the audit report issued by the external auditor provides a fair opinion on whether the financial statements are free from material misstatements and the accounting estimates reflect the true business performance. First of all, it mandates auditors to include an explanation of both theirs and management's responsibilities, along with an explanation of the nature, procedures and scope of the audit. According to IFAC (2008), this will provide users the ability to better understand the audit procedure and align their expectations with the exact responsibilities of the auditor. In 2013, the most important addition to ISA 700 was introduced and it was referring to the materiality level which was used by the auditor during the audit process. According to that revision, auditors are obliged to provide details regarding the scope of the audit and communicate the business components which were examined during the audit to the public.

#### ISA 701:

ISA 701 is another significant set of regulations issued by the International Auditing and Assurance Standards Board (IAASB), which obliges auditors to disclose the most important audit matters (Key Audit Matters). These can be accounting policies, estimations and valuation issues, which are parts of high risk areas in terms of material misstatements. Furthermore, auditors are mandated to share their opinion regarding management's accounting estimates and the effect they could have on the financial statements. It is plausible that auditors should use their professional judgment and expertise in order to decide which matters are worth of being disclosed, as well as which of them require further investigation in order to ensure that their opinion will be free of any errors. Finally, it is very important that the auditor disclose the highlights of those key matters in an understandable way, to make them conceivable and useful for their users who are not familiar with the audit scope. The desirable outcome of ISA 701 is to make users of audit reports change their opinion where it is needed and decline the information and expectation gap between them and auditors, so it is clear that the part of their understandability is of great importance.

### ISA 720:

Another step towards the mitigation of expectation gap is standard ISA 720. According to it, auditors are obliged to describe and explain other information which is included in companies' financial statements. Examples of other information which should be reviewed by auditors constitute financial ratios, operating revenues, liquidity, information about other related parties, earnings per share and others. The review and explanation of such information is essential to provide users more information and better understanding of the audit process, and as a result to mitigate the gap between them and auditors.

## **2.5 Audit Report**

The role of an auditor is to check the reported financial statements of a firm, in order to provide assurance to their users that they are reliable, accurate and free of any material misstatement which would affect the opinion of an investor in terms of his capital allocation. The means of an auditor to communicate the results of the audit process to market participants is the audit report (IAASB, 2016). According to DeFond et al. (2002), the audit report is also a means of warning the users of financial statements about the possibility of a firm going bankrupt (going-concern assessment). The only direct communication between auditors and shareholders is the audit opinion, which is formed within the audit report and is divided in four categories: the unqualified opinion (financial statements are free of material misstatements), the qualified opinion (financial statements are materially misstated in one or two particular account balances), the adverse opinion (financial statements are not in accordance with GAAP/IFRS and have been misrepresented) and finally, the disclaimer of opinion (auditor could not determine opinion of financial status).

## **2.6 Audit Quality**

Audit quality is not a new term in the audit field, although it used to remain unspecified for a long period. However, it is a fact that there has not been one single, fully accepted definition which describes audit quality yet. Although there are plenty audit quality definitions in the literature, the one of De Angelo (1981) is the most common used: *"The quality of the audit services is defined to be the market-assessed joint probability that a given auditor both (a) discovers a breach in the client's accounting system, and (b) re-port the breach. The probability that a given auditor*



*will discover a breach depends on the auditor's technological capabilities, the audit procedures employed on a given audit, the extent of sampling, etc.*". The basis of De Angelo's audit quality definition is independence and competence, which are very important features of an auditor. The former means that an auditor is capable enough of recognizing misstatements, while the latter means that an auditor is independent enough to disclose them. However, according to Tritschler (2013), the limitation of this definition is that it measures audit quality with proxies which are difficult both to observe and measure. Based on De Angelo's definition, the most commonly used proxy in audit quality research studies is the statistical estimation of discretionary accruals, an indirect method which results in the above limitation. De Fond and Zhang (2014) provided a slightly different definition, in order to capture the fact that auditors' responsibility is not only to assure financial reporting consistency with generally accepted auditing standards, but also to evaluate the quality of financial reporting: *"higher audit quality is the greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics"*. Other than that, Clinch et al. (2010) states that *"Audit quality is a component of the quality of accounting information disclosed and higher disclosure quality leads to lower information asymmetry between traders."* Apart from Clinch et al. (2010), Titman and Trueman (1986) also related audit quality with the importance financial statements have for their users, supporting that *"A high-quality audit is an audit that improves the reliability of financial statement information and allows investors to make more precise estimate of the firm's value."*

Other than the definitions described above, there is a great variety of audit quality definitions which are resulted from some research results and findings and implicitly imply the term, instead of explicitly defining it.

A great part of this category is based on De Angelo's definition, and is related to the competence and independence in terms of the audit procedure. As far as the former is concerned, Balsam (2003, p.73) states that *"The quality of the firm's auditor is one factor that restricts the extent to which managers can manage earnings"*. Moreover, Liu et al. (2011, p.621) support that auditors' main duty towards public is to enhance the responsibility of managers and boost public's confidence to financial reporting. Hence, they argue that audit quality is totally related to the assurance audi-

tors can provide that financial reporting is trustworthy and management is accountable for that. Also, Francis (2009, p. 1523) states that “*Higher quality audits are inferred by the auditor’s likelihood of issuing a going-concern audit report and accuracy of the report in predicting client bankruptcy, and the degree to which client evidence earnings management behavior*” (sic). Last but not least, according to Mansouri (2009), there is a positive association not only between audit quality, auditor independence and auditor competence, but also between the two latter auditor characteristics. The reasoning behind this is that when an auditor lacks competence, then he has to rely on firm’s management to form an audit opinion, and this is the stage at which auditor independence is lost.

Another part of indirect audit quality definitions is also related to De Angelo’s one, and is based on the perception that audit firm size and reputation can indicate auditor’s competence, and as a result, audit quality. De Angelo (1981) supports that, “larger auditors, as captured by membership among the Big N, tend to provide higher quality audits”. Further, Hennes et al. (2013) argue that a big and reputable audit firm would consider changing an auditor who lacks qualitative characteristics, in order to avoid severe capital market consequences, resulted from poor financial reporting. In general, an audit conducted by a Big N auditor is regarded as more qualitative, due to the fact that auditors of this category are provided the privilege of using a wide range of resources and usually maintain a higher level of expertise and training (De Angelo, 1981, Dopuch and Simunic, 1980).

Moreover, a considerable number of researchers tend to associate audit quality with earnings quality. More precisely, it is suggested that an audit of high quality can keep earnings management below an acceptable level, and as a result, it can boost financial reports reliability and informativeness. Francis et al. (2011) uses audited earnings quality as proxy to measure financial reporting quality, and consequently, audit quality. In sum, after Titman and Trueman’s (1986) claim that most financially strong and healthy firms choose to be audited by a high-quality auditor, several researchers of latest literature are inclined to use earnings quality as an alternative definition of audit quality (Koh et al. 2013).

Last but not least, there is a noticeable number of indirect audit quality definitions which focus on the association between standard setters and audit quality. Corporation Act 2001 sets requirements for both auditors and clients with respect to the

responsibilities of each party during the audit engagement. According to it, auditors are obliged to conduct an audit or an audit review in accordance with the auditing standards set by the Auditing and Assurance Standards Board (AASB). As far as auditors' independence is concerned, it is stated that auditors must provide a fair and true view on the financial position and performance of the firm, free of any breach of the applicable codes of professional conduct. Apart from that, Institutional Auditing and Assurance Standards Board (IAASB) states that the judgments made by auditors are of high quality when auditors' high competence and experience is combined with objectivity, skepticism, and integrity. Finally, IAASB also suggests that auditors of high quality should collaborate with standard setters, regulators and professional bodies in order to achieve their common goal, which is the reliable and true entities' financial reporting.

## **2.7 Audit Quality Measurement**

Measuring audit quality has been an arguable issue for a long time, since the definition of audit quality is a controversial one as well. The "level of assurance" provided by auditors is something not directly measurable, as well as different people perceive it in several ways. As a result, researchers tend to use a wide range of different proxies, in order to obtain a better understanding and a more reliable value of audit quality. In their study, DeFond and Zhang (2014) divide the measures of audit quality in two categories: the output-based proxies and input-based proxies.

As for the first category, it investigates the level of audit quality which was actually delivered and hence, studies in which such proxies have been used mainly try to examine the issue from a supply-side perspective. One of the most significant attributes of this measurement category is that proxies of it tend to depend on the firm's financial reporting and innate characteristics. For instance, firms with higher financial reporting systems quality have consequently higher financial statements quality. It is plausible that such firms facilitate auditors' work and hence, *ceteris paribus*, audit quality is of higher level.

With regard to the input-based measurement category, researchers who use it, also use observable input proxies to measure audit quality. Due to that, studies which investigate the effects of demand-side factors tend to utilize this measurement category.

## **2.8 Output-based audit quality measures**

Due to the fact that financial statements are a combination between managers' and auditors' perceptions (Becker et al. 1998), it is believed that audit quality could be reflected by earnings quality (Balsam et al. 2003, Chen et al. 2008, Koh et al. 2013). Following that, prior studies have shown that discretionary accruals are the most common tool for managers to manipulate earnings. As a result, discretionary accruals are positively associated with earnings management, whereas audit quality is negatively associated with it (Schipper, 1989; Jones, 1991; DeFond and Park, 2001). In other words, discretionary accruals can serve managers in terms of adjusting earnings in order to meet or beat their earnings target. In addition, some of the manipulations do not need to be corrected, since they are aligned with the standards (Asthana and Boone, 2012). High levels of discretionary accruals imply high earnings management and low earnings quality. Hence, the quality of earnings information usefulness and audit quality should be regarded as low as well, since it is becoming more difficult for auditors to detect and report earnings management. As already mentioned several streams of literature use discretionary accruals to define audit quality, and for that reason, there are various approaches regarding the calculation of them. However, there are 3 main types of models amongst the ones which use discretionary accruals as proxy for audit quality: Jones Model (1991), Modified Jones Model and performance adjusted Model, which is based on Jones and Modified Jones models (Kothari et al. 2005). Not least importantly, as I already explained, the reward system for managers when they meet or beat earnings targets is also associated with earnings management and consequently, with earnings quality. According to Francis and Yu (2009), the fact that companies which just meet or beat their earnings targets are way more than the ones which do not, reflects their reluctance to report a possible loss, and resultantly, the existence of earnings management. In such cases, it is more difficult for auditors to detect any material misstatements, and thus the audited financial statements cannot be regarded as reliable.

Furthermore, a large number of researchers accept audit opinion as an important proxy in measuring audit quality. Audit opinions communicate the auditors' assessment about whether a client has the ability to continue as a going concern (DeFond & Zhang, 2014). Gibbins et al. (2001) support that audit reports constitute a combined outcome, created by the two parts of the audit: the clients and the auditor.

It is clear that the ideal audit opinion for all clients would be an unqualified one, since that will mean that the company's financial statements are free of any material misstatements, while such an opinion will not result in extra costs for the client. It is also clear that auditors expressing uncertainty about whether a company can continue as a going concern are able to withstand clients' pressure and objectively evaluate their performance (Fogel-Yaari & Zhang, 2013). On the other hand, should an auditor issue an unqualified audit opinion when it is not the appropriate one, this indicates low audit quality (DeFond & Zhang, 2014). According to Watts and Zimmerman (1981), auditor independence is an absolute requirement for a high-quality audit. Hence, it is perceived that in cases where an auditor does not hesitate to issue an audit opinion other than unqualified, there is no independence impairment and as a result audit quality is high.

Apart from that, firms' material misstatements have been frequently used to measure audit quality as well. Regarding this sub-category, Accounting and Auditing Enforcement Releases (AAERs) and restatements are the measures which directly indicate low audit quality, since they are resulted from a wrongly issued unqualified opinion on materially misstated financial statements by the auditor (DeFond & Zhang, 2014). AAERs are enforcement actions by the SEC, taken for civil lawsuits. However, they are quite infrequent (Lennox and Pittman, 2010b), thus they are not used at common base. On the other hand, restatements constitute corrections on misstated financial statements and have been used in several prior studies. As I mentioned, the aforementioned measures directly indicate low audit quality. Nevertheless, their absence, especially from small samples, cannot be regarded as sign of high audit quality, because they may have simply gone undetected (DeFond and Zhang, 2014).

Moreover, recent studies have shown a positive association between audit quality and market perception. Behn et al. (2008) found that analysts' earnings forecast accuracy is positively related to audit quality, while Lawrence et al. (2011) used it as proxy to approximate audit quality. Audit committee's perception is believed to constitute a measure of audit quality as well. Thus, client market share is also commonly used as a proxy to approximate audit quality. Last but not least, the cost of capital is found to be negatively related to audit quality. In general, investors tend to believe that financial information audited by Big-4 auditors is more reliable than the

rest. Hence, Lawrence (2011) supports that firms audited by Big-4 auditors usually experience a reduction in their cost of capital and as a result, an increase in the quality of their audited financial statements.

## **2.9 Input-based audit quality measures**

Input-based measurement category can be further divided into two sub-categories: the auditor characteristics and the auditor-client contracting features category. Regarding the former, De Angelo (1981) was one of the first researchers which argued that auditor size is of high importance in measuring audit quality. Usually, auditor size is measured by the Big-N or non-Big-N membership of the auditor. The reasoning behind this argument is that Big-N auditors' collateral is greater, since they manage a much higher number of clients. Hence, a Big-4 auditor is supposed to have a greater incentive not to misreport due to the danger of losing his reputation. Furthermore, other researchers consider auditor size as being a critical audit quality proxy because Big-N firms have a huge incentive to protect their brand names and reputations. As a result, Big-N auditors are required to provide their clients with audit services of the highest quality (Simunic and Stein, 1987, Francis and Wilson, 1988). Moreover, auditor specialization is a proxy which has also been proven to measure audit quality effectively. According to Solomon, Shields and Wittington (1999), specialization is identified by auditors' training and practical experience on a particular industry. As a consequence, highly experienced auditors are expected to be more knowledgeable regarding certain industries. More precisely, highly specialized auditors are considered to possess higher competence and deeper reputation motivations to execute qualitative audits (DeFond & Zhang, 2014).

As far as the auditor-client contracting features category is concerned, audit fees are another audit quality proxy which is frequently used. It is clear that auditors cannot increase their own fees for putting more effort during the audit by themselves, but only after a corresponding increase of their clients demand for additional effort. Thus, according to DeFond and Zhang, audit fees can measure the effort put by the auditors during the audit process, and consequently, the level of audit quality. (DeFond & Zhang, 2014). However, it has been argued that the higher audit fees are, the tighter the economic bond between the auditor and the client is (Frankel et al. 2002). For that reason, auditor's independence, and as a consequence, audit quality may be impaired by the amount of audit fees and such possibilities should be controlled.

## **2.10 Internal Control Quality**

The implementation and maintenance of an effective internal controls system has been a strong inducement for firms in terms of producing transparent and reliable financial reports. This can be achieved if firms' internal controls are able to ensure that material misstatements will not occur, or they will be detected and corrected before the issuance of the financial statements (Hogan & Wilkins, 2008). According to the U.S. Securities and Exchange Commission (SEC), a material weakness is defined as "a deficiency, or a combination of deficiencies, in internal controls over financial reporting such that there is a reasonable possibility that a material misstatement of the registrant's annual or interim financial statements will not be prevented or detected on a timely basis by the company's internal controls" and the existence of one or more of which in firms' internal controls over financial reporting can be regarded as a signal of poor effectiveness of disclosure quality (SEC, 2017). In the most recent framework of the Committee of Sponsoring Organizations (COSO), internal controls are defined as a process, effected by an entity's board of directors, management, and other personnel, which is designed in order to provide reasonable, but not absolute assurance that a company will achieve its objectives regarding the efficiency and effectiveness of its operations, reliability of its financial reporting and compliance with laws and regulations (COSO, 2013). It is clear that according to COSO, internal controls' objectives are divided into three categories: operation, reporting and compliance. Operating objectives aim to ensure the efficiency and effectiveness of the firm's operations and financial goals. Reporting objectives aim to provide reasonable assurance to the shareholders and regulators regarding the financial and non-financial reporting. Finally, compliance objectives' goal is to make sure that the firm remains compliant with the existing laws and regulations.

## **2.11 SOX sections 302 and 404**

Over years, a number of corporate and accounting scandals took place. One of the most famous of them is Enron's scandal, which was sued and condemned for overestimating its annual revenues in 2000. More precisely, Enron reported high earnings, using questionable accounting techniques and hiding at the same time its billion dollars debt. This deception took place in cooperation with Enron's audit firm, Arthur Andersen, which facilitated the concealment of the true financial condition of Enron by concluding that the financial statements of Enron were presented fairly in

2000. The disclosure of the scandal led to the bankruptcy of Enron in 2001, and combined with other accounting scandals of that period, to the perception that it was time for stricter financial reporting rules.

Sarbanes-Oxley Act (SOX) was instituted shortly after some big accounting scandals and acted as guidance in financial reporting and auditing, in order to mitigate corporate fraud, especially with regards to internal control. More precisely, SOX redefined the responsibilities of board of directors, management and public accounting firms and also enforced the Securities and Exchange Commission (SEC) to issue regulations about how public accounting firms should comply with SOX. It confined all US listed and audit companies' fraud margins, by imposing stricter laws with regards to reporting, internal control and audit services and was first applied in 2002.

Regarding internal control issues, articles 302 and 404 of SOX are mostly relative. Under section 302 of SOX, management of the firms registered with the SEC is forced to evaluate the effectiveness of internal control over financial reporting and create a report, declaring its responsibility regarding internal control of the company and presenting the results of the tests made. Subsequently, management has to disclose its findings to its auditors and audit committee, should a material weakness exist in its internal control system. Finally, it must clarify the measures the company will take in order to eliminate the deficiencies found. According to the Public Company Accounting Oversight Board (PCAOB, 2004), a material weakness in internal control is "a significant deficiency, or combination of significant deficiencies, that result in more than a remote likelihood that a material misstatement of the annual or interim financial statements will not be prevented or detected".

Section 404 was introduced in 2004, and it brought on considerable changes to financial reporting. The most important of them, was that under section 404, management is obliged to assess the effectiveness of internal controls and procedures annually, and then report the outcome and present it to its auditors, regardless whether one or more material weakness has been detected. Subsequently, the auditor is mandated to evaluate management's assessment and disclose his findings to the public. Before the implementation of SOX 404, managers had more discretion in terms of disclosing non-material internal control weaknesses (Ashbaugh-Skaife et al., 2007). According to SEC, SOX 404 has resulted in the mitigation of management's discre-



tion, and consequently, in more reliable financial reporting, since it has increased the responsibilities and mandatory disclosures of both managers and auditors.

### **2.12 Consequences of SOX**

The implementation of SOX brought on new consequences for both the firms and its auditors, mainly due to the extension of reporting, attestation and disclosure rules. It has been found that SOX resulted in the switch from accrual-based earnings management to real earnings management, since the latter is believed to be more difficult to detect (Cohen, Dey and Lys, 2008). Also, the implementation of SOX has resulted in the mitigation of managers' discretion, in terms of issuing or not disclosing misleading financial reports regarding the financial position of a firm. According to Rama and Read (2006), due to the increase of audit risks, the implementation of SOX has made audit firms more conservative regarding client acceptance and issuing a going-concern opinion. Also, they started exercising more scrutiny, in order to identify the existence of any internal control material weaknesses. On the other hand, section 404 of SOX has considerably increased the costs for those companies, since its implementation requires more effort from both the companies and its auditors (Zhang, 2007), and results in the increase of the workload of both (Raghunandan and Rama, 2006). As a result, SOX has raised much confrontation with regards to its benefits, compared to its costs. Raghunandan and Rama (2006) state that costs of compliance with SOX 404 are much greater than its benefits for the firms. However, Iliev (2010) finds that the benefits of SOX section 404 counterbalance its implementation costs, due to the increase of the internal control's quality of the firms. Other than that, opponents of SOX support that most firms with at least one material weakness in their internal control system, still fail to report on it within the misstatement period (Rice and Weber, 2012), while the proponents of SOX argue that it constitutes an incentive for firms to mitigate internal control deficiencies and spend more resources on their internal control systems on a consistent basis, in order to increase the quality of their internal control systems (Coates, 2007).

All in all, the implementation of SOX sections 302 and 404 has significantly affected both firms and their independent auditors, while there have been conflicting views regarding the precise benefits of it, as well as whether these benefits offset the corresponding costs.

### **2.13 Accounting Conservatism**

Although accounting conservatism has had a big impact on accounting practice and theory over the past decades, there is not a formal definition of it. Bliss (1924) first defined conservatism as the anticipation of all losses but no profits. By the phrase “anticipate no profits”, Bliss intended to highlight the fact that no profits should be recognized before the existence of a legal claim with respect to revenues verification. In general, firms’ management tends to recognize bad news earlier compared to good news, in order to reduce the risk of investment decisions which are made to cover up bad news (Smith and Warner, 1979). Furthermore, the timely recognition of bad news and the minimization of the amount of net assets and net income help managers to deal with uncertainties regarding the reporting of a firm’s financial performance (AICPA, 1970). The aforementioned tendency has become known as the principle of accounting conservatism and was a generally accepted accounting treatment in the field of audit, regarding the reporting of financial information (FASB, 1980). More simply, conservatism means the requirements difference in recognizing gains versus losses (Watts, 2003a).

Accounting conservatism has been distinguished between conditional and unconditional (Beaver and Ryan, 2005). The major difference between these two types of conservatism is that conditional conservatism is news dependent, while unconditional conservatism is not. Also, prior literature refers to conditional conservatism as earnings conservatism, whereas to unconditional conservatism as balance sheet conservatism. A conditional conservatism definition that has been extensively used by several researchers is the Basu’s one, who defines conditional conservatism as “the asymmetric verification of good news versus bad news” (Basu, 1997). In this study, the definition for conditional conservatism that is going to be followed is the one given by Ruch and Taylor (2015) and builds on the definition of Basu (1997): “Conditional conservatism occurs when negative economic news is recognized in accounting earnings in a timelier manner than positive economic news.” On the other hand, Qiang (2007) defines unconditional conservatism as “the downward tendency of the book value relative to the market value”. Also, Beaver and Ryan (2005) refer to the systematic understatement of net assets under unconditional conservatism, arguing that “unconditional conservatism means that aspects of the accounting process determined at the inception of assets and liabilities yield expected unrecorded good-

will". More specifically, in the first case, book values of net assets and revenues are impaired in a timely manner when news is discouraging regarding the firm's value of assets, while in unconditional conservatism the accounting treatment is conservative from the beginning of the assets and liabilities' existence, no matter if news is disadvantageous or not.

Between the two categories of conservatism, conditional conservatism is believed to be the good one, since it is capable of providing timely warning signals of bad news to the board of a firm. As a result, this bad news can be timely investigated as well (García Lara, Osma & Penalva, 2009). On the other hand, unconditional conservatism is believed to create hidden reserves, due to the understatement of net assets (Penman and Zhang, 2002). Moreover, according to Ball and Shivakumar (2005), unconditional conservatism results in the reduction of contracting efficiency. Examples of conditional conservatism constitute the lower of cost for inventory, or the impairment accounting of long-term intangible assets, such as goodwill (Beaver and Ryan, 2005). As for unconditional conservatism, an example could be some more accelerated depreciation methods of assets, compared to what it would be under the economic rate of depreciation.

#### **2.14 Explanations and implications of conditional conservatism**

With regard to the companies which apply conservative accounting methods, there are a number of effects which arise from it. Consequently, these effects result in the financial statements preparers' tendency to use accounting conservatism. Watts (2003a) thoroughly describes four explanations in his overview of accounting conservatism, which have also been a matter of discussion for other researchers and result in the aforementioned tendency of companies' management:

##### Contracting explanation

Watts (2003a) argues that the moral hazard problem with regard to a firm's management can be restricted by the use of conservative accounting. Moral hazard problems, with respect to a firm's management, could emerge from the fact that, within a firm, there is information asymmetry between the agent (management) and the principal (shareholders), regarding the value of the firm's assets, future profits and firm's operations. This situation results in an opportunity for the managers to act based on which is the highest level of their benefit, instead of what is right for each

party of an agreement. Briefly, Watts (2003) supports that conservatism constitutes a mechanism which makes contracts between a firm or its management and third parties as efficient as possible, through the implementation of more strict verification standards for gains than the ones implemented for losses. Such a tendency results in a situation where contracts would be difficult to be violated and, as a consequence, the value of the firm be reduced, since net assets and earnings are less likely to be overstated within a period of time. For instance, in debt covenants where minimum values for assets are specified, management will not have the opportunity to overstate assets in order to avoid a possible breach of the covenant. Furthermore, in compensation contracts, conservatism limits the likelihood that managers will try to overstate earnings and net assets in order to obtain higher payments. Also, with respect to corporate governance, conservatism allows shareholders to timely execute their right of identifying the existence of any negative net present value projects and take appropriate actions to outrun it. Taking everything into consideration, it becomes clear that management's ability to make opportunistic payments is mitigated and as a result, firm's value is increased. Thus, conservatism serves as an efficient contracting mechanism. Apart from Watts (2003a), many other researchers tried to shed light on the contracting explanation of accounting conservatism. Jensen and Meckling (1976) said that the problem between the agent and the principal is a contract between firm's management and the shareholders. Furthermore, Schleifer and Vishny (1997) described firms as a sequence of contracts to interpret contracting explanation. Emanuel et al. (2003) argue that efficient contracting will be achieved by using capital and ownership structures, as well as compensation arrangements. Moreover, they state that the selection of the accounting method is of high importance for each firm in terms of contracting theory, since they consider accounting as an essential part of the governance mechanisms.

#### Litigation explanation

According to Watts (2003a), the litigation costs of a firm overstating its assets are probably higher than a firm understating them. The application of accounting conservatism mitigates this concern, since the possibility that a firm will overstate its assets and earnings is decreased. Consequently, the firm's litigation risk is also decreased. The explanation behind this is that it is more difficult to prove that an investment decision was not taken due to understatement of assets or earnings, com-

pared to an investment decision which was taken due to an overstatement of accounting numbers. Also, Kellogg (1984) finds that, in securities buyers litigate against firms and auditors much more often than sellers do. Due to the fact that the expected litigation costs of overstatement outnumber those of understatement, it is plausible that management will tend to use conservative accounting methods and understate published net assets. As a result, firm's litigation costs are expected to be reduced.

#### Income Tax explanation

As explained, the use of conservatism results in the asymmetric recognition of gains and losses. Regarding income taxation, conservatism leads to the "delaying the recognition of revenues and accelerating the recognition of expenses to defer tax payments" (Watts, 2003a). The reduction of the current value of the tax and its deferment to future periods serve as a strong incentive for management to apply conservative accounting, especially for firms with high net profit.

#### Regulatory explanation

According to Watts (2003a), the goal behind standard setters' intention to create conservative accounting regulations is not the highest quality, but the avoidance of political costs and criticism against them. The idea behind this is that regulators and standard setters strongly believe that a possible overstatement of published net assets and revenues in firms' financial statements would put much more pressure and opposition against them by the society, compared to firms understating them. As a consequence, although FASB tries to diminish the use of conservatism in favor of neutrality, regulators and standard setters tend to implement conservative oriented standards which do not let firms overstate their published net assets and earnings.

Following the argument of Watts (2003a) that conditional conservatism plays an important role in the reduction of management's opportunistic financial reporting behavior, Garcia Lara, Garcia Osma and Penalva (2012) provide evidence that, firms applying more conservative accounting methods are less likely to having engaged in earnings management for earnings benchmarks purposes. Further, Gao (2013) finds that default and bankruptcy risk is mitigated by the use of conservatism, while Bidle, Ma and Song (2016) demonstrate that conditional conservatism constrains earnings management and consequently, bankruptcy risk. Further on, it has been found that, potential litigation costs are reduced by the use of accounting conservatism,

since shareholders' lawsuits, including litigation brought against auditors, are more likely to be triggered when the firm's assets or earnings are overstated than when they are understated (Watts, 1993).

Nevertheless, there are a number of opposing opinions regarding the use of conservatism in accounting. To begin with, the FASB compares conservatism with prudence, while it defines it as "a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered" (FASB, 2005). Within the framework of IASB it is stated that: "...the boards concluded that describing prudence or conservatism as a desirable quality or response to uncertainty would conflict with the quality of neutrality. Even with the proscriptions of deliberate misstatement that appear in the existing frameworks, an admonition to be prudent is likely to lead to a bias in reported financial position and financial performance... Accordingly, the proposed framework does not include prudence or conservatism as desirable qualities of financial reporting information." (IASB, 2006a, BC2.22, emphasis added). As can be seen, both the IASB and the FASB have moved away from considering conservatism as a desirable financial reporting characteristic in favor of promoting neutrality. As explained in section 2.1, this negative attitude against accounting conservatism has been resulted from the fact that according to IASB, it could lead to biased results, misleading the financial statements users in terms of forming a fair and accurate opinion about the financial condition of the firm. Instead of that, preparers should use a neutral accounting approach when dealing with uncertain events. As a result, FASB and IASB decided to exclude the concept of prudence from their conceptual framework in 2010. The main reason behind this exclusion was that many felt that, in practice, prudence was often used as a pretext for earnings management, since the vagueness of the concept could lead to its misapplication. This decision resulted in a timeless debate over the correctness of the decision, as well as a considerable amount of criticism. Following that, in 2015 the IASB redefined the concept of prudence in the Exposure Draft of its Conceptual Framework for Financial Reporting, distinguishing it between cautious and asymmetric prudence. Regarding the former it stated that it is "the exercise of cautious judgments when making a judgment under conditions of uncertainty", while it defined the latter as "the asymmetric verification of good versus bad news" (IASB, 2015). Although IASB considers cautious prudence as a desirable quality of financial reporting, it continues to exclude asymmetric prudence and conditional conservatism from its con-

ceptual framework (IASB, 2015). Apart from IASB, there are also several researchers opposed to conditional conservatism. In particular, Helbok and Walker (2004) find that the application of conditional conservatism results in less analysts' forecast accuracy, since they are not able to recognize that good news is differently reflected in time compared to good news. Following that, Bandyopadhyay (2011) provides evidence that although conditional conservatism increases earnings' ability to predict future cash flows, it decreases earnings' ability to predict future earnings and hence, earnings quality. Similarly, Chen et al. (2013) shows that especially conditional conservatism results in less earnings persistence. With regard to information asymmetry, LaFond and Watts (2008) provide evidence that information asymmetry is closely associated with conditional conservatism. However, they find that it is the information asymmetry which increases conditional conservatism and not the opposite. Nevertheless, Ruch and Taylor (2015) recently supported that increased information asymmetry is resulted from the deferred recognition of good news.

### **2.15 Conditional Conservatism Measurement**

As commented in section 2.13, Basu (1997) states that accounting conservatism is auditors' tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses. As a result, he makes three predictions regarding the measurement of conditional conservatism, which are driven from his definition:

- Bad news is reflected earlier in earnings than good news does.
- The earnings return association is stronger than the cash flow association.
- An unexpected earnings increase is more likely to be persistent compared to some unexpected earnings decrease.

In order to test the predictions above, Basu (1997) used three different models:

$$EPS_t = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} \quad (1)$$

Where,

$EPS_t$  = the earnings per share for company  $i$  in fiscal year  $t$  divided by the price per share at the start of the fiscal year

$R_{it}$  = the return on company  $i$  from nine months before the end of the fiscal year and three months after the end of the fiscal year

$DR_{it}$  = a dummy variable which is 1 when  $R_{it}$  is smaller than zero and 0 when  $R_{it}$  is not smaller than zero

Due to the fact that Basu believes that bad news is reflected in the share price at an earlier stage than good news, the coefficient ( $\beta$ ) of bad news is expected to be higher than the one of good news. Furthermore,  $R^2$  of bad news is expected to be greater for the same reason as well.

$$EPS_{it} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} \quad (2)$$

$$CFO_{it} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} \quad (3)$$

Where,

$EPS_{it}$  = earnings per share before extraordinary items and discounted operations for company  $i$  in fiscal year  $t$ , divided by the price per share at the start of the fiscal year  $t$ .

$CFO_{it}$  = cash flow from operations for company  $i$  in fiscal year  $t$ , divided by the price per share at the start of the fiscal year  $t$ .

$R_{it}$  = the return on company  $i$  from nine months before the end of the fiscal year until three months after the end of the fiscal year  $t$ .

$DR_{it}$  = a dummy variable which equals 1 when  $R_{it}$  is smaller than zero and 0 otherwise.

It is known that the earnings of a firm are equal to its accruals plus its cash flows. In the case that gains are not realized, the published cash flow and earnings will not be affected. However, when losses are not realized the cash flow will be not influenced as well, whereas the published earnings will decrease. Furthermore, auditors use accruals to recognize bad news on an asymmetrical basis. As a result, the published cash flows are expected to be less conservative than the published earnings (Basu, 1997).

The third prediction of Basu refers to the persistence of gains, which is believed to be more intense than the persistence of losses:

$$\frac{\Delta EPS_{it}}{P_{it}} = \alpha_0 + \alpha_1 D + \beta_0 \frac{EPS_{it-1}}{P_{it-2}} + \beta_1 \frac{D * \Delta EPS_{it-1}}{P_{it-2}}, \quad (4)$$



Where,

$EPS_{it}$  = earnings per share for company  $i$  in fiscal year  $t$ .

$\Delta EPS_{it}$  = change in earnings per share for company  $i$  over fiscal year  $t$ .

$P_{it-n}$  = price per share for company  $i$  at the end of fiscal year  $t$ .

$D$  = a dummy variable which equals 1 when  $R_{it}$  is smaller than zero and 0 otherwise.

According to Basu (1997), timeliness and persistence are two different terms, which both investigate the level of accounting conservatism. Timeliness refers to the fact that news becomes available to the market timely, and consequently a smaller part of it becomes available at a later period. Regarding persistence, the idea behind it is the fact that the smaller part of relevant news becomes available on a timely basis. All in all, since bad news is reflected in the earnings at once, it will be less persistent compared to good news.

As mentioned above, Ball & Shivakumar (2005) highlighted the importance of accounting accruals in the estimation of accounting conservatism. The outcome of their investigation was the development of the Asymmetric Accrual to Cash Flow Measure (AACF) which contributes to the measurement of conditional conservatism. The most important difference between the model of Ball and Shivakumar and the ones mentioned above by Basu (1997) is the fact that the latter uses stock prices and consequently is appropriate to investigate accounting conservatism of public listed firms only. On the other hand, the model by Ball & Shivakumar (2005) can be used to estimate accounting conservatism of private firms as well:

$$ACC_t = \beta_0 + \beta_1 DCFO_t + \beta_2 CFO_t + \beta_3 DCFO_t * CFO_t + \mu_t, \quad (5)$$

Where,

$ACCRUAL_t$  = Accruals calculated as the net income before extraordinary items minus operating cash flow for period  $t$

$CFO_t$  = Operating Cash Flows for period  $t$

$DCFO_t$  = Dummy variable which equals 1 if  $CFO_t$  is less than zero and 0 otherwise.

Although both the Basu (1997) and the Ball and Shivakumar (2005) models are based on the asymmetrical timeliness of good and bad news, they have important dif-

ferences which separate them. These differences are mainly resulted from the fact that they use different proxies for the calculation of accounting conservatism. The most crucial distinction which can be made between the two models is that Basu (1997) is focused on the earnings/returns association to measure conditional conservatism, whereas Ball and Shivakumar (2005) use the accruals/ operating cash flows association to do so. Also, Basu (1997) uses stock prices in his model. Consequently, it can be used for the measurement of conservatism of firms listed on a stock exchange market only. Contrariwise, Ball and Shivakumar (2005) use operating cash flows for the estimation of good or bad news. Therefore, their model is appropriate not only for calculating conservatism of stock listed firms, but also of private ones.

## **2.16 Summary and Conclusion**

In this chapter I described and commented on the basic theories and concepts of this thesis. With regard to the Agency Theory, it refers to managers' opportunistic behavior against the users of financial statements, resulting from the information gap which exists between these two sides. In that case, an auditor plays the role of both parts' agent, providing assurance regarding the reliability and accuracy of the firm's financial statements.

Following that, Positive Accounting Theory tries to describe and predict which accounting techniques will be applied under specific circumstances using the methodological individualism and the neoclassical hypothesis as a basis of its conception. Regarding conditional conservatism which is described in the next sections,

Accounting conservatism has been having a big impact on accounting practice since the 15<sup>th</sup> century and consequently, it has been discussed a lot. The strict definition of Bliss (1924) has been replaced by other, more neutral ones. Basu (1997) defined accounting conservatism as "accountants' tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses". It can be divided in two groups, conditional and unconditional conservatism. While the first group is news dependent, the latter is not and is considered to be an undesirable accounting method. The FASB uses prudence to define conservatism, while in 2010 it was excluded from its conceptual framework. In 2015, the IASB and the FASB divided prudence in two categories: cautious and asymmetric prudence. Although cautious prudence is regarded as a desirable quality of accounting information, asymmetric prudence and conditional conservatism are still excluded from the

FASB's conceptual framework, since they are believed to have a negative impact on the concept of neutrality. According to Watts (2003), there are four explanations for the use of conditional conservatism: the contracting explanation, the litigation explanation, the income tax explanation and the regulatory explanation. With respect to the measurement of conservatism, after the explanation of the different assumptions of Basu (1997) and Ball and Shivakumar (2005), their models are presented and explained.

In the next section, this thesis describes and explains the information and expectation gap which exists between the auditors and the users of the audited financial statements. Regarding the former, it is a gap between what information investors need in order to make informed investment decisions and what is available to them through the audited financial statements (IASB, 2011), while the latter refers to the different perception between auditors and the public, regarding auditors' duties and responsibilities (Chye Koh and Woo, 1998). Next in this chapter, I am referring to the changes and the extension of the audit report by the International Federation of Accountants (IFAC), resulted from the audited financial statements users' need to mitigate the gaps mentioned.

After that, I am describing the concept of firms' internal controls systems and the significant role they play in the detection and correction of financial statements' material misstatements. SOX was instituted after several accounting scandals took place and acted as a guide for managers and public accounting firms, in terms of financial reporting. Sections 302 and 404 of SOX were the most relative to internal controls, enhancing the role of auditors as assessors and assurance providers of the reliability and accuracy of firms' financial statements.

Audit report is the auditors' means to communicate the results of the audit process to market participants (IAASB, 2016). There are four different categories of audit opinion: the unqualified opinion (financial statements are free of material misstatements), the qualified opinion (financial statements are materially misstated in one or two particular account balances), the adverse opinion (financial statements are not in accordance with GAAP/IFRS and have been misrepresented) and finally, the disclaimer of opinion (auditor could not determine opinion of financial status). Audit quality is *“the market-assessed joint probability that a given auditor both (a) discovers a breach in the client's accounting system, and (b) report the breach. The*

*probability that a given auditor will discover a breach depends on the auditor's technological capabilities, the audit procedures employed on a given audit, the extent of sampling, etc.*" (De Angelo, 1981). As for the measurement of audit quality, it is divided in two categories: the output-based and the input-based measures (DeFond and Zhanf, 2014). The first category measures audit quality from a supply-side perspective. On the other hand, output-based category measures audit quality using demand-side factors.

In my thesis, I will use conditional conservatism (conservatism, hereafter) to test my hypotheses. First of all, the systematic understatement of net assets which is recommended by unconditional conservatism is regarded as an undesirable accounting method (FASB, 1980). Apart from that, according to Ball and Shivakumar (2005), its use can be removed from the financial statements users, since it is observable. Hence, it cannot support the contracting explanation for the use of accounting conservatism. With respect to conditional conservatism measurement, I will test my hypotheses using the timeliness of earnings to news measure by Basu (1997), as well as the accrual-based loss recognition measure by Ball and Shivakumar (2005). As far as the former is concerned, it is frequently used in prior literature in order to reflect the asymmetric timeliness in the recognition of economic losses. However, it has received criticism from a number of researchers, who argue that it suffers from various economic deficiencies which make it a weak model. For instance, Givoly, Hayn and Natarajan (2007) support that the model of Basu (1997) is only focused on the earnings/return association and does not take into account other possible causes of conservatism. Due to that fact, and in order to enhance the reliability and the accuracy of my findings, I will use the model of Ball and Shivakumar (2005) as already said. By doing so, I will take into consideration the gain and loss recognition role of accruals, mitigating the concerns about conventional accruals models which assume that the association between accruals and cash flows is linear and moving away from the earnings/returns association only.

### **3. Methodology**

In the following chapter I am going to present the research design which I am using to investigate whether specific auditors' qualitative characteristics are associated with the level of conditional accounting conservatism applied by firms. First, I will develop the hypotheses based on the literature discussed. After that, I am giving the models which I will use to test the hypotheses, along with the proxies for conditional conservatism, auditors' characteristics and the control variables. Furthermore, I will introduce the related variables, before finally describing the sample and the databases I will use.

#### **3.1 Hypotheses Development**

The goal of the tests which will be performed in this thesis is to examine the association between specific auditors' characteristics and conditional conservatism.

Prior studies have shown that a strong and well-established internal control system could act as a mechanism which facilitates conservatism in financial reporting. Goh & Li (2011) investigate the association between internal control quality and financial reporting conservatism, since as stated in section 2.14, it can provide a lot of governance benefits, improve the efficiency of debt contracts, and diminish litigations risks. Goh & Li (2011) examine the above association using a sample of firms which disclosed at least one material weakness within the timeframe they set and calculate conservatism by three different measures. The results of their empirical testing are consistent with firms applying lower accounting conservatism, also having low internal control quality. Also, Goh & Li (2011) find that companies increasing the level of their internal control quality after the disclosure of a material weakness demonstrate higher conservatism than companies which continue to have such weaknesses. More simply, they find that firms' internal control systems act as a mechanism which promotes conservatism. Nevertheless, their study focuses only on the value of an effective internal control system, not incorporating any factors which have been resulted from SOX reporting requirements and could affect the above association.

As described in section 2.11, SOX Section 404 generated important changes to financial reporting. The most significant of them is the fact that firms' management is obliged to report on the effectiveness of its internal control system and present it to its auditors regardless whether it includes one or more material weaknesses. Subse-

quently, auditors have to assess management's internal controls report, and bring out the result to the public. It becomes clear that, after the implementation of SOX section 404, the role of auditors as certifiers of the companies' internal control systems, and subsequently, financial reporting quality is considerably enhanced.

Furthermore, as mentioned in section 2.4, a number of updates have taken place in the International Standards on Auditing (ISAs) during the last few years. Under ISA 700, auditors are obliged to thoroughly explain their responsibilities and provide details regarding the nature, scope and procedures of the audit, apart from simply issuing an opinion about whether the firm's financial statements are free from material misstatements. Also, current regulations of ISA 701 mandate auditors to highlight and explain the most important Key Audit Matters to the users in a comprehensible way, so as to facilitate their understanding of the audit process and consequently mitigate the information gap between them and the auditors.

The aforementioned regulatory changes make clear that auditors' responsibilities have been increased, whereas their duties have been constantly moving from simply providing reasonable assurance regarding the reliability and accuracy of firms' financial statements to extending their reporting, evaluating the firms' internal control systems at any case and disclosing more details regarding the audit procedure. It is also obvious that the increased responsibilities of auditors require a higher level of professional judgment and skepticism and hence, the quality of every individual auditor will play a more important role in the quality of the audit report. It is plausible that the more important and complicated the role of auditors become, the higher their quality has to be. Thus, I will examine the association between auditors' characteristics and the level of accounting conservatism.

In sections 2.8 and 2.9 I described the two categories of audit quality measurement: the output-based and the input-based measures. As I stated above, in my thesis I will try to provide a deeper explanation of the previously investigated positive association between internal control quality and conditional conservatism (Goh and Li, 2011), which does not include any factors with respect to the auditors' enhanced responsibilities after the implementation of SOX and ISA. In order to do this, I will incorporate input-based proxies in my regression models. Recalling from chapter 2, output-based measures depend on firms' innate characteristics and the quality of their financial reporting system. This means that the level of audit quality may be af-

affected by factors other than auditors or audit firms specific. For instance, a firm with high quality pre-audited financial statements will most likely not issue restatements. In such a case, it is clear that although audit quality may be regarded as high, it is most likely affected by the quality of firm's financial reporting system. On the other hand, input-based category includes proxies can directly approximate the quality of the auditor and hence, audit quality. It consists of observable inputs to the audit process, based on which clients select their auditor. Since I examine the effect of audit quality in the association mentioned above focusing on the enhanced role of auditors, it becomes plausible that I will use input-based measures in my study.

Hoitash et al. (2008) argue that audit engagements which are regarded as riskier from a material financial misstatement perspective, demand higher effort by the auditors, and as a consequence, they result in higher billing rates. Moreover, they state that audit fees may increase in proportion to internal control risk, as these costs are taken over by clients. According to Watts (1993), shareholders' lawsuits, including those against auditors, are more likely to be resulted from a firm's assets or earnings overstatement. Also, evidence regarding the association between internal control risk and audit fees is found by other researchers (Raghunandan & Rama, 2006; Doyle, Ge, & McVay, 2007a). Nevertheless, studies before the regulatory changes of SOX fail to find an association between internal control quality and audit fees or audit effort (Hackenbrack & Knechel, 1997, O'Keefe, Simunic & Stein, 1994). Other than that, as I mentioned earlier in this section, internal control quality, measured by the existence of one or more material weaknesses in the firms' financial statements has been found to be positively associated with conditional conservatism (Goh and Li, 2011). Altogether, there has been found evidence that the financial statements of firms which use conservative accounting reporting techniques tend not to suffer from material misstatements. Also, as mentioned, prior research has shown that firms which are free from material misstatements tend to pay lower audit fees, since they are regarded as less risky by the auditors and less effort is required for their audit. Taking everything into consideration, I assume that firms with conservative accounting reporting seem less risky to auditors, from a material misstatement perspective and hence, the effort and the fees that are required for the audit of such a firm will be lower. Consequently, I will test the hypothesis that audit fees are negatively associated with conditional conservatism.

***H<sub>1</sub>: Audit fees are negatively associated with conditional conservatism.***

Auditor size is considered as a proxy for measuring audit quality by several researchers (De Angelo, 1981; Dopuch & Simunic, 1982), since they support that Big-4 auditors tend to provide audit services of higher quality compared to non-Big-4 auditors. Moreover, evidence has been provided regarding the beneficial consequences of the Big-4 auditors use: Becker et al. (1998) and Kim et al. (2003) find that Big-4 auditors result in less earnings management, Lennox and Pittman (2010) argue that they lead to accounting fraud mitigation, while Behn et al. (2008) state that Big-4 auditors contribute to the accuracy of earnings forecast. Nevertheless, other studies suggest that there are not any differences between Big-4 and non-Big-4 auditors, as far as their impact on firms' internal control quality is concerned (DeFond & Jiambalvo, 1991; Petroni & Beasley, 1996). Again, there are conflicting conclusions regarding the association between auditor size and internal control quality. Other than that, as mentioned in chapter 2, there are opinions which are opposed to accounting conservatism. According to the framework of IASB and FASB, preparers of financial statements should use neutral accounting methods instead of conservative ones, since the latter could mislead the users of financial statements in terms of the firm's financial position and performance. Apart from that, Ruch and Taylor (2015) provided evidence that the deferred recognition of good news results in greater information asymmetry, while Bandyopadhyay (2011) found that conservative accounting leads to less earnings quality. Although there has not been found evidence that conditional conservatism is associated with materially misstated financial statements, it becomes clear that, during the post-crisis period, there are increasing efforts for the mitigation of the information and expectation gap between management and the financial statements' users, as well as the avoidance of any kind of bias in the preparation of financial statements. Recalling from section 2.9, Big-4 auditors have an extra incentive to mitigate information asymmetry and accounting fraud, in order to increase the quality of their audit reports and protect the branding name and reputation of their audit firms. In conclusion, it is plausible that Big-4 auditors who want to protect the reputation of their firm will promote more neutral accounting methods, so as to align themselves with the regulatory bodies and latest perceptions. Taking into consideration all the aforementioned, I assume that Big-4 auditors have an extra incentive to promote neutrality against conservatism, in order to counteract a possible bias of



management and protect the interests of both their audit firms and the financial statements users. Hence, I will test the hypothesis that auditor size is negatively associated with the level of conditional conservatism applied by companies.

***H<sub>2</sub>: Auditor size is negatively associated with conditional conservatism.***

As stated in section 2.9, specialized auditors are considered to possess higher competence and more experience in a specific industry. As a consequence, this facilitates them in performing higher quality audits than non-specialized auditors (Solomon, 1999). Moreover, DeFond and Zhang (2014) have stated that specialized auditors' massive knowledge of a specific industry and therefore their increased competence, also increases their reputation incentives to provide assurance to the users of financial information with respect to the reliability and accuracy of financial statements. This situation results in the prediction that financial statements audited by specialized auditors will be of high quality, as well as they will reflect the true financial condition of the firm. Similarly, to the second hypothesis, recalling the framework of International Accounting Standards Board, neutrality is believed to be a more desirable financial reporting quality compared to conservatism, since it is capable of defusing any possible bias stemming from management and secure the representative and accurate financial position of the firm. As already commented, specialized auditors have increased reputation incentives to execute high quality and reliable audits. I assume that in order to promote neutrality, they are associated with lower levels of accounting conservatism and hence, I will test the hypothesis that auditor specialization is negatively associated with conditional conservatism, shedding also more light to the association between internal control quality and conditional conservatism, similarly to hypotheses 1 and 2.

***H<sub>3</sub>: Auditor specialization is negatively associated with accounting conservatism.***

### **3.2 Research design**

This thesis aims to find an association between internal control quality, conditional conservatism and specific auditors' qualitative characteristics. As mentioned above, Goh and Li (2011) found that companies with low internal control quality exhibit lower conservatism than companies with higher internal control quality. This

finding combined with the agency theory by Watts and Zimmerman and the enhancement of auditors' role after the implementation of SOX section 404 and the additional regulations by ISA lead to an interest in investigating whether specific auditors' qualitative characteristics affect the association between internal control quality and conditional conservatism, as discussed in hypothesis development chapter.

Dependent variable - Measurement of conditional conservatism

In order to test whether auditors' qualitative characteristics are associated with conditional conservatism, I have to measure the level of conditional conservatism first. In chapter 2.15 I presented the models of Basu (1997), as well as the model of Ball and Shivakumar (2005). As mentioned, the timeliness of earnings to news model of Basu (1997) has been frequently used in prior research and in international studies, as well as it has led to results which are consistent with the theoretical hypotheses of cross sectional analyses. However, Givoly et al. (2007) argue that Basu's model is a weak measurement model in time series cases and when the information is aggregated over a period. Also, Dietrich et al. (2007) supported the model by Basu suffers from several econometric deficiencies, and as I commented above Ball and Shivakumar (2005) stated that it can measure conservatism of stock exchanged quoted firms only. Due to the aforementioned, and in order to enhance the robustness of my results, I will use both models to measure conditional conservatism in my study, as they have already been presented in chapter 2.15:

$$EPS_t = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} \quad (1)$$

Where,

$EPS_t$  = the earnings per share for company i in fiscal year t divided by the price per share at the start of the fiscal year.

$R_{it}$  = stock rate of return of the firm, measured by compounding 12 monthly stock returns ending the last day of fiscal year t.

$DR_{it}$  = a dummy variable which is "1" when  $R_{it}$  is smaller than zero and "0" when  $R_{it}$  is not smaller than zero.

$$AC_{it} = \beta_0 + \beta_1 DCF_{it} + \beta_2 CF_{it} + \beta_3 DCF_{it} * CF_{it} + \mu_t, \quad (5)$$

Where,

$ACC_t$  = Accruals calculated as the net income before extraordinary items minus operating cash flow for period  $t$

$CFO_t$  = Operating Cash Flows for period  $t$

$DCFO_t$  = Dummy variable which equals 1 if  $CFO_t$  is less than zero and 0 otherwise

Independent variables - Measurement of auditors' qualitative characteristics

As I explained in the hypotheses development section, I will test whether auditors' qualitative characteristics explain the association between internal control quality and conditional conservatism at a deeper level. In order to achieve this, I will use three independent variables which will expand our understanding of the aforementioned association. As described in section 2.9, audit fees, auditor size and auditor specialization are three auditors' characteristics which have been found to affect audit quality. Consequently, the independent variables which I will use in order to try to examine the association between internal control quality and conditional conservatism more deeply will be audit fees, auditor size and auditor specialization.

To begin with, I am following Okolie (2014) and I am using the audit fees (AF) paid by the company as a proxy to measure auditor's quality.

Furthermore, I will use the proxy AS to measure auditor size, which will be a dummy variable that equals 1 if the auditor works for a BIG-4 audit firm and 0 otherwise. As mentioned above, prior researchers have argued that BIG-4 auditors provide audit services of higher quality, compared to non-BIG-4 ones (DeAngelo 1981, Dopuch & Simunic 1982).

Finally, to measure auditor specialization I will follow Palmrose's approach (1986), who used the size of auditor's within-industry market share as an indicator to measure auditor specialization. The market share is calculated based on the audit fees within a two-digit SIC category as follows:

$$MARKETSHARE_{k,i} = \frac{\sum_{j=1}^J TA_{kij}}{\sum_{i=1}^I \sum_{j=1}^J TA_{kij}} \quad (6)$$

Where,

$MARKETSHARE_{k,i}$  = the market share of auditor  $i$  of industry  $k$ .

- TA<sub>kij</sub> = the size of client company *j* measured in total assets in the industry *k* audited by auditor *i*.
- J = the number of clients that auditor *i* serve in industry *k* and *I* is the number of audit firms in industry *k*.

According to Craswell et al. (1995), when auditor's market share is above 15% they could be regarded as specialists of the industry and the variable ASPEC which I am going to use will equal 1. Otherwise it will equal 0. As I commented above, the thought behind this assumption is that highly specialized auditors can receive special education for a particular industry and hence, the audit quality which they provide is increased.

#### Control variables – Measurement of internal control quality, leverage, firm size and ROA

As stated above, there are various factors other than auditors' characteristics which can affect audit quality. Hence, I will include the most significant of them in order to control for their influence.

First, I will use internal control quality as a control variable in my model. Goh and Li (2011) have found that internal control quality is positively associated with conservative accounting and due to the fact that I will try to examine this association at a deeper level, I will incorporate it as a control variable. I will test the quality of firms' internal control systems, based on the probability of a company disclosing one or more material weaknesses in its internal control. I pay attention to material weaknesses for two reasons. First, because according to PCAOB, it is the most serious weakness in a company's internal control system. Second, because the disclosure of a material internal control weakness is mandatory, in contrast to less material deficiencies, the disclosure of which is voluntary. All in all, in this study, internal control quality is regarded as low when there is at least one material weakness in a company's internal control. Otherwise, it is regarded as high. Hence, I will include the dummy variable MW in my model which will equal 1 if the firm has at least one material weakness within its internal controls system and 0 otherwise.

Moreover, I will include the control variable SIZE in my model. According to LaFond and Watts (2008), large firms produce higher quantity of public information and hence, their information asymmetry and the demand for conservative accounting

are limited. On the other hand, it has been argued that larger firms induce more conservative accounting choices, since they face more political costs (Givoly, Hayn & Natarajan, 2007). At any case, I will use the total assets as a proxy to measure client size, following Simunic (1980) who supports that the sum of the firm's total assets is able to verify its net income.

Another factor to control for is the return on assets (ROA). ROA is a ratio which reflects the effectiveness of a firm's management in terms of generating profit by the firm's total assets and represents the firm's financial risk. It is plausible that firms with low financial risk will have a lower demand for conservative accounting techniques and hence, control variable ROA will be included in the regression model to control for this factor affecting the level of conservatism.

At last, I will include leverage (LEV), in order to capture the risk which is associated with higher levels of debt of the firm (Carey and Simnett, 2006). Apart from that, firms with increased levels of leverage usually experience more shareholder conflicts, which subsequently results in a greater demand for conservatism (Ahmed et al. 2002, Zhang 2008). Leverage is calculated by deflating the sum of long-term debt and current liabilities firm's total assets.

### The research models

In this sub-paragraph I am going to present the models that I am going to use in order to investigate the hypotheses which I described above and provide an answer to my research question. My first regression model is based on the timeliness of earnings conditional conservatism model by Basu (1997), the proxies for auditors' qualitative characteristics, plus the control variables I described above:

$$\begin{aligned}
 EPSt = & \beta_0 + \beta_1DRt + \beta_2Rt + \beta_3DRt * Rt + \beta_4MW + \beta_5DRt * MW + \beta_6Rt * MW + \\
 & \beta_7DRt * Rt * MW + \beta_8AF + \beta_9DRt * AF + \beta_{10}Rt * AF + \beta_{11}DRt * Rt * AF + \beta_{12}AS + \\
 & \beta_{13}DRt * AS + \beta_{14}Rt * AS + \beta_{15}DRt * Rt * AS + \beta_{16}ASPEC + \beta_{17}DRt * ASPEC + \\
 & \beta_{18}Rt * ASPEC + \beta_{19}DRt * Rt * ASPEC + \beta_{20}LEV + \beta_{21}DRt * LEV \\
 & + \beta_{22}Rt * LEV + \beta_{23}DRt * Rt * LEV + \beta_{24}SIZE + \beta_{25}DRt * SIZE + \\
 & \beta_{26}Rt * SIZE + \beta_{27}DRt * Rt * SIZE + \beta_{28}ROA + \beta_{29}DRt * ROA + \\
 & \beta_{30}Rt * ROA + \beta_{31}DRt * Rt * ROA + \varepsilon
 \end{aligned}
 \tag{7}$$

Where,

EPS <sub>t</sub>	=	earnings per share before extraordinary items and discontinued operations divided by share price at the beginning of the fiscal year t.
R <sub>t</sub>	=	stock rate of return of the firm, measured by compounding 12monthly stock returns ending the last day of fiscal year t.
DR <sub>t</sub>	=	dummy variable that equals 1 if R <sub>t</sub> is smaller than zero and 0 otherwise.
MW	=	dummy variable that equals 1 if the firm has at least one material weakness in internal controls, and 0 otherwise.
AF	=	the logarithm of audit fees paid by the company.
AS	=	dummy variable that equals 1 if the auditor works for a BIG-4 audit firm and 0 otherwise
ASPEC	=	dummy variable that equals 1 if auditor's market share is above 15% and 0 otherwise
ROA	=	the ratio of net income to Total Assets at the end of fiscal year t.
LEV	=	sum of long-term debt and current liabilities deflated by total assets at the end of the fiscal year t.
SIZE	=	the logarithm of Total Assets at the end of the fiscal year t.

As far as my second regression model is concerned, it differs from equation (7) in terms of determining conditional conservatism. As stated before, I will test my hypotheses using the asymmetric accrual to cash flow conditional conservatism measure of Ball and Shivakumar (2005) as well, in order to provide more robustness to my findings. Following that, I am presenting the second regression model of my study, where all variables are as defined in equations (5) and (7):

$$\begin{aligned}
ACCT = & \beta_0 + \beta_1 DCFOT + \beta_2 CFOt + \beta_3 DCFOT * CFOt + \beta_4 MW + \beta_5 DCFOT * MW + \\
& \beta_6 CFOt * MW + \beta_7 DCFOT * CFOt * MW + \beta_8 AF + \beta_9 DCFOT * AF + \\
& \beta_{10} CFOt * AF + \beta_{11} DCFOT * CFOt * AF + \beta_{12} AS + \beta_{13} DCFOT * AS + \\
& \beta_{14} CFOt * AS + \beta_{15} DCFOT * CFOt * AS + \beta_{16} ASPEC + \beta_{17} DCFOT * ASPEC +
\end{aligned}$$

$$\begin{aligned}
& \beta_{18}\text{CFOT}*\text{ASPEC} + \beta_{19}\text{DCFOT}*\text{CFOT}*\text{ASPEC} + \beta_{20}\text{LEV} + \beta_{21}\text{DCFOT}*\text{LEV} \\
& + \beta_{22}\text{CFOT}*\text{LEV} + \beta_{23}\text{DCFOT}*\text{CFOT}*\text{LEV} + \beta_{24}\text{SIZE} + \beta_{25}\text{DCFOT}*\text{SIZE} \\
& + \beta_{26}\text{CFOT}*\text{SIZE} + \beta_{27}\text{DCFOT}*\text{CFOT}*\text{SIZE} + \beta_{28}\text{ROA} + \\
& \beta_{29}\text{DCFOT}*\text{ROA} + \beta_{30}\text{CFOT}*\text{ROA} + \beta_{31}\text{DCFOT}*\text{CFOT}*\text{ROA} + \varepsilon \quad (8)
\end{aligned}$$

As can be seen, in both models (7) and (8) the variables of interest are multiplied with the variables which are used in the models of Basu (1997) and Ball and Shivakumar (2005) respectively. It is plausible that the inclusion of a number of interaction terms may result in a multicollinearity issue. In order to address this issue and solve the problem of multicollinearity, all continuous variables of models (7) and (8) will be mean centered. The effects of this treatment will be analyzed more thoroughly in the next chapter.

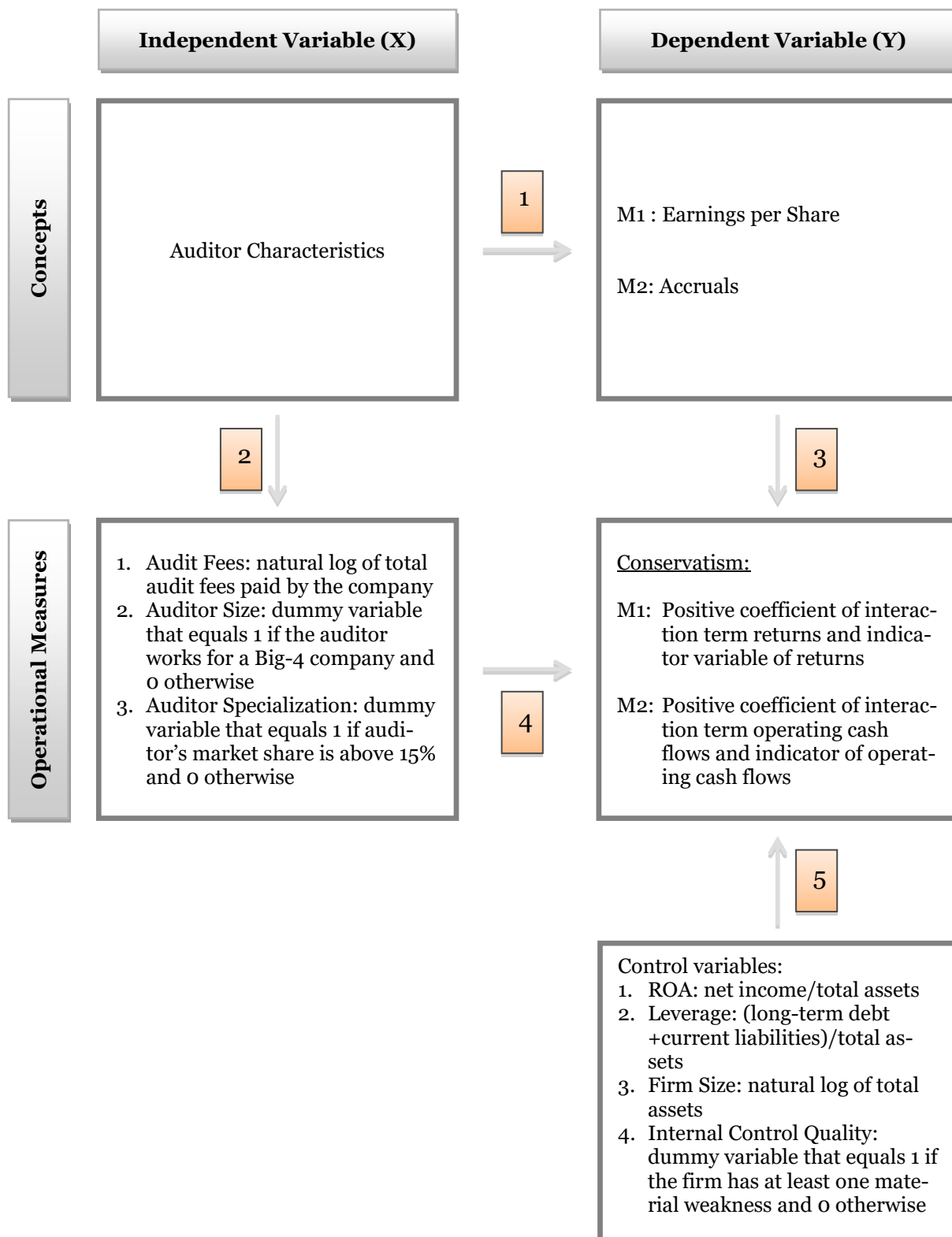


Figure 1 : Libby boxes for the research



### **3.3 Validity**

Before conducting the research analysis, validity needs to be taken into account. The types of validity which I will refer to are three: construct validity, internal validity and external validity.

With regard to construct validity, it is the degree to which the measures I am going to use capture the underlying, unobservable theoretical constructs. In my thesis, I follow the research methods of prior literatures on conditional conservatism and internal control quality. The models of Basu (1997) and Ball and Shivakumar (2005) which I am using, have been also used by several other researchers to measure conditional conservatism (Watts, 2003; Roychowdhury & Watts, 2007; LaFond & Roychowdhury, 2008 etc.). As already mentioned, each model suffers from some limitations. Hence, I am going to use both in the measurement of conditional conservatism, in order to provide more robust results. Moreover, the development of the two models which I am using has been also used by Goh and Li (2011) to test the association between internal control quality and conditional conservatism. I further modify the model of Goh and Li (2011), incorporating some specific auditor's qualitative characteristics to test whether they affect the aforementioned association and shed more light on the debate regarding the benefits of SOX. As for the variables I am using to measure different auditors' qualitative characteristics, internal control quality and the control ones, they have been derived from different academic papers and are being explained in section 3.2. Taking all the aforementioned into consideration, I expect that the construct validity of this thesis is going to be high.

With regard to internal validity, it refers to the credibility of a study in capturing a causal relation between the dependent and independent variables after eliminating all alternative hypotheses (Modell, 2005). In general, internal validity of studies measuring conditional conservatism is considered to be relatively low, since there are external factors affecting the variables which cannot be controlled. Moreover, Ball et al. (2012) support that the failure of Basu's conditional conservatism model (1997) to control for expected earnings could result in a correlated-omitted variable problem. In order to mitigate the concerns about that problem, they propose the inclusion of industry- fixed effects in the regression model. After doing so, as well as incorporating control variables with respect to leverage, return on assets ratio and company's size, I address the aforementioned errors-in-variables issue and the internal validity

of my analysis is increased. Moreover, as already stated, I am using a second conditional conservatism measure, since every measure has its own limitations and there is not one single model that absolutely captures the level of conditional conservatism applied by firms (Watts, 2003a). Hence, in order to increase the internal validity of my study, I will measure conditional conservatism using the accrual-based loss recognition model by Ball and Shivakumar (2005) as well.

Following that, external validity is the extent to which the results can be applied to other settings (Smith, 2011). As for this study, the external validity is expected to be relatively high to a certain extent. On the one hand, perceptions regarding what is conservative accounting depend on the type of accounting system each study investigates. The sample of my thesis consists of firms following the U.S. GAAP accounting system. On the other hand, it is noticeable that in my sample, I am including all U.S. firms for which there is available data. Hence, the results of my thesis could be generalizable at all firms that follow the U.S. GAAP or any other similar accounting system, regardless of their size and for periods after the introduction of SOX sections 302 and 404, as well as the introduction of the International Standards on Auditing I am referring to.

### **3.4 Sample**

The sample of my study consists of all U.S. publicly listed firms, since the U.S. play the most important role in the worldwide economy according to IMF, and all publicly traded and regulated companies are required to follow the U.S. GAAP. Also, by focusing on all U.S. listed firms, I am targeting in presenting the biggest possible part of the market capitalization.

The period I selected consists of the years between 2010 and 2016. 2010 was the year when the general economic recession, which began in 2007, came to an end and the world market started inclining again. Moreover, it was the year when IASB and FASB excluded conditional conservatism from their conceptual framework. 2016 is the last year for which there is available data on the databases I am using and which I am describing in the last paragraph of this section.

With regard to the observations which are going to constitute my analysis, firms which are listed or delisted from 2010 to 2016, or firms with missing data for one or more years, are excluded from the sample. Due to the fact that I am using the

accruals-based conservatism measure by Ball and Shivakumar (2005), the sample period should be extended as much as possible, because of the reverse effects of the accruals. By using a sample of 7 years, as well as excluding firms which do not have available data during the whole sample period, I am increasing the possibilities that the effects of reversals are eliminated. As a result, the chances that the conservatism measures I have chosen to succeed in capturing conservatism are also increased. Apart from that, I will eliminate the upper and lower 1% of the variables to control for outliers and mitigate the bias resulting from them. As I am also explaining in section 4.1, the fact that the data is normally distributed is an important regression assumption. Outliers might affect the outcome of the study and hence, I am excluding them. Finally, financial institutions are excluded from the sample because they have different accounting rules, and this may result in biased numbers.

Regarding the databases that are used in this thesis, they are all accessed through Wharton Research Data Services, which means that the data can be easily retrieved by others. More precisely, I will use COMPUSTAT North America to collect accounting data, CRSP to gather stock related data and Audit Analytics to collect data with regard to the auditors' characteristics that are going to be used.

**Table 1:** Process of Sample Selection

Data concerns US listed firms for the years 2010-2016, for firms with available data for the whole research period in any database in regard.

Total firms' years from Audit fees for the years 2010 to 2016	(1)	76,150
Total firms' years from COMPUSTAT for the years 2010 to 2016	(2)	54,437
Merging (1) and (2) =	(3)	<u>50,256</u>
Monthly observations from CRSP for the years 2010 to 2016	(4)	584,055
Merging (3) and (4) = <i>[monthly observations]</i>		<u>351,081</u>
After the processing of the sample we have # firms' years		37,777
Removing based on industry		(9,333)
<b>For Model 1:</b>		
Removing because of missing data and outliers		(11,889)
Final sample for testing the Hypotheses		<u><b>16,555</b></u>
<b>For Model 2:</b>		
Removing because of missing data and outliers		(11,706)
Final sample for testing the Hypotheses		<u><b>16,738</b></u>

## 4. Empirical Results and Analysis

In this chapter, I will present the results of the study. In paragraph 4.1, the main assumptions of the regression analyses will be presented and tested. After checking the OLS regression assumptions that will be mentioned below, I will present and comment on the descriptive statistics of the research variables and the Pearson and Spearman correlations matrix. The chapter continues with the results of the study, which will be presented and commented. Afterwards, I am comparing the results with prior research, discussing how they are related with my hypotheses, while last chapter contains a summary of my analysis, the contribution of my study to the existing literature and the answer to my research question.

### 4.1 Regression Assumptions testing

According to Field (2009), before the run of a regression analysis, some statistical assumptions with regard to the data population have to be met. The population data must be free of outliers, have no perfect multicollinearity and also be homoscedastic. Following that, the presence of autocorrelation needs to be checked, as well as the normality of residuals.

As stated in section 3.4, I eliminated the upper and lower 1% of the continuous variables in order to obtain distribution closest to normal.

With regard to the presence of multicollinearity, variance inflation factor (VIF) is a useful measure of the degree of multicollinearity in a model. VIF gives us a clear image of how much a variable is contributing to the standard error in the regression. The general rule of thumb is that VIF exceeding 4 warrants further investigation, while VIF exceeding 10 are signs of serious multicollinearity requiring correction<sup>1</sup>. Condition number (or condition indices) is as well a measure of the existence and scale of multicollinearity in a model. Condition number derived by the eigenvalues and the eigen vector, which are part of the principal component analysis<sup>2</sup>. Conventionally, condition number greater than 50 (30 for in a more conservative approach) indicates significant multicollinearity.

Table 4 presents collinearity diagnostics for Model 1. The initial condition number is 55.67, indicating the presence of significant multicollinearity. After mean-

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<sup>1</sup>[https://cran.r-project.org/web/packages/olsrr/vignettes/regression\\_diagnostics.html](https://cran.r-project.org/web/packages/olsrr/vignettes/regression_diagnostics.html)

<sup>2</sup><http://sites.stat.psu.edu/~ajw13/SpecialTopics/multicollinearity.pdf>

centering, the new condition number is 4.14, which is within the accepted range. The mean-centering is the process of subtraction the mean value of the X variable by its value. Algebraically mean-centering can be seen as a transformation:

$$X_c = X - 1\bar{x}' \quad (9)$$

Where  $\bar{x}$ , is the vector of column averages. From a geometric point of view, data-centering is just a translation or repositioning of the coordinate system. In other words, the mean-centering procedure corresponds to moving the origin of the coordinate system to coincide with the average point<sup>3</sup>.

**Table 2:** Collinearity Diagnostics for Model 1

Data before mean-centering		Data after mean-centering	
Mean VIF	: 2.22	Mean VIF	: 2.22
Condition Number	: 55.67	Condition Number	: 4.14

Respectively, table 5 presents collinearity diagnostics for Model 2. Again, we can see that the condition number is reducing by 60.29 to 6.64 after the mean-centering.

**Table 3:** Collinearity Diagnostics for Model 2

Data before mean-centering		Data after mean-centering	
Mean VIF	: 4.30	Mean VIF	: 4.30
Condition Number	: 60.29	Condition Number	: 6.64

As already mentioned, there needs to be homogeneity of variances. This assumption can be tested by Levene's test of homogeneity variance<sup>4</sup>, which shows whether there is homogeneity. Let  $X_{ij}$  be the  $j^{th}$  observation of X for the  $i^{th}$  group. Let  $Z_{ij} = |X_{ij} - \bar{X}_i|$ , where  $\bar{X}_i$  is the mean of X in the  $i^{th}$  group. Levene's test statistic  $W_0$  is:

$$W_0 = \frac{\sum_i n_i (\bar{Z}_i - \bar{Z})^2 / (g - 1)}{\sum_i \sum_j (\bar{Z}_{ij} - \bar{Z}_i)^2 / \sum_i (n_i - 1)} \quad (10)$$

<sup>3</sup><http://www.gastonsanchez.com/visually-enforced/how-to/2014/01/15/Center-data-in-R/>

<sup>4</sup> Levene, Howard (1960). "Robust tests for equality of variances". In Ingram Olkin; Harold Hotelling; et al. *Contributions to Probability and Statistics: Essays in Honour of Harold Hotelling*. Stanford University Press. pp. 278–292.

where  $n_i$  is the number of observation in group  $i$  and  $g$  is the number of groups.

Brown and Forsythe<sup>5</sup> have proposed two other statistics that replace the mean in Levene's formula with alternative location estimators. The first alternative ( $W_{50}$ ) replaces the mean ( $\bar{X}_i$ ) with the median of  $X_{ij}$ . The second alternative replaces the mean ( $\bar{X}_i$ ) with the 10% trimmed mean ( $W_{10}$ ) for group  $i$ . These reformulations of Levene's test were demonstrated to be more robust than Levene's test when dealing with skewed populations.

In case the variance of each predictor is constant and Levene's test is insignificant (Levene's statistics have  $p\text{-value} > 0.05$ ) variance can be deemed equal and homoscedastic. As we can observe in table 8, all variables examined fall under this requirement. Table 9 reflects the results of variance-comparison tests for Model 2 and shows that all variables of Model 2 fall under this requirement. Hence, I can assume that there is homogeneity of variances for Model 2.

**Table 4:** Variance-comparison tests for Model 1

The table presents different variance-comparison tests for Model 1. Specifically, the  $W_0$  Levene's test statistic, based on the mean of  $X$  in the  $i^{th}$  group. The  $W_{50}$  and  $W_{10}$  statistics proposed by the Brown and Forsythe, where the mean is being replaced by the median and the 10% trimmed mean respectively. The analysis is based in two groups, with 1, 16553 degrees of freedom (df). All variables are as defined in the ANNEX A - Variables.

		Test's statistic	df1	df2 <sup>6</sup>	P-value
EPS	$W_0$	0.10	1	16553	0.75
	$W_{50}$	0.02	1	16553	0.89
	$W_{10}$	0.02	1	16553	0.90
R	$W_0$	3.61	1	16553	0.06
	$W_{50}$	3.43	1	16553	0.06
	$W_{10}$	3.59	1	16553	0.06
AF	$W_0$	0.59	1	16553	0.44
	$W_{50}$	0.71	1	16553	0.40
	$W_{10}$	0.59	1	16553	0.44
LEV	$W_0$	0.16	1	16553	0.69
	$W_{50}$	0.44	1	16553	0.51
	$W_{10}$	0.16	1	16553	0.69
SIZE	$W_0$	0.29	1	16553	0.59
	$W_{50}$	0.40	1	16553	0.53

<sup>5</sup> Brown, M., & Forsythe, A. (1974). Robust Tests for the Equality of Variances. *Journal of the American Statistical Association*, 69(346), 364-367.

<sup>6</sup>  $df_2$  = no. of observations – no. of groups

	$W_{10}$	0.29	1	16553	0.59
	$W_0$	0.01	1	16553	0.92
ROA	$W_{50}$	0.00	1	16553	0.95
	$W_{10}$	0.07	1	16553	0.79

**Table 5:** Variance-comparison tests for Model 2

The table presents different variance-comparison tests for Model 1. Specifically, the  $W_0$  Levene's test statistic, based on the mean of X in the  $i^{th}$  group. The  $W_{50}$  and  $W_{10}$  statistics proposed by the Brown and Forsythe, where the mean is being replaced by the median and the 10% trimmed mean respectively. The analysis is based in two groups, with 1, 16736 degrees of freedom (df). All variables are as defined in the ANNEX A - Variables.

		Test's statistic	df1	df2 <sup>7</sup>	P-value
ACC	$W_0$	0.10	1	16736	0.75
	$W_{50}$	0.12	1	16736	0.73
	$W_{10}$	0.11	1	16736	0.74
CFO	$W_0$	1.86	1	16736	0.17
	$W_{50}$	1.07	1	16736	0.30
	$W_{10}$	1.91	1	16736	0.17
AF	$W_0$	0.00	1	16736	0.99
	$W_{50}$	0.00	1	16736	0.99
	$W_{10}$	0.00	1	16736	0.99
LEV	$W_0$	0.04	1	16736	0.84
	$W_{50}$	0.21	1	16736	0.65
	$W_{10}$	0.04	1	16736	0.85
SIZE	$W_0$	0.91	1	16736	0.34
	$W_{50}$	1.14	1	16736	0.29
	$W_{10}$	0.91	1	16736	0.34
ROA	$W_0$	0.01	1	16736	0.92
	$W_{50}$	0.01	1	16736	0.91
	$W_{10}$	0.01	1	16736	0.92

As noted, another assumption which needs to be taken into account is the presence of autocorrelation. In order to diminish the effects of a possible correlation between the error terms of different observations, I am adding "robust" to each of both regression models. Hereby, the potential influence of autocorrelation is overcome.

Not least importantly, the normality of residuals must be tested. To check whether the residuals are normally distributed, a Shapiro-Wilk test is performed for

<sup>7</sup>  $df_2 = \text{no. of observations} - \text{no. of groups}$

both regression models. Due to the fact that the probability values for both models are 0.0000, it can be argued that the null hypothesis, which is that distribution of the residuals is normal, cannot be rejected. Hence, it can be concluded that the residuals are normally distributed in both models.

#### **4.2 Descriptive statistics**

In table 2, I present the descriptive statistics of the research variables of equation (7). Specifically mean, standard deviation, minimum, 25<sup>th</sup> percentile, median, 75<sup>th</sup> percentile, maximum, skewness and kurtosis are given.

To begin with, the mean of the variable EPS, which is calculated by dividing the firms' earnings per share by the share price at the beginning of the year, is negative (-0.01), while the median is positive (0.04). Also, the 25<sup>th</sup> percentile is zero. This suggests that although about three quarters of U.S. listed firms have positive earnings, there is a considerable number of firms experiencing significant losses. Turning to the independent variables of model 1, it is worth noting that the firms with negative stock rates of return barely outnumber those with positive, which means that U.S. listed companies with annual losses are slightly more in sum than those that make annual profits. Compared to other studies using this conservatism measure (Goh and Li, 2011), the mean value for R is slightly lower, which is possibly resulted from the different sample periods used. However, as can be seen, returns are on average positive (mean=0.02). With respect to the control variables of model 1, the average firm of the sample used had 40% leverage and a 0% return on assets ratio. In comparison with other studies (Lee et al. 2014, LaFond & Watts, 2008), it seems that firms have become less leveraged during the post-crisis period, reflecting the fact that the risk of companies' failure has been decreased during these years. Also, the increase of ROA indicates that firms function more efficiently after the crisis. Finally, the average firm size (mean=6.85) has decreased compared to prior studies (Ahmed et al, 2002).

With regard to the descriptive statistics related to the distribution of data such as skewness and kurtosis, we observe that AF, R and LEV show positive (right) asymmetry since skewness is positive and mean is higher than median. However, we can notice that dependent variable EPS shows negative asymmetry, as the values of skewness are below zero and mean is lower than median. In order to have symmetrical distribution skewness, these values had to be close to zero or ideally exactly zero. The values for skewness and kurtosis between -2 and +2 are considered acceptable in



order to prove normal univariate distribution (George & Mallery, 2010) This requirement stands for most of the variables which tend to take skewness values close to zero, while EPS and ROA are highly skewed.

Moreover, it is observed that kurtosis is more than 3 (>3) for EPS, R and ROA. As a result, their distribution is leptokurtic. Leptokurtic distribution produces less extreme outliers than a normal distribution and tends to have less major fluctuations than do variables with platykurtic or normal distribution. Nevertheless, it is worth noting that variables AF, LEV and SIZE tend to follow the normal distribution, since their skewness (0.01, 0.47 and -0.01 respectively) and kurtosis (2.63, 2.99 and 2.38 respectively) values are close to zero and three respectively. It is worth mentioning again that in order to obtain distribution closest to normal, the variable AF is the natural logarithm of audit fees paid by the company, whereas SIZE is calculated using the natural logarithm of the firms' total assets.

**Table 6:** Descriptive statistics for Model 1

This table reports the descriptive statistics of the main variables used in my analysis for Model 1. Data concerns US listed firms for the years 2010-2016, for firms with available data for the whole research period in any database in regard. Specifically mean, standard deviation, minimum, 25th percentile, median 75th percentile, maximum, skewness and kurtosis are given. Variables definition: EPS is the earnings per share before extraordinary items and discontinued operations divided by share price at the beginning of the fiscal year t, R is the stock rate of return of the firm, measured by compounding 12 monthly stock returns ending the last day of fiscal year t, AF is the audit fees paid by the company, LEV is the sum of long-term debt and current liabilities deflated by total assets at the end of the fiscal year t, SIZE is the logarithm of Total Assets at the end of the fiscal year t, ROA is the ratio of net income to total assets at the end of fiscal year t. All variables are as defined in the ANNEX A - Variables

	Obs	Mean	SD	Min	25%	Median	75%	Max	Skewness	Kurtosis
EPS	16,555	-0.01	0.19	-2.24	0.00	0.04	0.07	0.36	-5.20	44.14
R	16,555	0.02	0.37	-0.78	-0.20	-0.01	0.20	1.67	0.83	4.84
AF	16,555	13.95	1.21	10.92	13.12	13.96	14.77	17.14	0.00	2.63
LEV	16,555	0.40	0.21	0.02	0.24	0.31	0.53	1.14	0.47	2.99
SIZE	16,555	6.85	2.01	2.27	5.40	6.87	8.30	11.55	-0.01	2.38
ROA	16,555	0.00	0.15	-0.85	-0.01	0.03	0.07	0.28	-2.41	10.12

Moving to Model 2, with regard to the descriptive statistics of the research variables of equation (8), it is noticeable that the average firm's accruals are slightly higher to other studies (Goh & Li, 2011). However, more than three quarters of U.S. listed firms still seem to have more non-cash liabilities than non-cash assets. Further on, the mean of operating cash flows is slightly higher, indicating that during the

post-crisis period, firms generate higher cash earnings from their normal operations. As for the rest variables of model 2, which are the same as in model 1, the values of their descriptive statistics do not seem to differ remarkably.

Table 3 shows that CFO and ROA show negative (left) asymmetry, since skewness is negative and significantly different than zero. Moreover, it is worth noting that the primary variables AF, LEV and SIZE tend to have symmetrical distribution skewness, since their corresponding values are close to zero (0.02, 0.48 and 0.00 respectively). The latter variables also tend to follow the normal distribution, since their kurtosis values are lower, but close, to three (2.61, 2.99 and 2.38 respectively). ACC, CFO and ROA, as EPS, R and ROA in Model 1, have a kurtosis above 3, meaning that they are leptokurtic distributed.

**Table 7:** Descriptive statistics for Model 2

This table reports the descriptive statistics of the main variables used in my analysis for Model 2. Data concerns US listed firms for the years 2010-2016, for firms with available data for the whole research period in any database in regard. Specifically mean, standard deviation, minimum, 25<sup>th</sup> percentile, median 75<sup>th</sup> percentile, maximum skewness and kurtosis are given. Variables definition: ACCRUAL is calculated as the net income before extraordinary items minus operating cash flow for period t, CFO is the Operating Cash Flows for period t, AF is the logarithm of the audit fees paid by the company, LEV is the sum of long-term debt and current liabilities deflated by total assets at the end of the fiscal year t, SIZE is the logarithm of Total Assets at the end of the fiscal year t, ROA is the ratio of net income to total assets at the end of fiscal year t. All variables are as defined in the ANNEX A – Variables

	Obs	Mean	SD	Min	25%	Median	75%	Max	Skewness	Kurtosis
ACC	16,738	-0.06	0.09	-0.62	-0.10	-0.05	-0.02	0.29	-0.93	8.03
CFO	16,738	0.07	0.14	-0.85	0.04	0.09	0.14	0.42	-2.13	10.61
AF	16,738	13.95	1.20	11.00	13.12	13.96	14.76	17.14	0.02	2.61
LEV	16,738	0.41	0.21	0.02	0.25	0.39	0.54	1.14	0.48	2.98
SIZE	16,738	6.84	2.01	2.29	5.40	6.86	8.29	11.54	-0.01	2.38
ROA	16,738	0.00	0.15	-0.82	-0.02	0.03	0.07	0.23	-2.38	9.79

### 4.3 Correlation analysis

Following that, the Pearson and Spearman correlation matrix are going to be presented for models 1 and 2, in tables 6 and 7 respectively. Providing an analysis on the correlation coefficients and their significance level, will assist me in forming expectations with respect to the linear relation between the variables of my regression equations.

Pearson correlation (PC) is shown in the lower-left part of the tables. PC is a measure of the linear correlation between two variables. Algebraically PC is calculated by the following formula:

$$r = \frac{N \sum_{i=1}^N x_i y_i - \sum_{i=1}^N (x_i)(y_i)}{\sqrt{[N \sum_{i=1}^N x_i^2 - \sum_{i=1}^N (x_i^2)] [N \sum_{i=1}^N y_i^2 - \sum_{i=1}^N (y_i^2)]}} \quad (11)$$

Where:

- r = Pearson correlation coefficient
- N = number of observations
- $\sum xy$  = sum of the products of paired scores
- $\sum x$  = sum of x scores
- $\sum y$  = sum of y scores
- $\sum x^2$  = sum of squared x scores
- $\sum y^2$  = sum of squared y score

Spearman rank correlation coefficient (SRCC or  $\rho$ ) is shown in the upper-right part of the tables. SRCC is a non-parametric test that is used to measure the degree of association between two variables. The test is the appropriate correlation analysis when the variables are measured on a scale that is at least ordinal. It assesses how well the relationship between two variables can be described using a monotonic function. Algebraically SRCC is calculated by the following formula:

$$\rho = 1 - \frac{6 \sum_{i=1}^N d_i^2}{N(N^2 - 1)} \quad (12)$$

Where:

- $\rho$  = Spearman rank correlation
- $d_i$  = the difference between the ranks of corresponding variables
- N = number of observations

Looking at table 6, it is noticeable that EPS, which is the dependent variable of model 1 and reflects the earnings per share divided by the share price, is positively and significantly correlated with the stock rate of returns. This suggests that net income includes some information regarding stock returns. Also, the significance of the correlation results from the fact that they are part of Basu's (1997) measure of con-

servatism. Moreover, there is a significant and positive correlation between earnings and audit fees, which indicates that firms with higher earnings also pay higher audit fees. The positive and significant correlation between earnings and firms' total assets, as well as the one between earnings and returns on assets ratio seem logic. Firms with a big amount of total assets, which at the same time perform well in making a profit from the capital they have invested in fixed assets, are expected to have higher earnings. As can be seen, earnings have a negative and significant PC with leverage, but a very low positive SRCC. This also seems logic, since firms which use an excessive amount of debt to buy assets are considered riskier from a financial perspective and as a result, their earnings are expected to be lower.

Other than that, it is worth mentioning that stock market returns are positively and significantly correlated with audit fees and size, indicating that firms with a higher level of returns tend to own more assets, as well as they require more time and effort to be audited and thus, audit fees are increased. Nevertheless, the correlation coefficients between these variables are relatively small. Last, table 6 shows that firms with high returns on assets ratio and consequently, more productive and efficient, tend to have increased returns.

With regard to audit fees, they are positively and significantly correlated with leverage, firms' size and returns on assets. These positive correlations seem logic, since it is plausible that the more assets a firm owns, the more effort and time it requires to be audited. Also, increased audit fees could possibly result from the level of firms' financial risk.

Finally, as can be seen, the biggest firms from an assets perspective tend to have higher leverage, which indicates that firms with a high level of total assets are more likely to use a higher amount of debt in order to purchase them.

**Table 8:** Correlation Matrix for Model 1

The table shows the correlation among the key variables (as defined in ANNEX A – Variables) used in the empirical analyses. Pearson and Spearman correlations are found, respectively, above and below the diagonal. Data concerns US listed firms for the years 2010-2016, for firms with available data for the whole research period in any database in regard.

	EPS	R	AF	LEV	SIZE	ROA
EPS	1	0.33 ***	0.20 ***	0.02 **	0.32 ***	0.78 ***
R	0.18 ***	1	0.10 ***	0.02 ***	0.12 ***	0.28 ***
AF	0.17 ***	0.06 ***	1	0.35 ***	0.85 ***	0.21 ***
LEV	-0.07 ***	0.01	0.31 ***	1	0.34 ***	-0.08 ***
SIZE	0.25 ***	0.07 ***	0.85 ***	0.29 ***	1	0.29 ***
ROA	0.60 ***	0.22 ***	0.26 ***	0.01	0.38 ***	1

\*\*\* Significant at the 0.01 level; \*\* at the 0.05 level; \* at the 0.10 level. Significance levels are based on two-tailed test.

Moving to correlation matrix for Model 2 (table 7), the level of accruals is shown to be negatively correlated with the level of operating cash flows. Although the correlation is significant, which follows from the fact that they are both part of Ball and Shivakumar's (2005) measure of conservatism, the corresponding coefficient is relatively small. Also, it is noticeable that accruals are positively and significantly correlated with the level of the audit fees paid by the firm, as well as with the firms' size. Not least in importance, there is a significant, positive correlation between the level of accruals and the returns on assets ratio, which suggests that firms making profits from the capital they invested in fixed assets tend to have a higher level of accruals.

With respect to the variable CFO, it can be seen that it has positive and significant correlations with all variables AF, LEV, SIZE and ROA. This implies that firms having a higher level of cash generated from their normal operations tend to be bigger, pay more money on audit fees and also be more financially leveraged.

As shown in tables 6 and 7, the correlation between audit fees and firm size, as well as the correlation between operating cash flows and return on assets are the only ones that have a coefficient above 0.5. However, they are still below 0.9 (0.85 and 0.77 respectively) and hence, it can be argued that they do not affect the regression results in a substantial way.

**Table 9:** Correlation Matrix for Model 2

The table shows the correlation among the key variables (as defined in ANNEX A – Variables) used in the empirical analyses. Pearson and Spearman correlations are found, respectively, above and below the diagonal. Data concerns US listed firms for the years 2010-2016, for firms with available data for the whole research period in any database in regard.

	ACC	CFO	AF	LEV	SIZE	ROA
ACC	1	-0.30 ***	0.02 **	-0.08 ***	0.05 ***	0.34 ***
CFO	-0.14 ***	1	0.22 ***	0.01	0.29 ***	0.69 ***
AF	0.02 ***	0.26 ***	1	0.34 ***	0.85 ***	0.21 ***
LEV	-0.09 ***	0.07 ***	0.30 ***	1	0.33 ***	-0.09 ***
SIZE	0.06 ***	0.36 ***	0.85 ***	0.28 ***	1	0.29 ***
ROA	0.41 ***	0.77 ***	0.27 ***	-0.01	0.38 ***	1

\*\*\* Significant at the 0.01 level; \*\* at the 0.05 level; \* at the 0.10 level. Significance levels are based on two-tailed test.

#### 4.4 Multivariate analysis

As stated in chapters 2 and 3, I will use two different measures of conditional conservatism in the conduct of the empirical research, so as to enhance the robustness of my findings by taking into consideration multiple possible causes of conservatism. In order to provide a general answer on whether auditors' qualitative characteristics provide a deeper explanation on the association between internal control quality and conditional conservatism, I am first running two baseline regression models without auditors' characteristics variables and their related terms, one for each of my two full regression models. Such models will assist me in assessing the incremental explanatory power of auditors' characteristics in the association between internal control quality and conservatism, once we add the relative variables.

With regard to equation (7), I notice that the results of the baseline regression confirm the fact that financial reporting is generally conservative. This is captured by the positive coefficient of the interaction term DR\*R (0.096,  $p < 0.01$ ), which reflects the asymmetric recognition of economic losses relative to gains. Apart from that, the negative coefficient of the interaction term DR\*R\*MW (-0.488,  $p < 0.01$ ) confirms the finding of Goh and Li (2011) which suggests that firms' internal control quality is positively associated with their level of conservative reporting. More specifically, my results imply that earnings of companies with low internal control quality reflect unex-

pected losses in a less timely manner compared to firms which do not suffer from any material weakness regarding their internal control system.

As far as equation (8) is concerned, it is worth mentioning that after running my baseline regression, the positive coefficient of  $DCFO * CFO$  (0.740,  $p < 0.01$ ) reflects the positive association between accruals and contemporaneous cash flows and hence, also confirms the presence of conservatism in financial reporting. Other than that, the positive association between internal control quality and accounting conservatism is reflected as well, since the coefficient of interaction term  $DCFO * CFO * MW$  is negative (-0.433,  $p < 0.01$ ), indicating that the firms which suffer from material weaknesses within their internal control systems tend to report less conservatively and their accruals can less timely and accurately reflect the future expectations of the negative change of cash flows.

Regarding the possible effect of auditor's characteristics on the association between internal control quality and conservatism, it is noticeable that when I add the auditors' characteristics variables and their related terms in equation (7), the adjusted  $R^2$  of the regression model increases from 37.07% to 37.19%. Similarly, after adding the variables concerning auditors' characteristics in equation (8), the adjusted  $R^2$  of the full regression increases from 72.62% to 72.96%, compared to the one of my baseline regression. Hence, both full regression models of my study confirm the fact that the auditors' qualitative characteristics I have incorporated provide incremental explanatory power to the association between internal control quality and conditional conservatism in general.

In order to provide an answer to my research hypotheses, I am going to interpret the regression results of the full regression models (equations (7) and (8)). First of all, it can be seen that the coefficients of interaction terms  $DR * R$  and  $DCFO * CFO$  are positive (0.161,  $p < 0.01$  and 0.796,  $p < 0.01$  respectively), which once more confirms that firms' financial reporting is generally conservative. More precisely, the positive sign of the beta coefficient when  $DR * R$  is regressed against EPS reflects the fact that bad news is reflected earlier in net income, compared to good news. Apart from that, it is noticeable that the coefficients of interaction terms  $DR * R * MW$  and  $DCFO * CFO * MW$  remain negative (-0.496,  $p < 0.01$  and -0.452,  $p < 0.01$  respectively), the same as in my baseline regression models, which once again reflects the positive association between internal control quality and conditional conservatism.

Following that, I am going to test hypotheses 1, 2 and 3, using the timeliness of earnings to news conservatism measure by Basu (1997), as well as the accrual-based loss recognition conservatism measure by Ball and Shivakumar (2005):

**H<sub>1</sub>:** Audit fees are negatively associated with conditional conservatism.

The first independent variable of interest which is going to be tested is the one that indicates the amount of audit fees which are paid by a company to its auditors (AF) and the interaction terms which contain it. As can be seen from table 11, the coefficient of  $R*AF$  is positive ( $b=0.96$ ), while the one of  $DR*R*AF$  is negative ( $b=-1.95$ ,  $p<0.05$ ). The sign of the latter coefficient implies a negative correlation between audit fees and conservative reporting. More specifically, it indicates that there is less timely bad news reporting and timelier good news reporting after an increase in audit fees. These findings and especially the fact that audit fees are negatively associated with conditional conservatism at a 95% significance level, imply that audit fees are an auditors' characteristic which provides a deeper explanation on the association between internal control quality and conditional conservatism, being negatively associated with the latter. Nevertheless, it is observable that coefficient  $\beta_{11}$  is very close to zero. This means that an increase in the level of conservatism by 1 will be associated with an almost zero, yet significant change in the level of audit fees paid by the firm.

Subsequently, the first hypothesis is going to be tested according to the accrual-based loss recognition conservatism measure by Ball and Shivakumar (2005), so that the acceptance of it will be enhanced. Table 12 shows that audit fees are negatively associated with the level of the firms' accruals, which suggests that when the accruals of a firm increase, its audit fees decrease. Moreover, it is observable that the coefficient of interaction term  $DCFO*CFO*AF$  is negative ( $b=-0.073$ ). This, combined with the fact that it is significant at a 99% level ( $p<0.01$ ) means that increased audit fees result in firms' accruals which can less timely and effectively reflect the future expectation of the negative change of cash flows. More simply, my findings suggest that audit fees are negatively associated with conditional conservatism and provide explanatory power to the positive association between internal control quality and conditional conservatism.

All in all, both models lead to the acceptance of the first hypothesis, which is that audit fees are negatively associated with conditional conservatism, shedding more light in the positive association between the latter and internal control quality.



As I explained in section 3.1, audit fees reflect the effort which is put on an audit by an auditor. It is plausible that the riskier a firm is considered to be, from a material misstatement perspective, the more effort an auditor has to put on the audit procedure. Since, it has been found that firms with a conservative accounting reporting system tend to be free of material misstatements, audit fees were expected to be negatively associated with the level of conditional conservatism applied by the firms and the outcome of the analysis corroborates this assumption.

The multivariate analysis continues with the answer of the second hypothesis, also based on equations (7) and (8):

**H<sub>2</sub>:** Auditor size is negatively associated with conditional conservatism.

Following that, I am going to test the next independent variable of my model and its related terms, which is the one that indicates whether an auditor works for a Big-4 audit firm or not (AS). Looking at table 11, the results for the timeliness of earnings to news conservatism measure show that auditor size is positively associated with earnings per share ( $b=0.43$ ). This suggests that firms which experience an increase in their earnings per share tend to be audited by Big-4 auditors. More precisely, it can be said that the higher the earnings of a firm are, the more probably this specific firm is audited by a Big-4 auditor. Moreover, as can be observed, the coefficient of  $R^*AS$  is positive ( $b=1.55$ ), whereas the corresponding sign of the interaction term  $DR^*R^*AS$  is negative and significant at a 95% level ( $b=-2.3$ ,  $p<0.05$ ). Hence, it can be argued that a Big-4 auditor could more possibly result in a timelier good news reporting and less timely bad news reporting, compared to a non-Big-4 auditor. All in all, the results mentioned above suggest that auditor size is negatively associated with accounting conservatism and therefore I am driven to accept the second hypothesis that auditor size weakens the positive association between internal control quality and accounting conservatism at a 95% significance level.

Other than that, I am going to use the accrual-based loss recognition conservatism measure by Ball and Shivakumar (2005) in order to enhance the reliability of my aforementioned finding. As can be seen in table 12, the association between auditor size and the level of accruals is negative. Thus, it can be argued that a firm audited by a Big-4 auditor would be expected to have lower accruals compared to a firm audited by a non-Big-4 auditor. Also, it is observable that the coefficient of  $CFO^*AS$  is positive

( $b=0.01$ ), while the one of interaction term  $DCFO * CFO * AS$  is negative ( $b=-0.083$ ,  $p<0.05$ ). This latest finding reflects once again that auditor size is negatively associated with accounting conservatism and therefore, it can be implied that the accruals of firms audited by Big-4 auditors can less timely and effectively reflect the future expectation of the negative change of cash flows, compared to firms audited by non-Big-4 auditors. As a result, it can be concluded that auditor size is negatively associated with conditional conservatism and thus, there is more support for the acceptance of the second hypothesis of my study.

Combining the results of tables 11 and 12, there is sufficient evidence to support that auditor size provides explanatory power to the association between internal control quality and conditional conservatism, being negatively associated with the latter. Recalling from section 3.1, Big-N auditors have an extra incentive to protect the reputation both of theirs and their audit firm's one. In order to achieve this, they are keen on providing high quality audits by mitigating earnings management and counteracting any possible bias stemming from the management. Apart from that, it is mentioned that according to IASB, neutrality is a more desirable financial reporting quality compared to conservatism, since it is believed to control for the aforementioned. As a whole, auditor size was expected to be negatively associated with conservatism and the results of both regression models provide reasoning for acceptance of the second hypothesis.

Finally, I am going to test and provide an answer on the third hypothesis of the study:

**H<sub>3</sub>:** Auditor specialization is negatively associated with conditional conservatism.

With respect to table 11, it can be noticed that auditor specialization is positively associated with earnings per share ( $b=0.006$ ). Due to this positive association, it can be argued that a firm with increased earnings per share is possibly audited by an auditor who is highly specialized in the corresponding industry. Furthermore, as can be seen, the coefficients of  $R * ASPEC$  and interaction term  $DR * R * ASPEC$  are both negative ( $b=-0.012$  and  $b=-0.022$  respectively), which implies that highly specialized auditors could result in less conditional conservatism applied by the firms. However, when zooming in on the significance level of both coefficients, it is observable that both coefficients are not significant. Therefore, the regression results for the variable

auditor specialization reflect that there is inconclusive support of the association between auditor specialization and the level of conditional conservatism.

To make a safer conclusion regarding the association between auditor specialization and the level of conservative accounting, it has to be tested using the accrual-based loss recognition conservatism measure (Ball and Shivakumar, 2005) as well. According to table 12, the association between auditor specialization and the level of accruals is positive. This suggests that if a firm is audited by an auditor who is regarded as highly specialized on the industry of his expertise is expected to have higher accruals compared to a firm audited by a non-specialized auditor. Following that, it is worth mentioning that the coefficients of CFO\*ASPEC and DCFO\*CFO\*ASPEC are negative and positive respectively ( $b=-0.005$ ,  $b=0.014$ ), which reflects a positive association between auditor specialization and accounting conservatism. The sign of coefficient contradicts the negative association between auditor specialization and conservatism which was found by model 1. However, similarly to model 1, the coefficient which indicates the association between auditor specialization and the level of conditional conservatism ( $\beta_{19}$ ) is not significant and thus, there is not support for hypothesis 3.

In conclusion, it is noticeable that after using both models, the coefficients of interest are insignificant. Using the timeliness of earnings to news conservatism measure by Basu (1997) results in a negative but insignificant association between auditor specialization and the level of conditional conservatism. On the other hand, examining the association using the accrual-based loss recognition conservatism measure (Ball and Shivakumar, 2005), reflected a positive, but insignificant association as well. Taking that into consideration, there is no support for hypothesis 3 and it can be reasoned that there is neither association between auditor specialization and the level of conditional conservatism applied by the firms.

In section 3.2, it is described that there are several control variables that should be included in the regressions executed in this study, since they have been found to possibly affect the chosen measures of conservatism. Due to the fact that the asymmetric timeliness measure and accruals measure use different indicators to determine the level of conservatism, it is possible that there are differences in the extent to which the control variables used influence those measures.

To begin with, the findings in both tables 11 and 12 are consistent with prior research regarding the positive association between firms' leverage and the level of conservatism applied by them. Looking at table 11, it can be found that the coefficient of leverage ( $\beta_{23}=0,543$ ) is positive and significant at a 99% significance level ( $p<0.01$ ). Similarly, the results in table 12 ( $\beta_{23}=0,164$ ,  $p<0.01$ ) suggest that more highly leveraged firms apply more conservative accounting techniques. As a consequence, it can be confirmed that leverage is positively associated with conditional conservatism and hence, it explains some of the variance in the outcomes of the conservatism measures used.

Moving to the results regarding the next control variable of my models, it is noticeable that they are also consistent with prior research. In table 11, the coefficient which reflects the association between firms' size, measured by their total assets, and conditional conservatism is negative and significant at a 95% significance level ( $\beta_{27}=-0,017$ ). Similarly, coefficient  $\beta_{27}$  in table 12 ( $\beta_{27}=-0.084$ ,  $p=0.03$ ) reflects the fact that large firms have lower demand for conservatism, confirming the information asymmetry hypothesis discussed by LaFond and Watts (2008).

As far as the extent to which Return on Assets influences the chosen measures of conservatism, the regression results of both conservatism measures show that it is negatively associated with the level of conservative accounting at a 99% significance level ( $\beta_{31}=-0,518$ ,  $p<0.01$  and  $\beta_{31}=-0,943$ ,  $p<0.01$  respectively). These findings confirm the fact that firms with higher ROA ratio, and as a result lower financial risk, have less demand for applying conservative accounting methods.

Finally, with respect to internal control quality and its positive association with the level of conditional conservatism, the regression results are consistent with prior research (Goh & Li, 2011). As having stated from the beginning of this study, the goal of this research is to provide a deeper explanation to the positive association between internal control quality and conditional conservatism. In order to achieve that, internal control quality is included in the regression models as a control variable. Both tables 11 and 12 confirm the aforementioned positive association at a 99% significance level, consistent with the assumption that firms whose financial statements do not include material weaknesses, apply higher level of conservative accounting methods during their constitution.

**Table 10:** Regression results for H1, H2 & H3 using the earnings per share (EPS) and the stock rate of returns ( $R_t$ ) – Model 1

$$EPS_t = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} \quad (1)$$

This table reports the regression results of H1, H2 & H3 using the timeliness of earnings to news conservatism measure in Basu (1997). Column 1 shows the results without the Auditor's characteristics and their related terms. While the Column 2 shows the results with the full spectrum of variables. I controlled for industry fixed effects, using 65 clusters based on two-digits SIC codes. All variables are as defined in the APPENDIX A.

Independent var.	Baseline Regression (1)		Full Regression (2)	
	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.092 ***	29.04	0.090 ***	13.47
DR	0.013 ***	3.47	0.019	1.85
R	-0.001	-0.15	-0.020	-1.01
DR*R	0.096 ***	6.77	0.161 ***	4.75
MW	-0.014	-0.39	-0.011	-0.35
DR*MW	-0.062	-1.51	-0.070	-1.90
R*MW	0.103	1.65	0.092 †	1.61
DR*R*MW	-0.488 ***	-10.07	-0.496 ***	-10.33
AF			0.000 ***	-2.56
DR*AF			0.000	-1.50
R*AF			0.000	0.96
DR*R*AF			0.000 **	-1.95
AS			0.003	0.43
DR*AS			-0.001	-0.12
R*AS			0.035	1.55
DR*R*AS			-0.083 **	-2.30
ASPEC			0.006 **	1.89
DR*ASPEC			-0.010	-1.64
R*ASPEC			-0.012	-0.95
DR*R*ASPEC			-0.022	-0.73
LEV	-0.034 *	-1.92	-0.034 †	-1.93
DR*LEV	0.073 ***	3.32	0.072 ***	3.39
R*LEV	-0.097 **	-2.23	-0.096 **	-2.25
DR*R*LEV	0.555 ***	5.25	0.543 ***	5.32
SIZE	0.007 ***	5.35	0.009 ***	4.39
DR*SIZE	0.001	0.53	0.004	1.15
R*SIZE	0.000	0.05	-0.006	-0.92
DR*R*SIZE	-0.017	-1.13	-0.044 **	-2.10
ROA	0.637 ***	9.38	0.634 ***	9.26
DR*ROA	-0.076	-1.50	-0.079	-1.56
R*ROA	0.291 ***	2.89	0.303 ***	3.15
DR*R*ROA	-0.518 **	-2.60	-0.572 ***	-3.03
Adjusted R2	37.07%		37.19%	
Observations	16,555		16,555	
Industry FE	Yes		Yes	
Clusters	65		65	

\*\*\* Significant at the 0.01 level; \*\* at the 0.05 level; \* at the 0.10 level. Significance levels are based on two-tailed test.

**Table 11:** Regression results for H1, H2 & H3 using the ACCRUAL-based Loss Recognition Measure – Model 2

$$ACC_t = \beta_0 + \beta_1 DCFO_t + \beta_2 CFO_t + \beta_3 DCFO_t * CFO_t + \mu_t \quad (5)$$

This table reports the regression results of H1, H2 & H3 using the ACCRUAL-based Loss recognition measure of conservatism in Ball & Shivakumar (2005). Column 1 shows the results without the Auditor's characteristics and their related terms. While the Column 2 shows the results with the full spectrum of variables. I controlled for industry fixed effects, using 65 clusters based on two-digits SIC codes.

All variables are as defined in the APPENDIX A.

Independent var.	Baseline Regression (1)		Full Regression (2)	
	Coeff.	t-stat	Coeff.	t-stat
Intercept	0.055 ***	65.64	0.057 ***	60.53
DCFO	0.059 ***	6.01	0.063 ***	6.68
CFO	-0.943 ***	-56.14	-0.942 ***	-56.10
DCFO*CFO	0.740 ***	7.02	0.796 ***	7.30
MW	0.013	0.86	0.011	0.71
DCFO*MW	0.039 *	1.99	0.059 *	1.81
CFO*MW	-0.217 **	-2.03	-0.182 *	-1.68
DCFO*CFO*MW	-0.433 ***	-4.04	-0.452 ***	-3.85
AF			-0.003 ***	-3.60
DCFO*AF			-0.019 ***	-3.19
CFO*AF			0.003	0.36
DCFO*CFO*AF			-0.073 ***	-2.15
AS			-0.002 **	-1.91
DCFO*AS			-0.013	-1.41
CFO*AS			0.010	0.83
DCFO*CFO*AS			-0.083 **	-1.82
ASPEC			0.000	0.38
DCFO*ASPEC			0.011	1.29
CFO*ASPEC			-0.013	-1.44
DCFO*CFO*ASPEC			0.033	0.85
LEV	-0.002	-0.98	-0.001	-0.35
DCFO*LEV	-0.041 ***	-3.83	-0.037 ***	-3.68
CFO*LEV	-0.043 **	-2.24	-0.044 **	-2.18
DCFO*CFO*LEV	0.179 ***	4.71	0.164 ***	4.87
SIZE	0.000	-0.75	0.001 **	2.23
DCFO*SIZE	0.003	0.99	0.014 **	2.66
CFO*SIZE	0.005 *	1.82	0.003	0.47
DCFO*CFO*SIZE	-0.033	-1.28	-0.084 **	-2.24
ROA	0.816 ***	25.07	0.814 ***	25.13
DCFO*ROA	-0.202 ***	-4.49	-0.215 ***	-4.65
CFO*ROA	1.117 ***	14.13	1.118 ***	14.53
DCFO*CFO*ROA	-0.880 ***	-10.71	-0.943 ***	-10.92
R-squared	72.62%		72.96%	
Observations	16,738		16738	
Industry FE	Yes		Yes	
Clusters	65		65	

\*\*\* Significant at the 0.01 level; \*\* at the 0.05 level; \* at the 0.10 level. Significance levels are based on two-tailed test.

#### **4.5 Summary Empirical Results and Analysis**

In this chapter, the empirical part of this study was presented and analysed. First of all, the descriptive statistics of the variables used in this study were presented and described. The mean values of the variables are used to form an early point of view regarding the dataset and the outcomes of the regression analysis. Also, skewness and kurtosis are also included in the descriptive statistics tables to examine the normality of distribution. Summarily, nearly all continuous variables of the models used tend to be normally distributed, since their values for skewness and kurtosis do not deviate too much from 0 and 3 respectively. Apart from that, the Pearson and Spearman correlation matrix were presented and analysed, as well as.

Following that, the results of both regression models are presented and some important conclusions with respect to the research hypotheses are drawn up. First, for the regression model that uses the asymmetric timeliness conservatism measure (Basu, 1997), the variables audit fees and auditor size are found to be negatively and significantly associated with the level of conditional conservatism. Contrariwise, although the association between auditor specialization and conservatism is found to be negative as well, it is insignificant and hence, no acceptance of the third hypothesis can be supported. Other than that, it has been found that firms applying more conservative accounting techniques are more leveraged, smaller, have a higher return on assets ratio and internal control quality.

The results of the regression analysis using the accrual-based loss recognition conservatism measure (Ball & Shivakumar, 2005) correspond to the results of the first regression analysis. Similarly, firms with higher level of conservatism tend to spend less on audit fees and not be audited by a Big-4 auditor. Nonetheless, the coefficient of the variable reflecting the association between accounting conservatism and auditor specialization is positive, suggesting an opposite association of what was hypothesized. Although insignificant, there is still no ground supporting the third hypothesis. With respect to the control variables used in the second regression model, the results are in line with the foregoing.

Overall, the findings of the research suggest that firms applying more conditional conservative accounting policies pay less audit fees, are not audited by a Big-4 audit firm, have a higher leverage and a lower ROA ratio, are smaller and no material misstatements are found within their financial statements. Also, it is noticeable that

after including the auditors' qualitative characteristics variables, the explanatory power of both regression models is increased and hence, it can be argued that overall, they have shed light in the association between auditors' characteristics and conditional conservatism during the years after the end of the financial crisis, as well as the association between internal control quality and conditional conservatism.



## **5. Conclusion**

### **5.1 Conclusions**

In this study, I focus on the association between specific auditors' qualitative characteristics and conditional conservatism. The reason behind this investigation is to provide an answer about whether auditors' enhanced role, resulted from the current internal control reporting requirements and the updated auditing standards issued by SOX and ISA respectively, combined with the opinions which are opposed to the use of conditional conservatism and have been increasing during the last few years, affect the level of conservatism applied by firms. Apart from that, this thesis aims to inform of the extent to which auditors' qualitative characteristics shed light on the association between internal control quality and conditional conservatism, resulted from the requirements mentioned. My analysis is based on all U.S. public firms for which there is available data on WRDS and begins by running one baseline regression for each of my two basic regression models. The empirical findings confirm the ones of prior research, that financial reporting tends to be conservative in general, as well as that internal control quality is positively associated with conditional conservatism.

In my first hypothesis, I predict that audit fees are negatively associated with accounting conservatism. The reason lies in the fact that the level of audit fees, which is regarded as an indicator of audit effort and audit quality, has been proven to increase in proportion to internal control risk. Prior studies have shown that firms which apply conservative accounting techniques are associated with lower risk from a material misstatement perspective. With regards to my second hypothesis, I predict that auditor size, which is another measure of audit quality, is also negatively associated with the use of conditional accounting conservatism. Apart from SOX and ISA recent standards and requirements, there are also several opinions which are opposed to accounting conservatism. One of them belongs to IASB, which suggests that conservative financial reporting could lead to bias and promotes a neutral accounting approach. I am expecting that an auditor who works for one of the Big-4 audit firms would discourage the preparers of financial statements to use a conservative accounting approach, in order to protect neutrality, the reliability of financial statements, plus the brand name and the reputation of the firm he works for. Finally, I further hypothesize that auditor specialization is negatively associated with conditional con-

servatism as well. An auditor who is regarded as highly specialized has high competence and reputation incentives to perform high quality audits and assure the users of financial statements for their accuracy and reliability.

My empirical findings of equations (7) and (8) verify hypotheses 1 and 2, since the coefficients referred to the association between audit fees and auditor size and accounting conservatism carry negative and significant values for both my full regression models. As far as my third hypothesis is concerned, the results of equation (7) are not sufficient to accept or reject it, as although a positive association between auditor specialization and conservatism is reflected, it is not significant at any case. On the other hand, the results of equation show that the association between auditor specialization and conservatism is neither negative, nor significant. Hence, I am led to reject my third hypothesis. Moreover, the findings of both models 1 and 2 confirm the positive association between firms' internal control quality with conditional conservatism.

In answering the research question, the results of this study suggest that auditors' qualitative characteristics are associated with conditional conservatism. The two of the three auditors' characteristics contributing to audit quality (audit fees, auditor size) are found to be significantly and negatively associated with conditional conservatism. Nonetheless, the association between auditor specialization and conditional conservatism is found to be insignificant.

## **5.2 Contribution, limitations, and suggestion of future research**

This thesis contributes to prior literature by investigating the association between specific auditors' qualitative characteristics and conditional conservatism during the post-crisis period and after a number of internal control reporting requirements and updated auditing standards resulted in the enhancement of auditors' role. Furthermore, it sheds light on the association between internal control quality and accounting conservatism, in order to provide a deeper explanation of it. The results I provide focus on audit fees, auditor size and auditor specialization and establish an explanation of whether and how they are associated with the use of conditional conservatism by firms' management. The results suggest that there is a significant and negative association between auditor size and audit fees and hence, they constitute useful information for the users of financial statements, regarding the determinants and the implications of conditional conservatism.

Apart from that, it is important to mention that this thesis has some limitations. A basic limitation of this study is that a relatively high amount of data was unavailable at least at one of the three databases I used to extract information and thus, several firm-year observations had to be deleted. Another limitation is that only U.S. public firms were included in the sample. Consequently, the results of my research cannot be generalized among non-public listed firms, or firms other than American. As far as the conditional accounting conservatism measures which are used are concerned, it cannot be ensured that the chosen measures fully capture conservatism. This because each measure captures conservatism from another perspective. At last, it is worth noting that the first regression model of the research, which uses the timeliness of earnings to news conservatism measure (Basu, 1997), has considerably lower explanatory power than the second regression model. Thus, it can be argued that, in the first model, there are other factors which affect the level of conditional conservatism but have not been captured.

This thesis provides some leads for further research. In this study, the association between auditors' qualitative characteristics and internal control quality with conditional conservatism has been investigated, during the period 2010-2016. Consequently, the contribution of this thesis has to do with the post-crisis period. Also, 2010 was the year, after which, conditional conservatism and asymmetric prudence were excluded from the conceptual framework of IASB and FASB. A suggestion for future research would might be the execution of the same research for periods before and during the financial crisis, so as to provide an overview about whether the association between conditional conservatism and auditors' qualitative characteristics changed over time. Another suggestion for future research would be the investigation of all non-listed firms in U.S. Although Basu's (1997) model is not appropriate for those firms, the model of Ball and Shivakumar (2005) could be used. Furthermore, the firms of other continents could be investigated as well (for example Europe), and provide a comparison between them. At last, as commented, the model of Basu (1997) has relatively low explanatory power, especially compared to the model of Ball and Shivakumar (2005). Hence, it would be interesting to use different measures of conditional conservatism in order to provide an explanation about whether the low explanatory power is resulted from the fact that Basu's (1997) conservatism measure fails to capture conditional conservatism.

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## ANNEX A – Variables

<b>By COMPUSTAT</b>	:	
Datadate	:	Data Date
Fyear	:	Data Year - Fiscal
Tic	:	Ticker Symbol
Cusip	:	CUSIP
Conm	:	Company Name
fyr	:	Fiscal Year-end Month
at	:	Assets - Total
dltt	:	Long-Term Debt - Total
epsfx	:	Earnings Per Share (Diluted) - Excluding Extraordinary Items
ib	:	Income Before Extraordinary Items
lct	:	Current Liabilities - Total
ni	:	Net Income (Loss)
mkvalt	:	Market Value - Total - Fiscal
au	:	Auditor
auop	:	Auditor Opinion
fycr	:	Current Fiscal Year End Month
MW	:	Material Weakness, 0 no weakness
cik	:	CIK code
<b>By AUDITFEE</b>	:	
auditor_fkey	:	Auditors fkey code
fiscal_year	:	Fiscal year
fiscal_year_ended	:	Fiscal year ended month
audit_fees	:	Audit fees amount in USD
auditor_name	:	Auditor name
company_fkey	:	Audited firm fkey code
best_edgar_ticker	:	Ticker
name	:	Audited firmname
fiscal_je	:	Fiscal year
<b>By CRSP</b>	:	
permno	:	PERMNO code
date	:	Names date
exchcd	:	Exchange code
siccd	:	Standard Industrial Classification Code
ncusip	:	Historic CUSIP code
ticker	:	Ticker symbol
comnam	:	Firmname
cusip	:	CUSIP Header
hsicmg	:	Header SIC Major Group
facpr	:	Factor to Adjust Price
prc	:	Price or Bid/Ask Average
ret	:	Returns
retx	:	Returns without Dividends
vwretx	:	Value-Weighted Return-excl. dividends
ewretx	:	Equal-Weighted Return-excl. dividends
<b>Created for the analysis</b>	:	
ACC	:	Accruals calculated as the net income before extraordinary items minus operating cash flow for period t
AF	:	The logarithm of audit fees paid by the company
AS	:	Dummy variable that equals 1 if the auditor works for a BIG-4 audit firm and 0 otherwise
ASPEC	:	Dummy variable that equals 1 if auditor's market share is above 15% and 0 otherwise
CFOt	:	Operating Cash Flows for period t



DCF <sub>Ot</sub>	: Dummy variable which equals 1 if CF <sub>Ot</sub> is less than zero and 0 otherwise
DR <sub>t</sub>	: Dummy variable that equals 1 if R <sub>t</sub> is smaller than zero and 0 otherwise
LEV	: Sum of long-term debt and current liabilities deflated by total assets at the end of the fiscal year t
MW	: Dummy variable that equals 1 if the firm has at least one material weakness in internal controls, and 0 otherwise
EPSt	: Earnings per share before extraordinary items and discontinued operations divided by share price at the beginning of the fiscal year t
ROA	: The ratio of net income to Total Assets at the end of fiscal year t
R <sub>t</sub>	: Stock rate of return of the firm, measured by compounding 12 monthly stock returns ending the last day of fiscal year t
SIZE	: The logarithm of Total Assets at the end of the fiscal year t