The Impact of Financial factors adversity on bank audit fees: an examination of PIIGCS credit institutions during economic crisis

Field of research: EU Banking Sector

Kalatha Eleni

Simou Stavroula

SCHOOL OF ECONOMICS, BUSINESS ADMINISTRATION & LEGAL STUDIES

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Students Name: Kalatha Eleni & Simou Stavroula

SID: 1107150011 & 1107160014

Supervisor: Prof. Andreas Charitou

We 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

This dissertation was writer as part of the MSc in Accounting, Auditing & Financial Management at International Hellenic University.

This study was designed to examine the effect that the financial and economic crisis have on the audit fees of banks located in PIIGCS (i.e. Portugal, Ireland, Italy, Greece, Cyprus and Spain) countries. Prior research had focused either generally in the banking sector or specified in solely cases, such as a unique nation. Furthermore, there are not many studies that observe the movements and the behavior of the audit fees. This study, using statistical models that involve major determinants of audit fees, is valuable since it will provide academia with results that concern those European countries that had been affected the most from the current financial distress, meaning all PIIGCS countries. A standard audit fee model, modified accordingly so it is appropriate for the purposes of this research, is used to investigate the existence of an actual difference in the audit fee behavior of 91 EU banks during the crisis. Multiple OLS regression has been used as the solely estimation technique on the panel data collected from Thomson One database for period 2008-2016. Our model reports that there is no actual difference if a bank belongs to a PIIGCS country or elsewhere and also that the auditor's size does matter.

Key words: Audit fees, PIIGCS countries, Banks, Financial crisis

Students' Names: Kalatha Eleni, Simou Stavroula

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Preface

This thesis is made as a completion of the master education in Accounting, Auditing and Financial Management. Both Eleni Kalatha and Stavroula Simou have a bachelor degree in Economic Science Aristotle University of Thessaloniki and this thesis is the product of the master period, which is the last part of the Accounting, Auditing and Financial Management at the International Hellenic University, in School of Economics, Business Administration and Legal Studies. This dissertation is original, unpublished, independent work by the students Eleni Kalatha and Simou Stavroula.

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1. Introduction

Auditing is considered a most significant service for all kind of firms, including financial institutions, due to the fact that it provides them security. In other words, "auditing is valued for its ability to provide independent assurance of the credibility of accounting information, which improves resource allocation and contracting efficiency '' (DeFond & Zhang, 2014). The continuously upward trend of business transactions' complexity and the stricter regulation makes external auditing even more valuable. Creditors, clients, the State and all potential related parties trust businesses that are subject to high quality external audit way better than those which do not act similarly. Summing up, audit quality is considered very important since it not only boosts up the creditworthiness of a company but also adds extra value to the company.

A basic measure of audit quality is whether a firm incorporates one of the Big 4 audit firms to manage its external auditing. Evidence resulting from major studies state that companies usually pay an extra amount of fees when they use Big 4 firms as their auditors. However, it is still unclear if this extra amount of money constitutes an indication of audit quality. Audit fees got increased due to the additional regulation imposed currently, like SOX. For some this increase of fees might indicate better audit quality however the effort that is required in order, for a firm, to conform to the new regulation might not (DeFond & Zhang, 2014).

In this research paper, we examine if audit fees are affected by external conditions, such as macroeconomic changes. Specifically, we intend to examine if financial crisis had an effect on audit fees. The international economic crisis resulted in the attitude that clients demanding lower audit fees at least for years 2008 and 2009 (Krishnan & Zhang, 2014). Hence, in order to make our survey more specific, we are dealing exclusively with banks. There are quite a few studies that deal with audit fees and various aspects that are related with them, yet the majority of them excludes the banking sector and that is a main contribution of our research. There are only few papers that deal generally with US or EU banks or even with banks from a specific

country. So far, studies show that both the financial reporting quality and the audit quality of banks were in doubt due to the current crisis (Sikka, 2009), which revealed various weaknesses and threats in major financial institutions. Consequently, economic crisis was the basis for bankers and regulators to realize that there is an immediate need for better and more appropriate regulations and simultaneously, for stricter requirements in the banking sector. It is now obvious that corporate governance, risk management, control procedures and consequently auditing, should be enhanced and improved in an attempt to reduce risk and uncertainty levels. Regulatory authorities took advantage of the aforementioned situation and managed to set further law and higher requirements. Banks all over the world have to conform to certain requirements and regulations regarding their operations and the information they provide to third parties (Basel Committee on Banking Supervision, March 2014). In EU, the European Banking Authority released Basel III, where all the new standards can be found. Basel III is a set of reform measures, developed by the Basel Committee on Banking Supervision, to strengthen the existed regulation, risk management and supervision in the banking sector (Bank for International Settlements). Simultaneously, the urge for better external auditing procedures became clear.

In our research, we attempt to examine if and if yes then how, audit fees have changed during the financial crisis as far as banks located in PIIGCS countries are concerned. As PIIGCS countries we refer to Portugal, Ireland, Italy, Greece, Cyprus and Spain. Obviously, it has to do with the countries that suffered the most due to the financial crisis. These countries were affected more than the rest all over Europe and we believe that it is worth examining separately the effects on their banks' audit fees mainly because the macroeconomic conditions and the risks were remarkably different than the rest countries.

In general, a widespread belief is that the financial sector was the main driver of this economic distress. Basically, banks overused capital, since their cash outflows exceeded their real capital belongings something that eventually resulted in imbalances which of course led to the crisis. It goes without saying that these countries did not respect the fiscal rules of the European Monetary Union and the European

Central Bank. We should consider the extremely high bad debt levels of banks located in Greece to easily justify the above statement. Moreover, taking into consideration statistical results, which we obtained from the European Central Bank, private debt during the first seven years after the European Monetary Union increased in Greece (217%), Ireland (101%), Spain (75,2%) and Portugal (49%), meaning PIIGCS. However, it worth stating that public debt began to follow an upward trend on these countries only after and during the financial crisis something that leads us to the conclusion that the EMU was not the problem but instead, the management of private sector's capital was.

Hence, we examine if the risk that these countries entail on their banking sector along with the necessity for further and more intense external auditing had an impact on audit fees. Do audit firms charge banks with higher risk more during the crisis or do they conform to the macroeconomic environment, meaning succumb to the commercial reality and prefer to keep the clients even with higher risk? We focus on PIIGCS countries because as mentioned above these countries had the major problems and beside them the financial crisis occurred like a domino. It is then reasonable, that these banks have higher risk levels than the rest and most healthy banks. But can we assume that the higher the risk the higher the audit fees? So far, the vast majority of studies that deal with audit services, focused exclusively on commercial companies excluding the banking sector. There are plenty of studies either for the USA market or the EU but there is no study that examines the effect that crisis had on the unhealthiest European Banks and their audit fees. Audit procedures were not efficient enough prior to crisis and basically that was the case in PIIGCS' banks, so it does make sense to study what happened to those countries audit fees after crisis, knowing that regulatory changes have been mandated.

Thus, this study will contribute to literature; because it will examine how audit fees are affected by the basic determinants of audit fees along with extreme levels of standard macroeconomic controls in the banks of countries that financial crisis spread the most. A standard audit fee model with the appropriate adjustments is implemented in order to investigate the exact effect of applicable measures within an economic distress environment on audit fees of 91 banks.

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Our main results are in compliance with prior research findings. In particular, we concluded that there is no actual and significant difference in the effects that the financial crisis had to PIIGCS' banks than banks in rest European countries. What is more, also our research concluded that determinants such as the quality of the audit firm, meaning if it is a Big 4 or not, is very significant for the amount of fees being charged.

This study is structured as follows: in section two the literature and related background is presented, in section three the research methodology and the results of the data analysis and in section four we complete our paper with the concluding remarks.

2. Literature and related prior background

In the current financial crisis, quite a few major global financial institutions bankrupt, something that made people question themselves, why the auditors of those entities haven't warned them in advance. Did auditors failed to reach a relevant judgment in the audit report due to significant audit risks (Bajaj & Creswell, 2008; Richard 2008; Sikka 2009; IAG 2011) or was it the case that the applicable accounting standards restricted auditors' activity in such a way that they could not publicly inform institutions accordingly, even though they did realize the financial difficulties (CAQ 2010; Seidman 2011; Doty 2011). There are studies that present results in favor of both perspectives. Doogar, Rowe and Sivadasan (2015) in their research, on which of the above two alternatives is more realistic, found that the lack of warning from auditors a priori during 2008-2009, that is exactly the leading-up period before the global financial crisis, is more likely to stem from the limitations of the applicable regulation rather than from the auditors' incapability to react to systemic risks. Their findings are also evidence that audit fees are highly linked and driven by the above implied audit risks as well as by charge-offs, investment risks as well as distribution support risks.

As mentioned above, during the crisis and basically at its very first years, people tried to understand whether or not auditors could respond to the escalating macroeconomic shocks and consequently, manage to comprehend and forecast well in advance the deteriorating financial situation of all those banks that collapsed. Did they know that the bubble was about to explode or had they not even realized it?

Then, studies focused on the main drivers of audit fees during these macroeconomic shifts. Again, studies, as that of Hill et al. (1994), found that audit fees and hence, audit attention are affected by cross-sectional changes and audit risk. Our study differs in a way that it does not study U.S banks but rather PIIGCS' banks and basically if, and if yes then how, did the crisis have different impact in the amount of audit fees for them. It is obvious that there are major differences between our sample and the ones of the existed surveys, not only concerning the regulation but also concerning the size of the banks, the macroeconomic environment of each country which by no means is the same and of course the level and the nature of the risks that are identified within different auditees. We decided to examine PIIGCS' banks because those were the most vulnerable and worst regulated ones. PIIGCS' banks suffered major liquidity difficulties. In those countries there were more financial institutions before crisis comparing to the current amount, since those that suffered the greatest issues have been merged or acquired by others. This is a reason that makes it interesting both to test those countries and also to compare their results prior and after crisis. We did choose audit fees as a point of interest since after the crisis people realized the significance of both internal and external audit. Have the audit and the related regulations been stricter and efficient, crisis might have not been occurred at all or at least have different outcome. Hence, our rationale behind examining those countries was that since they were affected differently from crisis they might have different attitude concerning the audit fees after crisis as well.

Other major drivers of audit attention, at least for the U.S public company audit engagement, are the size of the firm to be audited along with the complexity (Davis, Ricchiute & Trompeter 1993; Fields Fraser & Wilkins 2004; Kanagaretnam, Krishnan & Lobo 2010). On the other hand, recent studies reveal that auditors have difficulties in understanding the above audit engagement with the macroeconomic changes

particularly when it has to do with dynamic ones (Peecher et al. 2007, Brewster 2011). However, large-sample research is absent on this topic due to the fact that occasions with changes in audit environments and risks are very rare.

What is more, literature also states that audit fees are highly affected by audit labor usage and mix (O' Keefe et al. 1994; Bell et al., 2008). Another important finding of literature is that there is a small yet important fee premium when there is an audit engagement under high business risk circumstances meaning a firm with great riskiness (Bell et al., 2008). Doogar, Rowe and Sivadasan (2015) built their research on the basis that if auditors recognize and respond well in advance the situation during crisis, then labor mix and usage along with potential additional fee would be reflected in a change of the linkage between bank audit fees and primary measures of banks' risk.

An additional important aspect that constitutes a field of research is auditor's independence. The latter is significant to exist in order to assure public confidence within the market. However, as Fields et al. (2004) observed, there is little research concerning the relationship among banks and their external auditors even if the significance of the financial institution sector is common knowledge. Generally, researchers questioned if auditors' independence is under threat when they are depending in a high extend in terms of financial aspects but one big client. Carcello and Neal (2000) state that auditor might depend a lot on a client in case that non-audit services' fees are high.

In an attempt to deal with this threat that concerns audit independence, the U.S Securities and Exchange Commission in 2001 set as a basic requirement of all public firms to present in their annual financial statements all crucial and critical information about audit and non-audit fees. Ethics suggest that an auditor must cancel the engagement with big clients especially when a high percentage of the audit firm's annual turnover derives from them. Furthermore, Sarbanes- Oxley Act of 2002 imposed relevant rules that protect auditors' independence. Kanagaretnam, Krishnan and Lobo (2010), stated that there are major reasons why there is a need to examine auditor's independence within banks. For example, they highlighted that U.S banks are

strictly supervised by the Federal Deposit Insurance Corporation (FDIC), the Federal Reserve Board as well as other bodies and what is more the aforementioned bodies strengthened the regulations for banks during 1991 in a way that there were stricter requirements on auditing of banks which have assets more than $500 million. The latter circumstance changed to $1 billion on 2005. In the same Act, Section 36 the authorities imposed the requirement of external audit over the internal controls of the all applicable to this law banks (Murphy 2004). After these regulations, related parties started wonder whether auditors' independence is relatively higher for large financial institutions. They implemented a survey on whether banks' audit fees are related to the extent of earnings management through loan loss provisions (LLP). Their findings indicate that unexpected audit or non-audit fees are unrelated to any fluctuation of LLP as far as large banks are concerned something that leads to the conclusion of no actual relation between those fees and earnings management. On the other hand, in small banks, they observed a negative relation between the above mentioned parameters. The latter result indicates higher earnings management within small banks, that are exempt from major regulation as referred above, and which pay more fees to their auditors. Summing up, according to their research auditor independence is under threat only in the case of small financial institutions and particularly when there is high audit fee and audit client positive correlation. Hence, their main statement is there are greater chances that small banks will overstate earnings when they pay highly their auditors.

2.1.   Development of Auditing

Auditing procedures are being used for quite a long time, however, not in their current form. The main difference is that so far auditors would emphasize to the past in order to recognize and detect material past mistakes. Of course, a great amount of the occurred misstatements may never be detected. Nowadays, auditors try to alter that historical attitude and adopt a more radical approach. Particularly they try to understand deeply the functions in order to understand well in advance what errors might occur in the near future, detect and hence, tackle them.

Historically, auditing was broadly adopted after the Industrial Revolution that resulted in a huge increase in business activities. It was some specific activities, for instance the

railroads that necessitated the establishment of such mechanisms both reliable and able to detect fraudulent actions. Furthermore, the fact that year by year more and more firms were entering the stock market made it necessary for accounting people to find a way to reassure investors that financial statements were not materially misstated. Yet, although that the aforementioned events were crucial for the intense use of auditing, the Big stock market crash occurred during 1929 was the basic motive for auditing to be improved and used broader. What is more, after the crash mentioned above, in the United States audit procedures became mandatory. In order to deeply establish the implementation of audit procedures Securities and Exchange Commission (SEC) was set up during 1934. The body was responsible for the supervision of publicly traded corporations and for the strict implementation of the existed regulation. Moreover, a very important action that SEC took was to force listed firms to submit reports more that once every year, so that investors would be timely informed about the financial condition of a firm. It is worth to state that SEC was ruling in accordance to the Generally Accepted Accounting Principles (GAAP) which was a further reassurance for all related parties. Furthermore, the new standards and rules were not solely new mechanisms. Regulators did take into consideration all the existed regulations and in some cases, they even mandate various optional by that time audit procedures. This resulted mainly due to fraudulent events that happened and consequently auditors took measures against potential similar future events. For instance, inspections of inventories and receivables and observation became major obligatory auditing techniques. It is of great important that even after the explosion of automated accounting systems (AAS), the aforementioned practices were irreplaceable. This can be justified simply by considering the fact that the first AAS was released by UNIVAC in the market already during 1954, but people began using it only after 1960. For this, however, important role played the book Electronic Data Processing and Auditing by Felix Kaufman in 1961 that helped people and motivated them to get used with computers and finally use them. During 1930 International Business Machines (IBM) released a new device that further facilitated and enabled the use of AAS. So we can assume that these events were the initial ones in order to overpass the historic manual accounting processes. However, we must refer to the fact that auditors may decided to use the new devices but they could not easily dispatch

from the manual input (known as auditing around the computer) and get used to completely rely upon the software of the AAS (known as auditing through the computer). The evolution of auditing continued one step further after the Equity Corporation Scandal during 1973, which is referred in the global history as the unique scandal in the electronic data processing scandal. It was the case of fraud related to untruthful commission income and wrong insurance policies that took place in the firm. When this scandal was revealed, it was about time for auditing through the computer to be obligatory. Consequently, the biggest audit firms, known as Big 8 at that time, created departments with electronic data processing specialists in order to audit the electronic systems. In addition to the above steps, one more was the Foreign Corrupt Practices Act during 1977 that prohibited bribery of non American officials in favor of American firms to buy business and also mandate these firms to establish relevant procedures with a view to detecting such fraudulent actions. The electronic data processing became more popular and familiar to accountants after the event of the personal computers (Davis, 1968), which incidentally increased in demand by its users by 400% during 1962-1967. After these, it was time for another improvement process concerning auditing that was achieved through the introduction of the computer assisted audit tools (CAAT), a mechanism that basically was linked with quality and speed of audit in cases that there was a huge data amount. Other advancement that followed CAAT was that of Audit Command Language and Interactive Data Extraction and Analysis.

A most significant step forward, was the Sarbanes-Oxley Act (SOX) of 2002 that made it even more clear that advanced audit services was mandatory in all publicly traded firms. What is more, SOX put extra emphasis on the need for better quality concerning both internal control procedures and financial statements something for what management and external auditors were responsible. SOX is also important because it emphasizes in the responsibility of audit firms and auditors to create a fraud detection strategy every time they were providing audit services to a company.

Regulators soon after the introduction of the SOX in 2002 realized that there is space for improvements concerning the regulatory system and procedures of auditing (Li, 2009). Basically, they introduced a new section of SOX that was dealing with the audit

of internal controls. Hence, in 2004 the Auditing Standard No 2 (AS2) was in fact an attempt to better monitoring the internal control system of firms (Krishnan, Krishnan, & Song, 2011). Relevant research resulted in evidence that show the impact of the above introduction. The results state that AS2 gave auditors an incentive to boost audit fees even higher. Consequently, due to accuses for excessive costs, the Public Company Accounting Oversight Board (PCAOB) released a new Standard, Auditing Standard no 5 (AS5) as an attempt to fix the aforementioned issue. PCAOB stated that the new Standard not only will fix the problem but it will also result in important cost savings within firms. It goes without saying, that the introduction and consequently the implementation of the new Standard set an alarm to researcher in order to determine the effect of the latter on audit fees. Krishnan, Krishnan and Son (2011), attempted to investigate the change concerning audit fees that was due to the shift from AS2 to AS5. They tested a sample of firms each of which used the same auditor the last year of AS2 and the first two years of AS5. They found significant evidence that ceteris paribus indeed, audit fees were lower during the first two years of the new standard. Moreover, they found that audits fees were relatively higher within firms with adverse opinion on internal controls. The latter, however, was a fact also under AS2. The difference is that the amount was relatively smaller under AS5 something that can be explained by the over- conservatism that exists under AS5. Finally, their tests resulted in controversial expectations with PCAOB that AS5 will decrease audit fees in smaller companies more than the amount in larger.

However, no matter how much audit procedures and regulations have been improved during the last century, there is still space for advances. In particular, there is a need for even more advanced and more timely continuous assurance systems, as auditors like to name them, in order to be able with the use of them to detect potential fraudulent transactions. This is the future audit conditions that auditors and investors try to develop and establish. Evidence obtained by the Association of Certified Fraud Examiners state that fraud losses continue to follow an escalating trend as a result of the use of traditional auditing procedures.

To make things more understandable, we should clarify that traditional auditing refers to the typical audit procedure that includes a contractual agreement, a risk assessment

along with an audit plan and strategy, the collection of information and evidence obtained from the management and finally the audit report. In terms of using the traditional audit it is clear that it will probably require more time and also it costs more until the final conclusion and that are considered to be disadvantages. Nowadays, auditors who are in favor of this audit method have managed to overcome the aforementioned cons by aggregating the transactions' inputs so that the feedback will not require much time. In future audit, audit procedures will be gradually cut off from manual inputs and the use of automated systems, as referred previously, will be enhanced. However, even if it might be the case that these systems are more effective and efficient they do have various drawbacks. The most significant one is the fact that they do not operate continuously, which results in a non-completely verified audit environment. All in all, researchers and auditors conclude that there must be further research in order to tackle all the disadvantages and manage to reach a complete automated audit process which is actually what future audit represents.

2.2. Risks in the Banking Sector

So far, we have been discussed about auditing and the determinants of audit fees. Now, we will present the most important risks that a bank is likely to face since our research is focused on banks and simultaneously will link those risks to audit fees. The major risks are considered to be: credit risk, liquidity risk, operating risk, capital risk and finally market risk. Below, each and one of the mentioned risks will be explained as it is very important to understand the nature of the functioning of a bank.

2.2.1. Credit risk

Credit risk refers to the fact that a lender will not get back the money that lent. In other words, it has to do with the inability of the borrower to return the loan that a bank provided them. Credit risk is thought to be the most important risk for banks, especially for commercial banks. It is known, that commercial banks make profit by the interest they gain from loans. Thus, the risk that the bank will not get back even the principal loan's amount is an extremely risky scenario for its function continuance. During the crisis that we are examining, the levels of credit risk were very high since the crisis soon became a mortgage housing one. However, credit risk is likely to occur in securities portfolio apart from the loan one. Banks in order to measure the levels of

the credit risk within their loans often require collaterals in order to use their value in case of loans that are not being paid back. The relationship that stands between audit fees and commercial loans is positive, since the latter is a risk determinant.

2.2.2. Liquidity risk

Charles Goodhart has noted that, "Liquidity and solvency are the heavenly twins of banking, frequently indistinguishable. An illiquid bank can rapidly become insolvent, and an insolvent bank illiquid" (Goodhart, 2008). Liquidity risk refers to the case that a bank will not have the appropriate amount of cash to carry out its day to day operations, meaning meet its obligations and also be able to provide loans. What is very important for a bank is to report provisions for sufficient liquidity. We are familiar with the bad case scenario of not reporting correctly the above element, since the last financial crisis was also a result of such an attitude. A liquidity shortfall apart from tarnishing a bank's reputation, can also lead to distress, when a bank is not able to pay its loans to other financial institutions (Armstrong & Caldwell, 2008). This might lead to a domino of banks' bankruptcies. Hence, a major difference between liquidity risk and the rest risks is that it be occurred in both asset side and liability side if a bank. Another related hazard, is that of a bank run. When people realize that there might be a liquidity issue, they urge to withdraw huge cash amounts resulting in even more liquidity problems. Banks with larger amounts of accounts transactions bear greater liquidity risk and as a consequence they need to pay more audit fees. To avoid at least one side of liquidity risk, commercial banks avoid long term securities, and instead they prefer to own portfolios with short term, liquid instruments. Liquidity risk has been described as a "consequential risk", meaning that it never arises on its own but it is rather accompanied by a rise in one of the other financial risks (Matz & Neu, 2007). What is more, there is evidence that liquidity risk is highly likely to interact with either market risk or credit risk. Nowadays, and basically due to the Global Financial Crisis of 2008, regulators have increased a lot the liquidity levels that a bank must have per year. In EU, the percentage is increasing every year, while during 2017 was 80% something that really strengthens the terms for when a bank can give a loan.

2.2.3. Operating risk

Operating risk refers to the probability that the high amount of operating costs will eventually have a negative effect to the capital account of the financial institution. Banks use the efficiency ratio in order to measure the operating risk. This ratio has negative correlation with the capability of a bank to make profit. High efficiency ratios indicate high amounts of transactions accounts. There is evidence that the higher the efficiency ratios the lower the audit fees to be paid, something that stems from the transaction amounts level that is positively related to the bank's complexity.

2.2.4. Capital risk

Capital risk is the risk is the probability that an investor will lose the initial capital amount of his/her investments. In banks, there are two counterparts. One is that of the shareholders that have an interest on the returns of the capital they had invested in the bank and thus they do not want equity to be very high. On the other side, creditors of the bank along with depositors, have a great need equity to be at least sufficient so they can assure their money are safe. This is the reason that banks and basically regulation, uses measures such as the capital adequacy ratio so as to keep a balance between these two parts. Another measure used to count the level of capital risk, are the intangible assets. Banks with more intangible assets are considered as more complex and thus it is expected that they spend more in audit fees.

2.2.5. Market risk

Market risk is the also known as systematic risk since it cannot be avoided by diversification measures. The Basel Committee on Banking Supervision considers market risk as the risk that stems from movements in market prices resulting in losses. Hence, market risk is affected by any change in capital markets and interest rates. Some decades ago, risk management was not meant to be used as a measure of market risk (Reserve Bank of Australia Bulletin, 1996). The fact that banks realized that market risk is composed by other significant inferior risks, was the beginning for a wider approach on risk measurements.

2.3. Banks and crisis

One of the most interesting characteristics of the current global financial crisis is the fact that it has its origins in the financial center that is the United States mortgage sector and it continued with a domino effect to the rest significant ones such as Europe and Asia (Talani 2011; Stiglitz 2010). It is true that the recent crisis resulted in the failure or bankruptcy of many eminent financial institutions (i.e. Lehman Brothers) something that made people wonder what the main reasons for this market disorder were. The fact that financial institutions were able to create money so easy and fast with a view to using it for real estate activities and further for speculation is said to be the major driver for the above mentioned market condition. This new amount of money was introduced in the shape of loans and particularly, relevant evidence reveals that only during 2000- 2007, the total debt and money amount was twice the size it was before. The worst part of it is that only 8% of the aforementioned new money was channeled in business other than banks. It is worth stating that the high mortgage rate was the basic drawback to characterize the loans given to people. However, providing the property market with extra amounts of money results to the problem that people will eventually be unable to pay back their lenders, something that unfortunately did happen. The uncontrolled power that financial institutions had to provide loans even to clients with the least credibility created fertile ground for the bubble to explode (Talani, 2011). To be more specific, loan lenders were making profit based on the amount of loans they would sell. Hence, it does make sense why they did not care intensively for the client's credibility (Gamble, 2009). Consequently, total debt amount was significantly greater than the income and thus, many banks were in danger of collapsing. Lord (Adair) Turner, being the chairman of UK's Financial Services Authority, confirmed by his statement that their failure to control banks from creating money was the root of the crisis. Eventually, a dramatically high level in interest rates was the first step when the housing sector collapse and then it snowballed to the financial sector (Gamble, 2009:22).

When the crisis was in its beginning banks decreased the loan number, something that resulted in the decrease of the house prices. Consequently, speculators had to sell their assets and finally the bubble burst. The bankruptcy of Lehman Brothers bank

during 2008 signaled the beginning of the biggest global financial crisis, as many economists support, which has been occurred after the recession of 1929. Afterwards, failures of important American and European banks followed. The American financial crisis has undoubtedly triggered the European crisis since the majority of events were common troublemakers for both continents. It goes without saying that the housing sector issue also expanded to Europe making the economic downturn unavoidable. Countries that affected highly throughout Europe were Spain, Ireland, and Italy basically due to the fact the within these economies real estate bubbles that were created by fake plus extremely low interest rates were about to explode. When the American financial difficulties have eventually "arrived" in Europe, the aforementioned countries got immediately into trouble since demand for properties had been lowered dramatically resulting in bank bankruptcies. In the aftermath of this turmoil, economic crisis was already reality for Eurozone and the first events took place in the form of significant downward trend in the GDP (Gross Domestic Product) of all EU member states. Cyprus and Greece affected heavily by that effect and their nightmare began (Karanikolos et al., 2013). Simultaneously, unemployment rates followed an upward trend, tax revenues decreased dramatically while expenditure increased resulting in great difficulties within each nation.

In order to communicate the skepticism based on which we decided to focus on PIIGCS' banks, we will briefly present crucial key points within the financial crisis' years that took place in those countries. We are all familiar with the introduction date of Euro that was on 1999, when eleven countries only were considered able, in terms of requirements, to adopt the new currency. It is worth mentioning that Ireland, Spain, Italy and Portugal were included in the eleven countries. Greece entered the Eurozone few years later, basically on 2001 and Cyprus in 2008. When the crisis spread in Greece people speculated that the country has never met the requirements to enter the Eurozone and that the crisis in Greece was an obvious and reasonable result.

At this point let's put facts in an appropriate time order. On Friday Sept. 15, 2008 Lehman Brothers bankrupt and within few days the crisis has already been spread to Europe. Soon Iceland went bankrupt and that was the time that bells started ringing for Europe. Regulators, rating agencies and billion homeowners were taken aback in

the name of the housing bubble. In Europe, Germany and England tried to stand by Europe to bail out banks. In 2009 Greece's budget deficit reached the level of 13.6% (according to Eurostat) of its Gross Domestic Product (GDP) a figure that is four times the appropriate level according to Maastricht Treaty's convergence criteria for Eurozone member states. One year later, in 2010 Spain and Portugal introduced austerity measures in their countries while at the same time Spain's budget deficit reached 11.2 % of its GDP. Soon after those public expenses reductions were announced in both countries. The same year Greece asks for help, meaning loan amounting 45 billion euro from the International Monetary Fund along with Eurozone states in order to not go bankrupt. Consequently, further austerity measures took place, a significant increase of taxes and decrease in spending were voted. So far, the crucial disorders within Europe were first the sovereign debt and second the difficulties that bank countries within euro i.e. PIIGCS had to deal with. The general disorder of the banking sector was more than obvious at that time and became even more alarming when the European Central Bank introduced the Securities Markets Program under which it could be able to buy all government bonds that were not interesting for any investor. It goes without saying that the financial sector was officially under threat and banks were facing a very difficult period for which there was no experience. Another measure taken to protect EU countries from a domino failure trend, was the creation of the European Financial Stability Facility, which would provide loans to those European countries that were struggling against huge liquidity difficulties. Even though that the best would have been measures to have occurred prior the crisis, all the above were crucial factors that helped avoid the ultimate failure either of nations or of Europe in total as many speculators fear that time. We are familiar with the fact that the majority of European banks couldn't were failing in the stress tests. The situation became worst when Ireland asked for a bailout of 85 billion euros. Few months later, in the rise of the 2nd quarter of 2011 Portugal receives a 78 billion euros bailout something that led the ECB to a 50 basis points increase of its interest rates in an attempt to deal with inflation which at that time was 2.6%. Soon and during the same year, EFSF was replaced by the European Stability Mechanism that was a permanent bailout fund and began its operation by the end of 2012. Greece was still in significantly alarming danger and thus, a reduction of its debt by 50% was

announced and the rating agency S&P classified as default the Greek credit rating. Moving forward, Hungary a noneuro- area member applied for a bailout something that was neglected by the European authorities and the International Monetary Fund for various reasons. Months later both Spain and Cyprus requested a bailout with the former clarified that there was a need only for the Spanish banks. From the above facts it is clear that eurozone was in deep recession mood with various upcoming ups and downs in its interest rates and member states' ratings, a problem that undoubtedly affected even eminent countries after some point, such was France that faced a downgrade of one notch by Moody's. It goes without saying that the financial sector crisis has been intensively researched during the past years and some results that deal with the relation between crisis and different bank characteristics are of great interest. A recent study of Beltratti and Stulz (2012) provides evidence that banks which performed better during the last year before crisis that is 2006, performed worst during the first two years of the crisis. This can be better understood as a result of the Tsunami effect that states the various attributes that were more precious for the market on 2006 created various risks to banks and as a result they performed poorly after 2006. However, this reaction was not meant to be since the market did not value these attributes as weaknesses. In the same paper, the researchers found that banks with shareholder-friendly boards performed worst during crisis something that is linked with the fact that by trying to create more wealth for shareholders simultaneously leads to an increase of both costs and risks associated. Governance may not be a strong determinant of bank performance but on the other side, they concluded that bank balance sheet and profitability rates are. Basically, as it can easily be expected, banks with bigger asset amounts and higher Tier 1 managed to perform better during the global distress due to liquidity issues. All these were reasons to answer why some banks managed to perform better than other during the last depression period.

2.4. Determinants of Audit Fees

Before presenting our research implementation we should determine what are the main factors that determine the amount of audit fees to be paid. As in every transaction, the client and the provider of the service are the sources of those factors.

Below, main characteristics of an auditor along with the equivalent of an auditee are being presented.

Major characteristic of an auditor is its size (Causholli, Martinis, Hay & Knechel, 2010). The amount of fees that an audit firm will charge its clients is highly depended on the size of the former and consequently its reputation (Gregory & Collier, 1996). This is obvious simply by considering the existence of Big 4 firms. The reputation is the most important asset that those firms have. Deloitte's main driver policy is the safety of its reputation and this value is always one of the first issues partners, managers and everyone that works for Deloitte, hear or talk about. This attitude on its own is efficient to help understand how valuable is to remain one of the Big 4. The importance of reputation can be easily understood by considering the case of Arthur Andersen that after its contribution to Enron's fraud case; it disappeared completely from the audit sector. It is worth mentioning, that both firms used to be leaders in their industries. Previous research has shown that indeed, fees being charged by a Big 4 firm are higher than those by non-Big4. Furthermore, Big 4 companies are found to charge premium fees something that is not the case for audit firms other than the Big 4 ones (Francis, 1984; Palmrose, 1986; Whisenant, Sankaraguruswamy, & Raghnandan, 2003; Andre, Broye, Pong & Schatt, 2011; Kwon et al., 2014).

Apart from the reputation, another major pillar for auditors is the quality. Quality and size are considered to be positively related. The bigger a firm is the more money it has to invest in improvements of its services, and thus its quality. However, there are studies that provide with evidence that quality and BigN are not always related. Lawrence, Meza and Zhang (2011) in their current study found that there is no significant difference between the audit quality provided to firms by a Big N and by a non-Big N.

Summing up, although that the majority of prior related research found a positive relationship between size and audit fees, there are few studies that state no such relationship exists (Meshari, 2008). Our study concludes as well to a positive relationship between size and fees.

[25]

Moreover, it is interesting to mention that in cases where there is a need for initial costs it is preferred by auditees' to keep the existed auditor (DeAngelo, 1981).

On the other side, various characteristics of the auditee contribute as well on the determination of the audit fees. Previous studies found that the quality of the internal controls of the auditee has negative correlation with the fees, in particular, Hogan and Wilkins (2008) concluded that the more ineffective the internal controls of a firm are the more audit fees it has to pay. Indeed, audit firms charge more according to how risky a firm is considered to be. This stems from the fact that the audit procedures are dramatically increased when there are indications for ineffective internal controls something that could easier result in fraudulent behavior within the company. More audit procedures mean more audit hours and more auditors to implement the testing. Consequently, the price for it is higher. Castro, Peleias & Silva (2015) in their current study measured risk in terms of liquidity and leverage and found that firms with higher levels of the previous mentioned elements are to spend more for audit. All relevant studies had the same conclusion, which mentioned above. Felix, Gramling and Maletta (2005), state that the better the internal audit quality the lower the external audit fees. Along with the aforementioned, the complexity of the auditee determines also the fees (Hay, Knechel, & Wong, 2006). A firm with many transactions is more difficult to be audited, and thus the auditors charge higher. For example, commercial firms with inventories and various invoice transactions are considered as more demanding audit cases and they require more time until the audit is completed. On the other side, simple real estate funds with back to back loans transactions require less testing procedures and thus fewer audit hours. Hence, there is an obvious positive relation between complexity and fees. It could thus also be thought as an industry related matter. Furthermore, according with Ettredge, Xu, and Han (2014) there is a positive relationship between audit fees and the proportion of fair value assets held by financial institutions.

Another important characteristic of an auditee is its profitability. Indeed, it has been proved that firms with higher profit or loss amounts require more audit hours and as a result they are required to pay higher fees. However, not many studies to have used profitability as a model's control exist.

Last but not least, many studies especially during the last decade have focused on the relationship between corporate governance and audit fees. Here, the results are controversial. Bedard & Johnstone (2004) concluded that there is a positive one, and thus the better the corporate governance the lower the fees to be charged to them. Griffin, Lont and Sun (2008) found similar results, and they further stated that after SOX the fees reduced even more. On the other side, there are studies that found that firms with high corporate governance levels pay higher audit charges (Hallak & Silva, 2012).

3. Research methodology

In this section, are being presented the plan and the actions that need to be taken in order to investigate our research question. Furthermore, there is a description of the rational of choosing the included variables, the application of the econometric model, the techniques and concrete procedures used and finally, the robustness test that has been implemented. What is more, the collection, the generation and the analysis of the data that have been used are also presented.

A series of steps were followed for the applied research methodology. Firstly, through the basic previous studies and research (literature), which are presented in Table 2, there has been examination of the most important confluences regarding the research subject of this paper. Consequently, has been formed the both hypothesis and the research questions. Secondly, it was decided the structure of the three models and controls that will be utilized in each model. In a third level, the correlations and co-variations of the parameters, using an appropriate statistical program have been checked. In the fourth step, a mathematical regression was formed so as to investigate the influence of several controls to the amount of auditor's fees and thus conclude to an interpretation.

This study is considered as a quantitative research study. It is conducted at the level of European Union banking institutions. The main purpose is to interpret the factors affecting the amount of audit fees and examine if there is a different pattern regarding PIIGCS economies banks against the rest, based upon the final findings.

3.1.   Dataset

Firstly, our population is the banks from all over the world. We select our initial sample from EU banking institutions listed in Thomson one database and audit fees for the years 2004-2016. Then, we select the data regarding our controls. Our search results in an initial sample of 157 banks observations. Due to the fact that there were no data for the period 2004-2007 we decide to work with after-crisis period data. Furthermore, because of the huge number of missing values in many of our controls we decreased the examined number of banking institutions. Eventually, the final sample to be used is comprised of 91 European banking organizations, 31 of which are banks from PIIGCS economies (Table 1). The rest 60 banking institutions are located in European countries, which specifically are Austria, Belgium, Germany, Denmark, France, Finland, Great Britain, Netherlands, Poland and Sweden. The examined audit fees are reported in 2008-2016 fiscal years financial statements. The data of the sample are considered to be Panel or Longitudinal Data as the unit and time of observations varies, we measure the same collection of banks over a period of time. Thus, the sample has both time series and cross-sectional dimensions and helps us to address a broader range of issues with dynamically changing relationships among them. From now on, due to the resemblance among these organizations, we will refer to the sample institutions as "banks" or "PIIGCS banks" when referring to banks stated to an economy among Portugal, Italy, Ireland, Greece, Cyprus and Spain. All the organizations contained in our sample, which deputize the banking subset of a hand collected database, are active listed banks with an unqualified auditor's opinion in their financial statements regarding 2008-2016 fiscal year.

Table 1- Sample selection

Selection of the sample	
Initial sample 157	
Final sample 91	
PIIGCS banks	Rest EU banks
31	60

3.2.   Model specification

In the formulation of an econometric model specific steps have been followed. Based on previous economic or financial studies (Table 2), it is formulated an estimable theoretical model. The collection of data and model estimation is followed. The next level is to check whether the model is statistically adequate. If it is proved as adequate, then the interpretation of the model could follow so as to use it for analysis. In every model there is an explained variable, which is assumed to be random or stochastic, and one (or more) explanatory variable(s) which are considered to be non-stochastic. For the purposes of this research paper, three models are used in order to analyze and compare the results with the results of the existed audit fee literature. All the models have the same explained variable. The first model is based on audit fees literature (Table 2) and includes all the 91 European banks for which relevant, adequate and current data has been able to gather. In the second model we try to investigate if there is a different pattern in PIIGCS' banks, so we use an extra dummy variable that is for all PIIGCS' banks. Concerning the third model we use the second model including five extra explanatory variables and thus we are able to examine deeper not only specific issues concerning the profitability of banks along with the provisions for loan losses, but also the influence of major macroeconomic factors on audit fees.

Below, is presented the Table 2 which summarizes major prior studies upon banks audit expenditures which were used so as to decide the controls regarding our models. The common for all studies is that they use as the dependent variable (y) the audit fee. In number 1 it is depicted the title of the study, in number 2 are presenting the authors of each paper, 3 is for the year of papers publication, in number 4 is reported the specific period tested, 5 is for the country, in 6 we have the number of observations, 7 the independent variables (x) used, 8 the conclusions of the paper and finally 9 for the used database so as to retrieve the study's final sample.

Table 2- Summarized Audit Fee Literature

Summarized audit fee literature

1. An investigation of the pricing of audit services for financial institutions

2. L. Paige Fields, Donald R. Fraser and Michael S. Wilkins

3. Published in 2004

4. 2000

5. United states

6. 277

7. Assets, Big4, loss, standard deviation of daily returns, transaction accounts/ deposits, securities, efficiency ratio, commercial loans/ gross loans, non-performing loans/ gross loans, net charge-offs/ loan loss reserve, domestic real estate loans/ gross loans, risk adjusted capital ratio, intangible assets/ total assets, sensitive ratio and savings.

8. Higher audit fees for banks with more transaction accounts, greater acquisition activity, higher risk adjusted capital required by regulatory agencies, fewer securities, lower levels of efficiency and higher credit risk. Audit firm's prices are depending on complexities and risks.

9. Sheshunoff information services Bank source database

1. An Empirical Analysis of Auditor Independence in the Banking Industry

2. Kiridaran kanagaretnam, Gopal V. Krishnan and Gerald J. Lobo

3. Published in 2010

4. 2000- 2006

5. United states

6. 1740

7. Assets, Big5, securities, loss, non-performing loans/ total loans, intangibles/ total assets, efficiency, net charge-offs/ loan loss reserve, commercial loans/ total loans, consumer loans/ total loans, real estate loans/ total loans, risk adjusted capital ratio, exempt (indicator, if a bank has less than $500 million in total assets).

8. Unexpected auditor fees are unrelated to earnings management for large banks. Also, for small banks was found higher earnings management via under- provisioning of loan losses provisions by banks that pay higher unexpected total and non-audit fees to the auditor.

9. Audit analytics

1. Asleep at the Wheel (Again)? Bank Audits During the Lead-Up to the Financial Crisis

2. Rajib Doogar, Stephen P. Rowe and Padmakumar Sivadasan.

3. Published in 2015

4. 2005-2007 and 2008-2009

5. United states

6. 283

7. Assets, Efficiency, sensitive, savings, net charge-offs/ loan loss reserve, intangibles/ total assets, Tier 1 risk based capital ratio, Big4, standard deviation of stock returns, mortgage securitization/ total assets, other assets held by banks, impairment of goodwill, accelerated filer, delay and initial audit engagement or not.

8. Auditors were able to identify and respond to the macroeconomic shocks to banks' business environment because the risk-based audit approaches in use during the period leading up to and including the financial crisis appear to have facilitated auditor ability to recognize and respond to audit risks

emanating from changes in the auditee's business environment.

9. Audit analytics, the Centre for Research in Security Prices (CRSP) monthly data set, the Wharton Research Data Services bank regulatory filing (FR Y-9C) data set and Compustat.

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1. Audit Fees after Remediation of Internal Control Weaknesses

2. Vishal Munsif, K. Raghunandan, Dasaratha V. Rama and Meghna Singhvi

3. Published in 2011

4. First four years of internal control reporting, begin with November 2004.

5. United states

6. 1610

7. Assets, foreign operations or not, proportion of total assets in accounts receivable and inventory, square root of the number of segments, probability of bankruptcy, Big4, audit opinion, extraordinary items or discontinued operations, initial year of audit or not and material weakness in internal control.

8. Remediating firms have lower audit fees when compared to firms that continue to report material weaknesses in internal control. audit fees are "sticky" for firms that have material weaknesses in internal controls over financial reporting.

9. Audit analytics and Compustat

3.3. Summary analysis

Thomson one database was used in order to collect data for the sample of 91 banks for 9 continuously years. In all three models, logarithmic transformations are being used for audit fees and total assets. In Table 3 are being presented the definitions of the one untransformed dependent and more untransformed independent variables, which are

used in the three models. This table specifies the meaning and the way of calculation concerning the variables.

Table 3- Definitions of variables

	Variables definitions
Audit fees:	Represent the amount paid by the bank annually for the professional examination and verification of the financial statements for the purpose of rendering an opinion as to their consistency, fairness and conformation to accepted accounting principles. Also, includes audit fee for consultancy.
Total assets:	Represent the sum of cash & due from banks, total investments, net loans, customer liability on acceptances, investment in unconsolidated subsidiaries, real estate assets, net property, plant and equipment and other assets. Includes trust business assets. Adjusted to exclude treasury stock. Adjusted to exclude investment in own bonds.
BIG4 auditors:	The four largest audit firms in the world are known as BIG4 and they offer audit, assurance, taxation, consulting and other services. They handle audits both for private and public companies. For the years 2008-2016, relating our research, the professional services network called BIG4 are Deloitte and Touche, Price Waterhouse Cooper (PWC), Ernst & Young (EY) and Klynveld Peat Marwick Goerdeler (KPMG). All the other audit companies are known as non Big4.
Car ratio:	Capital Adequacy ratio represents a bank's capital measure. It is the amount resulting from the division of total capital (Tier 1 & Tier 2) to risk weighted assets. The higher the Car ratio the more protected the depositors are. Basel has set a threshold for Car ratio so as to increase the stability and efficiency of financial institutions.

Intangible Assets/ Total Assets:	Intangibles represent other assets not having a physical existence. The value of these assets lies in their expected future return. It includes: Goodwill/Cost in excess of net assets purchased, Patents, Copyrights, Trademarks, Formulae, Franchises of no specific duration, Capitalized software development costs/Computer programs, Organizational costs, Customer lists, Licenses of no specific duration, Capitalized advertising cost, Mastheads (newspapers), Capitalized servicing rights, Purchased servicing right.
Non-performing loans/ Total loans:	Non-Performing Loans / Loans-Total * 100. Non-performing Loans represent the amount of loans that the bank foresees difficulty in collecting. It includes: Non-accrual loans, Reduced rate loans, Renegotiated loans, Loans past due 90 days or more. It excludes: Assets acquired in foreclosures, Repossessed personal property.
Efficiency ratio:	The efficiency ratio is calculated by dividing the operating expenses to total revenue. Is the proxy for banks operating risk and it demonstrates who many cents of every euro of revenue will pay operating expenses. For a banking institution the efficiency ratio helps to estimate the capacity to turn assets into revenue. This allows analysts to evaluate the performance of a bank.
PIIGCS countries:	This acronym refers to the economies of Southern European countries of Portugal, Italy, Greece, Cyprus, Spain and Ireland. It is used in economics and finance sectors and is related with the effects of economic vulnerability and growing debt of these European countries.
ROA:	Return on Assets represents the level of profitability of a company relative to its total assets. It is an indicator of the

	efficiency and capability of the management to generate revenue utilizing its assets.
Total Liabilities/ Total Assets:	Total Liabilities represent all short and long-term obligations expected to be satisfied by the company. More specifically, it includes: Current Liabilities, Long Term Debt, Provision for Risk and Charges, Deferred taxes, Deferred income, Other liabilities, Deferred tax liability in untaxed reserves, Unrealized gain/loss on marketable securities (insurance companies), Pension/Post retirement benefits, Securities purchased under resale agreements (banks). It excludes: Minority Interest, Preferred stock equity, Common stock equity, Non-Equity reserves.
Growth of GDP:	Gross Domestic Product is driven by personal consumption, business investment, government spending and net trade (exports – imports). Growth GDP rate compares the country's gross domestic product to the previous one. In fact, it is the most important indicator of economic health because it measures how fast the economy is growing. GDP growth rate is positive when an economy is expanding and negative when an economy suffers a recession.
Inflation rate:	Represents the rate at which the general level of prices for goods and services is rising and so the purchasing power of currency is falling.
Provisions for loan losses/ Total loans:	Provision for Loan Losses / (Loans-Total - Interbank Loans) * 100. Losses that the bank expects to take as a result of uncollectible or troubled loans.

In Table 4 are being presented the selected summary data for the whole sample. In the first column it is described the summary measure and in the second column we have the name, when it exists, of the associated regression variable.

Table 4- Financial Information for 91 banking institutions reporting audit fees for 2008-2016

Summary data for 91 banking institutions					
Variable	**Regression variable**	**Mean**	**Median**	**Min**	**Max**
Audit fee (€ mil)	LOGFEE	8,47	1,52	0,02	118,2
Total assets (€ mil)	LOGASS	233009,25	33649,12	74,48	2476671,67
Total deposits (€ mil)	-	90434,42	13617,36	0,79	1208885,95
Net income (€ mil)	-	100,02	3,65	-99,84	21706,02
Equity (€ mil)	-	20,49	5,59	-98,41	10618,15

Table 4 shows that there is a fair amount of deviation in audit fees that banks pay. Getin Noble Bank SA, located in Poland, paid € 0, 02 million for the years 2009 and 2010, which is the minimum amount of audit fees in our sample. On the contrary, Banco Santander SA, located in Spain, paid € 118, 2 million for the year 2015. The median audit fee for the sample banking institutions is € 1, 52 million. The biggest client is Royal Bank of Scotland with € 2476671, 67 million total assets, reported in 2008 and the smallest, regarding size, is Getin Noble Bank SA. The median value of total assets is approximately € 33649, 12 million. Total deposits have a median value of € 13617, 36 million, while HSBC Holdings Plc has the largest amount of deposits. Concerning the net income, there is a wide distribution across banking institutions. The German bank Commerzbank Aktiengesellschaft had reported a € 99, 84 million losses in 2008. Contrariwise, the higher profit of € 21706, 02 million was reported by the Polish Bank Millennium SA.

In the table 5 below are presenting some extra information about the controls of the three models. The controls are categorized according to the, related to the banking industry, risk they represent. Some of them are used by bank regulatory agencies. In the first column is described the risk measure and in the second column we have the name of the associated regression variable.

Table 5- Controls information categorized by risk measures

Liquidity risk measures						
Variable	**Regression variable**	**Mean**	**Std. Dev.**	**Median**	**Min**	**Max**
Total liabilities/ total assets	LIABASSETS	0,93	0,26	0,92	0,34	3,78
Provision for loan losses/ total loans	PROVLLOSSES	1,1	1,29	0,71	-1,32	12,29
Operating risk measure						
Variable	**Regression variable**	**Mean**	**Std. Dev.**	**Median**	**Min**	**Max**
Efficiency ratio	EFFICIENCY	1338,38	8098,18	0,9	-0,54	90986,25
Credit risk measure						
Variable	**Regression variable**	**Mean**	**Std. Dev.**	**Median**	**Min**	**Max**
Non-performing loans/ total	NONPERFLOANS	6,37	8,9	3,7	0	64,07

loans (%)

Capital risk measures

Variable	Regression variable	Mean	Std. Dev.	Median	Min	Max
Risk- adjusted capital ratio (%)	CARRATIO	15,22	6,22	14,4	-6,1	67,17
Intangible assets/ total assets	INTANG	0,61	4,67	0,003	-0,003	64,4

Macroeconomic factors

Variable	Regression variable	Mean	Std. Dev.	Median	Min	Max
Growth of GDP	GROWTHGDP	0,53	3,12	0,9	-9,1	26,3
Inflation rate	INFL	0,009	0,06	0,001	-0,92	0,047

Profitability measure

Variable	Regression variable	Mean	Std. Dev.	Median	Min	Max
Return on assets	ROA	0,14	2,28	0,41	-29,83	8,64

The financial crisis has affected the liquidity of the banks and this is confirmed from the table above. The debt to assets ratio median is 92%, declaring a huge liquidity problem. Caisse Regionale banks ratio is 3, 78, which mean that has 3,78 times more liabilities than assets. The ratio provision for loan losses to total loans could be either a

credit risk measure. The median 71% demonstrates the possibility of not repaying a loan. Bankia SAU, a Spanish bank (PIIGCS bank), has the higher ratio regarding provision for loan losses.

The efficiency ratio gauges a banking's institution overhead as a percentage of its revenue. An interesting point can arise from the fact that the operating risk measure has a huge standard deviation. This is also evident from the large dimension between the minimum and the maximum value. The median value is approximately 90%, which means that 90 cents of every euro of revenues is used to cover operating expenses. It is generally considered that a 50% ratio is the maximum topnotch efficiency ratio. The higher the efficiency ratio the higher the operating expenses a bank have, or the lower its revenues.

We have one representative measure for credit risk, but we can also involve the provision for loan losses to total loans ratio which is presenting in table. During the economic crisis, there was an increase in non-performing loans especially in PIIGCS countries which suffer more. It is known that Greece and Cyprus banks faced a 40% or more non-performing loans/ total loans ratio in 2015, due to the implementation of capital control and the big recession. The median value is 3, 7 %. A Greek bank, Bank of Piraeus S.A., had the maximum ratio (64, 07 %), regarding non-performing loans, in 2013. The allocation of non-performing exposures, which is depicted in the loan portfolio composition, is highly abnormal because of the different degree of influence from the crisis between PIIGCS countries and the other European countries.

The median for risk- adjusted capital ratio is 15, 22 %. The Polish Getin Noble Bank S.A. had the highest capital adequacy ratio (67, 17 %) in 2008. National Bank of Greece had the lowest rate (-6, 1 %) in 2012, through the sovereign crisis. For our 91 banks, the ratio concerning intangibles has a median value of 0,003 and a 61 % mean revealing the enhancing activity of banks.

The macroeconomic measures indicate the economic condition of a country and not so much of the bank. Every bank is adversely affected by the situation of the country in which it is located. As regard the growth of Gross Domestic Product (GDP), Ireland had the higher growth of GDP (26,3 %) in 2015. Greece had a downsizing

9,1 % of GDP for 2011, an extremely difficult year for the country. The big difference between the two PIIGCS countries growth of GDP is due to the complex factors that lead each country to be involved to the crisis and to the different timing. Ireland had to face a massive property bubble, but Greece had to face the doubling commitments (in real terms over 10 years). The inflation rate hadn't significant fluctuations. This is why the European Central Bank has as main objective to maintain price stability. Especially price inflation in Euro zone is measured by the Harmonised Index of Consumer Prices (HICP), which was adopted in 1998 by the ECB's Governing Council, and defines the rate close to 2% over the medium term. The median value is 0,001 and the extreme values are -0, 92 for Greece in 2013 and 4,71 % for Greece in 2010.

The median of the profitability measure, Roa is 0, 41. Investeringsselskabet Luxor AS, located in Denmark, had the lowest return on assets -29, 83, the negative value indicates that the bank does not use properly its capital and creates suspicions for inefficient management. Arbuthnot Banking Group PLC, located in Great Britain, had succeeded the highest return on assets from our sample (8, 64).

Furthermore, in Table 6 we made a comparison, concerning all the variables, of means and medians between PIIGCS banks and non PIIGCS banks.

Table 6- Test of differences for the variables between PIIGCS and non PIIGCS banks

Test of differences for the variables between PIIGCS and non PIIGCS banks				
	PIIGCS Banks		**Non PIIGCS Banks**	
Variables	**Mean**	**Median**	**Mean**	**Median**
Audit fee	8,37	1,5	8,48	1,52
Total assets	234486,50	30026,63	233009,25	33649,12
Roa	0,11	0,37	0,14	0,41
Carratio	15,25	14,30	15,23	14,40
Intang	0,6716	0,0034	0,6187	0,0033
Liabassets	0,93	0,93	0,9	0,91
Provllosses	1,15	0,75	1,10	0,72
Nonperformloans	6,78	4,01	6,43	3,74
GrowthGDP	0,48	0,90	0,54	0,90

Inflation	0,0094	0,013	0,0098	0,012
Efficiency	1354,33	0,9126	1338,38	0,911

Observing the Table 6, it is very interesting that the mean and the median concerning the variables of PIIGCS banks and non PIIGCS banks are close enough. The interpretation is that there isn't a different pattern, regarding our controls, in PIIGCS banks during crisis. Contrary to our prior expectations, we are expecting to find no significance to PIIGCS variable. It seems that all the banks are affected in the same way to the middle of the crisis. It would be very stimulating if we could compare the same measures before and after crisis.

Table 7- Auditor's Information

Audit firm	Audits	% of Audits	Median client assets (€ mil)
Deloitte and Touche	25	27,47 %	239612,9
PriceWaterhouseCoopers	24	26,37 %	134879,2
KPMG	18	19,78 %	170156,6
Ernst & Young	16	17,58 %	324276,9
Other (Mazars, Crowe Horwath International and other firms)	8	8,79 %	456403,2
Sum	91	100 %	-

Chosen data items by audit firm are analyzed in table 7. Based on the table above, we conclude that for the sample of 91 banks Deloitte & Touche has the highest audit market share with a 27,47 % of total audits. Market share is determined in terms of the number of banks audited. PriceWaterhouseCoopers follows with a small difference

(26,37 % of total audits). Although Deloitte & Touche has carried out audits in more European banks, which makes it the leading audit firm, Ernst & Young with 17,58 % and other auditors with 8,79 % market share had audited banking institutions with greater average total assets (€ 324276,9 and € 456403,2 respectively). A remarkable point can arise from the fact that non Big4 audit firms (other) have conducted only the 8,79 % of total audits but they had the biggest clients, based on the median client assets (€ 456403,2), which is an indicator for the size of a banking institution.

Table 8- Auditor's Information per year

Audit firm	Median audit fee per year (€ mil)								
	2008	2009	2010	2011	2012	2013	2014	2015	2016
Deloitte and Touche	8,4	8,0	9,0	9,0	8,5	8,1	9,6	9,4	11,1
PriceWaterhouseCoopers	5,0	6,0	5,6	5,2	5,0	3,1	3,8	5,8	5,5
KPMG	9,4	8,6	7,4	6,9	7,1	5,3	5,1	5,5	5,2
Ernst & Young	11,9	12,3	11,2	9,1	9,1	7,5	8,7	12,3	7,7
Other (Mazars, Crowe Horwath International and other firms)	11,1	12,2	13,6	13,5	12,2	17,4	23,3	26,1	11,7

In Table 8, we dissect the median audit fee per year for each audit firm. Concerning the amount of audit fees, non-Big 4 companies had charged higher audit fees through the years compared to Big 4 auditors. We can explain this taking into consideration the above table 7, banks with greater assets may pay higher audit fees. PriceWaterhouseCoopers has the lowest amount of audit fees. The same is applied for KPMG, which has a decreasing amount of audit fees over the years.

3.4. *Variables correlation*

The first level is to investigate the correlation among the explanatory variables in order to investigate if two variables have a linear relationship. A correlation matrix is the tool

to examine and detect multicollinearity in a multiple regression model. We run the correlation matrix (Table 9) in Stata statistical program. The indication 1.0000 means that the variables are perfect positive correlated. When the value is from -1.0 to -0.5 or from 1.0 to 0.5 there is a strong correlation negative or positive respectively, from -0.5 to -0.3 or 0.3 to 0.5 there is a moderate correlation, from -0.3 to -0.1 or 0.1 to 0.3 there is weak correlation and from -0.1 to 0.1 it is considered to have none or very weak correlation.

Table 9- Explanatory Variables Correlation matrix

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1.logass	1.0000												
2.big4	-0.2123	1.0000											
3.piigcs	-0.0564	-0.1337	1.0000										
4.carratio	-0.0426	-0.0719	0.3697	1.0000									
5.intang	-0.4198	-0.1270	-0.0567	0.0775	1.0000								
6.nonperf	-0.0216	-0.0963	-0.4051	-0.1384	0.0373	1.0000							
7.efficien	-0.2293	-0.0313	0.0876	-0.0564	0.4662	-0.0886	1.0000						
8.roa	0.2061	-0.2468	-0.1577	-0.5221	-0.0341	-0.0685	0.0015	1.0000					
9.liabass	0.0469	0.2270	0.2010	0.2651	-0.0285	-0.0777	-0.0372	-0.0760	1.0000				
10.grgdp	0.0348	-0.1871	0.0380	-0.1885	0.2122	-0.2095	0.0741	0.3598	-0.0879	1.0000			
11.infl	0.1560	-0.0939	-0.1166	-0.4388	-0.1373	-0.2350	-0.0756	0.7793	0.0485	0.1654	1.0000		
12.provllos	0.2510	-0.2201	-0.0017	-0.2781	0.0162	-0.2284	0.0640	0.8188	-0.0341	0.4055	0.6092	1.0000	
13._cons	-0.6567	-0.0925	-0.2755	-0.4443	0.2654	0.1402	0.1792	0.0308	-0.6684	0.0633	-0.0199	-0.1395	1.0000

Generally, it is not observed strong correlation among the independent variables. Negative correlation is detected for intangible assets/ total assets and the logarithm of total assets, which means that an increase in one variable will cause a decrease in the other, but it is not significant, and it can be considered moderate. The same is detected for non-performing loans/ total loans and Piigcs and for carratio and Piigcs. Moderate negative relationship also exists between roa and carratio, carratio and

[43]

inflation rate. Moderate positive relationship exists between efficiency and intangibles, inflation and provisions for loan losses, provision of loan losses and growth of GDP, inflation and roa. The higher positive correlation is (0,8188) between the provision for loan losses/ total loans and Roa. The other variables could be considered to have weak correlation. There is no significant linear relationship between the explanatory variables. Thus, there is no need to make changes concerning the variables, because it is not observed verified multicollinearity of high importance. The constitution of the correlation Matrix is enough satisfactory, so we can move on without removing any of them.

3.5. Econometric approach and empirical results

3.5.1. Model 1

The first model is based on specifications commonly used in the audit fee literature. Audit fees are regressed on measures of institutions size, auditors' size, capital risk, credit risk, liquidity risk and operating risk, which are all risks closely related to the banking industry.

The form of the model 1 is as follows:

$$LOGFEE_{it} = a_o + a_1 \, LOGASS_{it} + a_2 \, BIG4_{it} + a_3 \, CARRATIO_{it} + \, a_4 \, INTANG_{it} \\ + a_5 \, NONPERFLOANS_{it} + a_6 \, EFFICIENCY_{it} + \varepsilon_{it} \qquad (1)$$

Where: i = 1, 2… 91 and denote the bank

t = 1, 2… 9 and denote the year

a_0 is a constant and ε_{it} represents the residual (error)

As regards the dependent variable in equation (1), LOGFEE represents the natural logarithm of the audit fee. Concerning the independent variables of the model, LOGASS represents the natural logarithm of total assets. BIG4 denotes a dummy variable, which takes the number 1 if the bank institution is audited by one of the Big4 audit firms, otherwise it takes the number 0. Previous studies have supported that the coefficients α_1 and α_2 of LOGASS and BIG4 are expected to have a positive value. Capital risk is measured by CARRATIO, which represents the capital adequacy ratio. The α_3 coefficient is expected to be positive, because an increased value of CARRATIO

is an indication for higher pressure from regulatory authorities. Other main measure for the capital risk is INTANG. Similarly, the coefficient α_4, for the second measure related to capital risk, should be positive. Higher level of intangible assets indicates the possibility of a more intricate and risk-taking banking institution. Furthermore, banks regulatory capital is reduced from goodwill. As a result, there is bigger capital risk and the need of higher audit exertion for banks with acquisition activity. Credit risk is related with the percent of non-performing loans to total loans. There is a positive relationship between audit fees and non-performing loans. The greater the amount of non-performing exposures the greater the risk of a client not to repay the loan, so the audit fees are higher. Thus, the α_5 coefficient is expected to be positive. Last but not least, the efficiency ratio is related with the effectiveness of the banks management. High operational risk indicates ineffective management and bad decisions. So, we expect a negative α_6 coefficient because less efficient institutions have higher audit fees.

Moving to the next step, the regression estimation of our panel data, and before the initial results we had to decide whether to use the fixed effects method (FE) or the random effects method (RE) (error components model). Generally, FE model is preferable when the sample entities compose the entire population. RE model is more convenient when the sample entities can be though as having been randomly selected from the population.

In order to choose between the two different methods, we run the regression two times, one with the FE method and another with the RE method. Afterwards, we conducted the Hausman test in Stata statistical program, which assess if a statistical model reciprocates to the data. The hypothesis of the test is depicted in table 10.

Table 10- Hausman test Hypothesis

	H_0 is true	H_1 is true
B (RE estimator)	Consistent efficient	Inconsistent
b (FE estimator)	Consistent inefficient	Consistent

In Table 11 are presenting the results of the Hausman test. In the second column are presenting the estimated coefficients of the Fixed effects methods, in the third column are depicted the estimated coefficients of the Random effects model and in the fourth column is estimated their difference.

Table 11- Results of Hausman Test, model 1

	Fixed (b)	Random (B)	Difference (b - B)	Sqrt (diag (V_b - V_B)) S. E.
Logass	0,5768023	0,7867297	-0,2099274	0,1374079
Carratio	-0,0002527	0,0001244	-0,000377	0,0017218
Intang	-0,0003358	0,0023326	-0,0026683	0,0024315
Nonperfloans	0,0024313	0,0020203	0,000411	0,0007969
Efficiency	-8,84e-07	-2,88e-07	-5,95e-07	3,55e-07

Prob > chi2= 0,3633

So, because the p- value 0,3633 > 0,05 we don't reject the null hypothesis, thus Random Effects is the appropriate method.

Furthermore, we check the existence of heteroscedasticity which is a major problem in the regression analysis. When there is heteroscedasticity the scatter of the errors varies depending on the value of one or more of the explanatory variables. The conducted test, in Stata, pointed out that there was heteroscedasticity and corrective action has been taken to ensure homoscedasticity.

Autocorrelation is another issue that should be tested in a regression analysis. It is the resemblance between a given time series and a lagged version of itself over consecutive time intervals. In essence, it gauges the connection between a variable's current and past value. Autocorrelation was detected and corrective actions were made, using Stata statistical program.

Table 12- Results of model 1

Variable	Expected sign	Coefficient estimate	Z	P – value
Intercept	-	3,8856	24,74	0,000**
LOGASS	+	0,7867	25,81	0,000**
BIG4	+	0,5068	8,13	0,000**
CARRATIO	+	0,0001	0,03	0,977**
INTANG	+	0,0023	1,89	0,058**
NONPERFORMLOANS	+	0,0020	0,72	0,468**
EFFICIENCY	-	2,88e-07	0,13	0,896**
Adjusted R- square %	0,83			

*** is for 1% level of significance, ** is for 5% level of significance and * for 10% significance level.

In the Table 12 are presenting the initial results regarding model 1. The results show that the coefficients on the determinants of audit fees have the expected sign. But for the 6 controls, only the 2 are statistically significant (p- value < 0,05) and one is marginally statistically significant for a 95 % confidence interval (or a threshold of 5 %). The natural logarithm of total assets is significant with a positive sign, which means that for a bank with higher assets (greater client size) an auditor will ask higher fees. This is confirmed also by the audit literature; all major studies (Fields, Fraser & Wilkins, 2004) had examined the impact of total assets and had concluded to the same results. Furthermore, Big4 is statistically significant with a positive sign. This means that a Big4 audit firm will charge higher fees from a client. So, the size of the auditee also matters. Intangible assets/ total assets are marginally statistically significant with positive direction. The explanation is that auditors charge higher audit fees for banking institutions with a history of mergers and acquisitions. The other 3 determinants are not statistically significant, which means that do not affect the audit expenditures. So,

operating, credit and one liquidity measure do not affect European banks audit fees. Finally, the adjusted R- square is enough satisfying, meaning that the model is good.

3.5.2. Model 2

The second model is similar to the first model with an extra dummy variable. This indicator variable will give more gravity to PIIGCS banks. The form of the model is as follows:

$$
\begin{aligned}
LOGFEE_{it} = a_0 &+ a_1 LOGASS_{it} + a_2\, BIG4_{it} + a_3\, CARRATIO_{it} + a_4\, INTANG_{it} \\
&+ a_5\, NONPERFLOANS_{it} + a_6\, EFFICIENCY_{it} + a_7\, PIIGCS_{it} \\
&+ \varepsilon_{it} \tag{2}
\end{aligned}
$$

Where: i = 1, 2… 91 and denote the bank

t = 1, 2… 9 and denote the year

a_0 is a constant and ε_{it} represents the residual (error)

In (2) equation, the dependent variable, LOGFEE, represents the natural logarithm of the audit fee. Respecting the independent variables, the meanings and coefficients are the same with those in equation (1). But, we have an extra dummy variable which takes the number 1 if the bank operates to an economy of Portugal, Italy, Ireland, Greece, Spain or Cyprus, and takes the number 0 otherwise. The coefficient α_7 is expected to be positive. Because we are expecting higher audit fees in PIIGCS banks due to the financial crisis and the higher risks that those banks undertake.

As in the model 1, the Hausman test was used so as to make a selection between the Fixed effects and Random effects method. The Hypothesis of the test is the same with table and the results are presenting in table 13.

Table 13- Results of Hausman Test, model 2

	Fixed (b)	Random (B)	Difference (b - B)	Sqrt (diag (V_b - V_B)) S. E.
Logass	0,5768023	0,7870532	-0,2102509	0,1372543
Carratio	-0,0002527	0,0000711	-0,0003237	0,0015999

Intang	-0,0003358	0,002327	-0,0026627	0,0024177
Nonperfloans	0,0024313	0,0020546	0,0003766	0,0006642
Efficiency	-8,84e-07	-2,89e-07	-5,94e-07	3,52e-07

Prob > chi2= 0,3621

So, because the p- value 0,3621 > 0,05 we don't reject the null hypothesis, thus Random Effects is again the appropriate method for the regression.

Heteroscedasticity and autocorrelation were detected and corrected for the regression of the model 2. Thus, the initial results, using the random effects method, are presenting in the table 18.

Table 14- Results of model 2

Variable	Expected sign	Coefficient estimate	Z	P – value
Intercept	-	3,8851	24,70	0,000**
LOGASS	+	0,7870	26,16	0,000**
BIG4	+	0,5071	8,08	0,000**
PIIGCS	-	0,0046	0,08	0,940**
CARRATIO	+	0,0001	0,02	0,987**
INTANG	+	0,0023	1,88	0,060**
NONPERFORMLOANS	+	0,0020	0,70	0,485**
EFFICIENCY	-	2,89e-07	0,13	0,896**
Adjusted R- square %	0,83			

*** is for 1% level of significance, ** is for 5% level of significance and * for 10% significance level.

In the second model the extra variable is only one. For the 6 same determinants with the model 1 the results are the same. Assets, Big4 and Intangibles/ total assets (marginally) are statistically important for a 95 % confidence interval. For our extra dummy variable, Piigcs, the concluding remark is that it is not statistically significant (0,940 > 0,05). The tenor is that audit fees are not driven by the country (if it is a Piigcs country or not). The general economic situation of country, due to the crisis, is not a determinant of audit fees. The same controls (assets etc.) are important for the level of audit fees for all the European banks and there no different pattern for Piigcs financial institutions. The adjusted R- square is adequate for our model.

3.5.3. Model 3

The third model is the biggest one with 5 extra independent variables. The form of the model is as follows:

$$
\begin{aligned}
LOGFEE_{it} = a_0 &+ a_1\ LOGASS_{it} + a_2\ BIG4_{it} + a_3\ CARRATIO_{it} + a_4\ INTANG_{it} \\
&+ a_5\ NONPERFLOANS_{it} + a_6\ EFFICIENCY_{it} + a_7\ PIIGCS_{it} \\
&+ a_8\ ROA_{it} +\ a_9\ LIABASSETS_{it} +\ a_{10}\ GROWTHGDP_{it} \\
&+\ a_{11}\ INFL_{it} +\ a_{12}\ PROVLLOSSES_{it} +\ \varepsilon_{it} \qquad\qquad (3)
\end{aligned}
$$

Where: i = 1, 2, …., 91 and denote the bank

t = 1, 2, …., 9 and denote the year

a_0 is a constant and ε_{it} represents the residual (error)

In equation (3), we have the same explained variable, LOGFEE, which denotes the natural logarithm of audit fee. We have the same 7 explanatory variables with model 2. So, the expected relationship between them and the explained variable and the coefficients expected sign is the same. The coefficient α_8 of ROA is expected to be positive. ROA is an indicator of the profitability of the bank, thus the higher the generation of profits the higher the paid amount of audit fees. When LIABASSETS have higher value it means that liabilities are more than assets, thus the bank has more obligations than requirements. As a result, we are expecting a positive α_9 coefficient due to the fact that a higher LIABASSETS ratio means higher bank risk and higher audit fees charge from audit firms. The next two variables signify some macroeconomic

factors and are related with the financial situation of the country in which the bank operates. GROWTHGDPs coefficient, α_{10}, is anticipated to have a positive value. Countries with higher growth of GDP are healthier and are growing faster, so the paid audit fees are higher. But if we see it from another perspective, the coefficient could be either negative. In a country with recession the banks have to deal with more risks, so the auditor may impose higher audit fees due to the excess risk. As regards the inflation rate, higher inflation rate leads to rising prices for goods and services. Thus, we expected a positive α_{11} coefficient which denotes the relationship between audit fees and inflation rate. The last variable is PROVLLOSSES, we anticipate positive relationship between provision for loan losses/ total loans and audit fees. When a bank forecast to have many loan losses the credit risk is higher and so the audit fees.

As in the previous models, the Hausman test was used so as to make a selection between the Fixed effects and Random effects method. The Hypothesis of the test is the same with table. In table 20, we depict the Stata results of the conducted Hausman test.

Table 15- Results of Hausman Test, model 3

	Fixed (b)	Random (B)	Difference (b - B)	Sqrt (diag (V_b - V_B)) S. E.
Logass	0,5817714	0,8033824	-0,221611	0,1362532
Carratio	-0,0016293	0,0002179	-0,0018472	0,0019034
Intang	0,0001752	0,0028652	-0,00269	0,0024162
Nonperfloans	-0,0014292	-0,0010133	-0,0004159	0,0009273
Efficiency	-5,79e-07	-6,54e-07	-6,45e-07	3,60e-07
Roa	0,01268	0,0157802	-0,0031002	0,0060036
Liabassets	-0,8329264	0,1479705	-0,980897	0,7179374
Growthgdp	0,0079477	0,0082252	-0,0002774	0,0007903

Infl	-0,0576967	-0,0332635	-0,0244332	0,0283442
Provllosses	0,0571003	0,0571745	-0,0000742	0,0044582

Prob > chi2= 0,1184

So, because the p- value 0,1184 > 0,05 we don't reject the null hypothesis, thus Random Effects is again the appropriate method.

The next step was to detect the existence of heteroscedasticity and autocorrelation and make corrective actions for the regression of the model 2. Thus, using the random effects method the initial results are reporting in Table 16.

Table 16- Results of model 3

Variable	Expected sign	Coefficient estimate	Z	P – value
Intercept	-	4,1566	21,82	0,000**
LOGASS	+	0,8033	29,31	0,000**
BIG4	+	0,5042	8,55	0,000**
PIIGCS	+	0,0037	0,06	0,949**
CARRATIO	+	0,0002	0,04	0,965**
INTANG	+	0,0028	2,36	0,018**
NONPERFORMLOANS	-	0,0010	0,35	0,728**
EFFICIENCY	+	6,54e-07	0,03	0,976**
ROA	+	0,0157	0,89	0,374**
LIABASSETS	+	0,1479	1,67	0,095**
GROWTHGDP	+	0,0082	2,11	0,035**

INFL	-	0,0332	0,36	0,715**
PROVLLOSSES	+	0,0571	2,16	0,031**
Adjusted R- square %	0,84			

*** is for 1% level of significance, ** is for 5% level of significance and * for 10% significance level.

The table 16, with the results of model 3 reveals that at the 95 % confidence interval LOGASS, BIG4 and INTANG are statistically important and with the expected sign according to the literature (Fields, Fraser & Wilkins, 2004). In this model, are added 5 more determinants as we deemed it appropriate to deepen and broaden our research. Concerning these controls, GROWTHGDP, which is a macroeconomic factor, is statistically significant and the audit fees are driven by it. Initially, there was a doubt about growths of GDP expected sign. From one point of view, we expected a positive sign because it makes sense auditors charge more fee to healthier countries and lower the price to countries in recession due to the continuous lowering of wages and prices. But for another point of view, a negative relationship was valid because audit firms could charge more the banks which are located in countries with economic fluctuations and deal with higher risks. The results from Stata show that the higher the growth of GDP the higher the audit fees. So, auditors take into consideration the financial situation of a country when they audit a bank. Furthermore, provisions for loan losses is an important determinant. The greater the ratio provisions for loan losses/ total loan the higher the audit price because the high ratio it's an indicator for increasing credit and liquidity risk. For a 90 % confidence interval (a 10 % threshold) LIABASSETS could be considered to have a significant relation with audit fees. The more liabilities and the fewer assets a bank has the more audit fees will charge the auditor because the liquidity risk is growing. Audit fees are not driven by profitability measures as ROA (0,374 > 0,05). Also, they are not affected by the inflation rate, which is not statistically significant.

To summarize and evaluate critically the results, PIIGCS banks and non PIIGCS banks determinants are behaving in the same way during crisis. Our first hypothesis was that there would be a different pattern because of the different way, dimension and extent

each of the country was affected from crisis. But, from the moment we began processing the data it turned out that this is not the case. If we had examined a different period, before and after crisis, maybe the conclusions would be different. Furthermore, the determinants of audit fees, which are statistically significant, are total assets, if an audit firm is Big4 or not, the intangible assets/total assets, the growth of GDP, the ratio liabilities/assets and the provision of loan losses/ total loans. These results are consistent with our initial hypothesis, expectations and the relative literature (Kanagaretnam, Krishnan & Lobo, 2010).

4. Conclusions, limitations and recommendations for future research

This is the last chapter, in which are presenting the concluding remarks resulting from our analysis, the limitations that might have and possible issues that worth to be examined in the future.

Our thesis, intends to show the fundamental factors which contribute to the pricing of European banks, in the middle of the economic crisis, by audit firms. Also, examines if there is a different audit pricing for PIIGCS countries banks due to the excess difficulties that these countries face. In this context, there were used 3 models with an increasing number of determinants. This way, gave us the allowance to study the whole sample, European banks, in relation with prior literature. At a second level, to make a diversification and study if there is a different impact in PIIGCS banks. And at last, to investigate some hypothesis dependent on our worries and questions. As a consequence, the general audit fee model is examined broader and into an alternative perspective.

The results demonstrate that auditors charge more the banks with greater assets, more intangible assets, higher ratio of total liabilities to total assets and more provisions for loan losses. So generally, the areas that are of a high importance for regulatory agencies with respect to the fees, as capital, liquidity and credit risk, have a consistency with the study.

Concerning the auditor, the size does matter. Big4 firms charge higher fees as a premium for their services. Furthermore, the pricing is not affected only by factors of the banking industry. The macroeconomic factors of the country and the level of the health regarding its economics are taken into consideration by audit firms. We found that it does not make sense if a country is a PIIGCS one or not, but this is in conflict with the results regarding the growth of GDP. This may be due to the examined years (2008-2016, in the middle of the crisis) and the financial situation of each country. For instance, a Piigcs country which was in a great recession will have a high growth of GDP when the financial starts getting better. So, there are coming up limitations which could be interesting to be dealt with in more detail and in different ways in the future.

For this reason, a future study can examine the determinants of audit fees in PIIGCS countries prior and post crisis. Also, a deeper investigation about macroeconomic factors, their fluctuations and the relationship between them and audit pricing is an upcoming issue for audit fee literature.

Last but not least, general conclusions and recommendations about the audit industry could be drawn. The way that auditors are pricing can be studied in order to avoid downsizing. An alignment of processes between internal and external auditors will strengthen preparedness in front of an underlying new crisis.

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