THE AUDIT COMMITTEES AND EARNINGS QUALITY IN EUROPE

ABSTRACT

The attention and concern regarding corporate governance structures' effectiveness, particularly concerning audit committees' effectiveness, in safeguarding the interests of investors has been growing.

Prior literature has focused on the analysis of some characteristics of audit committees in improving earnings quality. Notwithstanding the various studies addressing this analysis the results are mixed.

This study focuses on the analysis of the relation between the number, independence and expertise of audit committee members and the number of meetings held and earnings quality for European companies. Earnings quality is proxied by a modified Jones (1991) model. The results show evidence of a positive relation between the proportion of independent members of the audit committee, the number of members and the number of meetings held, and earnings quality. However the study does not provide any evidence of a positive relation between the existence of more than one expert member and earnings quality. Our conclusions suggest that more independent and bigger committees and that hold more meetings are more effective in constraining earning management practices.

This study contributes to previous literature by studying European companies, measuring some characteristics of the audit committee differently and analysing whether the level of investor protection influences the relation between the characteristics and earnings quality.

Keywords: audit committee, corporate governance, earnings quality.

1. INTRODUCTION

Because of some financial scandals (WorldCom e Enron) the role of the audit committees to assure the quality of the financial report has been under a considerable scrutiny (Lin, Li & Yang, 2006). The concern of regulators and supervisors has increased the debates about the performance of the audit committees and the issuance of several recommendations, such as the audit reform in Europe in 2014, demanding that the majority of the members of the audit committee to be independent.

Due to the importance of the audit committee there are several studies that analysis the relation between the audit committee characteristics and the quality of the financial information, as well several characteristics are analyzed as determinants of the efficacy of the audit committee. Some studies have found evidence that the independence of the members of the audit committee is fundamental in assurance the efficacy of the audit committee (Klein, 2002a; Kent, Routledgea & Stewart, 2010; De Vlaminck & Sarens, 2015), however there are studies that have not found any evidence of the relation between the independence of the audit committee and the earnings quality (Piot & Janin, 2007; Baxter & Cotter, 2009; García, Barbadillo & Pérez, 2012).

Beyond the independence of the members of the audit committee their expertise has been also studied with mixed results, for example Baxter and Cotter (2009) and Habbash, Sindezingue and Salama (2013) have found a positive relation with earning quality but Ghosh, Marra and Moon (2010) and Sun, Lan and Liu (2014) have not found any relation with earnings quality.

The size of the audit committee has been also studied and the results are also mixed, since some studies have found evidence of a positive relation between the size of the audit committee and its efficacy in supervision of the financial report (Lin et al. (2006); García et al, 2012) other studies however have not found any relation (Sun et al., 2014; De Vlaminck & Sarens, 2015).

To measure the level of activity of the audit committee we use the number of meeting of the audit committee and Karamanou and Vafeas (2005 and García et al. (2012) have found evidence that the more its frequency the greater the quality of supervision of the audit committee, which is not the case of the studies of Lin & Hwang (2010) and Habbash et al. (2013).

Whereby the mixed results of the relation between the characteristics of the audit committee and the quality of its supervision, the operationalization can be different and the study of mainly the United States (US) companies, the objective of this study is to analyze the influence of the characteristics of the audit committee on the earnings quality of European companies. More specifically we analyze the influence of the independence and expertise of the members of the audit committees, the size and annual numbers of meetings in the earnings quality, and whether the legal level of the investor protection influences that relation.

This study contributes to the prior literature of corporate governance due to study Europeans companies, and as it is well known that there are institutional factors specific of each country that influences the financial report (Nobes, 1998; Gray & Radebaugh, 2002). On other hand the study measures some variables differently, namely the expertise of the members of the audit committee. Another contribution is the use of the institutional factors of the countries to control and analyse whether the legal level of investor protection influences the relation between the characteristics of the audit committee and the earnings quality. The results of the study can also be a contribution to the supervisors and regulators mostly for the European ones.

The samples include 117 European listed companies on the Stoxx 600 Index for the period 2014 to 2016. The earnings quality is measured through the earnings management, more specifically by using the Jones (1991) model modified by Kothari et al. (2005) and it is analyzed the influence of the characteristics of the audit committee, such as the independence and expertise of its members, its size and annual number of meetings.

We have found evidences for the European companies that the independence of the audit committee, its size and the number of annual meetings increases the earnings quality, leading us to conclude that the supervision of the audit committee is more efficacious. However, you have not found any evidence that the expertise of the members of the audit committees and the legal level of the investor protection influence the earnings quality, being not possible to conclude that the more is the knowledge in accounting and auditing of the members of the audit committee the greater is the capacity of the audit committee to supervise the financial report and one reason may be the fact that is already required by the European legislation to have a member with those

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acquirements. The non-influence of the investor protection on earnings quality may be because this could be already incorporated in the characteristics of the audit committee.

The reminder of this paper is organized as it follows. In the Section two we present the literature review and the hypotheses of the study. The third section presents the methodology (samples and research design). In the fourth section, we present the results, as well as their interpretation and discussion. The fifth section presents the conclusions.

2. LITERATURE REVIEW
2.1 AUDIT COMMITTEES
2.1.1 CORPORATE GOVERNANCE

The listed companies are characterized by the separation between the management and the ownership, leading to agency problems, in virtue of conflict between the investors and the managers of the company (Jensen & Meckling, 1976). That is why there is among other control mechanism, the corporate governance that permits the supervision of the management, decreasing the agency costs and promoting the alignment of their interest with the investors ones (Lin & Hwang, 2010). Acording to García et al. (2012) the importance of the corporate governance has been increasing and mainly because of: (a) changing on the corporate governance provoked by globalization, competitiveness, new technologies, and environment and social preoccupations; (b) the financial scandals that have led companies to bankruptcy. Gramling et al. (2004) refers that the mechanisms of corporate governance include the corporate board, the audit committee and the external and internal auditing. The preoccupation on the quality of the financial information disclosed has increased as a consequence of the financial scandal, increasing the attention to the structures of the corporate governance, mainly to the performance of the audit committee (Lin et al, 2006).

Concerning the financial report the function of the corporate governance mechanisms are related with the assurance of conformity to the financial accounting standards and with safeguard of reliability and credibility of the financial statement (Inaam & Khamoussi, 2016). The monitoring and supervision of the processes of the financial reporting is delegated by the corporate committee to the audit committee, being this body the one that is more able to assure to investors the reliability of the financial

statements since it is specifically created for this (Davidson et al., 2005). The audit committees have meeting with the external auditor and the CFO, analyzes the financial statements, the audit process and the internal control (Klein, 2002a). The efficacy of the audit committee contributes to assure the quality of audit process, by supervising and controlling the main accounting policies and having meetings with the auditors contributes to the report of the misstatements (Piot & Janin, 2007). The audit committees also helps the auditors to be independent (McMullen, 1996).

It is important to realize which components of the audit committee that contributes to its efficacy. DeZoort, Hermanson, Archambeault & Reed (2002) have identified four determinants of the efficacy of the audit committees, three of entry, that are the composition, authority and resources, and one of process, that is the diligence. The composition of the audit committees includes the Independence and expertise of its members. The authority is due to the responsibilities and influence of the audit committee. It is considered as the necessary resources to access to management, to auditors and to an appropriate number of members. Furthermore it is necessary that the members to act in a diligent way for being efficacy, namely through meetings.

2.1.2 LEGAL BACKGROUND

The procedure of the European Commission has been focusing more and more on corporate governance, evidencing the current preoccupation regarding the quality of information given by companies. The concern of the European Commission has been revealed in the issuance of a set of plans, recommendations and directives which include corporate governance mechanisms (International Finance Corporation, 2015). Since the year 2006 listed companies are forced to include in their annual reports a report of corporate government, which must include the disclosure of the main practice and the adopted structure, to which is applied the principle of comply of explain. As such, the companies, referencing the national corporate governance code adopted, must indicate and explain eventual non adopted recommendations.

The most recent European legislation that impacts the functioning of the audit committees in the European scope consubstantiates on Directive 2014/56/UE of the European parliament and council, of the 16 of April 2014 (there after referred to as the 2014 Directive) which changes Directive 2006/43/CE, of the European parliament and

council, from the 17 of May 2006, concerning the audit of the individual and consolidated financial statements, Regulation (UE) no. 537/2014, of the European parliament and council, of the 16 of April 2014, which defines the specific requirements regarding the legal audit of annual and consolidated account of public interest entities (there after referred to as the Regulation of 2014). Besides the revision of the 2006 Directive, the 2014 Directive and the 2014 Regulation include new requirements related with the audit committees and the legal audit of annual and consolidated accounts of the public interest entities, respectively. The estate members will have 2 year to incorporate the 2014 Directive into the national legislation that should be applied for the fiscal years on or after the 17 of June 2016 (Federation of European Accountants, 2014).

Even though being mandatory the existence of audit committees in the public interest entities by the 2006 Directive, the reform of the 2014 Directive and of the 2014 Regulation has changed the role of the audit committees, rising to an important position in the corporate governance mechanisms (Federation of European Accountants, 2016). The new 2014 Directive introduced some specific changes related to the monitoring process carried out by the audit committees their functions being: (1) to inform the corporate board or the supervision council of the results of the legal audit; (2) to monitor the financial reporting process, issuing recommendations; (3) to monitor the internal control mechanisms; (4) to accompany the audit of the individual and consolidated financial statements; (5) to analyze and monitor the independence of the external auditor; and (6) to assume responsibility for the selection process of the entity that will do the external audit (Federation of European Accountants, 2014). By this Directive the responsibility of the selection of the external auditor as well as the inherent process will there for be subjected to actual legal requirements which will increase the objectivity of the same. On the other hand the new Directive will introduce clairvoyance to requirements already contemplated in the previous law in relation to the monitoring of the auditor independence equally introducing some new criteria (Federation of European Accountants, 2016). One of the aspects which reveal itself as a threat to the guarantee of the auditor independence is about the services not related with auditing. From this point of view the 2014 Regulation came to identify a set of non-services related to auditing that cannot be provided by the entity that audits the company. At the same time the Regulation will demand the audit committees the

approval of the provision of services non related to auditing (that are not prohibited) in a way that will allow the committee evaluation guarantee that the provision of such services do not compromise the auditors independence. After being approved the amount related to these services is still limited to 70% of the average fees of the auditing services given in the last 3 years (Federation of European Accountants, 2014).

Also when referring to the composition of the audit committees some new requirements were introduced. Concerning the independence of the members of the audit committee, the 2006 Directive demands that at least one of the members was independent, however the 2014 Directive came to make this requirement stricter, stating that most members should be independent. It is worth referring that the 2006 Directive conceded some flexibility to the Estate Members to decide whether the audit committee should be composed of non executive members or not, however the new 2014 Directive presents this problem as a requirement. As it was already required in the 2006 Directive, at least one of the members should have knowledge of the accounting and/or auditing field. The audit committees must also in general possess knowledge and skills related with the sector in which the entity acts on (Federation of European Accountants, 2016).

2.1.3   CARACTERISTICS OF THE AUDIT COMMITTEES

The efficacy of the audit committees studied through the relation between its characteristics and the earnings quality has been analized manly in US listed companies (Klein, 2002a; Xie, Davidson III & DaDalt, 2003; Abbott, Parker & Peters, 2004; Bedard, Chtourou & Courteau, 2004; Yang & Krishnan, 2005; Vafeas, 2005; DeFond, Hann & Xuesong, 2005; Lin et al., 2006; Ghosh et al., 2010; Sun et al., 2014). The studies regarding European listed companies are scarce, there is the one of Piot e Janin (2007) for France, García et al. (2012) for Spain, Habbash et al. (2013) for United Kingdom (UK) and the one of De Vlaminck e Sarens (2015) for Belgium, but the results are mixed (Inaam & Khamoussi, 2016).

Based on the four determinants of the efficacy of the audit committees by DeZoort, Hermanson, Archambeault & Reed (2002), the objective is to study the independence and expertise of the members of the audit committee (composition), its size (resources) and the number of the annual meetings (diligence).

The independence is frequently understood as a fundamental characteristic to assure the efficacy of the performance of the audit committee in the supervision and control of the process of the financial report disclosure (Baxter & Cotter, 2009). Being more able to resist to the pressure of the management to manage the earnings, the independent members are better to assure an active supervision of the audit committees (Klein, 2002a). The importance of the independence of the audit committee members was considered by the European Commission by requiring that the majority of the audit committee members are independent.

Not being a easy and objective concept to define only the Recommendation 2005/162/CE of the Commission, 15 February 2005, in an European context and concerning the role of the non-executive directors, has defined what a independent member is and member is independent if he/she do not have any relations (commercials, family and others) with the company, the owner that has the control of the company and management bodies, that can create a conflict of interests that may interfere to their ability to judge.

The independence of an audit committee may be determined based in the proportion of the independent members, or if the majority of the members are independent or only when all the members are independent (Bédard & Gendron, 2010).

Klein (2002a) for US listed companies has found evidence that for proportion of independent members or for the majority of independent members increases the earnings quality, however he has not found any evidence for the independence of the audit committee measured by all independent members. Also Davidson et al. (2005) and Kent et al. (2010) reach the same conclusions however for Australian companies. De Vlaminck e Sarens (2015) reach the same conclusions for Belgians listed companies but for the proportion of the independent members. But Bedard et al. (2004) in spite of having find a negative association between the total independence of the audit committee, have found and still for US listed companies no evidence between the majority of independent members and the earnings management. However Vafeas (2005) finds evidence of the opposite and still for US listed companies, that the proportion of independent members decreases the earnings quality, and Xie et al. (2003). Baxter e Cotter (2009) do not find any evidence of that relation for US listed

companies and Australian listed companies, respectively, as well Piot e Janin (2007), García et al. (2012) and Habbash et al. (2013) but for European listed companies.

In spite of having more than one way for measuring the independence of an audit committee, has shown through a review literature that the results suggest that the ideal number of independent members is between 50% and 100%. Because of the mixed results, namely for European countries we define the following first hypothesis (H1):

H1: There is a positive relation between the independence of the audit committee and the earnings quality.

As well the independence of the members of the audit committee their competences is a fundamental characteristic for the efficacy of the audit committee. For the efficacy of the performance of the audit committee is necessary that their members are experts in accounting and auditing and are in a sufficient number (Defond et al., 2005). By the 2014 Directive the audit committees should have at least one member with those competences. However the 2014 Directive does not give any detail to define a member of an audit committee as having competences in accounting and auditing. Just like in Europe in US is required that at least one member of the audit committee has got financial expertise, however it had not been defined leading to different measures in the research studies (Bédard & Gendron, 2010). Initially the Securities Exchange Committee (SEC) defined a financial expert as someone having accounting and financial experience. This definition was quite criticised for being so narrow, and now the definition includes directors with experience in the supervision of other people in financial department (CEO) and in the supervision of other companies (DeFond et al., 2005).

Xie et al. (2003) and for US listed companies has found evidence that the proportion of members with experience corporate or in investment bank decreases earnings management. But, DeFond et al. (2005), have only found evidence of the decrease on the earnings management when the members of the audit committee has got accounting and auditing knowledge and not for the ones that are fitted in the new definition of the SEC. Baxter e Cotter (2009) find no association between the competence of the members of the audit committee in law and the earnings quality. Habbash et al. (2013)

has not found any relation with the competences of the members and earnings quality for UK listed companies. Nelson e Devi (2013) have found evidence that relation but only if the member is an accounting certified. Also Yang e Krishnan (2005) have not found but for US listed companies that the financial competence of the members reduces the earnings management on the interim financial report, just like Lin et al. (2006) but for an aggressive earnings management, Ghosh et al. (2010) for a period before and after Sarbanes-Oxley Act (SOX) and Sun et al. (2014) for a more recent period. Therefore the following hypothesis (H2):

H2: There is a positive relation between the financial expertise of the members of an audit committee and the earnings quality.

The efficacy of the audit committee do not linear depend on the number of its members, therefore if they are too many that may lead to a decrease in the effience of the audit committee as well to a mitigation of the responsibility of each member of the audit committee (Vafeas (2005). In spite of that (Vafeas (2005) have shown for US listed companies that there is a significant and negative relation between the number of members of the audit committee and the earnings management on the interim financial report. Lin et al. (2006) have reached to the same conclusion and also for US listed companies, but for annual financial reporting and measuring the size of the audit committee by the number of its members and by the dichotomy big/small, just like Ghosh et al. (2010) for a different period. García et al. (2012) have concluded the same but for Spanish listed companies. The possible reasons for these results is that the greater the members with financial expertise more is the knowledge of the audit committee and is more likely the detection of earnings management practises.

However Xie et al. (2003), Bédard et al. (2004), Davidson et al. (2005), Habbash et al. (2013), Sun et al. (2014) and De Vlaminck e Sarens (2015) have found no relation between the size of the audit committee and the earnings management as well Vafeas (2005) but for an aggressive earnings management. Thus the third hypothesis is the above:

H3: There is a positive relation between the numbers of the members of the audit committee and the earnings quality.

For the performance of the audit committee to be efficacy is necessary that it is diligent (DeZoort et al., 2002). Since it is not expected that an inactive audit committee leads to an effective monitoring, the number of the audit committee meetings are used as diligence measured (Menon & Williams, 1994). It is expected that a more active audit committee have more meetings and be more efficacy. This positive relation between the number of the meetings and the earnings quality has been found for US listed companies (Xie et al., 2003), for companies of the Fortune 500 (Vafeas, 2005) and for Spanish companies (García et al., 2012), suggesting that a more active audit committee is more efficacies in monitoring the process of financial report. However Yang e Krishnan (2005) have found no relation between the number of the meetings of the audit committee and the earnings management for the interim financial report, as well Lin et al. (2006) but measuring the activity level by the number of meetings and by the dichotomy many/few meetings and the earnings quality by its aggressiveness. Also Davidson et al., 2005 e Baxter e Cotter (2009), but now for Australians listed companies, and Habbash et al. (2013), but for UK listed companies have found no relation between the number of meetings of the audit committee and the earnings quality. That is the reason because Bédard e Gendron (2010) suggest that likely the number of meetings could not be the best indicator of the diligence of an audit committee for being too broad, may leading to a lack of efficacy (Turley & Zaman, 2007). Hence, our fourth hypothesis:

H4: There is a positive relation between the numbers of meetings conducted by the audit committees and the earnings quality.

2.1.4 LEGAL PROTECTION OF INVESTORS

The institutional characteristics of the countries may change the accounting practices (Hofstede, 1980; Gray, 1988; La Porta et al. 1998; Nobes, 1998). La Porta et al. (1998) have characterized the countries by the legal level of investor protection and have shown that countries with common law legal systems are characterized by having strong legal mechanisms to protect investors, while countries with civil legal systems are

characterized for having weaker legal mechanisms to protect investors. Leuz et al. (2003) have found evidence that companies in countries with capital markets develop, spread owners structure and strong investor protection have less tendencies to manage earnings. If the incentives to earnings management are strongly motivated by the conflict between management and majority shareholders and investors, the less likely would be the practice of earnings management the greater is the power of the investors. Other authors have found the same results that in countries with strong investor protection the earnings management is lower than in countries with weak investor protection (Shen & Chih, 2005; Boonlert-U-Thai, 2006; Enomoto, 2015). Thus, our fifth hypothesis:

H5: The impact of the characteristics of the audit committee on the earnings quality is greater in countries characterized for having less investor protection.

3. METHODOLOGY

3.1 SAMPLE

Initially are selected all the companies of the Stoxx® Europe 600 for the period of 2014 to 2016. Then are excluded the financial and utilities companies because of their specific legislation and the companies for which there is not available all the data. By random are selected 120 companies (360 observations) and the outliers are eliminated and the final sample is composed by 340 observations. The sample can be seen in **Erro! A origem da referência não foi encontrada.**. The data is obtained from the Datastream Worldscope Global Database and hand collected directly from the financial reports in the case of the characteristics of the audit committee and cash flow from operations.

Table 1 Definition of the sample

	Companies	Observations	%
Stoxx® Europe 600	600	1,800	100
Observations withdrawn:			
Financial companies	-139	417	-23
Utilities	-27	-81	-5

Data not all available	-16	-48	-3
Sub-total	418	1,254	70
Companies random excluded	-298	-894	-50
Sample random selected	120	360	20
Outliers	-3	-20	-1
Final sample	117	340	19

Table 2 and Table 3 show the sample by sector and by country, respectively.

Table 2 Sample by sector

Sector	Companies	Observations
Mining	10	29
Construction	10	29
Manufacturing	36	106
Transportation and communication	20	58
Retail trade	21	61
Services	20	57
	117	340

Table3 Sample by countries

Country	Companies	Observations	Country	Companies	Observations
Germany	18	53	Ireland	3	8
Belgium	5	15	Italy	3	8
Spain	6	17	Luxembourg	1	3
Finland	4	12	UK	41	119
France	22	65	Sweden	5	15
Netherlands	5	14	Switzerland	4	11

3.2 RESEARCH DESIGN

3.2.1 EARNINGS QUALITY

For measuring the earnings quality we use a proxy to measure earnings management that is the discretionary accruals (Klein, 2002a; Davidson et al., 2005; Piot & Janin,

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2007; Baxter & Cotter, 2009; García et al., 2012; Habbash et al., 2013; De Vlaminck & Sarens, 2015). One model is the original Jones (1991) model and other models are still based on it, but adjusted through redefining or/and introducing new variables because the classical model of Jones (1991) may present estimation errors (Dechow et al., 1995; Kothari et al., 2005; Ball & Shivakumar, 2006). Similar to other studies we use the Jones (1991) model modified by Kothari et al. (2005), adding the return on assets (ROA) or the net income to control the performance of the companies. The Jones (1991) model modified is the below presented:

$$\frac{TACC_{jt}}{A_{j(t-1)}} = \beta1\left(\frac{1}{A_{j(t-1)}}\right) + \beta2\left(\frac{\Delta RND_{jt}}{A_{j(t-1)}}\right) + \beta3\left(\frac{PPE_{jt}}{A_{j(t-1)}}\right) + \beta4\left(ROA_{j(t-1)}\right) + \varepsilon_{jt} \qquad (1)$$

where TACC is total accrual calculated as income before extraordinary items minus cash flow from operations, which means we use a cash flow accruals estimate instead of using balance sheet accruals estimates, leading to fewer errors, as stated by Hribar and Collins (2002); A is total assets; ΔRND is the change in revenues (revenue in period t less revenue in period t-1); PPE is gross property, plant and equipment; and ROA is the return on assets measured by the quotient between the net income and total assets. All the variables are lagged according to total assets, intending to mitigate heteroskedasticity in residuals (White, 1980).

The equation (1) is estimated for each industry (Table 2), using a minimum of 20 observations (mining and construction are grouped since the observations are less than 20). The measure of discretionary accruals is the difference between total accruals and the adjusted values for the accruals in the equation (1) that is the residual of the equation (1). We use the absolute value of the discretionary accruals (ADACC) since the earnings management could be to increase or decrease the net income (Habbash *et al.*, 2013; Liu & Sun, 2010).

3.2.2   CHARACTERISTICS OF THE AUDIT COMMITTEES

For studying the relation between the characteristics of the audit committee and the earnings quality (hypotheses 1 to 4) we estimate the following regression identified as equation (2), connecting the magnitude of the absolute discretionary accruals to the

variables of interest, which are the characteristics of the audit committee and other variables which are control variables:

$$ADACC_{jt} = \alpha + \beta1DIND_{jt} + \beta2EXP_{jt} + \beta3MEMB_{jt} + \beta4MEET_{jt} + \beta5LNA_{jt} + \beta6LEV_{jt} \qquad (2)$$
$$+ \beta7\Delta RND_{jt} + \beta8ROA_{jt} + \beta9LOSS_{jt} + \beta10Y_{jt} + \beta11C_{jt} + \beta12I_{jt} + \varepsilon_{jt}$$

The definitions of the variables of the equation (2) are shown in Table 4.

Table 4 Variables measurement			
Variable name	Variable label	Measurement	Prediction
IND	Independence	Proportion of independent members on the audit committee.	-
EXP	Expertise	1 if the audit committee has one or more members consider as financial experts and 0 otherwise.	-
MEMB	Members	Number of members of the audit committee.	-
MEET	Meetings	Number of annual meetings held by the committee.	-
LNA	Size	Logarithm of total assets.	-
LEV	Leverage	Leverage measured by the quotient of total liabilities and total assets.	+
ΔRND	Change in sales	Difference between the sales of the current and the previous period.	+
ROA	Return on assets	Quotient of net income and total assets.	-
LOSS	Losses	1 if the net income is negative and 0 otherwise.	+

A member of the audit committee is independent if he/she has no relationships (commercials, family and others) with the company, the owner that has the control of

the company and the management body. The data is obtained from the annual financial reports and/or from the corporate governance reports.

Since in the Europe there is not a detailed definition of the competences in accounting and auditing of the members of the audit committee we use the ones defined in US, that is the ones that have experience as CFO, CAO CPA, auditor and CEO. The data is also gathered from the annual financial reports, and/or from the corporate governance reports and from Bloomberg.

A member of the audit committee is considered if he/she has been a member for a period longer than 6 months or has participated in more than half of the annual meetings. The data is obtained from the annual financial reports and/or from the corporate governance reports.

All the other variables included in equation (2) are control variables, known to affect the value of discretionary accruals. The variable LNA is included to control for the client size effect on accruals quality (Klein, 2002a; Bédard et al., 2004; Piot e Janin, 2007), García et al., 2012), because large companies may try to reduce earnings management and so reduce political pressure (Watts & Zimmerman, 1986). The variable LEV (leverage) is included because highly leveraged companies may have stronger incentives to manage earnings (Baxter & Cotter, 2009; García et al., 2012; Klein, 2002b; Lin et al., 2006); Nelson & Devi, 2013). On the other hand, highly leveraged companies could have incentives to decrease earnings management for the purpose of contractual renegotiations (Becker et al. 1998). CHGSALE (changes in sales) and ROE (return of assets) are variables included for the purpose of controlling company growth, i.e., company performance (Aussenegg et al., 2008). Another control variable is used which is LOSS to control cases of bad performance, where it might be higher levels of earnings management (Baxter & Cotter, 2009; García et al., 2012; Lin et al., 2006; Vafeas, 2005). Y, C and I are year, country and industry dummy variables for fixed effects.

3.2.3 INVESTOR PROTECTION

To analyse whether there is any difference in the influence of the characteristics of the audit committees in the earnings quality in the countries with strong or weak investor protection we use the above regression (3):

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$$ADACC_{jt} = \alpha + \beta 1 DIND_{jt} + \beta 2 EXP_{jt} + \beta 3 MEMB_{jt} + \beta 4 REUNB_{jt} + \beta 5 PI_{jt} + \beta 6 DIND_{jt*}$$
$$* PI_{jt} + \beta 7 EXP_{jt} * PI_{jt} + \beta 8 MEMB_{jt} * PI_{jt} + \beta 9 REUNB_{jt} * PI_{jt} + \beta 10 LNA_{jt}$$
$$+ \beta 11 LEV_{jt} + \beta 12 \Delta VND_{jt} + \beta 13 ROA_{jt} + \beta 14 LOSS_{jt} + \beta 15 Y_{jt} + \beta 16 C_{jt}$$
$$+ \beta 17 I_{jt} + \varepsilon_{jt}$$

(3)

Comparing with the equation (2) a new variable is added that is IP, that takes the value 1 if the country is a strong protection one and 0 otherwise. All the other variables added are the interaction of the investor protection with the characteristics of the audit committee. This allows us to infer whether the characteristics continued to influence the earnings quality, even in countries with strong investor protection.

The identification of the level of investor protection is based in the studies of Leuz et al. (2003) and La Porta et al. (1998).

4 RESULTS

4.1 STATISTIC ANALYSIS

In Table 5 are presented the descriptive statistic of the variables of the equation (2) that relates the characteristics of the audit committees and the absolute value of the discretionary accruals. The average of the absolute value discretionary accruals (ADACC) is of approximately 3%, a value slightly lower compared to the one find by Habbash et al. (2013) based on companies of the UK (6,9%) and by Piot and Janin (2007) based on French companies (5,5%). On average 83% of the members of the audit committee are independent, which shows that the generality of companies goes beyond what is required by European legislation (most members should be independent), but some nacional corporate governace codes establish more strict requirements, case of Farnce, in which is required at least two thirds of the members to be independent. In average the committees are composed of four members who meet about five times a year. About 85% of companies have audit committees with at least more then one member considered an financial expert.

Table 5 Descriptive statistics

Panel A: Descriptive statistics for quantitative variables

Variables	N	Average	Median	Standard deviation
Dependent variable				
ADACC	340	0,030	0,023	0,024
Explanatory variables				
IND	340	0,832	1	0,215
MEMB	340	4,074	4	1,104
MEET	340	5,379	5	2,307
Control variables				
LNA	340	9,929	9,868	0,559
LEV	340	0,608	0,598	0,280
ΔRND (€ thousands)	340	143,719	188,506	2.933,313
ROA	340	0,060	0,052	0,059

Panel B: Descriptive statistics for qualitative variables

Variables	N	Frequency 1	Frequency 0
Explanatory variables			
EXP	340	289 (85%)	51 (15%)
Control variables			
LOSS	340	16 (5%)	324 (95%)

4.2 CORRELATIONS ANALYSIS

In Table 6 are shown the **Erro! A origem da referência não foi encontrada.** shows the Pearson correlations below the diagonal and the Spearman correlations above the diagonal. This correlation matrix is to examine whether the multicollinearity is a potential issue. All the correlations are bellow 0.80 and it is not expected any collinearity problem and to reinforce this conclusion we have performed a multicollinearity test as is it shown in Table 5 and all the Variance Inflation Factor (VIF) are below 3 (Judge, Hill, Griffiths, Lutkepohl & Lee, 1988).

<p align="center">Table 6 Pearson and Spearman correlations</p>

	ADACC	IND	EXP	MEMB	MEET
ADACC	1	-0,067	0,009	-0,049	-0,049
IND	-0,038	1	0,063	-0,167***	-0,018
EXP	0,002	0,080	1	-0,042	-0,130**
MEMB	-0,121**	-0,155**	-0,047	1	0,058
MEET	-0,049	0,013	0,019	-0,001	1
LNA	-0,169***	-0,083	0,039	0,261***	0,25***
LEV	0,169***	-0,116**	-0,020	0,029	0,005
ΔRND	0,032	-0,109**	-0,049	0,134**	-0,070
ROA	-0,100	0,033	0,043	0,027	-0,202***
LOSS	0,248***	0,071	0,016	-0,065	0,313***

Table 6 (continued)

	LNA	LEV	ΔVND	ROA	LOSS
ADACC	-0,130**	0,051	-0,001	-0,028	0,208***
IND	-0,095	-0,143***	-0,055	0,043	0,068
EXP	0,029	-0,010	0,024	0,025	0,016
MEMB	0,284***	0,148***	0,16***	-0,012	-0,068
MEET	0,269***	0,148***	0,005	-0,154***	0,127**
LNA	1	0,267***	0,105	-0,512***	0,13**
LEV	0,069	1	0,069	-0,407***	0,074
ΔRND	-0,102	0,050	1	0,056	-0,174***
ROA	-0,452***	-0,25***	0,077	1	-0,367***
LOSS	0,126**	0,057	-0,167***	-0,457***	1

*** significant at a 0,01 level; ** significant at a 0,05 level; * significant at a 0,10 level.

Notes: Pearson correlation coefficients are shown below the diagonal and the Spearman correlation coefficients are shown above the diagonal.

4.3 MULTIVARIATE ANALYSIS

4.3.1 CHARACTERISTICS OF THE AUDIT COMMITTEES

Table 7 shows the results of the regression (3) to test the hypothesis 1 to 4, to verify the relation between the characteristics of the audit committees and the discretionary accruals. The results show a negative and significant relation between the proportion of independent members (IND), the number of members (MEMB) and the number of meetings held (MEET), and the discretionary accruals. We can conclude that the audit committees composed by independent members are the most efficient in reducing the earnings management, which confirms the results of Klein (2002b) for US listed companies and the results of De Vlaminck and Sarens (2015) for Belgian listed companies. The coefficient on IND variable is negative and statistically significant suggesting that the more independent members are in the audit committee more efficient is the audit committee in ensuring the quality of the financial information released by companies. The MEMB variable presents equally a negative and significant coefficient, a result consistent with the ones presented by Ghosh *et al.* (2010) for US listed companies and by García *et al.* (2012) for Spanish listed companies and confirms the expectation of being more probable the detection of practices of earnings management by audit committees composed of more members. Consistent with Vafeas (2005) and García *et al.* (2012) studies based on US and Spanish listed companies respectively, there is a negative and significant relation between the number of meetings held by the audit committees and the discretionary accruals which evidences the more active the audit committee tend to be more efficient.

However the results do not any evidence of a significant relation between a audit committee being composed by more than one member considered an expert (EXP) and the earnings quality. Other studies have failed to find evidence on the relation between the expertise of the audit committee and the earnings quality. Firstly we can see that this is about a hard to measure characteristic coating itself with a component of great subjectivity. Habbash *et al*. (2013) presents a possible justification for the results found which the fact that the members considered experts are frequently the CEO or CFO of other companies. According to the author this might make these not want to question to much the management of companies in which they are members of the audit committee as to not the question good relations, which might compromise the efficiency of their supervision.

Regarding the variables of control only the leverage (LEV) and the dummy variable LOSS, which captures the existence of a negative net income, present a positive and significant relation , as expected, for a significance level at 0,05 and 0,01, respectively, with the discretionary accruals. The remaining variables of control, LNA, ΔVND and ROA, do not present statistically significant coefficients.

Table 7 Results of the characteristics of the audit committee on earnings quality

$$ADACC_{jt} = \alpha + \beta1DIND_{jt} + \beta2EXP_{jt} + \beta3MEMB_{jt} + \beta4MEET_{jt} + \beta5LNA_{jt}$$
$$+ \beta6LEV_{jt} + \beta7\Delta RND_{jt} + \beta8ROA_{jt} + \beta9LOSS_{jt} + \varepsilon_{jt}$$

Variables	Prediction	Coefficient
Intercept		0,086
		$(3,031)^{***}$
Independent variables		
IND	-	-0,028
		$(-3,833)^{***}$
EXP	-	-0,002
		(-0,586)
MEMB	-	-0,003
		$(-1,973)^{**}$
MEET	-	-0,001
		$(-1,878)^{**}$
Control variables		
LNA	-	-0,004
		(-1,277)
LEV	+	0,010
		$(2,166)^{**}$
ΔRND	+	0,000
		(0,739)
ROA	-	-0,024
		(-0,899)
LOSS	+	0,028
		$(4,035)^{***}$

Year dummy	Included
Industry dummy	Included
Country dummy	Included
N	340
Adjusted R²	0,227
F-value	4,685***

*** significant at a 0,01 level; ** significant at a 0,05 level; * significant at a 0,10 level.

Notes: all the variables are defined in Table 4.

4.3.2   INVESTOR PROTECTION

In Table 8 are shown the results of the estimate equation (3) to verify whether the influence of the characteristics of the audit quality on earnings quality is different between countries with strong or weak investor protection, confirming or not the hypothesis 5.

Neither of the coefficients of the interaction variables of characteristics of the audit committee and the investor protection are significant at a 10% level, which lead us to conclude that there is no influence of the investor protection in the characteristics of the audit committee on earnings quality.

However the variable IP (investor protection) is significant and negatively related with discretionary accruals and we conclude that the countries with strong investor protection manage more earnings, which is contrary to the conclusions on the Leuz et al. (2003)' study.

Table 8 Results of the influence of the investor protection on characteristics of the audit committee on earnings quality

$$
\begin{aligned}
ADACC_{jt} = \alpha + \ & \beta 1 DIND_{jt} + \ \beta 2 EXP_{jt} + \beta 3 MEMB_{jt} + \ \beta 4 MEET_{jt} \\
& + \beta 5 PI_{jt} + \beta 6 DIND_{jt*} * IP_{jt} + \ \beta 7 EXP_{jt} * IP_{jt} \\
& + \beta 8 MEMB_{jt} * IP_{jt} + \ \beta 9 REUNB_{jt} * IP_{jt} + \beta 10 LNA_{jt} \\
& + \beta 11 LEV_{jt} + \beta 12 \Delta RND_{jt} + \beta 13 ROA_{jt} + \beta 14 LOSS_{jt} \\
& + \beta 15 Y_{jt} + \beta 16 Y_{jt} + \beta 17 I_{jt} + \ \varepsilon_{jt}
\end{aligned}
$$

Variables	Prediction	Coefficients

Intercept		0,071
		(2,671)***
Independent variables		
IND	-	-0,015
		(-2,155)**
EXP	-	0,003
		(0,629)
MEMB	-	0,000
		(0,142)
MEET	-	-0,001
		(-1,204)
IND*IP	+	-0,024
		(-1,093)
EXP*IP	+	-0,008
		(-1,124)
MEMB*IP	+	-0,006
		(-2,521)
MEET*IP	+	-0,002
		(-1,252)
IP	-	0,074
		(3,150)***
Control variables		
LNA	-	-0.004
		(-1,353)
LEV	+	0,006
		(1,215)
ΔVND	+	0,000
		(0,927)
ROA	-	-0,003
		(-0,123)
LOSS	+	0,035
		(5,429)***
Year dummy		Included
Industry dummy		Included
Country dummy		Included

N		340
Adjusted R²		0,221
F-value		5,586***

Notes: all the variables are defined in Table 4.

4.4 ROBUSTNESS TESTS

To test the robustness of the results we have done more analysis by measuring the characteristics differently for the equation (2). The variable IND_2 (independence) is now measured by a dichotomy all/none members are independent and we reach to the same conclusions that the independence of the audit committee reduces the earnings management and the 100% is critical to assure the earnings quality. The variable EXP_2 is now measured by the proportion of the financial expert members on the audit committee. The results are the same and this characteristic, the expertise of the member of the audit committee, do not influence the earnings management of the company. The variable MEMB_2 and MEET_2 are now measured using a dummy variable that takes the value 1 if the members/meetings are greater than 5/7 and 0 otherwise. The results of the MEMB_2 are significant at a 5% level and we can conclude that the 5 or more members included in the audit committee is the ideal number to the audit committee be efficacy. However the results of the MEET_2 is not significant and we could not find which is the ideal number of meeting of the audit committee (we use other numbers of meetings and the results are the same).

Table 9 Results of different measurements of the characteristics of the audit committee on earnings quality

Variables	Prediction	IND_2	EXP_2	MEMB_2	MEET_2
Intercept	?	0,061	0,086	0,080	0,107
		(2,194)**	(3,052)***	(2,792)***	(3,819)***
Independent variables					
IND	-	-0,014	-0,028	-0,029	-0,028
		(-4,270)***	(-3,810)***	(-3,938)***	(-3,885)***

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EXP	-	-0,003	0,000	-0,001	-0,002
		(-0,690)	(0,074)	(-0,390)	(-0,533)
MEMB	-	-0,003	-0,002	-0,007	-0,002
		(-2,112)**	(-1,824)*	(-2,157)**	(-1,918)*
MEET	-	-0,001	-0,001	-0,001	-0,005
		(-1,846)*	(-1,875)*	(-1,924)*	(-1,632)
Control variables					
LNA	-	-0,003	-0,004	-0,004	-0.004
		(-1,001)	(-1,368)	(-1,392)	(-1,282)
LEV	+	0,010	0,010	0,010	0,011
		(2,080)**	(2,185)**	(2,193)**	(2,257)**
ΔRND	+	0,000	0,000	0,000	0,000
		(0,577)	(0,719)	(0,807)	(0,805)
ROA	-	-0,021	-0,025	-0,023	-0,025
		(-0,777)	(-0,938)	(-0,852)	(-0,938)
LOSS	+	0,027	0,028	0,028	0,026
		(3,961)***	(3,996)***	(4,067)***	(3,773)***
Year dummy		Included	Included	Included	Included
Industry dummy		Included	Included	Included	Included
Country dummy		Included	Included	Included	Included
N		340	340	340	340
Adjusted R²		0,235	0,226	0,229	0,225
F-value		4,861***	4,668***	4,724***	4,641***

*** significant at a 0,01 level; ** significant at a 0,05 level; * significant at a 0,10 level.

Notes: all the variables are defined in Table 4.

5   CONCLUSIONS

The objective of this study is to investigate the relation between the characteristics of the audit committee and the earnings quality and whether this relation is influenced by the level of the investor protection in each country. To measure the earnings quality we use as a proxy the earnings management and more specifically the modified Jones (1991) model by Kothari *et al*. (2005). The sample is composed by 117 companies from the Stoxx® Europe 600 for the period of 2014 to 2016. We have found evidence for the European companies that there is a positive relation between some characteristics of the audit committee and earnings quality, such as the independence of the audit committee

when all the members are independent, the number of members of the audit committee and the number of annual meeting held by the audit committee. However none conclusion could be reached on the influence of the financial expertise of the members in the earnings quality as either whether the level of investor protection influences that relation between the characteristics and earnings quality.

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