Audit Committee Characteristics and Earnings Management: Evidence from Greece

ZAEIRO MOURATIDOU

SCHOOL OF ECONOMICS, BUSINESS ADMINISTRATION & LEGAL STUDIES
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Student Name: Zafeiro Mouratidou
SID: 1107180014
Supervisor: Pr. Stergios Leventis

I hereby declare that the work submitted is mine and that where I have made use of another’s work, I have attributed the source(s) according to the Regulations set in the Student’s Handbook.

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ABSTRACT

In the last years, there has been a number of accounting scandals recorded. The revelation of these scandals led international governments and policy makers to adopt and introduce new rules and corporate governance structures in order to mitigate corporate fraud. One of these suggestions was the establishment of audit committees inside firms, which would be responsible to monitor that accounting policies and practices are carried out in a law compliant way and that the financial statements of the company present in a valid and accurate way the actual financial position of the company.

The main purpose of this dissertation is to investigate how the characteristics of a firm’s audit committee relate to earnings management. The investigation aims at identifying if there is any relationship in the Greek market and specifically in Greek listed companies. Relative research exists in other markets, such as Nigeria, Jordan, Bahrain and Malaysia, while the effects of audit committee characteristics on earnings management remains uninvestigated in the Greek market.

For the purpose of this dissertation, financial data of Greek listed companies was used, that is available either from their website or the Amadeus database, version 12/2018. The period under analysis was 2014 to 2018. For the estimation of earnings management the modified jones model was used since discretionary accruals can serve as a proxy. To investigate the relationship between the characteristics of the audit committee and earnings management, a multivariate OLS model was used.

Findings suggest that the ADCSIZE and ADCMEET are positively related with the earning management. However, the ADCIND and ADCEXP are negatively associated with the earning management as a proxy of discretionary accruals.

Keywords: Earning management, Internal auditing, Audit Committee.

Mourtadoud Zafeiro

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Preface

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CONTENTS

ABSTRACT.......................................................................................................................... iii
1 INTRODUCTION........................................................................................................... 7
2 LITERATURE REVIEW................................................................................................... 10
  2.1 Agency theory and information asymmetry .............................................................. 10
  2.2 Agency problem and ownership structure in Greek listed firms ............................... 11
  2.3 Concept of earning management ............................................................................. 11
  2.4 The role of Audit Committee .................................................................................. 12
  2.5 The effectiveness of ACS ....................................................................................... 13
  2.6 Fraud: lack of internal control ................................................................................. 14
3 DEVELOPMENT OF RESEARCH HYPOTHESIS....................................................... 15
  3.1 Audit committee attributes and earnings management ............................................ 15
    3.1.1 Size of audit committee (ACS) .......................................................................... 15
    3.1.2 Audit committee independence (ACI) ................................................................. 16
    3.1.3 Audit committee financial expertise (ACEX) ...................................................... 17
    3.1.4 Audit committee Meetings (ACM) ..................................................................... 18
  3.2 Control Variables ...................................................................................................... 19
4 RESEARCH METHODOLOGY....................................................................................... 20
  4.1 Study Sample, Data Collection and Data Analysis ................................................... 20
  4.2 Model ....................................................................................................................... 21
  4.3 The Dependent Variable (Earnings Management) ..................................................... 22
  4.4 The Independent variables .................................................................................... 23
  4.5 Measurement of the control variables .................................................................... 24
5 RESULTS OF THE INVESTIGATION.......................................................................... 25
  5.1 Presentation and analysis of data ............................................................................ 25
  5.2 Empirical Results .................................................................................................... 25
    5.2.1 Descriptive Statistics ...................................................................................... 25
    5.2.2 Pearson Correlation ....................................................................................... 28
    5.2.3 Regression Analysis (OLS) .............................................................................. 29
    5.2.4 Variance Inflated Factor (VIF) ....................................................................... 32
    5.2.5 Normality Test .................................................................................................. 32
    5.2.6 Heteroscedasticity Test ................................................................................... 33
    5.2.7 Ramsey RESET Test ....................................................................................... 34
6 CONCLUSIONS AND RECOMMENDATIONS ........................................................... 35
7 References..................................................................................................................... 37
1 INTRODUCTION

The cases of corporate fraud and scandals in the last decade, revealed the need for more effective measures that would identify, expose and monitor the activities of corporations. Some economic scandals relating to the alteration of financial statements refer to the cases of Worldcom (2002), Enron (2001), Tyco (2002), Nortel (2008), Folli Follie (2018) and others. The consequences of accounting scandals are the bankruptcy of the firm, the loss of money for investors, the deceiving of shareholders and the loss of jobs for employees. As mentioned by Agrawal et al. (2017), lawmakers responded to such type of scandals through the adoption of new governance structures and the Act, S. O. (2002). Regarding to The National (2019) “Folli Follie’s scandal, was facing accusations of misleading finances set off a series of crises at the company”. Moreover, according to McCrum (2019), the not deeply convincing explanation was that wholesale sales were booked through Hong Kong. At the same time, there was another warning sign. The entity was audited by a tiny local firm.

These scandals were generated through the manipulation of financial statements and the information included in it. A common method that company executives use to manipulate financial statements is earnings management. Earnings management refers to the use of accounting techniques in order to present more stable or inflated earnings. Less volatile earnings will create the belief in the stock market that the company grows and creates additional value, thus any forecasting models will indicate higher value for the company. A higher value of the company will also contribute to a higher remuneration for managers. In order to quantify earnings management, discretionary accruals are used as a proxy. In fact, as proved in the research of Healy & Wahlen (1999) “there is a relationship between accrual accounting procedures and managers remuneration and bonus schemes”.

One of the suggestions of lawmakers, was the establishment of audit committees, that would be responsible for the monitoring of the accounting practices and policies used by companies for financial reporting purposes. Additionally, audit committees should control the validity of the information presented in financial statements and report directly to the Chief Financial officer for its findings.
One of these suggestions was the establishment of audit committees inside firms, which would be responsible to monitor that accounting policies and practices are carried out in a law compliant way and that the financial statements of the company present in a valid and accurate way the actual financial position of the company.

The object of this investigation is to recognize if there is any relationship between the characteristics of the audit committee and earnings management in the Greek market. Audit committee characteristics have an important role in its efficiency and thus, in this research the question is whether or not it can contribute to the mitigation of the earnings management phenomenon. Relative research exists in other markets such as Malaysia, Jordan, Bahrain, New Zealand and India. The characteristics of the audit committee in relation to earnings management remains unexplored in the Greek market and this research tries to contribute into filling this gap. For the purposes of the research and for data sufficiency, 150 listed companies in the Hellenic stock market were used for the period of 2014 to 2018. The data used in this analysis was taken from the financial report available in their websites, the Hellenic Exchange website\(^1\) and the Amadeus database, version December of 2018.

In order to understand if there is any relationship between the characteristics of the Audit committee and earnings managements, hypotheses have been developed that will be tested in this research. The hypotheses are presented below.

**Hypotheses 1:**

*The size of the audit committee is negatively associated with earnings management.*

The purpose of this hypothesis is to test whether bigger audit committees can be more efficient into identifying and mitigating earnings management. A negative relationship is expected because the addition of more capable members in the committee will discourage managers from attempting to use accounting techniques, since the risk to expose those techniques is greater.

**Hypotheses 2:**

*The independence of the audit committee is negatively related to earnings management.*

\(^1\) [www.athexgroup.gr](http://www.athexgroup.gr)
An independent audit committee, whose members have no relation with Board of Director members or management executives will focus on presenting the financial condition of the firm more accurately. Thus, it is believed that a strong negative relationship between the independence of the audit committee and earnings management.

*Hypothesis 3:*

The expertise of the members of the Audit committee is negatively related to earnings management.

The probability of manipulation the financial and accounting reports is depended of the level experience that the internal auditors have in their educational background. In fact, law 4449/2017, Article 44 of the Greek State, requires that every listed company has an audit committee that consists of at least three members. All members should have a deep knowledge and understanding of the industry in which the company operates and at least one member of the committee should be a certified public auditor. Based on this law, it is expected that there will be a negative relationship between member’s expertise and earnings management.

*Hypothesis 4:*

The frequency of audit committee meetings is negatively associated with earnings management.

More frequent meetings will assure a better communication between the members of the audit committee which will result in better effectiveness and thus the risk for financial statement manipulation by the management will be higher. Therefore, a negative relationship is also expected in this hypothesis.

The results of the empirical model give the answer to these hypotheses, which all contribute to the answer of the major question which is if the audit committee characteristics can play an important role in order to mitigate a company’s aggressive earnings management.
2 LITERATURE REVIEW

2.1 Agency theory and information asymmetry

The agency theory explains the relationship between shareholders, acting as principals and company executives, as agents, Kalbers & Fogarty (1998). The phenomenon of information asymmetry is the problem that arises between the company’s management and its shareholders. The management of the company uses this advantage in its favour to generate financial statements with smoother or inflated earning, in order either to enhance own compensation or to attract new investors by keeping the stock price high. The aforementioned procedure is known as earnings management.

Regarding to Bradbury (1990) proposed that it is very important the role of the audit committee in the company with the abilities of internal audit to mitigate the information asymmetry between the two parties; however, there are high agency costs between shareholders and executives because of the improved quality of information that offer to those two parties.

Moreover, managers can take advantage their positions in the companies and thus they will use aggressive earning management for their incentives in order to gain more benefits and as a result to hide important information from the shareholders (information asymmetry). Therefore, audit committee is the intermediate between managers and stockholders and the effectiveness of monitoring has as a result to reduce the level of information asymmetry (agency theory) between the directors and the shareholders.

The protection of the shareholder wealth and to mitigate the aggressive earning management is one of the most important responsibilities that the audit committee has to do; as a system of corporate governance controls, Dellaportas et al. (2005).

Also, nowadays, the audit committee has a very strong position in company’s corporate governance because of the significant role that has; to improve the credibility and the transparency of the financial and accounting reports.
2.2 Agency problem and ownership structure in Greek listed firms

Regarding to Demsetz, H., & Lehn, K. (1985) “identified ownership structure as an important factor that affects firm valuation and performance”.

“The Greek legal and corporate environment was characterized by its below average protection level of shareholders”, regarding to La Porta et al. (1999).

Additionally, “during the crisis, firms in which controlling owner-managers owned more of the control rights, but fewer cash flow rights, suffered more loss of shares values”, according to Lemmon & Lins (2001).

“That kind of agency problem leads to lower firm value especially in countries with legal environment that does not offer adequate legal protection for shareholders”, according to La Porta et al. (2002).

Finally, Jae-Seung Baek, Jun-Koo Kang, & Kyung Suh Park. (2004) suggest “that firms with concentrated ownerships by owner-managers experience larger losses in firm value”.

Regarding to the research of Spanos, L. (2005) opined that “in Greece most of the firms are family owned, it would be wise to question the role of separation of ownership and control as the reason for the creation of agency problem. The conflicts of interest between minority and majority shareholders should be more appropriate for addressing the agency problem firm face”.

According to Antoniadis et al. (2008) suggest that the “Corporate Governance mechanisms are held responsible for establishing a sound and strong framework for protecting investors and therefore for helping the development of financial markets”.

2.3 Concept of earning management

The phenomenon of earning management is more probable to happen when a company sometimes cannot meet investors’ expectations and demands or in times of crisis the company is trying to show that it can withstand any financial problems that may has by manipulated the financial statements, Healy & Wahlen (1999).
Regarding to Iturriaga, F. J., & Hoffiman P. S. (2005) earnings management may occur therefore of agency problem. Usually managers want to improve their position in the company by using unfair means like to influence and manipulate contractual results that depend on reported accounting figures.

All these actions and decisions of managers for the company have as a result in the end to not to burden the managers but any losses or negative impacts will be borne by the stakeholders.

The research of Bergstresser (2006) shows that managers can take advantage their positions in the companies and thus they will manipulate accounting reports by managing accruals for their incentives in order to gain more benefits and improving their positions in the companies.

According to Cheng,H., & Kallapur,S. (2010) that earnings management leads in two different points. Initially, managers take advantage the position that they have in their companies and act with an opportunistic behavior to increase the usefulness about compensation contracts, debt contracts and the picture of the financial statements toward to shareholders (opportunistic earnings management). Then, the second point is relating with unexpected events that may occur if managers sign contracts that put the company in disadvantage financial positon and this phenomenon is called (efficient earnings management).

2.4 The role of Audit Committee

Audit committee has a very significant position on a company's corporate governance because it is the only unaffected internal mechanism that the company has in order to verify the transparency of its financial figures to its shareholders.

As it is stated in the Act, S. O. (2002) “all publicly traded companies should have a qualified audit committee in order to be listed on a stock exchange. Moreover, committee members must have independent outside directors, including a minimum of one person as a financial expert”. Therefore, Klein, A. (2002) opined that the position of internal audit in corporate governance matters should be improved and recognized as an important element in the corporate governance structure by the listed companies.
Additionally, regarding to the research of Yang, J. S., & Krishnan, J. (2005) suggest that “the role of internal audit involves three main elements: assessing and improving risk management, assessing the system of internal controls and governance processes in the company. These elements include policies and procedures to ensure proper risk assessment and compliance with applicable laws and regulations. The main role of internal audit in risk management is assessing and monitoring risks that company faces and providing recommendations for appropriate risk mitigation controls.”

2.5 The effectiveness of ACS

According to Fama, E. F., & Jensen, M. C. (1983) the position of Audit Committee in the company can impact significant the financial reporting credibility and the financial statement quality. Audit Committee is important in the company and has many responsibilities towards to the company and the shareholders.

Therefore, Pucheta-Martínez, M. C., & De Fuentes, C. (2007) in their research mention that the internal auditors are the intermediate between managers and stockholders and the effectiveness of monitoring has as a result to reduce the level of information asymmetry (agency theory) between the directors and the shareholders.

Moreover, the effective role of the Audit Committee has positive impact to company’s creditability and transparency towards the stakeholders and the market that the company operates. Furthermore, companies that want to be listed on a stock exchange must provide a qualified audit committee to be publicly traded companies.

According to Li, J., Mangena, M., & Pike, R. (2012) they mention that the members of the Audit Committee have to be independent outside directors and must at least one person to be a financial expert.

Additionally, Audit Committee monitors managers in order to detect material misstatements and thus to lessen the probability of earnings management in the financial statements of Greek companies. Therefore, the internal audit related with appropriateness and effectiveness of internal control.
2.6 Fraud: lack of internal control

A company in order to be trustworthy to its shareholders should have a well-organized internal audit function. By having a strong reliable system of internal controls, this will give the company the opportunity to be more effective on the control of financial statements. However, there are listed companies that do not comprehend the significant role of audit committees and try to manipulate the financial statements process for the purpose to hide significant disclosures from the shareholders or to attract new investors.

Firms with independent audit committees and those whose members are more financial experts are significantly less likely to be associated with internal control problems, Yang, J. S., & Krishnan, J. (2005).

Additionally, “the corporate governance framework in Greece developed primarily through mandatory legislation, most importantly, the Law 3016/2002. This law allows the participation of independent non-executives on boards of Greek listed firms, establishment of internal control function, and adoption of internal audit charters. Therefore, listed firms are required by law to review regularly their internal control system”, TAXHEAVEN (2002)

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3 DEVELOPMENT OF RESEARCH HYPOTHESIS

3.1 Audit committee attributes and earnings management

In this research will be included eight control variables in order to monitor other factors that may affect the manipulation of reported earnings or management’s incentives to manage reported earnings. Therefore, the next hypotheses are developed to exam the association of AC characteristics, namely, AC independence, AC size, the frequency of AC meetings, and AC expertise on earnings management practices in Greece.

3.1.1 Size of audit committee (ACS)

As a matter of fact, regarding to Abbott, L. J., Parker, S., & Peters, G. F. (2004) and Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003) “the perfect average of the AC size is between 3 and 4 members and at least one independent member has proven sufficient knowledge of accounting and auditing and the members of the audit committee are anticipated to be conversant with basic financial statements. The audit committee should be promoted by an independent non-executive member”.

Moreover, every company should report to its corporate governance statement, the number of the members that have on the audit committee, how many independent non-executive has, their educational backgrounds and the number of the meetings that took place during the year that happened. Usually, it is observed that companies with large audit committee and internal auditors with strong educational background have lower possibility of appearance of earnings management in the company’s financial statements.

they found no significant relationship between audit committees’ size and the level of earnings management”.

Despite the contrary findings in the literature reported above, this research suggests “a negative association between the size of the AC and earnings management”, Mohd Saleh, N., Mohd Iskandar, T., & Mohid Rahmat, M. (2007).

H1: The audit committee size is negatively associated with earning management.

3.1.2 Audit committee independence (ACI)

Audit Committee is the intermediate between managers and stockholders and the effectiveness of monitoring has as a result to reduce the level of information asymmetry (agency theory) between the directors and the shareholders.

Moreover, concerning what was just mentioned before, audit committee reinforce its independence from the company' management and act as an intermediate between management and shareholders in order to reduce the level of information asymmetry between those two parties and increase the assurance and trustworthiness of the accounting statements and reporting that have been prepared from the management according to Deli, D. N., & Gillan, S. L. (2000).

In similar manner, Klein, A. (2002) discovered “an important negative association between the total number of directors in the audit committee number over the participation of independent directors and earnings management practice”.

According to the research of Lin, J. W., Kang, G., & Roline, A. (2009) they mention “the importance of the independence of the AC for effective monitoring of financial reporting credibility and the financial statement quality, and requires all AC members to be independent”.

Additionally, companies with fully independent audit committees may have very strong organized governance and follow the regulations according to the International Financial Reporting Standards. Also, the scope of corporate governance is therefore the efficiency and transparency of business operations and the protection of investors, shareholders and creditors.
Consequently, and despite the contrary findings in the literature reported above, this study proposes “a negative association between the independence of the AC and earnings management”, Mohd Saleh, N., Mohd Iskandar, T., & Mohid Rahmat, M. (2007).

H2: The audit committee independence is negatively associated with earning management.

3.1.3 Audit committee financial expertise (ACEX)

According to the opinion of the Act, S. O. (2002) requires “at least one member of the audit committee must be a financial expert” with finance-related work and educational background.

Similarly, Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003) state that the main function of the audit committee is to evaluate and monitor the financial and accounting figures to ensure the reliability of the financial information. Therefore, the educational background of the internal auditors in the audit committee has an important role to increase the efficiency of the audit committee.

Bédard, J., & Gendron, Y. (2010) opined that audit committees members that have high financial expertise knowledge and background are related with lower levels of earnings management therefore, members of the financial expertise will not allow management to manipulate the financial statements or to conceal important information from the accounts that the board of directors or shareholders must know.

Regarding to Sharma, V. D., & Kuang, C. (2014) opined that companies have lower probability of aggressive earning management and manipulation of financial and accounting figures when companies have independent directors with financial experience in the audit committees. Accordingly, this study proposes “a negative association between the AC expertise and earnings management”, Mohd Saleh, N., Mohd Iskandar, T., & Mohid Rahmat, M. (2007).

H3: The audit committee expertise is negatively associated with earning management.
3.1.4 Audit committee Meetings (ACM)

The role of the audit committee is very important in the operation of the company regarding the transparency of the financial statements.

When an audit committee that has more regularly meetings in the year, the members of the audit committee will provide more effective methods regarding the monitoring role that they have and they will discuss more important issues in order to detect material misstatements and as a result to reduce the probability of earnings management in the company’s financial statements, according to Li, J., Mangena, M., & Pike, R. (2012).

However, the literature provides mixed results regarding the relationship between audit committee and earning management. According to Abbott, L. J., Park, Y., & Parker, S. (2000) “a negative relationship was found between the frequency of audit committee meetings and the effectiveness of the role of monitoring the company's financial reporting process”. Similarly, Abbott, L. J., Parker, S., & Peters, G. F. (2004) found that “when audit committee meets at least four times in the year, there is the likelihood the occurrence of an important a negative relation regarding the financial reporting restatements”.


Additionally, this research suggests “a negative relationship between the frequency of AC meetings and earnings management”, Mohd Saleh, N., Mohd Iskandar, T., & Mohid Rahmat, M. (2007).
H₄: The frequency of audit committee meetings is negatively associated with earning management.

3.2 Control Variables

This study includes eight variables to control for other factors that influence managers’ incentives or to limit the manipulation of reported earnings and accounting figures.

According to the research of Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995) and Bédard, J., & Gendron, Y. (2010) opined that “there is a negative relationship between company size and earning management because larger firms are likely to have more effective internal control systems and face more scrutiny from the market in order to be verified the reliability and transparency of their financial statements”.


Regarding to Zhou, J., & Elder, R. (2002) and to Chung, H., & Kallapur, S. (2003) they suggest in their research that “Big 4 auditors associated with less earnings management practices”. Thus, this research presents a negative association between the size of audit firm and earnings management among Greek listed companies.

In addition to the aforementioned variables, we are also examining if there is any relationship between working capital management and financial performance. Indeed, in the research of Deloof, M. (2003) for Belgian companies, there is evidence that the management of working capital can affect a company’s profitability. The findings of the research suggest that managers can increase profits by lowering credit period and inventory period.

In another study, Vural, G., Sökmen, A. G., & Çetenak, E. H. (2012) find evidence from Turkish companies that there is a relationship between working capital management
and a firm’s financial performance. They find that companies can increase their earnings by reducing the collection period of accounts receivable and the cash conversion cycle. In their findings, they also suggest that the leverage of a company has a significant negative relationship with firm’s profitability.

In the same topic, Baños-Caballero, S., García-Teruel, P. J., & Martínez-Solano, P. (2014) find that working capital management in low levels contributes positively to firm’s financial performance, whilst in high levels, those are associated negatively.

Based on the findings of the aforementioned research, in this study we quantified working capital management using credit period, collection period, inventories period, liquidity ratio and leverage. The findings are mainly in agreement with prior research. Collection period and inventories period are negatively associated with earning management, but they are insignificant. Contrarily, leverage, liquidity and credit period are significant. Credit period and liquidity are positively related to earning management, while leverage shows a strong negative relationship. Finally, the ROA was used as a measure of profitability, but shows no significant relationship with earnings management.

## 4 RESEARCH METHODOLOGY

In this chapter, it is observed the methodological approach of the study and the way in which the research is carried out. It is tested whether the role of AC in Greek listed companies can mitigate the aggressive earning management. Moreover, the survey will verify if Greek listed companies with fully independent audit committees may have very strong organized governance and follow the regulations according to the International Financial Reporting Standards ("IFRS", 2019). The models focus on identifying how Audit committee characteristics relate to earnings management by following the literature and theoretical framework of this study.

### 4.1 Study Sample, Data Collection and Data Analysis

The sample includes all Greek listed companies for the period from 2014 to 2018 and the final number of companies included in the analyses is 150 Greek listed companies.
Moreover, the data will be received either from the financial statements of the companies’ annual reports that were downloaded from the official website of the Greek companies and database, especially Bureau Van Dijk’s Amadeus. The financial ratios will be calculated on an excel spreadsheet. For the regressions, Stata and excel are going to be used.

4.2 Model

According to the above literature review, twelve variables are selected to be examined in the present research. The dependent variable is “Discretionary accruals as a proxy of earning management”, the four independent variables which are “AC independence”, “AC size”, “AC meetings” and “AC financial expertise”.


\[
EM = \beta_1ADCEXP + \beta_2ADCMEET + \beta_3ADCSIZE + \beta_4ADCIND + \beta_5LEVG \\
+ \beta_6COSIZE + \beta_7BIG4 + \beta_8InvPer + \beta_9CollPer + \beta_10ROA \\
+ \beta_11CredPer + \beta_12Liq + e
\]

The variables are defined below:

EM= Earning management

ADCIND= Audit committee independence

ADCSIZE= Audit committee size

ADCMEET= Audit committee meetings

ADCEXP= Audit committee financial expertise

COMSIZE= Company size

LEVG= Company leverage

BIG4= Audit company
InvPer= Inventory Period
CollPer= Collection Period
ROA= ROA
CredPer= Credit Period
Liq= Liquidity
e = error term.

4.3 The Dependent Variable (Earnings Management)

The Modified Jones Model 1995 is the most famous and the most frequently used model to detect discretionary accruals according to the working papers of Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995), Beneish, M. D. (1998), Bartov, E. et al. (2000).

Step 1: Modified Jones Model

1. \[ \frac{TACC_{it}}{A_{(it-1+1)/2}} = a_1 \frac{1}{A_{(it-1+1)/2}} + a_2 \frac{(\Delta REV_{it} - \Delta REC_{it})}{A_{(it-1)/2}} + a_3 \frac{PPE_{it}}{A_{(it-1+1)/2}} + \varepsilon_{it} \]

TACC_{it} = Total accruals in year t divided by total assets for firm i in year t-1
\( \Delta REV_{it} = \) Change in revenue for firm i between the current year and previous year
\( \Delta REC_{it} = \) Change in receivables for firm i between the current year and previous year
PPE_{it} = gross property, plant and equipment for firm i in the current year (t)
A_{(t-1+1)/2} = Total assets average for firm i in year t-1 and current year (t)
a_1, a_2 and a_3 = parameters
\( \varepsilon_{it} = \) Residuals for firm i in year t

So how does it estimate the alphas a_1, a_2 and a_3?

Alphas, coefficients or parameters are estimated by means of ordinary least squares regressions (OLS). After it knows what the alphas are, it denotes these as \( \hat{a}_1 \), \( \hat{a}_2 \) and \( \hat{a}_3 \). These are the estimated alphas parameters.

Step 2: Calculate the total accruals as follow:
2. \( TACC_{it} = \Delta CA_{it} - \Delta \text{Cash} - \Delta CL_{it} + \Delta DCL_{it} - \text{DEP}_{it} \)

\( TACC_{it} \) = Total accruals for firm i in the year t

\( \Delta CA_{it} = \) Change in current assets for firm i in the year t

\( \Delta \text{Cash} = \) Change in cash and cash equivalents in year t

\( \Delta CL_{it} = \) Change in current liabilities for firm i in the year t

\( \Delta DCL_{it} = \) Change in short term debt included in current liabilities for firm i in the year t

\( \text{DEP}_{it} = \) Depreciation and amortization for firm i in the year t

Another method to calculate the total accruals according to the theory of (Hribar, P. & Collins, D. W., 2002), “is the difference between of operating income (OI) obtained from the income statement and operating cash flows (OCFO) obtained from the statement of cash flows”.

2. \( TACC_{it} = OI_{it} - OCFO_{it} \)

Step 3: Calculate the discretionary accruals

3. \( DACC_{it} = TACC_{it} - NDACC_{it} \)

“The predicted values from equation (1) are non-discretionary accruals (NDAC), and the difference between actual total accruals (TAC) and (NDAC) is discretionary accruals (DAC)”, according to the theory of Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005).

4.4 The Independent variables

\( \text{ADCMIND} \) symbolizes audit committee independence. According to Van Der Zahn, J. W. M., & Tower, G. (2004) audit committee independence is an important feature of company’s internal control because it influences the effectiveness of monitoring the financial reporting credibility and the financial statement quality and requires all the members of AC to be independent. The way that is going to be measured the independence of AC, is the number of non-executive members of the AC.

\( \text{ADCMSIZE} \) symbolizes audit committee size. According to Menon, K., & Williams, J. D. (1994) opined that “an audit committee is not effective if it has less than three
members”. Moreover, regarding to the Blue Ribbon Committee (1999) “an effective AC of listed companies should comprise at least three directors”. Therefore, the measure that is going to be used for the size of AC is the number of individuals. Regarding the number of the members that it is consisted the AC can lead to a positive or negative impact on financial statements.

ADCMMEET symbolizes audit committee meetings. According to the study of Li, J., Mangena, M., & Pike, R. (2012) opined that “an active audit committee that meets more frequency during the year, would provide its members with greater opportunities for discussing and evaluating the issues that are placed before them concerning the company’s financial reporting practices”. Therefore, the meetings will be measured by the number of times that audit committee take place over the year.

ADCMEXP symbolizes the educational and accounting background of the internal auditors. According to the Act, S. O. (2002) opined that an audit committee should have at least one member with financial and accounting background. Therefore, Goodwin, J., & Seow, J. L. (2002) and Al-Najjar, B. (2011) said that the most portion of the AC should be composed of financial experts, so as the AC to consider to be reliable for the monitoring that it does in the company’s financial reports. Consequently, the number of financial experts will be measured by the number of members with a background in accounting or finance education and experience.

4.5 Measurement of the control variables

Eight control variables are going to be included in the model, in order to monitor other factors that maybe are going to affect the association between the dependent variable (Earning management) with the AC characteristics.

Therefore, in this research the eight control variables are “Credit Period”, “Inventory Period”, “Collection Period”, “Liquidity”, “ROA”, “Company size”, “Company leverage*”, “Big-4 audit firm**”, “Credit Period”, “Inventory Period”, “Collection Period”, “Liquidity” and “ROA”.

*Company leverage is measured as the DEBT/ EQUITY ratio.
**Big-4 audit firm is measured as a dummy variable that equals 1 if the company is audited by a Big-4 audit firm or 0 otherwise.

5 RESULTS OF THE INVESTIGATION

5.1 Presentation and analysis of data

For the analysis of the study, 150 Greek listed companies are selected from the Hellenic Stock Exchange with a period of four years, from 2014 to 2018. The accounting and financial reports and figures were found from the companies’ websites or from the database, Bureau Van Dijk’s Amadeus.

5.2 Empirical Results

5.2.1 Descriptive Statistics

Table 1 Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>EM</td>
<td>600</td>
<td>1.652292</td>
<td>2.991132</td>
<td>.0219482</td>
<td>64.73764</td>
</tr>
<tr>
<td>ADCIND</td>
<td>600</td>
<td>2.990333</td>
<td>.7962761</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>ADCSIZE</td>
<td>600</td>
<td>0.665</td>
<td>.2467316</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>ADCMKT</td>
<td>600</td>
<td>3.6</td>
<td>.5055817</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>ADCEXP</td>
<td>600</td>
<td>2.103333</td>
<td>.7165971</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>BIG4</td>
<td>600</td>
<td>.2833333</td>
<td>.400928</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>COSIZE</td>
<td>600</td>
<td>11.58407</td>
<td>1.748866</td>
<td>6.83527</td>
<td>16.67045</td>
</tr>
<tr>
<td>LEVG</td>
<td>600</td>
<td>.0640888</td>
<td>.254749</td>
<td>-195.9245</td>
<td>26.16152</td>
</tr>
<tr>
<td>InvPer</td>
<td>600</td>
<td>18.60529</td>
<td>59.48537</td>
<td>0</td>
<td>906.659</td>
</tr>
<tr>
<td>CollPer</td>
<td>600</td>
<td>122.577</td>
<td>108.898</td>
<td>0</td>
<td>948.632</td>
</tr>
<tr>
<td>DOI</td>
<td>600</td>
<td>.052924</td>
<td>.069665</td>
<td>.00029</td>
<td>.71534</td>
</tr>
<tr>
<td>CredPer</td>
<td>600</td>
<td>76.58993</td>
<td>68.24202</td>
<td>0</td>
<td>620.56</td>
</tr>
<tr>
<td>Liq</td>
<td>600</td>
<td>1.710557</td>
<td>4.110436</td>
<td>.019</td>
<td>43.502</td>
</tr>
</tbody>
</table>

As observed, the mean, the median, the maximum value, the minimum value and the standard deviation of the sample are being reported for each of variables. The Big4 variable is a dummy variable and thus the maximum and minimum value is plus one and zero respectively.

In the table 1, it is observed the descriptive statistical test that is was ran in the STATA with the results to show that, the average DACC (earnings management EM) has
Mean=1.59, STD=3.99 which indicates the extent to which discretionary accruals for the distribution to a considerable extent around the average, Max=64.73 and Min=0.021.

The average percentage of ADCMIND is 79.6% or the average of independent (non-executive) directors is 2.39 with a minimum figure to be 1 member and a maximum figure of members to be 3 independents.

The statistical mean of ADCSIZE is 3 members with the smallest figure to be 3 members and a maximum figure of members to be 4 independents.

The average number of ADMEET is 3.6 times on the year with a minimum time to meet the fiscal year to be 2 times and the maximum one to be 4 times.

The average portion of ADC members that possess financial and accounting knowledge and experience; ADCEXP is 70% or 2.1 members, with smallest figure a company that will have a person with accounting experience is to be only 1 member or the maximum one to be 3 members.

At the following, it is observed, in table 1 that the statistical mean of company size (COSIZE) is 11.36, and the average of leverage ratio of 150 Greek listed companies is 0.64. Additionally, the average portion of 150 Greek public firms that are controlled by Big-4 audit firms is only 28.33%. Thus, most Greek public firms the 71.69% of them, prefer not collaborate with Big-4 companies.

Then, as far as the inventory period, the statistical mean of days is 18.6, with the smallest number to be 0 and the greatest extent of days to be 906. Therefore, Greek listed companies usually have 18.6 days to sell their current inventories. So, here we have a low average collection period that indicates the Greek listed companies sell fast their inventories and they do not have problem in their warehouses with any remain unsold inventory.

Regarding to collection period, the statistical mean of period is 122 days, with a statistical minimum number to be 0 and a maximum one to 945. As a consequence, the average number of days that Greek listed companies have to collect payments are 122 days. Thus, we observe that we have a very long period of time that the Greek
listed companies do not have time to pay off theirs obligations. For this reason, these Greek listed companies that their collected period is more than 60 days, they would need to adopt a more aggressive collection policy in order to shorten that time frame.

According for the credit period, the statistical average is 76, with the smallest number be 0 and the greatest extent to be 630 days. As we observe, the average time period is 76 days that indicates a long time period, because a long credit period equates to a large investment in receivables.

However, as we observe, the average collection period is longer than the average credit period. Therefore, we understand that Greek listed companies do not receive very fast their money from their costumers, but they pay sooner their obligations to their suppliers around to 46 days than they collect their money back. Moreover, the Greek listed companies sell faster their inventories so their average cash conversion cycle (CCC) is 68 days. So, if a company’s cash conversion cycle is extensive, that means, the company need more time to create cash. As a consequence, enough Greek listed companies for the time period 2014 to 2018 had the potential to have a going concern issues.

In the table 1 “descriptive statistics”, it is observed that the average ROA for Greek listed companies is 0.052 or 5.2% with a minimum number of ROA 0.00029 and a maximum number of ROA 0.7153. So every dollar that some Greek listed companies’ have invested in assets, they generate only 5.2 cents of net income. Moreover, the average liquidity of Greek listed companies’ is is 1.71 with a minimum number of 0.18 and a maximum of 43.5.

Furthermore, according to the investigation of the Abbott, L. J., Parker, S., & Peters, G. F. (2004) and Xie, B., Davidson III, W. N., & DaDalt, P. J. (2003), they suggest that the assumption that the perfect statistical mean of the ADC size is among 3 and 4 people for the committee to function properly. Therefore, based on the above results, most Greek listed companies have 3 members so these companies care for the properly function of their ACs. Also, a well-organized company will not have a small audit team to monitor its financial figures, because it will not be capable of fulling effectively its duties. However, according to Jensen, M. C. (1993) and Karamanou, I.,
& Vafeas, N. (2005) there is a possibility of weak monitoring, if an audit team is too big, then there is a high possibility the performance of the internal auditors to decline because of the poor coordination and the complexity of the process. For these reasons, it is understand that the size of the audit team is an important factor that play an important role to affect the degree of presence the earning management.

5.2.2 Pearson Correlation

Table 2 Pearson Correlation

According to the theory of Ahlgren, P., Jarneving, B., & Rousseau, R. (2003), opined that “the coefficient r of the Pearson correlation shows how far away all data points are from the line of best fit”. Also, the theory of Tabachnick, B. G., & Fidell, L. S. (2013), and Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006), it suggests that, if the coefficient r of the Pearson correlation is greater than 0.8, this means that the model in this research will have a multicollinearity problem. The outcomes of the table 2, present that there are not coefficients higher than the boundary 0.8, therefore in this study the correlation between the variables and with the dependent variable is moderately low.
Table 2 and Figure 1, represent a negative association among “DACC (EM)” with “ADCIND” (r=-0.0883), “ADCEXP” (r=-0.0139), “LEVG” (r=-0.1185), “ADCMEET” (r=-0.0013), “InvPer” (r=-0.0359), “CollPer” (r=-0.0656) and “ROA” (r=-0.0340). Also, there is positive association among “DACC (EM)” with “ADCSIZE” (r=0.0561), “COSIZE” (r=0.0082), “BIG4” (r=0.0941), “CredPer” (r=0.071), and “Liq” (r=0.0643).

Moreover, the figure 1 shows, that the coefficient r with the greater association is the correlation between EM with LEVG (r=-0.1185) and also, the table 2, shows that the coefficient r with the greater association among the variables is between BIG4 with CollPer (r=0.2133). So, in this model there is a lack of multicollinearity because model’s highest coefficient r is lower than the boundary of 0.8.

5.2.3 Regression Analysis (OLS)

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>Number of obs = 600</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1994.45007</td>
<td>12</td>
<td>166.20006</td>
<td>F(12, 588) = 10.76</td>
</tr>
<tr>
<td>Residual</td>
<td>9069.48432</td>
<td>588</td>
<td>15.424939</td>
<td>Prob &gt; F = 0.0000</td>
</tr>
<tr>
<td>Total</td>
<td>11063.9394</td>
<td>600</td>
<td>18.459099</td>
<td>R-squared = 0.1805</td>
</tr>
</tbody>
</table>

| EM | Coef. | Std. Err. | t | P>|t| | [95% Conf. Interval] |
|----|-------|-----------|---|-----|-----------------|
| ADCIND | -0.4508511 | 0.196562 | -2.33 | 0.020 | -0.8579773 | -0.037249 |
| ADCSIZE | 0.639374 | 0.047676 | 1.69 | 0.092 | -0.1095759 | 1.488482 |
| ADCMEET | 0.0730398 | 0.2414624 | 0.30 | 0.761 | -0.40086 | 0.447597 |
| ADCEXP | -2.742452 | 0.227306 | -1.21 | 0.228 | -7.726733 | 1.712828 |
| BIG4 | 0.008137 | 0.009996 | 1.02 | 0.316 | -0.017594 | 1.035247 |
| COSIZE | 0.0422649 | 0.005291 | 0.01 | 0.951 | -0.281143 | 0.365631 |
| LEVG | -0.056256 | 0.0155523 | -3.68 | 0.004 | -0.1246907 | -0.0178636 |
| InvPer | 0.0062684 | 0.002764 | 0.04 | 0.946 | -0.000349 | 0.008392 |
| CollPer | -0.001365 | 0.001522 | -0.88 | 0.381 | -0.0043246 | 0.0016597 |
| ROA | -1.434055 | 2.96282 | -0.49 | 0.619 | -6.742854 | 3.874743 |
| CredPer | 0.004436 | 0.002381 | 2.08 | 0.038 | 0.0002755 | 0.0086273 |
| Liq | 0.0911362 | 0.0033194 | 2.26 | 0.024 | 0.0119007 | 0.1703257 |
According to the table 3, it is observed that the number of observations is 600, the R-squared is 0.1803 that means 18.03% of the variation in earning management is explained by the explanatory variables. Also, it is different than zero in all significant levels as presented by the p-value of this test. Therefore, the R-squared present the possibility of the data to be suitable in the model.

It is observed that the ADCIND, LEVG, CredPer and Liq are significant in significance level of 5%. Moreover, ADCSIZE and BIG4, are significant in significance level of 10%. Additionally, as it is noticed, the variables; ADCMEET, ADCEXP, COSIZE, InvPer, CollPer and ROA with their respective p values are high so there are seemed to be insignificant in all significance levels. Therefore, it is understand that the above variables have no impact on the dependent variable EM, so they are statistically insignificant in all significant levels.

The model with the coefficients:

\[
EM = -0.4658 \text{ADCIND} + 0.6839 \text{ADCSIZE} + 0.0733 \text{ADCMEET} - 0.2742 \text{ADCEXP} + 0.7088 \text{BIG4} + 0.0432 \text{COSIZE} - 0.0562 \text{LEVG} - 0.0026 \text{InvPer} - 0.0013 \text{CollPer} - 1.63 \text{ROA} + 0.0049 \text{CredPer} + 0.091 \text{Liq} + \varepsilon
\]

As observed, having a ceteris paribus, this means a percentage change in the audit committee independence would cause a reduction of 0.4658% change in the earning
management. Additionally, a change in the audit committee size would cause an earning management increase of 0.6839%, all other being equal. The same happen to audit committee meetings, a change of this variable will cause an earning management increase of 0.0733%, if all other variables being equal. Moreover, regarding audit committee experience, a change in this variable and everything other being equal it would cause a reduction of 0.2742% change in the dependent variable EM. A percentage change in the Big4 would cause an earning management positive change of 0.7088%, all other being equal. Furthermore, ceteris paribus, a percentage change in company size would cause an increase of a 0.0432% change in earning management. A percentage change in leverage would cause an earning management decrease change 0.0562% and all other being equal the same. Furthermore, the Inventory period, Collection periods and ROA are negatives values and, all other being equal, will cause a 0.0026%, 0.0013% and 1.63% decrease in the dependent variable. On the other side, the Credit period and the liquidity are positives values, and, all other being equal, will cause a 0.0049% and 0.091% increase in the dependent variable EM.

Finally, based on the aforementioned reasons and the output of the model from Stata, the two hypothesis that were assumed in the sections 4.1.1 (H1: the size of the audit committee are negatively associated with the earning management) and 4.1.4 (H4: the meetings of the audit committee are negatively associated with the earning management) can be rejected.

Furthermore, regarding the hypothesis, H2 (the independence of the audit committee are negatively associated with the earning management), and H3 (the financial experts of the audit committee are negatively associated with the earning management), that states, the audit committee independence and audit committee financial experts are negative associate with the occurrence of earnings management, it can easily highlight that these hypothesis are supported and so they are accepted.
5.2.4 Variance Inflated Factor (VIF)

Regarding table 4, it is examined the variance inflated factor (VIF) of the variables. The scores vary within limits from 1.01 to 1.22, suggesting that it is not exist here the phenomenon of multicollinearity. According to assumption of Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006) opined that “multicollinearity is of great concern if the VIF value is more than 5”.

5.2.5 Normality Test

In the research of Korkmaz, S., Goksuluk, D., & Zararsiz, G. (2015), suggest that if the multivariate normality test of Doornik-Hansen the p-value is less than the boundary
0.005, then the model has normality. So, as it is observed above, it is verified that in this research the model has also normality.

5.2.6 Heteroscedasticity Test

As it is presented in the table 6, all the fitted values are gathered close to the line and have the same scatter. So, as it observed in the diagram, here exists the phenomenon of the homoscedasticity. Because, in this model all the points are not widely varying distance from the regression line so it is understand that the model is accurate, (Glen, 2019).
5.2.7 Ramsey RESET Test

Table 7 Misspecification test (Ramsey Reset Test)

```
. ovtest
Ramsey RESET test using powers of the fitted values of EM
 Ho: model has no omitted variables
     F(3, 594) = 3.69
     Prob > F = 0.0119
```

Regarding to the table above, it is observed that the Prob > F = 0.0119 < 0.05.
Therefore, we can reject the null hypothesis “No omitted variables”, with a 95% level of confidence, which implies that the model has omitted variables.

Additionally, the Prob > F = 0.0119 > 0.01.
So, we accept the null hypothesis with a 99% level of confidence that the model in this research has omitted variables.
CONCLUSIONS AND RECOMMENDATIONS

This research was investigated in order to exam, how audit committee characteristics can negatively affect the presence of the earning management in a company. The investigation aims at identifying if there is any relationship in the Greek market and specifically in Greek listed companies. Relative research exists in other markets, such as India, Jordan, Bahrain and Malaysia, while the effects of audit committee characteristics on earnings management remains uninvestigated in the Greek market. Additionally, it is observed the lack of internal control on company’s corporate governance and the lack of communication between the managers and the shareholders (agency costs).

Figure 3 ADC Hypothesis Result

<table>
<thead>
<tr>
<th>ADC</th>
<th>Coefficients</th>
<th>Hypothesis</th>
<th>accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADCIND</td>
<td>-0.465851071</td>
<td>&quot;The audit committee independence is negatively associated with earning management&quot;</td>
<td>✔</td>
</tr>
<tr>
<td>ADCSIZE</td>
<td>0.683967392</td>
<td>&quot;the audit committee size is negatively associated with earning management&quot;</td>
<td></td>
</tr>
<tr>
<td>ADCMEET</td>
<td>0.073369833</td>
<td>&quot;The frequency of audit committee meetings is negatively associated with earning management&quot;</td>
<td></td>
</tr>
<tr>
<td>ADCEXP</td>
<td>-0.27424523</td>
<td>&quot;the audit committee expertise is negatively associate with earning management&quot;</td>
<td>✔</td>
</tr>
</tbody>
</table>

The results of the regression analysis exhibit the positive association among ADC size and discretionary accruals as a proxy for earnings management. So, the hypotheses 1 about “the audit committee size is negatively associated with earning management” is rejected. As a result, a bigger audit team is possible to not be able to verify the integrity of reported figures.

The results present a negative association between the AC financial and accounting expertise with earning management. So, the hypotheses 3 about “the audit committee expertise is negatively associate with earning management” is accepted. For this reason, it is accepted the possibility that, if the members of the internal audit have educational and experience background that they are related with the field of finance and accounting, then the possibility of detecting material misstatements is increased.

Regarding the AC independence, it is observed that there is a negative relationship between the EM and this characteristic and the effect of AC independence to the EM
is very strong, less than 5% of significant level. Therefore, the AC independence affects significant the EM thus the Audit Committee acts as an external auditor. So, the hypotheses 2 about “The audit committee independence is negatively associated with earning management” is accepted, with the degree of significant effect to EM to be very strong.

Moreover, it is observed, that AC meetings have a positive association with the EM and the degree of significant effect is very weak. Therefore, the frequency of audit committee meetings does not affect significant the increase or decrease of EM. So, the hypotheses 4 about “The frequency of audit committee meetings is negatively associated with earning management” is rejected.

Regarding to the table 1. Descriptive Statistics, Greek listed companies (28.33%) are reviewed by Big-4 auditors. Therefore, most Greek listed companies (71.69%) prefer not to be reviewed by Big-4 auditors. Additionally, it is observed the significant effect of Big-4 audit companies is very strong to the EM, in our analysis the significant level of BIG4 to EM is 5%.

Finally, it is observed that the ADCIND, LEVG, CredPer and Liq are significant in significance level of 5%. Moreover, ADCSIZE and BIG4, are significant in significance level of 10%. Additionally, as it is noticed, the variables; ADCMEET, ADCEXP, COSIZE, InvPer, CollPer and ROA with their respective p values are high so there are seemed to be insignificant in all significance levels. Therefore, the fact that these variables are statistically insignificant indicates that they have no effect on the EM (discretionary accruals).

Last but not least, this investigation present to the research community new evidences about the association of the internal audit with the possibility of appearance the phenomenon of manipulation in the accounting and financial reports. Also, this study may give the opportunity to empower new researchers to investigate in other stock markets in the European countries. European countries with similar institutional and economic system can become new research points since there are still many areas that need clarification.
7 References


