

DISSERTATION TITLE

“Financial risk disclosure in annual reports and impact on Firm’s financial characteristics: Evidence from listed companies in Greece”

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Executive Summary / Abstract

In times of economic crisis in the whole Europe and Greece even more, the concept of risk is placed in the foreground. The uncertainty in everyday life but also in daily corporate operations impose stricter rules not only in risk management but in disclosures of risk level referred also. Investors and stakeholders protection requires transparent information on the part of the company on both the risks facing the company and of those that may occur.

Recent legislative and regulatory interventions by the competent institutions have brought about significant changes in the risk disclosure in annual reports of Greek listed companies. But these are not enough to provide effective and qualitative information on the risks faced by companies and should be communicated to the interested parties. The voluntary information on the part of management of the company is an important parameter in other developed markets while in many developing countries have to adopt similar practices

In this research Greek stock market is examined for first time and made a first attempt to approach the policies and practices by large Greek companies in risk reporting. The study contains a detail literature review of risk reporting in other countries and latest developments in the institutional framework and regulations mainly in Greek market. The research focus on 20 largest Greek firms and content analysis methodology have been used.

The empirical findings of the study show a strong association between risk disclosures and firms size (market size). Also confirms previous research about domination of past and monetary over non monetary and future risk disclosures. The risk information's presented in Greek annual reports is quite poor and many improvements can be made. This study with all its limitations that mentioned analytical in the next parts can be a starting point for further research in the Greek market.

CHAPTER 1: INTRODUCTION

1.1. Introduction

Financial Risk is a field with a lot of interest for both academic and professional research over the last years and especially from the beginning of the global economic crisis. In modern economy, financial risk has big impact in firm's business performance and affects the decisions of shareholders. The complex environment where firms now days act is full of dynamic interactions and relationship that demand useful and reliable information in order to be capable of making effective business decisions. In this frame, the need for more qualitative information is very intensive and the authorities put more even more demanding rules in the content of firms reporting in order to protect investors and other involved parties.

In order to homogenize the content of information provided, all listed companies in the European Union were required to prepare their financial statements in accordance with International Accounting Standards (IAS). The use of IAS was the first step for a common measure in firm's performance evaluation. The common language used in presentation of financial statements and the convergence in the methodology of formatting annual reports according with International Financial Standards had significant positive impact in risk identification and measurement.

Risk disclosures in the Greek stock market companies are still in their infancy level because the necessary institutional framework is now formed and also the management of the firms has not been given the necessary importance in the quality of information provided to investors. Additional it must be mentioned that there are no any academic research in the field of risk reporting in Greek Market. The importance of the quality of the information provided in the annual reports begins and becomes more important for researchers in the Greek market as the respective researches increase in other developing European countries.

The research will begun by reviewing relevant risk disclosure academic research in Europe and other developing countries and respective legislative frameworks. The analysis will include not only mandatory risk reporting but voluntary risk reporting too. In developed countries like Great Britain there are more examples of voluntary risk disclosure than in less developed countries. In the main part of the study the risk disclosure (in annual reports of 31/12/2012) made of large caps (20 companies) of Greek listed companies will be examined. Content

analysis is the methodology which it will be used by coding the necessary text of annual reports with a framework of rules developed by Linsley & Shrives (2006) and used by other researches in many studies afterwards. The risk disclosures will be categorized in monetary non monetary, good risks – bad risks, past risks – future risks etc. Statistical analysis tools will be used for data analysis and in the final part there will be a discussion about the relationship of financial characteristics of firms and risk disclosures.

CHAPTER 2: BACKGROUND

2.1. Economic Crisis

The start of the biggest economic – financial crisis was triggered by a mix of public policies which encourage home ownership by providing access to loans to subprime borrowers. The false expectations of continuous increasing house prices lead to collapse all house mortgages with the consequences of banking bail out in first place and diffusion of the crisis by the global financial products afterwards which end with the global recession. The systemic threats of a bad designed financial global market can have immeasurable impacts on the organizations of the whole world. The economic - financial crisis acted as a bell for all organizations which not give much attention to estimate risk and have ready a complete risk management strategy in order to confront the consequences of the diffusion of financial risks to which are exposed in the context of globalization of markets. Observing the start of the economic financial crisis today we can state that risks in their biggest content was fully disclosed but markets failed or didn't focus enough to understand them. The fact is that there was not sufficient regulation in markets that could prevent the speed and intensity spread of financial crisis. The governments and the authorities who are responsible for the market regulations have to redesign the methodology and the requirements in order to protect not only the investors and the markets but the whole financial system which is very venerable as it's revealed in the last years of big recession. Nowadays there is lack of funding and the cost of capital is more expensive than it was before the economic crisis, therefore organizations should organize better the necessary risk information's that investors need in order to gain an competitive advantage in capital markets.

2.2. Concept of Risk

Risk is a notion with broad use in everyday life. According to financial committee of the institute of chartered accountants in England and Wales (2002) “risk is essential to an enterprise, because it is inherit in the pursuit of opportunities to earn returns for its owners.” Risk is the future undesirable outcome or event from a specific action according to Harrington and Niehaus (2003). Risk is generally referred to as the possibility of danger, loss, injury, or other adverse consequences and the major risks faced by institutions include credit risk, market risk, interest rate risk, liquidity risk, and operational risk (Abdul Rasid S.Z., Abdul Rahman A.R., Wan Ismail W. K., 2011; Bessis, 2002). Shrand & Elliot (1998), define risk with a more

broad view: risk doesn't contain only threats but also opportunities and possibilities. This approach matches more with our research content. The participation in economic and financial transactions involves risk of all types as mentioned above. Firms have to identify as soon as they can so they can address them. The measurement of the risk is not a simple matter. Markowitz proposed to measure the risk associated to the return of each investment. ICAEW (1997) underline that the measure of risk includes the following:

- 1) Accounting measures,
- 2) Non-accounting measures,
- 3) Sensitivity analysis and
- 4) Value at risk

2.3 Risk Management

The risk management is common and applicable in all fields of social and political life. The risk management is most often applicable in economical and financial activity which can be seriously affected by many ways and in high level from all sociopolitical happenings. It's obvious that sociopolitical factors are highly connected with financial risk management policies and strategy.

Lesley D Webster, Global Head of Market and Credit Risk assessment of JP Morgan Chase & Co., described (2004) the imperative information diffusion as an additional measure for risk management stating that "we need to pay greater effort to help our shareholders understand all financial risks and their potential impact on the long-term corporate profits."

Risk management can be identified as a strategic tool, appropriate for organizations of each size which plays a significant role in their success. Risk management's main effect is improving decision making. Williams, Smith and Young (1998) argue that proactive risk management helps the organization reaching its goals as efficiently and as quickly as possible.

Risk management obviously had failed in the case of the global financial crisis. The present crisis has put risk identification and risk mitigation as a first priority in business strategy. The fear of chain reactions that can cause a unique economic or financial event has rattled the

companies and organizations and drove them to stay in alert and examine all kind of dangerous event taking place in the world.

In order to address all risks, organization must find a common methodology for a more accurate and integrated measurement and risk identification. In order to evaluate each kind of risk the firms should approach him considering all the possible consequences and the reactions which can be triggered. Different risks need different strategies in order to be managed. The organizations must put a lot of effort not only to identify risk but design a strategic plan in order to confront them.

2.4 Management Accounting

The investors and managers of firms need to evaluate information's that can be exported by annual reports and financial statements in order to make a decision. In this complex environment, managers need relevant financial and non-financial information for decision making (Abdul Rasid S.Z., Abdul Rahman A.R., Wan Ismail W. K., 2011). The best tool for collection, processing, evaluating and decision making is Management Accounting. The International Federation of Accountants (IFAC, 1998) defines management accounting as the process of identification, measurement, accumulation, analysis, preparation, interpretation, and communication of information (financial and operational) used for the planning, control, and effective use of resources by management. Management accounting is an indispensable tool for making decisions based on data derived from the accounting records of the company which is the subject of the investment. The annual reports usually contain the most of their information's by the data processing of accounting statements. When firm's managers use management accounting data with the use of risk management methodologies there is better decision making.

2.5 Aim of study

This study examines financial risk information's disclosed by Greek listed firms companies within their annual reports. The types of risk information disclosed are analyzed, impacts and relationships between financial characteristics and financial risk disclosure are examined. The tool which will help us quantify the relationship between financial characteristics and financial risk disclosure is logistic regressions and descriptive statistics.

According to time limitation and the data availability, sample of Large Caps (Greek stock market index) has been chosen. The financial characteristic of the firms which will be tested, are respectively from those used in the past by similar surveys in different countries of Europe and the world. The hypothesis will be formatted according with existing literature.

2.6 Importance of the study-Motivation

The area of risk disclosure is of particular importance especially the last years with the global economic crisis. There are only few risk disclosure studies that have been published and so a further research in this area is valuable. By focusing on Greek firms we study companies from a small country which is passing the greater economic crisis in her modern history. In this period risk management is the first priority for all organizations and risk reporting has significant importance for all parties interact with Greek firms. It must be mentioned that this is the first study of financial risk disclosure in Greek market. The study will also check the verifiability of the results of relevant studies in other countries. The research will contribute to understand better the importance of risk communication in annual reports and their importance in relation to the economic characteristics of the companies as reflected in the financial statements.

CHAPTER 3: LITERATURE REVIEW

3.1 Financial risk

Risk relates to a distribution of future outcomes (Corby, 1994; Doherty, 2000; Dobler 2008). Abdelghany (2005) defines three major types of risk associated with risk measures:

- a) Financial risk: The probability of losses arising from the financial structure of the company
- b) Business risk: The probability of losses arising from the essential operation side of the firm
- c) Systematic risk: The probability of losses arising from forces which occur broadly within the economy and affecting larger numbers of companies

More specific financial risks are those which directly affect company net cash flows. Market, credit, liquidity, operational and legal risks are all considered as financial risks. According to KPMG (2013) study “market risks is the risk that changes in market prices” and consists of Exchange risk, Interest risk, Risk of price variations in financial assets other than fixed income assets and Risk of commodity price variations (Cabedo and Tirado, 2004). According to Jorion (2002) Value at Risk has become a standard benchmark for measuring financial risk.

3.2 Annual reports

The disclosure of financial information's is done through financial statements and other official notes which are mandatory through national and European legislation. Also listed firms have to follow and regulations from Capital Market Commission.

Modern portfolio theory underlies the fact that information's on risk are fundamental in helping investment decisions (Abraham and Cox, 2007). Institutional investors point out that is very important to have access in risk profile of firms and in order to be that possible, firms must provide the relevant information's (Linsley and Shrives, 2006). Annual report is the most important source for information's needed for effective investment decisions (Firer and Meth, 1986) although today firms give risk information's in press releases and specific interviews of managers.

The annual reports are mixture documents that have to meet the requirements of legislation and various regulations or in many cases the directives of bodies that oversee the functioning of the market and also contain useful voluntary information's about firm's strategy. Companies are bound by an increasing number of regulations and norms which force them to communicate risk (Thuélin, Henneron and Tournon, 2006). Companies decide the extent of the additional information they want to give beyond the mandatory disclosures required by laws and regulations in annual reports. Firms have the opportunity through annual reports to enlighten some issues that cannot be understood through financial statements. The complex accounting circuit and specificities of the accounting treatment of each company separately, often require additional information to better understand the financial situation of the company and optimize readability of accounting statements of non professionals.

Last years firms give much attention in the production of annual reports because can be used as a communication tool. The financial statements and the annual reports are tools for mass communication by the firms. The heterogeneity of the public, demands the annual reports to be rich in content and simple in information presentation. So annual reports which often are designed by external collaborators have rich content in narratives, photographs and graphs in addition to the quantitative financial data (Valentine, 1999; Linsley and Shrivs 2005). Firms are usually more eager to disclose good information, while they tend to delay the announcement of bad information (Aboody & Kaznik, 2000; Iatridis 2006).

Graphs contained in annual reports, being visually appealing, are most likely to be noticed. The primary function of graphs in the annual report is taken to be the communication of information. Companies with good performance are significantly more likely to use financial graphs (Beatde and Jones, 1992).

According to Linsley and Shrivs (2005) there is much research in voluntary content of annual reports but not enough research in risk management information disclosed in annual reports. Also according with Financial Committee of the institute of Chartered Accountants in England and Wales (2002) firms give much more useful risk disclosure information in prospectuses than in annual report because annual reports usually are prepared to comply with regulations and rules in order to give a true and fair view of the company performance. Anyway firms have not only to follow legislation and regulations in risk reporting but also have to identify and classify facts that can have affects in firms performance and investors decision making process in order to raise funds. The organizations and the managers seem to give more attention to fulfil

regulations and directions in annual reports formatting than in identifying fact that can affect firm's economical characteristics.

3.3 Risk Disclosure

Risk disclosure main target is to inform investors about the risk in each investment and the possible impact in return overall in order to make rational investment decisions. The lack of information on risks facing companies is one of the main weaknesses in the accounting information disclosed by firms. Quality of information depends not only on what is reported but also on how it is reported (1996). The content of risk disclosure is very important and can have different impact in investor decision according with the words that is used. So people decisions can be manipulated by the way he presents the information related to the risks (Avgouleas, 2009 cited Tversky and Kahneman, 1986). Decisions of investors are fragile according to behavioral economy theory and can be affected by anything that might alter their psychological state as the like hood of an emergency risk that occurs in the annual reports of the company. An investor needs a proper understanding of the risks it undertakes in order to understand the potential for future cash flows of a company. The information's needed are in three basic directions according to Financial Committee of the institute of Chartered Accountants in England and Wales (2002)

- a) An analysis of the risks affecting the company business
- b) What measures are applied in quantifying risk
- c) What actions the company takes in order to manage risks to which it is exposed

The eruption of the global financial crisis through complex financial products incorporating risks and the recent revelations of major financial scandals by companies that hide risks and key financial elements made investor very cautious with firm's annual reports and managers actions.

On the contrary according to agency theory managers decide to publish or to withdraw information's depending to the costs and benefits of the disclosure.

3.4 Prior Research on Risk Disclosure

Risk reporting largely varies across entities in both voluntary and mandatory reporting regimes (Dobler, 2008). Calls for improved risk disclosures have been made by organizations such as the Institute of Chartered Accountants in England and Wales (1998), and respondents to

Solomon et al. (2000), the survey of UK institutional investors stated: that directors need to provide more detailed risk information. Nowadays, companies are obliged to issue few items of this kind of information (Cabedo and Tirado, 2004). A very important finding is from Marshall and Weetman (2002) who report that less than half of foreign exchange risks known to management were disclosed in the annual reports of large listed US and UK companies. It must be mentioned that Dunne et al. (2004) indicates an important increase in financial risk disclosure according to FRS 13 but still companies do not provide enough information's about risk management. (ICAEW, 2002; Abraham and Cox, 2007). According to Linsey and Shrivess (2006) study, risk reporting will provide useful risk information that allows outsiders to assess the risks of an entity's future economic performance. The problem is that risk information in annual reports is currently judged to lack coherence (Linsley and Shrivess, 2005). However in the same research we see that the publication of additional risk information does not necessary drive to improved risk communication unless directors write with greater clarity when discussing risks. In any case the risks that are reported should indicate not only possible dangerous but possible business opportunities for gain.

According to Graham, Harvey and Rajgopal (2005) managers make voluntary disclosures in order to reduce information risk associated with their stock although try to avoid make a disclosure precedent that will be difficult to maintain. Firms increase disclosure when they display favourable financial figures, which signifies that the level of disclosure is closely related to firm performance (Lang & Lundholm, 1993; Iatridis, 2006). The most important potential benefit arising from improved risk disclosures by firms is a reduction in the cost of capital (Linsley and Shrivess, 2000; Linsley and Shrivess 2006). Healy and Palepu (2001) mention that in order to reduce agency problems managers should present relevant risk information to prove their acting in the interests of the shareholders and debt holders. At the other hand Elzahar and Hussainey (2012) following Hughes, (1986), Haniffa and Cooke (2002) definition mention that managers disclose adequate information in the financial reports in order to convey specific signals to current and potential users according to signaling theory. Dobler's (2008) research results imply that incentives for risk reporting are less prevalent than partly suggested by extant literature and can explain limited risk reporting as documented by empirical studies even in regulated regimes.

A very important finding for risk reporting is from Beretta and Bozzolan (2004). A significant conclusion of this study was that firms focus on disclosing information on past and present risks rather than future risks. When future risks are disclosed, there is no enough indication whether

the impact is likely to be positive or negative. Linsley and Shrive (2000, 2005, 2006) also suggest that the provision of forward-looking risk information would be especially useful to investors

According to Berger and Gleißner (2006) research managers will not be willing to disclose quantitative information on the size of the risk exposure. Managers may publish additional risk information in order to convince shareholders that they are behaving optimally (Watson et al., 2002; Abraham and Cox, 2007). Beretta and Bozzolan (2004) in their sample of Italian firms and Linsley and Shrive (2006) in their sample of UK firms (FTSE 100) confirm a positive correlation between the volume of risk disclosures and company size. A very important finding in the research of Beretta and Bozzolan (2004), Woods and Reber (2003), Beattie et al. (2004) and Linsley and Shrive (2006) is that only a small proportion of risk disclosures were quantified. An important issue is the number of bad and good risk disclosure in annual reports. The findings of Linsley and Shrive (2005) research shows that neutral disclosures are dominant. The level of good and bad news disclosures indicating that directors doesn't choose to hide bad news.

Laidroo found (2009) that in market with low barriers to entry firms disclose less information's than firms in markets with high barriers to entry because the disclosed information's can be used by potential competitors something which confirms Leuz (2004) research which conclude that companies which are protected by high entry barriers are more likely to provide commercially sensitive information such as risk-related disclosure.

Hassan (2009) defines corporate risk disclosure as the financial statements inclusion of information about managers' estimates, judgments, reliance on market-based accounting policies such as impairment, derivative hedging, financial instruments, and fair value as well as the disclosure of concentrated operations, non-financial information about corporations' plans, recruiting strategy, and other operational, economic, political and financial risks.

The decision about what risk disclosure there will be contained in annual reports is highly connected with manager's motives. As Iatridis (2008) mentioned managers prefer to disclose risks information's which can improve firm's image and highlight their abilities in risk management.

Last years the role of the auditors has been upgraded and new auditing standards under SOX act require to report regularly to senior management and board indicating not only fraud risks but

potential exposure to significant risks according to standard 2060 (Leung, Cooper, and Perera, 2011).

3.5 Risk Reporting In Other Countries

Risk reporting is a basic concept in all developed countries legislation. National legislations are adjusting in international guidelines and best practices. In the same path developing countries (Asia, Africa, Middle East, etc) and emerging markets are formatting legislative framework based on international standards and guidelines of international bodies (IFAC, IASB, ACCA, ICAEW, IRS etc). The upheavals in the global economy, the difficulty of risk management and the inability of measuring and calculating the impact on corporate results, led the authorities of the markets pushing for more and stricter framework and greater transparency in investor information. Listed firms in stock markets of countries like United Kingdom and USA, which are more familiar with risk reporting practices, are adopting voluntary risk reporting standards beyond the mandatory disclosures. The Investor Relations Society in UK has developed a proposed framework (appendix 1) of risk reporting rules for optimal information of investors concerning the risks faced by their respective companies. The framework was created based on the factors influencing the decisions of investors and the quality of information that require such decisions.

In Greek market there is not any academic or business research in the field of risk disclosures but opposite there are some researches in European developed countries, which can be used as a guide. In United Kingdom we can find the most research about risk reporting. The significant of identifying and publishing risk disclosure is first noticed around 1992 with the publication of Cadbury report. According Beretta and Bozzolan (2004) the Operating and Financial Review (1993) was proposed in UK listed firms in order to identify and evaluate key risks. Following Institute of Chartered Accountants in England and Wales (1998, 1999 & 2002) published a series of reports about risk reporting and as Cabedo and Tirado mention at 2004 the reports of ICAEW encourage UK firms for more risk disclosures with risk quantification method. The results of risk reporting analysis stated that was not enough explanation about the effecting in operating results of risk that was reported by firms. In this way London Stock exchange publicized in 1998 a combined code on corporate Governance which invites firms in voluntary reporting about internal control actions and policies. Financial risk disclosures mainly concern the investors because of their effect in financial results. Some researches like Adedeji and Baker

(1999) and Dunne et al. (2004) support the relationship between implementations of Financial Reporting Standard 13 and the increase of financial risk reporting.

On the contrary of risk reporting in UK, in Italy according to Beretta and Bozzolan (2004) there is no trend for forward looking risk disclosures. The methodology of identifying forward looking disclosure of risks can diversify the results and this is why there are differences in the findings of studies. Woods and Reber (2003) and Beattie et al. (2004) don't confirm Linsley and Shrivies (2006) results about trend on forward looking risk disclosure. In German market there are more mandatory rules about risk reporting. According to German Accounting Standards and especially Standard 5, risk reporting is obligatory for all kind of risks. Opposite of other countries regulations, risk forecast disclosure is also mandatory. There is enough academic research in German listed firms the last years. Bungartz (2003) review, found only few risk forecast disclosure. Kajüter and Winkler the same year in bigger sample mentioned poor compliance with GAS 5, Fischer and Vielmeyer (2004) research results confirm Kajüter and Winkler. Few years later Berger and Gleißner (2006) mentioned increasing in information's quality while Kajüter and Esser in 2007 found enough evidence about the relationship of size and number of risk disclosures. Last two years there are two more researches in Portugal and Italy with the same content. In Middle East and Asian markets the adoption of International Financial Standards made implementation of risk reporting mandatory. The consequences of economic crisis and the globalization of financial products that include unidentified risk, press firms for more information and quantification of risks effect in firm's performance. In Emirates in order to disclose companies a certain size of transparent risks information's, Emirates Securities and Commodities Market Authority activated UAE Federal Law No. 4 and later with decision no. 75 of 2004 and decision 155 of 2005 which emphasize in risk reporting description with more details (Hassan, 2009).

3. 6 Regulations in Greek and European Markets

According to directive IV of European Union firms are required to issue the following financial statements:

- a) Balance Sheet
- b) Profit and Loss Account
- c) The "Table of Allocation of Loss"

d) Appendix

Also with directive VII of European Union parent companies are obligated to issue the following consolidated financial statements:

- a) Consolidated Balance Sheet
- b) Consolidated Profit and Loss Account
- c) Consolidated Appendix

The mandatory use of International Financial Reporting Standards in Greek listed firms (2005) obliges companies to prepare consolidated financial statements according with IFRS. IFRS is a more friendly accounting system for investor because financial reporting is more informative about firm's performance and give more information's that can be processed for decision making.

The mandatory financial statements according to IFRS are the following:

- i) Balance Sheet
- ii) Income statement
- iii) Statement of shareholders equity
- iv) Statement of cash flows

According to Tsalavoutas and Evans research (2010) the implementation of the IFRS had positive impact in quality of financial reporting. The IFRS give more attention in financial reporting than the Greek standards.

The use of International financial Reporting Standard 7 (<http://www.iasplus.com/en/standards/ifrs/ifrs7>) requires description on annual reports of nature and extent of exposure to risks arising from financial instruments. Furthermore risk disclosure must have qualitative and quantitative content. A qualitative disclosure must mention risk exposure for each type of financial instrument and describe the managing of those risks and the changes over time. Quantitative disclosure should provide available data in order to be measurable the exposed risk of the firm in the reporting date. The adoption of IFRS 7 which follows IAS 32 dramatically improved the disclosure risk in all European markets.

Greek authorities in order to adjust national legislation with the provisions of Directive 2004/109 European Parliament and the Council of December 15, 2004 on the harmonization of conditions transparency in relation to information about issuers whose securities are admitted to trading on a regulated market and amending Directive 2001/34/EC (OJL 390/38/31.12.2004) publish law 3556 / 2007. In paragraph 4 (appendix 4) of the above law it mentioned that annual reports must include in the directors' report a true picture of the development, performance and position of the issuer and the undertakings included in the consolidation taken as a whole, including the description of the principal risks and uncertainties.

Despite the existence of relevant legislation, the annual reports of the companies are still poor and do not contain all relevant information necessary for decisions of investors while still not specified and described in the risks presented.

Monitoring Department of Financial Information of Listed Companies of Hellenic Capital Market Commission (2009) with a letter of instructions to all Greek listed firms mentioned that financial reports continue to have a lot of deficiencies which is not consistent with ensuring transparency and application of relevant legislation and must be attention should be given in relation to the economic situation and the impact they may have on the financial results of enterprises. Specific the note among other subjects underline the fact that until today annual reports “contains the definitions for the types of risks that may face an entity, and general references to monitoring systems that the Company has to manage them, rather than in the more specific risks or uncertainties associated with the Company and the potential impact financial position and performance”. Listed firms continue not to give attention to the quality of the content of annual reports. They don't focus on substantive rather than formal information.

The Hellenic Capital Market Commission continue to insist in better content and send at 12/02/2010 a letter with instructions to all listed firms in Greek stock market explaining paragraph 2 of Joint Ministerial Decision (K2-11365/16.12.2008). The letter explained that companies are required to cite additional evidence compared with the models enforce the law in order to avoid creating false impression about financial data.

The significance of risk disclosure content appears in European Securities and Markets Authorities (ESMA) which act in field of financial reporting. In 12 of November 2012 published a public statement for all listed firms in European markets where there are mentioned the enforcement priorities for financial statements of 2012. In order to ensure the smooth

function of financial markets and the application of the ESMA legislation along with International Financial Reporting Standards is emphasize the need for transparency and application of disclosure principles. ESMA priorities recognize that investor's protection requires the provision of extended disclosure describing the nature and the size of risk which arise from financial instruments which firm is exposed. Also mentioned the value and the importance of reporting the risk management actions.

Legislation, accounting rules and internal – external auditing are imperfect. Firms follow rules and laws basically because non compliance has serious impact such as penalties, dissatisfaction from stakeholders and investors. Actually risk disclosure presented in reports of companies depend on intentions of managers to inform all interested parties (investors, stakeholders) of potential risk factors that will influence their attitude towards company. Annual reports are following specific rules and laws as they presented above but according to academic research from Bushee & Leuz (2005) and McLaughlin & Safieddine (2008) disclosure regulation framework impairs information's asymmetry. In the following table we can see a summary from laws and regulations for risk disclosures in all over the world.

GEOGRAPHICAL AREA	FRAMEWORK	YEAR OF APPLICATIONS
GLOBAL	IFRS 7	2007
GLOBAL	IAS 1, IAS32, IAS 34, IAS 39	2005
USA	ITEM 303D OF REGULATION S-K	2003
USA	SABRANES – OXLEY ACT	2002
USA	SECURITIES AND EXCHANGE COMMISSION – FFR 48	1997
EU	DIRECTIVE 2004 / 109 / EC	2004
EU	DIRECTIVE 2003 / 51 / EC	2003
EU	DIRECTIVE 2001 / 65 / EC	2001
UK	FRS 5, FRS 8, FRS 13, FRS 25, FRS 26, FRS 29	2007

UK	SSAP 25	1990
FRANCE	LSF LAW – ARTICLE 117	2003
FRANCE	NRE LAW – ARTICLE 116	2001
FRANCE	INSTRUCTION 12/2001 IN APPLICATION OF REGULATION No 98-01	2001
PORTUGAL	ACCOUNTING DIRECTIVES 17,27,29	2003
GERMANY	GAS 5	2000
ITALY	CIVIL CODE ART. 2428 COMMA 1 AND 2.	2008
ITALY	CIVIL CODE ART. 2428 COMMA 6-BIS	2005
BAHRAIN	CBB CAPITAL MARKET REGULATION	2003
UAE	UAE CORPORATE GOVERNANCE CODE (LAW 23)	2007
UAE	EMIRATES SECURITIES AND COMMODITIES MARKET AUTHORITY (ES&CMA) - FEDERAL LAW NO. 4	2000

(Table 1 – Basic Risk Disclosure Regulations)

CHAPTER 4: HYPOTHESIS FORMATION

4.1 Hypothesis Formation

This section presents the hypothesis which will be tested in the research. The research is attempting to answer two main research questions:

- A) Is there an association between financial risk disclosures and financial characteristics of firms?
- B) Which are the characteristics of financial risk in annual reports?
- C) Which is the association between risk level and risk disclosures?

From these research questions can be derived the following research objectives which can be revised.

- 1) To identify association between financial risk disclosures in annual reports and financial characteristics of firms
- 2) To estimate if there is difference in the quantity of good and bad risk disclosures in annual reports
- 3) To estimate if there is difference in the quantity of past financial risk disclosures and future financial risk disclosures in annual reports.
- 4) To estimate if there is difference in the quantity of monetary and non monetary risk disclosures in annual reports
- 5) To identify if there is difference in risk disclosures according the type of industry each firm belongs.
- 6) To identify if there is difference in risk disclosures according the audit firm it uses (big four or other)
- 7) To identify association between proportion of non executives board members and risk disclosures.
- 8) To identify association between risk level of firms and risk disclosures

The hypothesis will be formatted as following:

4.2. Hypothesis

4.2.1 Hypothesis 1: Relationship between company size and risk disclosures

The majority of previous researches converge in confirming the positive correlation between company size and the total number of risk disclosures. Hackston and Milne (1996) summarized that most studies found that higher levels of social disclosures are made by larger companies. According to Hassan (2009) larger companies are more politically sensitive; therefore, larger corporations more often present higher level of risks information in order to decrease political sensitivity, due to their monopolistic position in market (Watts and Zimmerman, 1986). Extended research by Firth (1979), Beattie, et al. (2004), Beretta and Bozzolan (2004), Mohobbot (2005), Linsley and Shrivies (2006), Kajüter and Esser (2007), Abraham and Cox (2007), Oliveira, Rodrigues and Craig (2011) discovered a positive relationship between risk disclosure volume and the size of the company. Larger companies can develop reporting systems with less cost than smaller companies and so more disclosing is less expensive. Although all previous researches support positive relationship between size and risk disclosures there is not any strong theoretical background for this kind of relationship. Hossain et al. (1995) and Gray et al. (1995) have reached in opposite results. In a theoretical basis of explaining the relationship size with risk disclosures it is useful to underline agency theory (Jensen & Meckling, 1976). Agency theory explains manager's motives for risk disclosure. Risk disclosures are a significant tool for managers in order to convince stakeholders that the firms are properly managed. In the same direction legitimacy theory (Patten, 1992) supports that companies disclose more risks information's in order to satisfy community concern and expectation in legalize previous actions. The formatted hypothesis is as below:

Hypothesis 1: A positive relationship between company size and the total number of risk disclosures potentially exists

4.2.2 Hypothesis 2: Relationship between level of risk and risk disclosures

Common sense indicates that there will be a positive relationship between company's risk level and risk reporting. Firms with higher risk level should disclose more risk information's in order to explain with details reasons of higher risk. According to agency theory which explained above managers and directors tend to disclose more risks in order to convince stakeholders and community in a broader view. So a positive relationship is expected. At the other hand there is signaling theory where voluntary disclosure is viewed as a form of signaling according to Akerlof (1970). Risk information may be used by directors and managers to signify underlying reality, and influence stakeholders or investors when making decisions. In this direction firms

with high risk level may want to avoid giving signal about the level of risk and disclosing fewer risks. Directors often in order to convince (signify) share holders about their managerial abilities in risk management tend to disclose larger amounts of risks and risk management techniques increasing information asymmetry of market.

The results of previous studies don't give a clear idea about the relationship of two variables confirming inconsistency of existing theories. Following most of theoretical studies It can then be expected that a positive relationship exists between the company's risk level and risk disclosure as Malone et al (1993), Marshall and Weetman (2007), Deumes and Knechel (2008), Hassan (2009) and Taylor et al. (2010) and Elshandidy et al. (2011) found. Whilst Hossain et al. (1995), Linsley and Shrivies (2006), Rajab and Handley-Schachler (2009) found no significant association.

Many risks index are used by analysts in order to measure risk level in firms. In this research there will be used the two most common index that have been used in similar research. The two indexes are:

- 1) Price to Book Ratio
- 2) Debt Ratio

The hypothesis will be formatted as follow:

Hypothesis 2: Relationship between the level of risk within a company and the total number of risk disclosures is not potential

4.2.3 Hypothesis 3: Statistical difference between good risks and past risks

It's obvious that directors don't choose to disclosure bad risks because that can has negative impact in investor's decisions. Also bad risks information's in annual reports can be commercial sensitive and could used by competitors. Directors need a safe bag in order to publish bad risk disclosures and protect the image of company. At the other hand Beretta and Bozzolan (2004) and Abrahamson and Park (1994) following attribution theory argue that directors disclose bad risks in order to transfer the blame from themselves onto external events (Abrahamson and Park, 1994). There is not any clear trend from literature so the size of good risks or bad risk could be vary and cannot be predicted. So the hypothesis will be formatted as follow:

Hypothesis 3: There will be no significant difference in the number of good risk disclosures and bad risk disclosures

4.2.4 Hypothesis 4: Statistical difference between past risks and future risks

Linsley and Shives (2005) emphasize about the significance of forward looking risk disclosures. Francis & Schipper (1999) and Dietrich et al. (2001), found more future risks disclosures in their studies and stress about the value of forward risk reporting for investors. Beattie et al. (2004) in their research found very few forward-looking risk reporting and Kajuter (2001) and Woods and Reber (2003) and Beretta and Bozzolan (2004) also mentioned limitation in forward risk disclosures and more emphasis in present and past risk disclosures. In this direction there is a significant observation from Ryan (1997) that mentioned that annual reports and financial statements main target is to present historical data about company performance and not to predict future risks. The hypothesis will be formatted as below:

Hypothesis 4: There will be significantly higher number of past risk disclosures than future risk disclosures

4.2.5 Hypothesis 5: Statistical difference between monetary risks and non monetary risks

The disclosure of monetary risks in firm's annual reports is very useful and valuable both for stakeholders and for investors. Linsley and Shives (2006) mention Beretta and Bozzolan (2004) and Linsley and Shives (2000) who argue that firms improve risk reporting by quantifying risks disclosures. Reporting monetary risk is a method of quantifying risks in terms of money. The methodology of quantifying risks can create problems because it is difficult to transfer all risks in terms of money. It need extensive management know how, judgment and availability of historical data as Dowd (1998) and Frame (2003) mention. Investment decisions are depending from that monetary risks and so the precise transition is necessary in order not to deceive them. The hypothesis will be formatted as follow:

Hypothesis 5: There will be significantly higher number of non-monetary risk disclosures than monetary risk disclosures.

4.2.6 Hypothesis 6: Relationship between firm's industry and risk disclosures

Elzahar and Hussainey (2012) mention that the results from studies are mixed about relationship between firm's industry and risk disclosures. Wallace et al., (1994) and Aljifriand Hussainey, (2007) cited by Elzahar and Hussainey (2012) in their research found an insignificant relationship and in the other side Cooke (1992) and Mangena and Pike (2005) Elzahar and Hussainey (2012) found association between the two variables. Hassan (2009) cited Lopes and Rodrigues (2007, p. 32) mentioned that firms operating in the same industry tend to disclosure same level of risk disclosure in order to prevent negative evaluation by the market. The same environment and the same legal framework is the main factor that drives companies from the same sector to follow the same reporting policies. In the same direction signaling theory supports that, firms in order to convince stakeholders that they follow the same reporting framework with other companies of the industry, apply same risks disclosures. Legitimacy and institutional theory also confirm this hypothesis because some industries have higher institutional pressures than others. So literature review and recent research argues that there is a relationship between risk disclosures. So according to all these the hypothesis will be formatted as below:

Hypothesis 6: There will be a relationship between the industry in which the firm operates and the size of risk disclosures

CHAPTER 5: DATA AND METHODOLOGY

In this section there will be a presentation of methodology which chosen in order to gather data, the sample selection and the statistical analysis used with the necessary statistical tools. The research is conducted with the deductive approach based on existing theory to test the hypothesis (Monette et al, 2005). In this point we must mention that this is the first attempt to study risk disclosure in annual reports of Greek firms. So the research should be considered as a first attempt which can be used as a starting point for further and deeper respective studies.

5.1 Data

From literature review we can see a lot of sources where risk disclosure presented from firms. Firms use many ways to communicate with stakeholders, investors and financial analysts use manager's statements, press releases, firm's web site, financial presentations etc, in order to gather all the available information's for investing decisions. The most reliable tool is the organization's annual reports. The information's are presented in a more transparent way and distributed in larger audience as a source of credible information's as Deegan and Ranki mention in 1996. Annual reports were the basic source for many academic researchers in risk reporting. Hossain et al., 1994; Gray et al.,1995; Hackston and Milne, 1996; Deegan and Rankin, 1996; Abu-Baker and Naser, 2000; Hail, 2002; Carlon et al, 2003; Beretta and Bozzolan, 2004; Lajili and Zéghal, 2005; Haniffa and Cooke, 2005; Oliveira et al., 2006; Linsley and Shrivess, 2006; Abraham and Cox, 2007; Dunne et al., 2007; Aljifri and Hussainey,2007; Linsley and Larwernce, 2007; Branco and Rodrigues, 2008; Aljifri, 2008; Hassan, 2009; Oliveira, Rodrigues and Craig, 2011; Greco, 2011 published significant reviews about risk disclosure by using data from annual reports.

Annual reports are produced necessary from the law in year basis and include all the necessary data that describe the performance and the actions of the organization the specific year. Greek firm's annual reports show highly heterogeneous between them despite the common legal and accounting framework. Although there are some distinct sections showing data common to all companies. Within this context and based on experience from previous studies in European companies, chose to study a specific section of the annual reports where there is a detailed description of the risks and methodology to address them. The choice to explore the annual reports can be supported by literature of the social disclosure. According to Saunders et al. (2009) archival research in needed to examine risk disclosure in annual reports for a

longitudinal research. The research could be performed better by studying all the available data (press releases, speeches of managers, analysts reviews, business reports etc) but this is not applicable and requires large amounts of time and resources available which is not feasible in a study of this size and scope. Also with the choice of annual reports we achieve greater homogeneity in the data and better quality information on risk disclosures.

5.2 Sample

The sample of the research consists of annual reports of 20 Greek listed companies concerning the last published financial year (2012). In order to select the most reliable annual reports we used companies only from the large cap index of the Athens Stock Market. In the first part of the research we checked annual reports from smaller firms of the Athens Stock Exchange and there were a lot of shortcomings which made it impossible to use them in the sample. We excluded from the sample financial firms, banks and insurance companies because they follow different risk disclosure legislation and policies. Also their main business procedure is risk management. The total number of firms in the large caps index is 24 and after excluding financial firms we have 20 firms which form the sample of the research. The firms of the large caps index can be reached on the official site of the Athens stock exchange (www.ase.gr). The annual reports of the firms are available in Greek and English versions on the official company's web sites. This list of selected companies and the necessary details there can be found in Appendix 5. The size of the sample can be mentioned as a limitation based on the available time for research in the concept of a master dissertation and the lack of data availability in smaller firms' annual reports. Also another limitation is the use of only one period annual report (fiscal year of 2012). The selection was mainly due to lack of time and because the latest changes in legislation and regulations have caused large differences in annual reports risk disclosures which are not comparable with the corresponding previous years. In the table below we can see the sector distribution of the sample.

Economic Sector	N	Percentage on sample
Oil & Gas	2	10%
Basics Resources	2	10%
Building Materials & Fixtures	2	10%
Industrial Goods & Services	4	20%
Food & Beverage	1	5%
Personal & Household Goods	1	5%
Retail	1	5%
Travel & Leisure	2	10%
Telecommunications	1	5%
Utilities	3	15%
Real Estate	1	5%
Total	20	100%

(Table2 – Sample Sector Distribution)

5.3 Content Analysis

In order to identify and measure risk disclosures researchers have used several different approaches in similar studies around the world. Based on previous experience and the literature, the method best suited to the particular case is content analysis. Another method which could be used is disclosure index analysis or a questionnaire survey. Content analysis has been used more than any other method giving the most accurate results. According to Krippendorff (1980) this research method enabling valid inferences from the data based on particular context within each case. The design of the study is according Weber (1990) theory which describes content analysis as a method of coding text in categories by using specific criteria. In the same direction some years before, Holsti (1969) mentioned that content analysis is a method of categorizing text when there is a lot of qualitative information's which need analysis. The main work of coding is the analysis of text content with a primary assessment of all key meanings, symbols and numbers in order to translate each meaning and probable effect. With other words we can mention that content analysis is the translation of qualitative data in quantitative data. Recently content analysis has been criticized by Beattie and Thomson (2007) for lack of transparency in

the way in which information is detected and then categorized. Holsti (1969) states three conditions which ensure that content analysis is applicable in each research.

First condition is data accessibility. The limited time or space can prevent research to have full access in necessary data or limited documentary sources. In this study there is access on only 20 annual firm reports. Goal of this research is to study only the annual reports (specific part of financial risk disclosures) of 20 large companies and not all risk disclosures published throughout Greek listed firms.

The second condition states that content analysis is suitable when an investigative focal point is related to the subject's language. In this particular study, the language used by companies in risk reporting allows researchers to infer their attitude towards risk.

The third condition states that content analysis is suitable in cases in which large quantities of material require analysis. The method enables the data to be systematically coded and classified. In this situation, the study involves examining large quantities of information published in the annual reports of 20 large cap companies.

The bigger weakness of content analysis is reliability of categorization. As Weber mentioned in 1990 the problem of reliability arises from the blurring of conceptual definition of words used to describe the risks. Milne and Adler (1999) discuss the approach taken by Krippendorff (1980) where three different types of reliability are identified: stability, accuracy and reproducibility.

Stability of the research is when the results of coding are stable over time when the coding is repeated. According to Weber (1990) we can improve stability by repeating codification by the same coder. In our research in order to improve stability each annual report will be analyzed twice.

Accuracy is the size which measure how coding and rating of content is in line with an existing standard or framework that already have been used with success. Our coding and classification scheme will be based on literature reviews and rules from official organizations that should be considered a reliable information source. In the particular study the codification framework (appendix 2) used has been developed by Linsley and Shrives (2006) after a lot of research and following policies from international organizations. Many researchers used the same codification framework in their research afterwards.

Reproducibility is concerned with the condition where a new research would yield the same results. In order to accomplish reproducibility content codification should be assigned to more than one coder. Unfortunately, it is not applicable to our study (lack of time and human resources) and should be noted as a limitation.

In order to maximize the effectiveness of content analysis before launch the categorization of risk disclosures, the coder analyze five annual reports selected randomly following Milne and Adler's (1999) discussion of the 'learning cycle' of the coders. The coder training contains also discussion on research objectives and risk disclosures mentioned in other researches. After the trial codification of the five annual reports the coder is more familiar with the methodology and can run the research with more validity. Also in order to increase more research validity, risk categorization was designed by using a framework of rules (Linsley and Shrives, 2006) according previous research. The framework of rules (appendix 2) which have been used from a lot of researchers last years was tested in the trial (training) analysis of five annual reports. The trial version was useful to obtain an understanding of textual disclosures and improve risk categorization by developed an enhanced version of risk rating which was applied to the full sample. Despite all these the subjectivity in coding is inevitable. The use of human encoder and the complexity of risk disclosing on the part of the corporation increasing subjectivity in the process of coding and categorization of risk which is inevitable in researches of this kind. The use of a second coder could diminish subjectivity by check consistency of the coding procedure. This is not possible in our research considering time and human resources limitation.

The use of content analysis in risk disclosures study requires defining the unit of analysis following Weber (1990) theory. In content analysis we can use words, characters, sentences, paragraphs and pages as unit of analysis. Also in more advanced techniques we can use and visual data like graphs etc. Risk disclosure usually is conceptual unit composed of a set of words and numbers. If we define words as unit of analysis there will be a lot of problems in codification. Each word can be categorized in more than one category. Words can express different meaning depending on writing style and the use of the word. A bigger unit in codification process like pages or paragraphs can make counting more difficult and complicated. A page and a paragraph can contain graphs, designs and a different font size could differentiate the final effect. The most accurate unit of analysis is sentences (Hackston and Milne, 1996). Sentences are the most appropriate unit of analysis and this will be used in the present research. A short review of the existing literature is showing that sentence is the most

common unit of analysis (Abraham and Cox, 2007; Beretta and Bozzolan, 2004; Lajili and Zéghal, 2005; Linsley and Shrives, 2006, Greco 2011).

The codification will be performed by identifying risk disclosure according to Linsley and Shrives (2006), definition of risk as “any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure”

The number of risk disclosures (sentences) will be categorized into relevant group based on the codification scheme. Next step is to use statistical models with the use of SPSS in order to test research hypothesis.

5.4 Risk Categorization

Risk has been defined analytically above. Risk is divided into six categories according to IFRS 7 and has been applied in several researches in this area, e.g., Kajuter (2001), Beretta and Bozzolan, (2004), Linsley and Shrives (2006), Greco (2011):

- Financial risks
- Operational risks,
- Empowerment risks,
- Information processing and technology risks,
- Integrity risks, and
- Strategic risks.

In the present research we will interpret only financial risks which are the more common risk disclosures in annual reports and more familiar to investors.

Financial and strategic risks are the more common risk disclosures in firm reports and management press releases and presentations. Financial risk according to previous research (Beretta and Bozzolan, 2004; Greco, 2011) can be distinguished in the following categories

- Credit risks

- Interest rate risks
- Exchange rate risks
- Market prices risks
- Liquidity risks

The framework of ICAEW (1997) and other consultancy and accounting bodies considers that market risks are those that underlie the price movement of assets within markets while credit risk is the risk that contractual parties may not be able to meet payment obligations. Liquidity risk refers to the payment obligations that a company may not be able to fulfill.

Following Beattie et al. (2004), Linsley and Shrides (2006), Greco (2011) the present study is categorizing risk in three categories according to information's given:

1. The type of risk information's (monetary versus non monetary)
2. The time dimension of risk information's (future - past risks – non time)
3. The type of risk information (bad news versus good news)

According to Linsley and Shrides (2006) If a sentence can be categorized into more than one possible classification, it will be classified into the category that best represent risk message of that sentence. Following Linsley and Shrides (2006) and Greco (2011) risk disclosures had to be specifically stated and that they could not be implied. Graphs and picture were not coded. Tables were coded, with one line equal to one sentence. A different category of risk management sentences will be used.

The risk disclosure which is presented in numerical form or risks impact can be quantified in monetary terms will be categorized in monetary risk. If the risk is in narrative form it will be categorized in non monetary risks. Following Greco (2011) a sentence was classified as historical if referred to any opportunity or prospect, or to any danger, harm, threat or exposure, that already impacted before 31 December of the year of report. A sentence was classified as forward-looking if referred to any opportunity or prospect, or to any danger, threat or exposure, described as likely to impact on the company in the future. A sentence was classified as non-time-specific if it had no time orientation. Another dimension of the risk is the type of

information (good or bad). The sentence is classified as good news if the risk has been prevented or had good impact. The risk with negative impact is classified as bad news and the risk with neutral impact will be classified as neutral news. Following Linsley and Shrives (2006) if the wording of risk disclosure sentence fits to more than one classification, it shall be classified into the category that best fits the sentence's risk message.

Below we can see the matrix of risk categorization developed for the research following Linsley and Shrives study (2006).

		Risk categorization matrix						
REF	Type of risks	Credit risks (1)	Interest rate risks (2)	Exchange rate risks (3)	Market prices Risks (4)	Liquidity Risks (5)	Total	% of total
A	Monetary/Neutral/Future							0%
B	Monetary/Bad news/Future							0%
C	Monetary/Good news/Future							0%
D	Non monetary/Bad news/Future							0%
E	Non monetary/Good news/Future							0%
F	Non monetary/Bad news/Future							0%
G	Monetary/Neutral/Past							0%
H	Monetary/Bad news/Past							0%
I	Monetary/Good news/Past							0%
J	Non monetary/Neutral/Past							0%
K	Non monetary/Bad news/Past							0%
L	Non monetary/Good news/Past							0%
	Total							0%
	Non monetary/Neutral/non-time specific statements of financial risk management policy							0%
M	Total	0	0	0	0	0	0	0
	% total	0%	0%	0%	0%	0%		

(Table 3 – Risk Categorization Matrix)

5.5 Measurement of Variables

The variables needed for the analysis are two. Firm's size and risk level. The other variables are derived from the encoding the annual reports. Also the separation in industrial and non-industrial companies resulting from their activity as described in the annual report and the information from the company's web sites. The firms which mains activities are manufacturing or processing or transformation are categorized in industrial group. The rest are categorized in non industrial group (appendix 8). In order to measure company size there are two appropriate figures according to previous research and financial theory: Market value and turnover. Another appropriate size could be total liabilities but it is not often used in this kind of research. Market value is calculated on the price of the last day of financial year (2012) and its available in financial statement of annual report. The turnover is also available in profit and loss account of financial statement of the year (2012). For the second hypothesis the variable is company risk level. Two distinct scales of measurement were implemented to identify risk level:

- Ratio of book value of equity to market value of equity
- Gearing ratio

Field studies such as those of Linsley and Shrivess (2006) have used these measurements between others. Ratio of book value of equity to market value of equity is ratio of measuring risk level according the study of Fama and French (1992). The choice of risks index was made by the availability of data and the previous similar research. Gearing ratio is one of the most common ratios for measuring risk level. The equation for gearing ratio is as follow:

Gearing Ratio = debt to equity ratio = net debt / total equity

The equation for Ratio of book value of equity to market value of equity is as follow:

Book to market value ratio = book price per share / market value per share

The results of calculating ratios of risk level are as follow:

COMPANY NAME	BOOK TO MARKET RATIO	DEBT RATIO
MOTOR OIL (HELLAS) CORINTH REFINERIES SA	0,62	1,73
HELLENIC PETROLEUM S.A.	0,84	0,74
MYTILINEOS HOLDINGS S.A.	1,84	0,72
CORINTH PIPEWORKS S.A.	0,59	0,14
TITAN CEMENT COMPANY S.A.	0,66	0,36
ELLAKTOR S.A.	2,32	0,41
VIOHALKO S.A.	1,92	1,28
METKA S.A.	0,56	0,80
FRIGOGLASS S.A.I.C.	0,57	1,48
PIRAEUS PORT AUTHORITY SA	0,38	0,46
COCA-COLA HBC AG	0,46	0,57
JUMBO S.A.	0,82	-0,05
FOLLI FOLLIE S.A.	0,95	0,74
GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	0,68	0,44
INTRALOT S.A.	0,40	1,00
HELLENIC TELECOM. ORG.	0,40	1,43
PUBLIC POWER CORPORATION SA	4,23	0,80
TERNA ENERGY S.A.	1,03	0,81
ATHENS WATER SUPPLY & SEWAGE Co.	1,59	0,16
EUROBANK PROPERTIES REIC	2,11	0,13

(Table 4 – Ratio Indexes Per Firm)

The analytical data for transforming the ratios are in appendix 6. After finishing codification, will run the appropriate statistical test for each hypothesis with the use of SPSS 19.0 statistical software package. The results will be used for the necessary discussion.

Label	Definition	Measurement	Source
Size	Firm size	1. Market Capitalization at 31.12.2012 2. Annual turnover	Financial Statements (31.12.2012)
Risk Level	Risk level	1. Gearing ratio : =net debt/total equity 2. Book to Market	Financial Statements (31.12.2012)

		Value	
Good - Bad risk Disclosures	Risk categorization	Decision rules for risk disclosures (Appendix 2)	Content analysis – Annual Report
Future – past risk disclosures	Risk categorization	Decision rules for risk disclosures (Appendix 2)	Content analysis – Annual Report
Monetary – non Monetary risk disclosures	Risk categorization	Decision rules for risk disclosures (Appendix 2)	Content analysis – Annual Report
Industry	Activity type	0 if the company activity is industrial, 1 if the company is not industrial	www.ase.gr

(Table 5 – Risk Variables Map)

5.6 Data analysis

5.6.1 Overall analysis

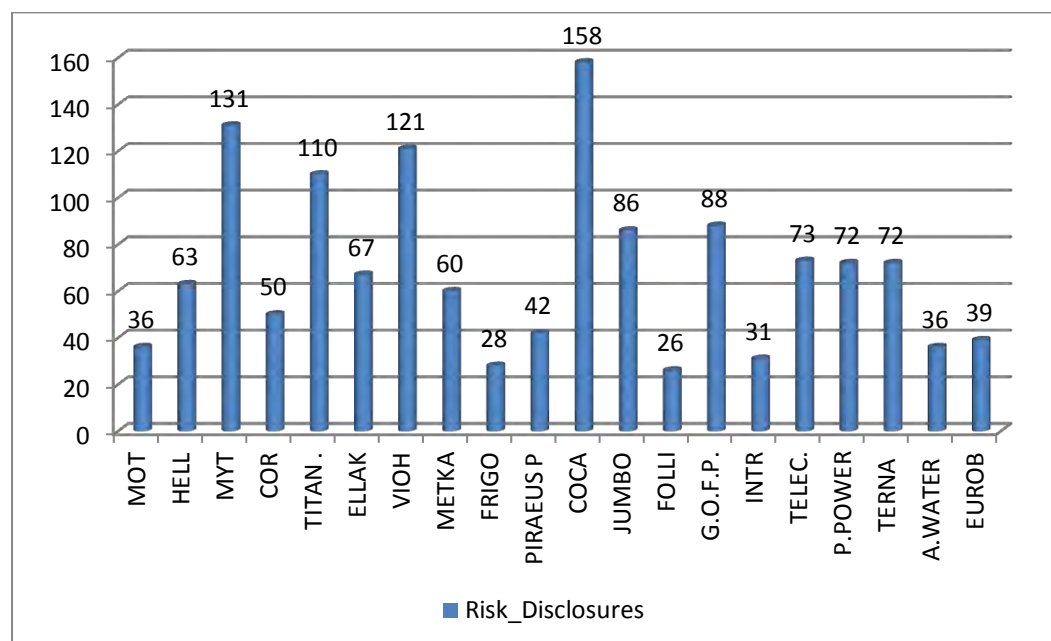
In this part there are results of content analysis of the 20 annual reports of large caps companies in Greek stock market. The results of content analysis per firm are as follow:

COMPANY NAME	RISK DISCLOSURES
MOTOR OIL (HELLAS) CORINTH REFINERIES SA	36
HELLENIC PETROLEUM S.A.	63
MYTILINEOS HOLDINGS S.A.	131
CORINTH PIPEWORKS S.A.	50
TITAN CEMENT COMPANY S.A.	110
ELLAKTOR S.A.	67

VIOHALKO S.A.	121
METKA S.A.	60
FRIGOGLASS S.A.I.C.	28
PIRAEUS PORT AUTHORITY SA	42
COCA-COLA HBC AG	158
JUMBO S.A.	86
FOLLI FOLLIE S.A.	26
GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	88
INTRALOT S.A.	31
HELLENIC TELECOM. ORG.	73
PUBLIC POWER CORPORATION SA	72
TERNA ENERGY S.A.	72
ATHENS WATER SUPPLY & SEWAGE Co.	36
EUROBANK PROPERTIES REIC	39
TOTAL RISK DISCLOSURES	1389

(Table 6 – Risk Disclosures Per Firm)

The results are presented in the graph below:



(Graph 1 – Risk Disclosures Per Firm)

The total amount of risk disclosures in 20 annual reports are 1389. As we can see the risks disclosures are ranging from 26 to 158 risks per firm. The average number of risk disclosures are 69,45 risk disclosures per firm. The large difference in risk communication between the company notifying the fewest risks and the company discloses (37,06 St. Deviation) more risks reflects different policies pursued and the fact that the risk disclosures in annual reports is more a matter of will and management than of regulations, accounting rules and legal framework. The firm with the most risk disclosures is COCA-COLA HBC AG (158 risk disclosures) and the firm with the less risk disclosures is FOLLI FOLLIE S.A. (26 risk disclosures). According to industry categorization (appendix 8) the industrial firms disclose an average of 82,5 risks with std deviation of 44,55 and non industrial firms disclose an average of 56 risks with std deviation of 23,57. Industrial firms disclose an enough bigger size of risk disclosure (appendix 11) than non industrial firms something that confirms previous research (Hassan, 2009).

The risk categorization matrix developed by the results of content analysis is as follow in table 7:

REF	Type of risks	Credit risks (1)	Interest rate risks (2)	Exchange rate risks (3)	Market prices Risks (4)	Liquidity Risks (5)	Total	% of total
A	Monetary/Neutral/Future	4	0	0	0	8	12	0,86 %
B	Monetary/Bad news/Future	20	3	3	6	59	91	6,55 %
C	Monetary/Good news/Future	14	0	1	0	76	91	6,55 %
D	Non monetary/Neutral/Future	1	2	2	2	0	7	0,50 %
E	Non monetary/Bad news/Future	8	6	18	13	8	53	3,82 %
F	Non monetary/Good news/Future	3	1	2	1	8	15	1,08 %
G	Monetary/Neutral/Past	7	35	45	18	14	119	8,57 %
H	Monetary/Bad news/Past	65	31	75	3	71	245	17,64 %
I	Monetary/Good news/Past	80	31	80	1	96	288	20,73 %
J	Non monetary/Neutral/Past	3	3	2	1	1	10	0,72 %
K	Non monetary/Bad news/Past	35	14	3	3	10	65	4,68 %
L	Non monetary/Good news/Past	5	3	0	0	2	10	0,72%
	Total	245	129	231	48	353	1006	72,43 %
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	119	50	84	33	97	383	27,57 %
	Total	364	179	315	81	450	1389	
	% total	26,21%	12,89%	22,68%	5,83%	32,40%		

(Table 7 – Results in Risk Matrix Categorization)

Some typical examples of risk disclosures with which the above table have been formatted are presented below:

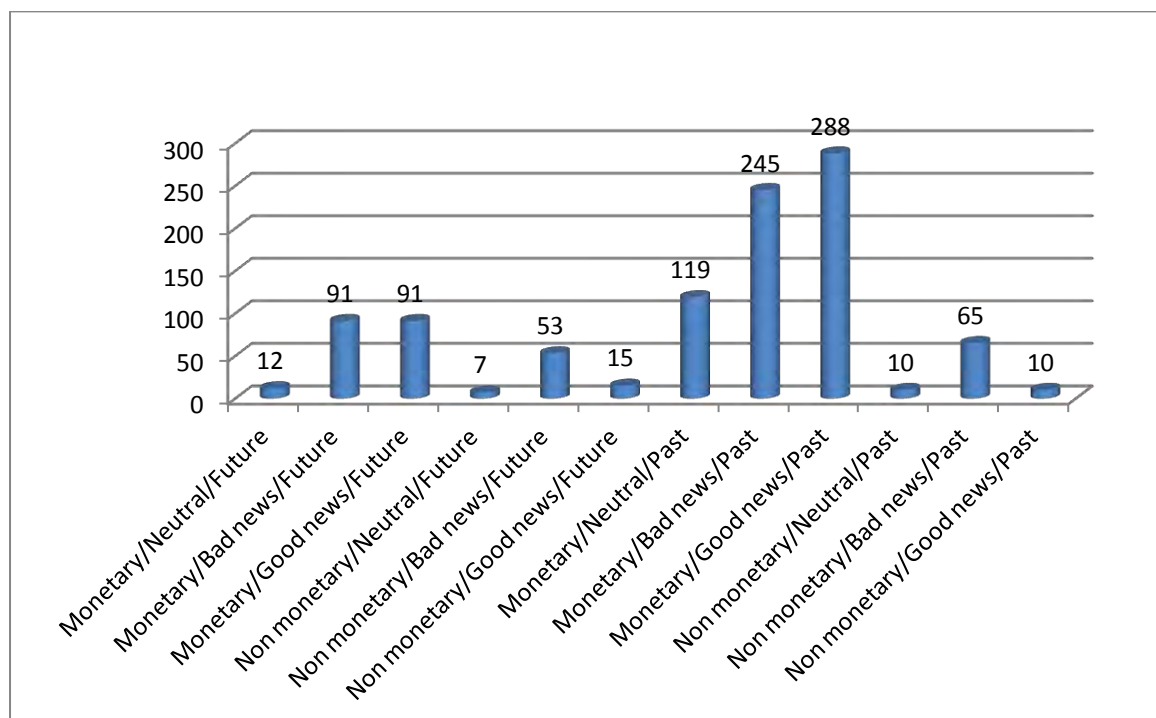
COMPANY	RISK DISCLOSURE EXAMPLE	RISK CATEGORIE	SENTENCE RISK CHARACTERISTICS
MYTILINEOS HOLDINGS S.A.	The policy of the Group is to minimize interest rate cash flow risk exposures on long-term financing. (MYTILINEOS HOLDINGS S.A. annual report, 2012 p.94)	Interest rate risks	Non monetary/Neutral/non-time specific statements of financial risk management policy (M2)
GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	Assets subject to credit risk as at the date of the Statement of Financial Position are analysed as follows: Cash and cash equivalents : 367,582 € (2012), 195,894 € (2012) (GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A. annual report, 2012 p.118)	Credit risks	Monetary/Bad news/Past (H1)
HELLENIC TELECOM. ORG.	The Group operates in Southeastern Europe and as a result is exposed to currency risk due to changes between the functional currencies and other currencies (HELLENIC TELECOM. ORG annual report, 2012, p. 94)	Exchange rate risks	Non monetary/Bad news/Future (E3)

(Table 8 – Risk Disclosures Samples Of Greek firms Annual Reports)

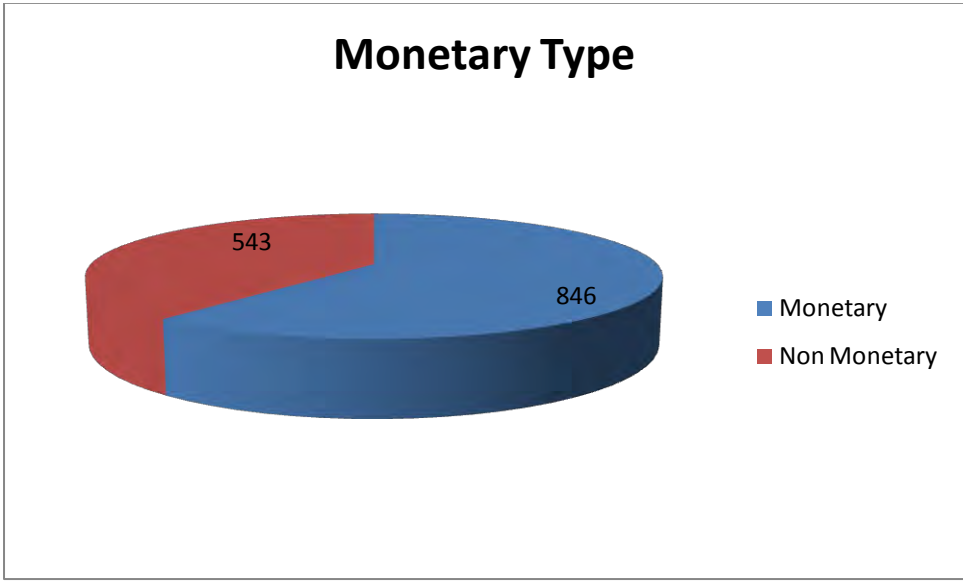
5.6.2 Risk types analysis

The code with the most risk disclosures (383 sentences – 27,57% of the total disclosures) is M - Non monetary/Neutral/non-time specific statements of financial risk management policy confirming signaling theory. A firm prefer presenting risk management policies in annual reports against risks in order to convince the stakeholders that management is sufficient and has taken all appropriate action to protect the company from potential risks according to Linsley and Shrivs research (2006) on British companies. Companies make more risk management disclosures than risk disclosures in an attempt to promote an image of proactive management as Combes-Thuelin et al. (2006) cited by Oliveira, Rodrigues and Craig (2011) . The type of risk with the most disclosures is I - Monetary/Good news/Past (288 sentences – 20,73 % of total disclosures) and close is code H - Monetary/Bad news/Past (245 sentences – 17,64 % of total disclosures) . The type of risk with fewer disclosures is D - Non monetary/Neutral/Future (7 sentences – 0,50 % of the total disclosures).

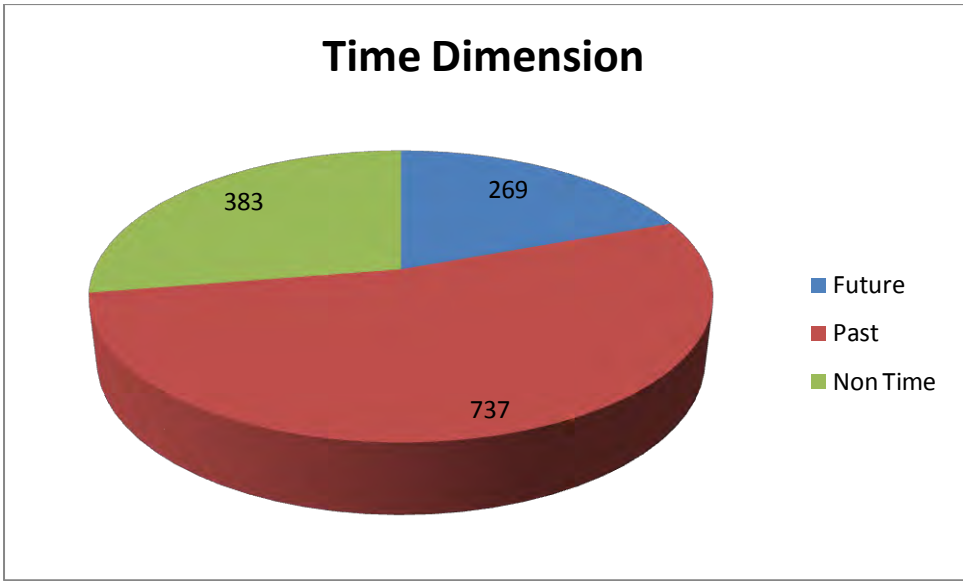
The risk disclosure can be divided in categories according to variables of time (future – past) or with the type of risk (Good-Bad or Monetary – Non monetary). The results of these categorizations can be seen in the following graphs:



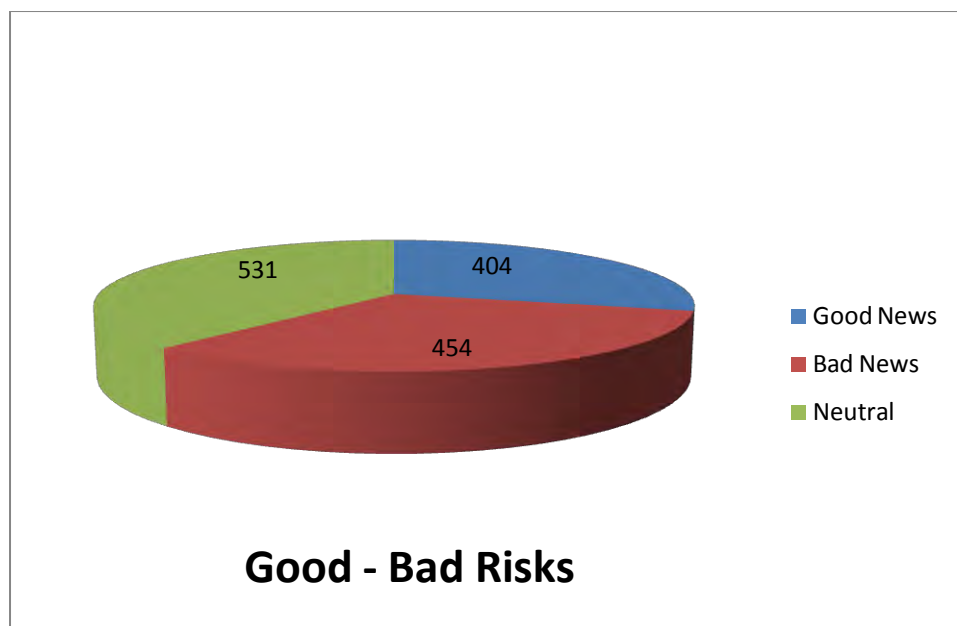
(Graph 2 - Risk Disclosures Categorization)



(Graph 3 - Monetary VS Non Monetary Risk Disclosures)



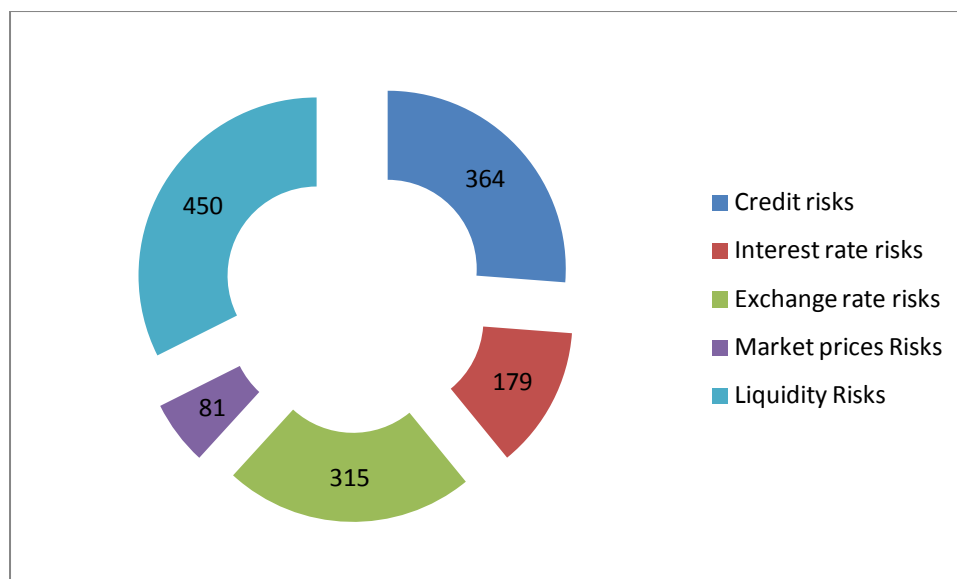
(Graph 4 - Future VS Past Risks Disclosures)



(Graph 5 - Good VS Bad Risk Disclosures)

From the graphs we can mention that monetary disclosures dominate over non monetary and past risk disclosures dominates over future risks disclosures. Also the difference between bad and good risks is not significant. The number (531) of neutral risk disclosures confirms the theory that large firms disclose big amount of less significant information's (Mohobbot & Noriyuki, 2005). It's obvious that firms prefer reporting past risks (graph 4) because managers and directors don't want to discourage new investors and also document the directors and management effectiveness on risk management. The monetary risks disclosures domination over non monetary is something that doesn't confirm previous research.

The type of financial risk with the most disclosures in annual reports is Liquidity risks with 450 sentences – risk disclosures (32,40 % of total disclosures). Second is the type of risk with less disclosure is Market prices risks. Liquidity risks are the most common in Greek firms because of the economic crisis and the lack of bank lending. Liquidity problems are common for all firms regardless of company size and other financial or industry characteristics.



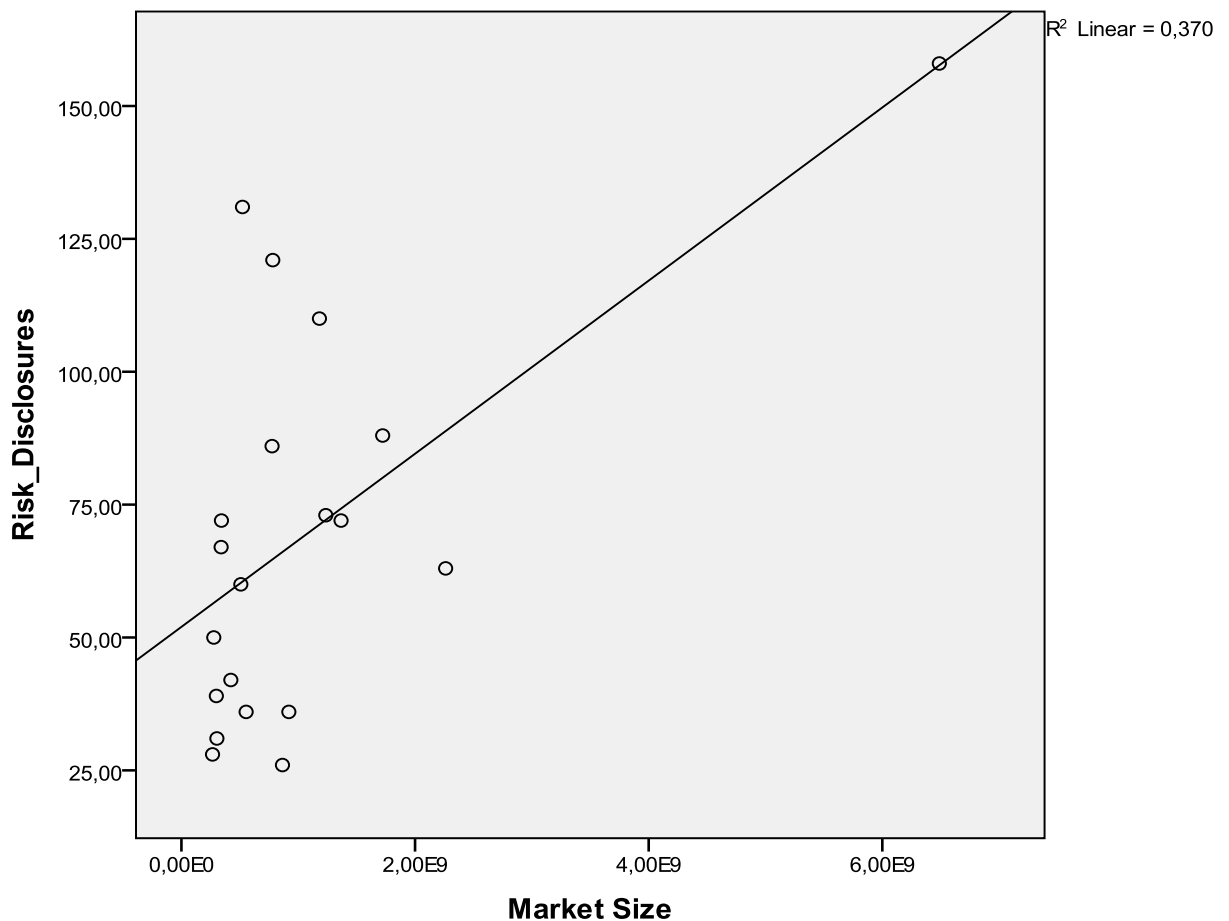
(Graph 6 - Financial Risk Disclosures Categories)

5.6.3 Test Hypothesis

In order to verify the hypothesis we have developed above, we will perform the appropriate statistical tests.

5.6.3.1 Test Hypothesis 1

For the first Hypothesis, Spearman correlation have been calculated to test the first hypothesis: the levels of association between the number of risk disclosures and the independent variable of size (appendix 9). The distribution is not normal and the sample is very small so we use non parametric test – Spearman correlation. The two measures of size that have been used are Market Value and Turn over. By the results of Spearman correlation there is significant positively correlation (value - 0, 506 at the 5% level of significance) between firm’s size and risk disclosures by using market value for measuring firm’s size (Graph 7). The correlation test between turn over and risk disclosures indicates no significant association (sig value – 0,130).



(Graph 7 – Correlation plot)

5.6.3.2 Test Hypothesis 2

For the second Hypothesis we use the same methodology (non parametric – spearman correlation test) in order to measure the association between the number of total risk disclosures and the level of risk. The index we used is

- 1) Ratio of book value of equity to market value of equity, and
- 2) Gearing ratio

As we can see in appendix 9 there is no significant association between two variables. This is something that confirms Linsley and Shrivs (2006) and other research. In our research the use of a very small sample (20 firms) can justify the fact that is not applicable to verify the correlation due to the lack of significance. The sample is very small and drives the test in lack of statistical significance. If the sample was larger (30 or 40 firms) it is probably some checks

to verify the required statistical significance and this can be mentioned as a limitation of the research.

5.6.3.2 Test Hypothesis 3 to 5

For hypothesis 3 to 5 the Wilcoxon signed ranks test has been used (appendix 10). The very small sample and the non normal distribution compel us to take use non-parametric tests and specific Wilcoxon signed ranks test. The data was organized in categories (appendix 8). In test hypothesis 3 (Good risk disclosure – bad risk disclosures) the number of positive ranks 11 and the number of negative ranks is 8. There is no significant difference between them. Therefore legitimacy theory that managers reduce reputation costs by reporting bad news to enhance the reliability of their reporting (Skinner, 1994) doesn't confirming in this case. In test hypothesis 4 past risk disclosures are more frequent than future disclosures. The negative ranks are 16 against 4. In this case the results of research are confirming previous research of Beretta and Bozzolan (2004), Lajili and Zeghal (2005) and Oliveira et al. (2011) but are inconsequent with Linsley and Shrives (2006). Last in test hypothesis 5 (monetary versus non monetary) the monetary disclosures are more often than non monetary. As we can see in Wilcoxon ranking the positive ranks are 17 and the negative 3. The difference is large and statistical significant. These results is opposite to all previous research Beretta and Bozzolan(2004), Lajili and Zeghal (2005), and Linsley and Shrives (2006) Oliveira et al. (2011).

Ranks				
		N	Mean Rank	Sum of Ranks
monetary - non_monetary	Negative Ranks	3 ^a	10,83	32,50
	Positive Ranks	17 ^b	10,44	177,50
	Ties	0 ^c		
	Total	20		
future - past	Negative Ranks	16 ^d	11,66	186,50
	Positive Ranks	4 ^e	5,88	23,50
	Ties	0 ^f		

	Total	20		
good - bad	Negative Ranks	11 ^g	10,50	115,50
	Positive Ranks	8 ^h	9,31	74,50
	Ties	1 ⁱ		
	Total	20		

(Table 9 – Wilcoxon Ranking)

5.6.3.3 Test Hypothesis 6

For Hypothesis 6 t test has been used to identify the relationship between industry level and risk disclosures as described above. The firms have been categorized in two groups according the industry they belong. It could be possible to categorized firms in 7 different industries (food & beverage, raw materials, oil and gas etc) but that it couldn't be useful for our research. So the firms have been categorized in industrial companies and not industrial companies as it is presented in appendix 11. The same categorization has been used in other similar research. The results don't give as any statistical significant association (appendix 12). Following the same concept (very small sample – non normal distribution) non parametric test Mann-Whitney U has been used.

Another time we underline the very small sample which can be a reason for the value of significance in statistical tests. A bigger sample could give us result with significant association. This hypothesis should be tested again in a bigger sample in Greek market.

CHAPTER 6: DISCUSSION – CONSLUSIONS

6.1. Discussion of Results

This study investigates the risk reporting practices in Greek stock market and especially in Greek large caps. A number of factors that influence risk reporting have been identified.

This research is the first in Greek market and so has a distinct significance. It also contribute to existing literature of risk disclosure by testing variables that have been tested in research of firms from other countries with different legal framework and different risk reporting practices. The objective was to learn more thing about risk reporting in Greece because there are not enough evidence and the economic crisis press market authorities to enforce more strict regulations about risk disclosures in order to optimize stakeholders and investors decision making . At the same time firms need to follow better risk reporting policies in order to aligned with firms from other developed countries (such U.K.) and improve the content of annual reports.

The research after examining legislation of Greek and European market and reviewing literature on other countries investigate a sample of 20 Greek large firms. The lack of time and the fact that smaller firms didn't have enough risk reporting in annual reports directed the research in a very small but homogenous sample. The small sample created some problems in the statistical analysis of research and some hypothesis were not confirmed statistically likely for this reason. The annual reports which were chosen are those with 31/12/2012 closing date and were the last version available. The choice of the last dated annual reports is significant because the previous version had fewer risk disclosures and other limitations something that would cause problems to research procedure. The methodology followed – content analysis was similar to more previous research. The outcomes of the research are presented in a summary at the following table.

CHARACTERISTICS	RESEARCH HYPOTHESIS	ASSOCIATION BASED ON RESULTS	ASSOCIATION BASED ON PREVIOUS RESEARCH
FIRM SIZE	COMPANY SIZE – RISK DISCLOSURES (MARKET VALUE – TURN OVER)	POSITIVE ASSOCIATION BASED ON MARKET VALUE	POSITIVE
LEVEL OF RISK	LEVEL OF RISK – RISK DISCLOSURES (GEARING RATIO – BOOK TO MARKET VALUE)	NO ASSOCIATION	NO ASSOCIATION
GOOD – BAD RISK DISCLOSURES	GOOD AND BAD RISK DISCLOSURES WILL NOT BE SIGNIFICANTLY DIFFERENT FROM ONE ANOTHER	NOT SUPPORTED	NOT SUPPORTED - SUPPOTED
PAST - FUTURE RISK DISCLOSURES	PAST RISK DISCLOSURES WILL BE SIGNIFICANTLY GREATER THAN FUTURE RISK DISCLOSURES	SUPPORTED	SUPORTED
NON MONETARY – MONETARY RISK DISCLOSURES	NON-MONETARY RISK DISCLOSURES WILL BE SIGNIFICANTLY GREATER THAN MONETARY RISK DISCLOSURES	SUPPORTED	SUPPORTED
ACTIVITY TYPE	INDUSTRIAL – NON UNDUSTRIAL SIGNIFICANT DIFFERENR SIZE OR RISK DISCLOSURES	NON SUPPORTED	SUPPORTED

(Table 10 – Summarized Hypothesis Testing)

All previous studies in risk reporting (Greco, 2011; Oliveira, Rodrigues and Craig 2011; Abraham and Cox 2007; Linsley and Shrivs, 2006;Beretta and Bozzolan 2004) confirm the relationship between risk disclosures and firms size. So its important that this association

confirmed and by this research. The association confirmed only by using market value as measure for firms size. The turnover didn't gave statistical significant results. The small sample is possible a reason.

The hypothesis with use of risks ratios is already been test by a lot of researchers. The only risk indexed used in previous research which have confirm relationship between risk level and risk disclosures are environmental risk measure - like index EcoValue 21™ Rating Model - (Linsley and Shrives, 2006). In the present research the two indexes that have been used (gearing ratio and book to market value) didn't gave any statistical significant result and the reason could be again the small sample. Anyway a fact that should be mentioned it is that in previous research with larger samples used the relationship of those two indexes with risk disclosures didn't confirmed. Also judging from the overall results of the research we can conclude that Greek firms in risk reporting follow usually the legislation only and don't report more risks in order to justify the risk management abilities of companies. The family ownership of the most companies enhances this aspect.

A serious topic in risk reporting is the size of qualitative risk reporting versus the size of quantitative risk reporting in firms annual reports. The hypothesis 3 to 5 examine the number of monetary disclosures versus non monetary disclosures, bad risk disclosures versus good risk disclosures and future disclosures versus past disclosures. The use of wilcoxon test provide a ranking list where the differences are clear. The monetary risks are clearly excel over non monetary risks something that is in conflict with most previous research. A possible explanation for this phenomenon is the absence of qualitative risk disclosure from the annual reports and the lack of willingness from directors to disclose more risks. In this directions firms usually disclose some tables with financial monetary data produced by the accounting departments to meet their obligation towards regulations. In the present time, risk reporting systems are not enough developed so further conclusion cannot be extracted with confidence. The result of hypothesis 3 testing doesn't give us a significant value and so a conclusion about Greek firms cannot be extracted. By simple analysis we can only mention that neutral risk disclosures excel something that is consistent with the hypothesis that Greek firms don't focus on qualitative risk reporting. It seems that Greek firms don't use risk reporting as a tool in order to communicate with investors and stakeholders, but mainly use financial data and general descriptions in order

to meet obligations from regulations and legislation. A clear and statistically significant difference is observed between future and past disclosures. Past risks are statistically significantly larger than future risks and confirm the previous studies of Kajuter (2001), Beretta and Bozzolan (2004), Woods and Reber (2003). The value of future risk reporting is higher because the importance of forward risk communication is greater as it gives valuable information to investors and stakeholders for the potential consequences of firms' actions. Firms on the other hand often prefer to disclose past risks to justify the administration's ability to manage risks and for other reasons that presented above. In this direction Linsley and Shrivs (2006) found more future risks in their research and this may be due to the experience of UK companies to disclose risks and communicate through annual reports to shareholders. The little experience of Greek companies and the lack of willingness for substantive disclosure risks leading Greek companies at the mere mention of past risks.

The last hypothesis examined is activity effect on risk disclosures. The sample of companies split into two groups on the basis of the type of activity. The separation was done with the criterion of industrial activity. Thus, the companies were divided into 2 groups (industrial - non-industrial). The results of Mann-Whitney U Test (non parametric) which was the appropriate test for this hypothesis (small sample – non normal distribution) didn't give significant results and so the hypothesis wasn't confirmed. And in this case it is very likely that the non-confirmation of the case due to the very small sample. In any case the association of activity type with the risk disclosures as it has been confirmed in theory may be based in other causalities arising. For example the fact that the industrial companies are mostly larger than the non-industrial companies and it is quite likely that this difference in reporting risk due to the size difference and not arising from difference in the activity. So a further statistical research should be done.

6.2. Conclusions

This research is the first in the field of risk reporting of Greek firms and in this role must be judged. The aim of this study is to provide a first reading of the parameters of risk communication in Greek market and to describe the policies and trends in risk disclosure by the management of Greek companies. This research should trigger deeper and further research.

Despite several limitations of this research in both time and available information cause of research's nature and purpose for which it is intended, the final results allow to draw some initial conclusions and make some initial assumptions. Also is the first research which focus on financial risk disclosures and not in all type of risk disclosures (strategic risk, operations risk, etc). This choice was not random but driven from the importance of financial risk over other risks but also in the increase of information that exists for financial risks in the annual reports of Greek companies. One significant point on the results discussion of this research is the fact that Greek firms are not familiar with risk reporting practices and there is a very poor framework with regulations, that now days is formatting. After this discussion and based on the theory that has emerged from the detailed literature review we can summarize the following conclusions.

One of the main findings of the research besides the hypothesis tested is the very small size of risk disclosures in annual reports. Judging from other countries firms, Greek companies are below enough. Comparing respective sizes of risk disclosures with German, English and French companies will see that there are still many things that must be done to improve not only the quantity of information but the quality too. A main reason for this phenomenon is the lack of relative regulations of the national market bodies. The incorporating EU Directives, and the strong economic crisis that has brought intense pressure on businesses to transparency, more and better information about potential risks have helped to make several steps in this direction last three years. Another method to improve risk reporting is to publish more risk information with improve of wording at the same time (Linsley and Lawrence, 2006). The explanation of the results were developed by considering agency theory, signaling theory and legitimacy theory. The preference of backward risk reporting in Greek firms is against most research literature but confirms recent research in Portugal by Oliveira et al., (2011). A possible explanation is that backward reporting is less useful to investors and decision making but decrease litigation costs. After all Portugal market is more similar to Greek Market cause of size and specific characteristics than developed markets like U.K. and Germany where investors play a more important role. The heterogeneity in risk disclosures among companies is obvious if you noticed the mold categorization of each company. This is expected since as we comment that there is still no adequate legal framework and the managements of the companies have not understood the significance and the importance of risk disclosures for themselves and stakeholders. The enforcement of IFRS 7 and other regulations of market securities are not enough. The constant pressure of institutional authorities for more information on the part of

companies, but mainly the necessity arises for more funding on the part of investors will further strengthen the transparency and quality of information. The firms will adjust their reports based on the required information's by investors and not their own standpoint or legal requirements (Mousa and Elamir, 2013). Despite all this it should be noted that Greek firms prefer to disclose mainly liquidity risks and credit risks. It makes sense in an era of intense economic crisis dominates the risk of liquidity and credit. Also it should be noted that these risks are the most simple on the availability of data and the processing. No large amounts of man hours needed. Simple quotation of accounting information is enough.

6.3. Limitations

Our study suffers from a lot of limitations. Most of them mentioned above and especially in methodology part. Following Oliveira et al (2011), Linsley and Shrives (2006), the subjectivity of the coding procedure can affect reliability of the research. The codification and categorization of sentences in risk categorization is subjective especially when risk doesn't stated clearly and usually firms present risks with very innovative wordings. However content analysis remains the most important method for analyzing risk disclosures in annual reports according to literature review and previous research. Also the use of decision rules for risk disclosures (appendix 2) decrease subjectivity as possible. The results of the categorization could be checked with quote data from interviews as Oliveira et al. (2011) proposed.

Second the sample size is very small. The lack of time and available data was forced the research to work with this sample. It should be noted that content analysis requires much time available and qualified researchers as the process is difficult and tedious. In any case the findings cannot be generalized in Greek market. The research focus only in large caps firms. The sample is proposed to be more extended in future research.

Third the research focus only in the risk reporting in annual reports and especially in a particular part of annual reporting where risk disclosures recorded. The research could not be executed in whole annual report because something like that demands a lot of time and creates problems in the homogeneity of the research as each company over particular segment used in

this study does not use the same policies on risk disclosures. Also other sources than annual reports can be used such as press releases, management reports, quarterly reports, firms web sites etc.

Fourth the scope of research is specific and processes specific elements of Greek large caps. Generalizations and conclusions for other firms, industries, indexes and other countries cannot be drawn from this study.

Fifth the research involves only one year annual reports. This is because there was lack of time and because the change of regulations and the pressure for more risk reporting both from the authorities and investors make it impossible to compare two periods as changes in risk disclosures are large in recent years.

6.4. Recommendations for Further Study

Further studies can contribute in risk disclosure research. The lack of studies in the Greek market enables the space required for performing a plurality of respective investigations. The key features of the risk reporting should be explored with depth. The change in the legal framework and the need for more information from the stakeholders allows a greater depth in this area. A future research in Greek market could be interesting with much bigger sample where smaller companies could participate. It would be interesting to observe the reports from smaller companies and the differences of risk reporting practices in relation to the largest. The use of other sources for information's could be used in future research. May also be a comparative analysis based on disclosures made mandatory based regulations and those made voluntarily by companies. An interesting research could be developed with use of different methodology. Surveys targeted on investors needs and risk reporting could give interesting results. Another methodology could be used is qualitative ratios or interview with managers. Also in future research content analysis software (CAQDAS) could be used in order to save time. A further investigation of risk disclosure impact in financial characteristics could be interesting. The new variables that can be used are earnings, managers compensations and

assets , liabilities etc. Also in future studies with bigger sample, industry differences can be investigated concerning risk reporting. The use of more industries can generate interesting results. In this direction cross sectional studies can be executed not only between industries but also between firms from different countries.

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APPENDICES

Appendix 1

The Investor Relations Society ‘Determinant Factors for Best Investor Relations’

Best Practice
<ul style="list-style-type: none">• Sensible and understandable explanation of the risk.• Description of the company’s markets, including regulatory environment and competitive position.
<ul style="list-style-type: none">• Provide an update on the key risks and uncertainties at the period end.• Include detail on the drivers of risk factors.
Best Practice
<ul style="list-style-type: none">• Where there has been non-regulatory compliance, a clear statement of the reasons why the Board decided not to comply.
<ul style="list-style-type: none">• Clear presentation of the key risks and uncertainties and how the management have addressed them in order to minimise their impact on performance, or to exploit them to gain competitive advantage.• Explanation of how risks are managed throughout the business, including discussion of the risk identification process and how risks are monitored throughout the business and communicated to the Board.
Best Practice
<ul style="list-style-type: none">• Honest reflection of weaknesses or uncertainties (narrative).• Clear indication of where targets have been missed.• Indication of remedial action taken, or changes to policies.
<ul style="list-style-type: none">• There should be links to financials.
<ul style="list-style-type: none">• Good content can be obscured and rendered ineffective by poor information layout.• Graphics, pictures, tables and numbers should be legible.
<ul style="list-style-type: none">• Interactive diagrams – allowing for greater depth of information and clarity of explanation• Analyser tools and KPI charts• Guide to financials – an educational role
<ul style="list-style-type: none">• Provide users with a feedback option – monitor the feedback and take appropriate steps where necessary.

(Source <http://www.irs.org.uk>)

Appendix 2

Decision rules for risk disclosures

- 1) To identify risk disclosures a broad definition of risk is to be adopted as explained below.
- 2) Sentences are to be coded as risk disclosures if the reader is informed of any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted upon the company or may impact upon the company in the future or of the management of any such opportunity, prospect, hazard, harm, threat or exposure.
- 3) The risk definition just stated shall be interpreted such that 'good' and 'bad' 'risks' and 'uncertainties' will be deemed to be contained within the definition.
- 4) Although the definition of risk is broad, disclosures must be specifically stated; they cannot be implied.
- 5) Sentences of general policy concerning internal control and risk management systems as mandated by the Turnbull Committee shall be classified 'M'—'non-monetary/neutral/non-time specific statements of risk management policy-financial risk'.
- 6) Sentences of general policy concerning financial risk management shall be classified 'M'—'non-monetary/ neutral/non-time specific statements of risk management policy-financial risk'.
- 7) Monetary risk disclosures are those risk disclosures that either disclose directly the financial impact of a risk or disclose sufficient information to enable the reader to calculate the financial impact of a risk.
- 8) If a sentence has more than one possible classification, the information will be classified into the category that is most emphasised within the sentence.
- 9) Tables (quantitative and qualitative) that provide risk information should be interpreted as one line equals one sentence and classified accordingly.
- 10) Any disclosure that is repeated shall be recorded as a risk disclosure sentence each time it is discussed.
- 11) If a disclosure is too vague in its reference to risk, then it shall not be recorded as a risk disclosure.

(Source:P.M. Linsley, P.J. Shrides / The British Accounting Review 38 (2006) pp. 387–404)

Appendix 3

Empirical studies on comprehensive risk reporting

Researcher - Year	Method and sample	Main results
J. Solomon, A. Solomon, Norton and Joseph (2000)	<ul style="list-style-type: none"> ▪ Questionnaire survey ▪ A sample of 552 institutional investors drawn randomly 	<ul style="list-style-type: none"> ▪ Increased corporate risk disclosure would help their portfolio investment decision-making. ▪ Pursue individual and detailed reporting of risk information rather than a general statement of business risk ▪ Current voluntary framework of disclosure should be maintained ·
Repetto and Henderson (2003)	<ul style="list-style-type: none"> ▪ quantitative analysis ▪ 47 large investor-owned electricity generating companies 	Few companies disclosed in their financial reports the implications of proposed three- or four-pollutant cap-and-trade policies
Bungartz (2003)	<ul style="list-style-type: none"> ▪ Content analysis ▪ 117 management reports of German listed companies (2000) 	<ul style="list-style-type: none"> ▪ Large variation in mandatory risk reporting before implementation of GAS 5 ▪ Risk reports mainly qualitative; poor disclosures on interrelations of risk factors; few risk forecasts
Carlson et al. (2003)	<ul style="list-style-type: none"> ▪ Content analysis ▪ 54 annual reports of Australian mining companies (2000) 	<ul style="list-style-type: none"> ▪ Large variation in voluntary risk reporting ▪ Diverse application of risk reporting requirements related to financial instruments
Kajüter and Winkler (2003)	<ul style="list-style-type: none"> ▪ Content analysis ▪ 247 management reports of German listed companies (1999–2001) 	<ul style="list-style-type: none"> ▪ Large variation in mandatory risk reporting ▪ Risk reports mainly qualitative; poor disclosures on risk assessment; few risk forecasts

		<ul style="list-style-type: none"> ▪ Increasing quantity of risk disclosures over time, but non-compliance with GAS 5 requirements
Fischer and Vielmeyer (2004)	<ul style="list-style-type: none"> ▪ Content analysis; GAS 5-based disclosure index ▪ 346 management reports of German listed companies (1999–2002) 	<ul style="list-style-type: none"> ▪ Results consistent with Kajüter and Winkler (2003) ▪ Own disclosure index unaffected by size effect
Beretta and Bozzolan (2004)	<ul style="list-style-type: none"> ▪ Content analysis; disclosure index and regressions ▪ Content analysis; disclosure index and regressions ▪ 85 annual reports of Italian listed companies (2001) 	<ul style="list-style-type: none"> ▪ Voluntary risk reporting mainly qualitative; few disclosures on interrelations between risk factors and their potential impact ▪ Own disclosure index unaffected by size effect
Lajili and Zéghal (2005a)	<ul style="list-style-type: none"> ▪ Content analysis ▪ 300 annual reports of Canadian listed companies (1999) 	<ul style="list-style-type: none"> ▪ Large variation, particularly in voluntary risk reporting ▪ Risk reporting mainly qualitative; few disclosures on risk assessment; few risk forecasts
Lajili and Zéghal (2005b)	<ul style="list-style-type: none"> ▪ Content analysis; disclosure index and regressions ▪ 230 annual reports of Canadian listed companies (2002) 	<ul style="list-style-type: none"> ▪ Results consistent with Lajili and Zéghal (2005a) ▪ Positive association of risk disclosure quantity and characteristics of corporate governance
Mohobbot (2005)	<ul style="list-style-type: none"> ▪ Content analysis; disclosure index and regressions ▪ 90 annual reports of Japanese listed companies (2003) 	<ul style="list-style-type: none"> ▪ Large variation in voluntary risk reporting ▪ Risk reporting mainly qualitative; few risk forecasts ▪ Evidence consistent with size effect
Linsley and Shrives (2006)	<ul style="list-style-type: none"> ▪ Content analysis; disclosure index and regressions ▪ 79 annual reports of UK listed companies (2000) 	<ul style="list-style-type: none"> ▪ Large variation in risk reporting, particularly few quantitative disclosures ▪ Evidence consistent with size effect ▪ Negative association of risk disclosure quantity and

		environmental risk exposure, but not with other proxies for the level of corporate risk
Berger and Gleißner (2006)	<ul style="list-style-type: none"> ▪ Content analysis; Correlations ▪ 92 non financial companies of HDAX index 	<ul style="list-style-type: none"> ▪ The information quality of risk reports in Germany has improved since 2000 ▪ Information asymmetry when it comes to risk information due to e.g. Agency problems
Thuelin, Henneron and Touron (2006)	<ul style="list-style-type: none"> ▪ Content analysis ▪ 3 French quoted companies: Aventis, Veolia and France Telecom 	<ul style="list-style-type: none"> ▪ There is no consensus between the different pieces of legislation in risk reporting <ul style="list-style-type: none"> ▪ It is demonstrated that the terminology referred to by companies tends to differ from one to another.
Kajüter and Esser (2007)	<ul style="list-style-type: none"> ▪ Content analysis ▪ 92 management reports of German listed companies (2005) 	<ul style="list-style-type: none"> ▪ Large variation in mandatory risk reporting (on both upside and downside risk), particularly few quantitative disclosures ▪ Evidence consistent with size effect
Linsley and Larwernce (2007)	<ul style="list-style-type: none"> ▪ Content analysis; Flesch Reading Ease formula and coefficients of variation ▪ 25 largest non-financial companies listed in the FT-SE 100 (UK) 	<ul style="list-style-type: none"> ▪ The level of readability of the risk disclosures is difficult or very difficult ▪ Directors do not deliberately obfuscate less favourable risk news.
Hassan (2009)	<ul style="list-style-type: none"> ▪ Disclosure index methodology; Regression analysis ▪ A sample of 49 corporations listed in either Dubai Financial Market or Abu Dubai Security Market 	<ul style="list-style-type: none"> ▪ The results show that corporate size is not significantly associated with the level of CRD. ▪ However, the corporate level of risk and corporate industry type are significant in explaining the variation of CRD
Oliveira, Rodrigues and Craig (2011)	<ul style="list-style-type: none"> ▪ Content analysis ▪ A sample of 81 Portuguese companies (42 listed and 39 unlisted) 	<ul style="list-style-type: none"> ▪ The adoption of high quality accounting standards (IAS/IFRS) did not render any improvement in the quantity of RRD ▪ Agency costs associated with leverage and the engagement of a Big4 international auditing

		firm are also important in explaining RRD
Greco (2011)	<ul style="list-style-type: none"> ▪ Content analysis; non parametric statistics ▪ A random sample of 20 Italian listed firms 	<ul style="list-style-type: none"> ▪ Even when new mandatory disclosure is introduced, managers do not change their disclosure policy, ▪ Before and after the introduction of new regulation, managers' behaviour appears in line with self-interest to protect themselves from litigation and competitive costs, as well as from possible decreases in the firm's value

[Extended table based on Linsley and Shrives (2006) paper]

Appendix 4

Greek legislation on risk reporting in annual reports

Άρθρο 4

Ετήσια οικονομική έκθεση

1. Ο εκδότης δημοσιοποιεί ετήσια οικονομική έκθεση με το περιεχόμενο που ορίζεται στην επόμενη παράγραφο εντός τριών (3) μηνών από τη λήξη κάθε οικονομικής χρήσης. Ο εκδότης διασφαλίζει ότι η έκθεση αυτή είναι στη διάθεση του επενδυτικού κοινού για διάστημα τουλάχιστον πέντε (5) ετών.

2. Η ετήσια οικονομική έκθεση περιλαμβάνει:

(α) τις ελεγμένες οικονομικές καταστάσεις,

(β) την έκθεση του διοικητικού συμβουλίου, και

(γ) δηλώσεις: (αα) του προέδρου του διοικητικού συμβουλίου του εκδότη ή του αναπληρωτή του, (ββ) του διευθύνοντος ή εντεταλμένου συμβούλου και, σε περίπτωση που δεν υπάρχει τέτοιος σύμβουλος ή η ιδιότητά του συμπίπτει με εκείνη των ανωτέρω προσώπων, ενός μέλους του διοικητικού συμβουλίου του εκδότη που ορίζεται από αυτό και (γγ) ενός ακόμα μέλους του διοικητικού συμβουλίου του εκδότη που ορίζεται από αυτό, ότι, εξ όσων γνωρίζουν:

– οι οικονομικές καταστάσεις, που καταρτίστηκαν σύμφωνα με τα ισχύοντα λογιστικά πρότυπα, απεικονίζουν κατά τρόπο αληθή τα στοιχεία του ενεργητικού και παθητικού, την καθαρή θέση και τα αποτελέσματα χρήσεως του εκδότη και των επιχειρήσεων που περιλαμβάνονται στην ενοποίηση εκλαμβανόμενων ως σύνολο, και – η έκθεση του διοικητικού συμβουλίου απεικονίζει κατά τρόπο αληθή την εξέλιξη, τις επιδόσεις και τη θέση του εκδότη, καθώς και των επιχειρήσεων που περιλαμβάνονται στην ενοποίηση εκλαμβανόμενων ως σύνολο, συμπεριλαμβανομένης της περιγραφής των κυριότερων κινδύνων και αβεβαιοτήτων που αντιμετωπίζουν. Το ονοματεπώνυμο και η ιδιότητα των παραπάνω προσώπων καταγράφονται σαφώς στην παραπάνω δήλωση.

3. Σε περίπτωση που εκδότης υποχρεούται σε κατάρτιση ενοποιημένων οικονομικών καταστάσεων σύμφωνα με τα άρθρα 90 έως 99 και 134 του κ.ν. 2190/1920 ή, εφόσον ο εκδότης έχει την καταστατική του έδρα σε άλλο κράτος μέλος, σύμφωνα με την Έβδομη Οδηγία 83/349/ΕΟΚ (ΕΕΕΚ L 193/1/18.7.1983) όπως έχει ενσωματωθεί στο κράτος μέλος αυτό, οι ελεγμένες οικονομικές καταστάσεις περιλαμβάνουν:

(α) τις ενοποιημένες οικονομικές καταστάσεις που έχουν καταρτισθεί σύμφωνα με τον Κανονισμό (ΕΚ) αριθ. 1606/2002 (ΕΕΕΚ L 243/1/11.9.2002), καθώς και

(β) τις ετήσιες οικονομικές καταστάσεις της μητρικής εταιρίας που έχουν καταρτισθεί σύμφωνα με το εθνικό δίκαιο του κράτους μέλους στο οποίο η μητρική εταιρία έχει την καταστατική της έδρα.

Προκειμένου για εκδότη που έχει την καταστατική του έδρα στην Ελλάδα, οι ενοποιημένες οικονομικές καταστάσεις εγκρίνονται από το διοικητικό συμβούλιο του εκδότη.

4. Σε περίπτωση που εκδότης δεν υποχρεούται σε κατάρτιση ενοποιημένων οικονομικών καταστάσεων, οι ελεγμένες οικονομικές καταστάσεις περιλαμβάνουν τις οικονομικές καταστάσεις που έχουν καταρτισθεί σύμφωνα με το εθνικό δίκαιο του κράτους μέλους στο οποίο η εταιρία έχει την καταστατική της έδρα.

5. Οι οικονομικές καταστάσεις ελέγχονται σύμφωνα με τα άρθρα 36, 37 και 137 του κ.ν. 2190/1920 ή, σε περίπτωση που ο εκδότης έχει την καταστατική του έδρα σε άλλο κράτος μέλος, σύμφωνα με τα άρθρα 51 και 51α της Τέταρτης Οδηγίας 78/660/ΕΟΚ (ΕΕΕΚ L 222/11/ 14.8.1978) όπως έχουν ενσωματωθεί στο κράτος μέλος αυτό. Εφόσον απαιτείται από τον εκδότη να καταρτίζει ενοποιημένες οικονομικές καταστάσεις, οι οικονομικές καταστάσεις ελέγχονται σύμφωνα με τα άρθρα 108 και 137 του κ.ν. 2190/1920 ή, σε περίπτωση που ο εκδότης έχει την

καταστατική του έδρα σε άλλο κράτος μέλος, σύμφωνα με το άρθρο 37 της Έβδομης Οδηγίας 83/349/ΕΟΚ όπως έχει ενσωματωθεί στο κράτος μέλος αυτό. Η έκθεση ελέγχου, υπογεγραμμένη από τους υπεύθυνους για τον έλεγχο των οικονομικών καταστάσεων δημοσιοποιείται στο σύνολό της μαζί με την ετήσια οικονομική έκθεση.

6. Η έκθεση του διοικητικού συμβουλίου καταρτίζεται σύμφωνα με τις παραγράφους 3 και 4 του άρθρου 43α του κ.ν. 2190/1920 ή, σε περίπτωση που ο εκδότης έχει την καταστατική του έδρα σε άλλο κράτος μέλος, σύμφωνα με το άρθρο 46 της Τέταρτης Οδηγίας 78/660/ΕΟΚ όπως έχει ενσωματωθεί στο κράτος μέλος αυτό. Σε περίπτωση που ο εκδότης υποχρεούται σε κατάρτιση ενοποιημένων οικονομικών καταστάσεων, η έκθεση του διοικητικού συμβουλίου καταρτίζεται σύμφωνα με την παράγραφο 3 του άρθρου 107 του κ.ν. 2190/1920 ή, σε περίπτωση που ο εκδότης έχει την καταστατική του έδρα σε άλλο κράτος μέλος, σύμφωνα με το άρθρο 36 της Έβδομης Οδηγίας 83/349/ΕΟΚ όπως έχει ενσωματωθεί στο κράτος μέλος αυτό.

7. Η έκθεση του διοικητικού συμβουλίου που καταρτίζεται σύμφωνα με την προηγούμενη παράγραφο περιλαμβάνει και αναλυτικές πληροφορίες αναφορικά με:

(α) Τη διάρθρωση του μετοχικού κεφαλαίου του εκδότη, συμπεριλαμβανομένων των μετοχών που δεν είναι εισηγμένες προς διαπραγμάτευση σε οργανωμένη αγορά στην Ελλάδα ή σε άλλο κράτος μέλος, αναφέροντας για κάθε κατηγορία μετοχών τα δικαιώματα και τις υποχρεώσεις που συνδέονται με αυτήν την κατηγορία και το ποσοστό του συνολικού μετοχικού κεφαλαίου που αντιπροσωπεύουν οι μετοχές της κατηγορίας αυτής.

(β) Τους περιορισμούς στη μεταβίβαση μετοχών του εκδότη, όπως ενδεικτικά τους περιορισμούς στην κατοχή μετοχών ή την υποχρέωση λήψης προηγούμενης έγκρισης από τον εκδότη, από άλλους μετόχους ή από

(γ) Τις σημαντικές άμεσες ή έμμεσες συμμετοχές κατά την έννοια των διατάξεων των άρθρων 9 έως 11 του παρόντος νόμου.

(δ) Τους κατόχους κάθε είδους μετοχών που παρέχουν ειδικά δικαιώματα ελέγχου και περιγραφή των σχετικών δικαιωμάτων.

(ε) Τους περιορισμούς στο δικαίωμα ψήφου, όπως ενδεικτικά τους περιορισμούς των δικαιωμάτων ψήφου σε κατόχους ορισμένου ποσοστού του μετοχικού κεφαλαίου ή σε κατόχους ορισμένου αριθμού δικαιωμάτων ψήφου, και τις προθεσμίες άσκησης των δικαιωμάτων ψήφου.

(στ) Τις συμφωνίες μεταξύ μετόχων οι οποίες είναι γνωστές στον εκδότη και συνεπάγονται περιορισμούς στη μεταβίβαση μετοχών ή περιορισμούς στην άσκηση δικαιωμάτων ψήφου.

(ζ) Τους κανόνες για το διορισμό και την αντικατάσταση μελών του διοικητικού συμβουλίου, καθώς και για την τροποποίηση του καταστατικού, εφόσον διαφοροποιούνται από τα προβλεπόμενα στον κ.ν. 2190/1920.

(η) Την αρμοδιότητα του διοικητικού συμβουλίου ή ορισμένων μελών του διοικητικού συμβουλίου, για την έκδοση νέων μετοχών ή την αγορά ίδιων μετοχών σύμφωνα με το άρθρο 16 του κ.ν. 2190/1920.

(θ) Κάθε σημαντική συμφωνία που έχει συνάψει ο εκδότης και η οποία τίθεται σε ισχύ, τροποποιείται ή λήγει σε περίπτωση αλλαγής στον έλεγχο του εκδότη κατόπιν δημόσιας πρότασης και τα αποτελέσματα της συμφωνίας αυτής, εκτός εάν, εξαιτίας της φύσεώς της, η δημοσιοποίηση της συμφωνίας θα προκαλούσε σοβαρή ζημία στον εκδότη. Η εξαίρεση δημοσιοποίησης της συμφωνίας δεν ισχύει όταν η υποχρέωση δημοσιοποίησης προκύπτει από άλλες διατάξεις.

(ι) Κάθε συμφωνία που ο εκδότης έχει συνάψει με μέλη του διοικητικού του συμβουλίου ή με το προσωπικό του, η οποία προβλέπει αποζημίωση σε περίπτωση παραίτησης ή απόλυσης χωρίς βασίμο λόγο ή τερματισμού της θητείας ή της απασχόλησής τους εξαιτίας της δημόσιας πρότασης.

8. Το διοικητικό συμβούλιο υποβάλλει επεξηγηματική έκθεση στην τακτική γενική συνέλευση, σχετικά με τις πληροφορίες της προηγούμενης παραγράφου. Η επεξηγηματική έκθεση ενσωματώνεται στην έκθεση του διοικητικού συμβουλίου.

9. Με απόφαση του Διοικητικού Συμβουλίου της Επιτροπής Κεφαλαιαγοράς, σύμφωνα με τα σχετικά με την Οδηγία 2004/109/ΕΚ εκτελεστικά μέτρα, δύναται να:

(α) καθορίζονται, στο πλαίσιο εφαρμογής της παραγράφου 1, οι τεχνικές προϋποθέσεις υπό τις οποίες η δημοσιοποιημένη ετήσια οικονομική έκθεση, συμπεριλαμβανομένης της έκθεσης ελέγχου, πρέπει να παραμένει διαθέσιμη στο επενδυτικό κοινό,

(β) τροποποιείται το χρονικό διάστημα των πέντε (5) ετών που αναφέρεται στην παράγραφο 1.

Appendix 5

Firms of sample

COMPANY NAME	SECTOR	SITE
MOTOR OIL (HELLAS) CORINTH REFINERIES SA	Oil & Gas	www.moh.gr
HELLENIC PETROLEUM S.A.	Oil & Gas	www.hellenic-petroleum.gr
MYTILINEOS HOLDINGS S.A.	Basics Resources	www.mytilneos.gr
CORINTH PIPEWORKS S.A.	Basics Resources	www.cpw.gr
TITAN CEMENT COMPANY S.A.	Building Materials & Fixtures	www.titan-cement.com
ELLAKTOR S.A.	Building Materials & Fixtures	www.etae.com
VIOHALKO S.A.	Industrial Goods & Services	www.viohalco.gr
METKA S.A.	Industrial Goods & Services	www.metka.gr
FRIGOGLOSS S.A.I.C.	Industrial Goods & Services	www.frigoglass.com
PIRAEUS PORT AUTHORITY SA	Industrial Goods & Services	www.olp.gr
COCA-COLA HBC AG	Food & Beverage	www.coca-colahellenic.com
JUMBO S.A.	Personal & Household Goods	www.jumbo.gr
FOLLI FOLLIE S.A.	Retail	www.follifolliegroupp.com
GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	Travel & Leisure	www.opap.gr
INTRALOT S.A.	Travel & Leisure	www.intralot.com
HELLENIC TELECOM. ORG.	Telecommunications	www.o-te.gr
PUBLIC POWER CORPORATION SA	Utilities	www.dei.gr
TERNA ENERGY S.A.	Utilities	www.terna-energy.com
ATHENS WATER SUPPLY & SEWAGE Co.	Utilities	www.eydap.gr
EUROBANK PROPERTIES REIC	Real Estate	www.eurobankproperties.gr

Appendix 6

Risk indexes and financial data

A/A	Company Name	GEARING RATIO debt to equity ratio= net debt/total equity	Net debt	Total equity	Book Value	Market value 31.12.2012	Book/Market value
1	MOTOR OIL HELLAS	1,73	987.052.000,00 €	570.827.000,00 €	5,15 €	8,30 €	0,621
2	HELLENIC PETROLEUM SA	0,74	1.855.419.000,00 €	2.495.016.000,00 €	6,24 €	7,40 €	0,843
3	MYTILINEOS HOLDINGS S.A.	0,72	694.224.000,00 €	960.338.000,00 €	8,21 €	4,47 €	1,838
4	CORINTH PIPEWORKS S.A.	0,14	22.405.026.000,00 €	164.727.671.000,00 €	1,33 €	2,23 €	0,595
5	TITAN CEMENT COMPANY S.A.	0,36	596.000.000,00 €	1.660.000.000,00 €	9,18 €	13,96 €	0,657
6	ELLAKTOR S.A.	0,41	513.200.000,00 €	1.255.200.000,00 €	4,45 €	1,92 €	2,318
7	VIOHALKO S.A.	1,28	-	-	7,53 €	3,92 €	1,921
8	METKA S.A.	0,80	294.457.000,00 €	369.983.000,00 €	5,53 €	9,79 €	0,565
9	FRIGOGLASS S.A.I.C.	1,48	223.420.000,00 €	151.432.000,00 €	3,00 €	5,27 €	0,569
10	PIRAEUS PORT AUTHORITY SA	0,46	73.274.655,68 €	159.753.304,18 €	6,39 €	16,92 €	0,378
11	COCA-COLA HBC AG	0,57	1.720.600.000,00 €	3.006.500.000,00 €	8,20 €	17,70 €	0,463
12	JUMBO S.A.	-0,05	30.692.617,00 €	592.912.413,00 €	4,92 €	5,97 €	0,824
13	FOLLI FOLLIE S.A.	0,74	614.593.385,67 €	825.089.422,84 €	12,32 €	12,92 €	0,954
14	GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	0,44	517.111.000,00 €	1.165.319.000,00 €	3,65 €	5,40 €	0,676
15	INTRALOT S.A.	1,00	383.625.000,00 €	383.849.000,00 €	0,76 €	1,91 €	0,399
16	HELLENIC TELECOM. ORG.	1,43	2.882.500.000,00 €	2.013.800.000,00 €	2,03 €	5,10 €	0,399

17	<u>PUBLIC POWER CORPORATION SA</u>	0,80	4.679.000.00 0,00 €	5.854.500.000 ,00 €	24,9 4 €	5,89 €	4,235
18	<u>TERNA ENERGY S.A.</u>	0,81	295.700,00 €	363.054,00 €	3,38 €	3,29 €	1,026
19	<u>ATHENS WATER SUPPLY & SEWAGE Co.</u>	0,16	142.375,00 €	881.500,00 €	8,28 €	5,20 €	1,593
20	<u>EUROBANK PROPERTIES REIC</u>	0,13	82.928,00 €	626.974,00 €	10,3 6 €	4,90 €	2,114

Appendix 7

Descriptive statistics for Risk Disclosures of all firms

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Risk Disclosures	20	26,00	158,00	69,4500	37,05824
Valid N (listwise)	20				

RISK DISCLOSURES

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 26,00	1	5,0	5,0	5,0
28,00	1	5,0	5,0	10,0
31,00	1	5,0	5,0	15,0
36,00	2	10,0	10,0	25,0
39,00	1	5,0	5,0	30,0
42,00	1	5,0	5,0	35,0
50,00	1	5,0	5,0	40,0
60,00	1	5,0	5,0	45,0
63,00	1	5,0	5,0	50,0
67,00	1	5,0	5,0	55,0
72,00	2	10,0	10,0	65,0
73,00	1	5,0	5,0	70,0
86,00	1	5,0	5,0	75,0
88,00	1	5,0	5,0	80,0
110,00	1	5,0	5,0	85,0

121,00	1	5,0	5,0	90,0
131,00	1	5,0	5,0	95,0
158,00	1	5,0	5,0	100,0
Total	20	100,0	100,0	

Descriptive statistics for Risk Disclosures of industrial firms

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
RISK DISCLOSURES	10	28,00	158,00	82,9000	44,06422
Valid N (listwise)	10				

Descriptive statistics for Risk Disclosures of non industrial firms

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
risk	10	26,00	88,00	56,0000	23,57023
Valid N (listwise)	10				

Appendix 8

Risk type categorization for hypothesis 3-6

Types of Risk	
Monetary	846
Non Monetary	543
Future	269
Past	737
Non Time	383
Good News	404
Bad News	454

Neutral	531
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FIRMS	NON MONETARY	MONETARY	PAST	FUTURE	BAD	GOOD
motor_oil	16	20	22	3	14	10
hellenic_petroleum	40	23	17	23	17	15
mytilineos	46	85	65	30	25	35
corinth	24	26	15	14	8	15
Titan	34	76	77	1	35	37
Ellaktor	32	35	37	6	22	14
Viohalco	41	80	82	3	39	41
Metka	24	36	19	30	26	15
Frigoglass	28	0	5	4	7	2
Piraeus Port	9	33	27	8	11	24
Coca-Cola	41	117	108	17	53	49
Jumbo	27	59	38	22	14	37
Follie - Follie	3	23	5	19	12	12
OPAP	29	59	34	37	36	31
intralot	14	17	18	0	6	8
Hellenic Telecom	32	41	49	4	21	30
Public Power	31	41	52	9	41	11
Terna Energy	34	38	32	21	38	8
Athens Water Supply	14	22	18	13	17	9
Eurobank Properties	24	15	17	5	12	1

COMPANY NAME	RISK DISCLOSURES
INDUSTRIAL	
MOTOR OIL (HELLAS) CORINTH REFINERIES SA	36
HELLENIC PETROLEUM S.A.	63
MYTILINEOS HOLDINGS S.A.	131
CORINTH PIPEWORKS S.A.	50
TITAN CEMENT COMPANY S.A.	110
VIOHALKO S.A.	121
METKA S.A.	60
FRIGOGLASS S.A.I.C.	28
COCA-COLA HBC AG	158
PUBLIC POWER CORPORATION SA	72
NON INDUSTRIAL	
ELLAKTOR S.A.	67
PIRAEUS PORT AUTHORITY SA	42
EUROBANK PROPERTIES REIC	39
ATHENS WATER SUPPLY & SEWAGE Co.	36
TERNA ENERGY S.A.	72

HELLENIC TELECOM. ORG.	73
JUMBO S.A.	86
FOLLI FOLLIE S.A.	26
GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	88
INTRALOT S.A.	31

Appendix 9

Spearman Correlations for Hypothesis 1 - 2

			Correlations					
			Market Size	Book to Market Ratio	Debt Ratio	Percentaze of Board	Turn_Over	Risk_Disclosures
Spearman's rho	Market Size	Correlation Coefficient	1,000	,012	,099	-,202	,743**	,506*
		Sig. (2-tailed)	.	,960	,679	,394	,000	,023
		N	20	20	20	20	20	20
Book to Market Ratio	Book to Market Ratio	Correlation Coefficient	,012	1,000	-,242	-,019	-,008	,157
		Sig. (2-tailed)	,960	.	,303	,937	,975	,510
		N	20	20	20	20	20	20
Debt Ratio	Debt Ratio	Correlation Coefficient	,099	-,242	1,000	,108	,476*	-,164
		Sig. (2-tailed)	,679	,303	.	,649	,034	,490
		N	20	20	20	20	20	20
Percentaze of Board	Percentaze of Board	Correlation Coefficient	-,202	-,019	,108	1,000	-,026	,182
		Sig. (2-tailed)	,394	,937	,649	.	,914	,443
		N	20	20	20	20	20	20
Turn_Over	Turn_Over	Correlation Coefficient	,743**	-,008	,476*	-,026	1,000	,351

	Sig. (2-tailed)	,000	,975	,034	,914	.	,130
	N	20	20	20	20	20	20
Risk_Disclosures	Correlation Coefficient	,506 [*]	,157	-,164	,182	,351	1,000
	Sig. (2-tailed)	,023	,510	,490	,443	,130	.
	N	20	20	20	20	20	20

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Appendix 10

Wilcoxon test for Hypothesis 3-5

Ranks

	N	Mean Rank	Sum of Ranks
monetary - non_monetary	Negative Ranks	3 ^a	10,83
	Positive Ranks	17 ^b	177,50
	Ties	0 ^c	
	Total	20	
future - past	Negative Ranks	16 ^d	186,50
	Positive Ranks	4 ^e	23,50
	Ties	0 ^f	
	Total	20	
good - bad	Negative Ranks	11 ^g	115,50
	Positive Ranks	8 ^h	74,50
	Ties	1 ⁱ	
	Total	20	

- a. monetary < non_monetary
- b. monetary > non_monetary
- c. monetary = non_monetary
- d. future < past
- e. future > past
- f. future = past
- g. good < bad
- h. good > bad
- i. good = bad

Test Statistics^a

	monetary - non_monetary	future - past	good - bad
Z	-2,708 ^b	-3,043 ^c	-,826 ^c
Asymp. Sig. (2-tailed)	,007	,002	,409

- a. Wilcoxon Signed Ranks Test
- b. Based on negative ranks.
- c. Based on positive ranks.

Appendix 11

Industry Type categorization – Hypothesis 6

COMPANY NAME	RISK DISCLOSURES
INDUSTRIAL	
MOTOR OIL (HELLAS) CORINTH REFINERIES SA	36

HELLENIC PETROLEUM S.A.	63
MYTILINEOS HOLDINGS S.A.	131
CORINTH PIPEWORKS S.A.	50
TITAN CEMENT COMPANY S.A.	110
VIOHALKO S.A.	121
METKA S.A.	60
FRIGOGLASS S.A.I.C.	28
COCA-COLA HBC AG	158
PUBLIC POWER CORPORATION SA	72
NON INDUSTRIAL	
ELLAKTOR S.A.	67
PIRAEUS PORT AUTHORITY SA	42
EUROBANK PROPERTIES REIC	39
ATHENS WATER SUPPLY & SEWAGE Co.	36
TERNA ENERGY S.A.	72
HELLENIC TELECOM. ORG.	73
JUMBO S.A.	86
FOLLI FOLLIE S.A.	26
GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.	88
INTRALOT S.A.	31

Appendix 12

Mann-Whitney U Test (2 samples) – Hypothesis 6

Ranks

	eidos	N	Mean Rank	Sum of Ranks
	industrial	10	11,95	119,50
risk	non_industrial	10	9,05	90,50
	Total	20		

Test Statistics^a

	risk
Mann-Whitney U	35,500
Wilcoxon W	90,500
Z	-1,097
Asymp. Sig. (2-tailed)	,273
Exact Sig. [2*(1-tailed Sig.)]	,280 ^b

a. Grouping Variable: Industry

b. Not corrected for ties.

Appendix 13

Risk categorization matrix for 20 firms (large caps)

Risk categorization matrix MOTOR OIL (HELLAS) CORINTH REFINERIES SA

RE		Credit	Intere	Exchan	Mark	Liquidi	Total financial	% of
F	Type of risks	risks	st rate	ge rate	et	ty	risks	total
			risks	risks	prices	Risks		
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	3	0	0	3	8%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	1	0	0	0	1	3%
H	Monetary/Bad news/Past	3	0	0	0	6	9	25%
I	Monetary/Good news/Past	0	0	0	0	10	10	28%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	1	0	0	1	0	2	6%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	4	1	3	1	16	25	69%
M	Non monetary/Neutral/non-time specific statements of risk management policy - financial risk	2	2	2	3	2	11	31%
	Total	6	3	5	4	18	36	
		16,67			11,11			
	% total	%	8,33%	13,89%	%	50,00%		

Risk categorization matrix HELLENIC PETROLEUM S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	2	6	0	8	13%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	2	0	2	3%
E	Non monetary/Bad news/Future	0	0	3	6	0	9	14%
F	Non monetary/Good news/Future	1	0	2	0	1	4	6%
G	Monetary/Neutral/Past	0	2	0	2	1	5	8%
H	Monetary/Bad news/Past	0	0	0	0	0	0	0%
I	Monetary/Good news/Past	8	0	0	0	2	10	16%
J	Non monetary/Neutral/Past	0	0	1	0	0	1	2%
K	Non monetary/Bad news/Past	0	0	0	0	0	0	0%
L	Non monetary/Good news/Past	1	0	0	0	0	1	2%
	Total	10	2	8	16	4	40	63%
M	Non monetary/Neutral/non-time specific statements of risk management policy - financial risk	8	0	6	4	5	23	37%
	Total	18	2	14	20	9	63	
		28,57			31,75			
	% total	%	3,17%	22,22%	%	14,29%		

Risk categorization matrix MYTILINEOS HOLDINGS S.A.

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	4	0	0	0	0	4	3%
B	Monetary/Bad news/Future	9	1	0	0	0	10	8%
C	Monetary/Good news/Future	12	0	0	0	0	12	9%
D	Non monetary/Neutral/Future	1	0	0	0	0	1	1%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	3	3	2%
G	Monetary/Neutral/Past	0	6	12	10	1	29	22%
H	Monetary/Bad news/Past	6	0	0	0	4	10	8%
I	Monetary/Good news/Past	16	0	0	0	4	20	15%
J	Non monetary/Neutral/Past	1	0	0	0	0	1	1%
K	Non monetary/Bad news/Past	5	0	0	0	0	5	4%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	54	7	12	10	12	95	73%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	10	5	8	2	11	36	27%
	Total	64	12	20	12	23	131	
		48,85						
	% total	%	9,16%	15,27%	9,16%	17,56%		

Risk categorization matrix CORINTH PIPEWORKS S.A.

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	2	2	4%
B	Monetary/Bad news/Future	0	0	0	0	2	2	4%
C	Monetary/Good news/Future	0	0	0	0	8	8	16%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	0	1	0	1	2%
F	Non monetary/Good news/Future	0	0	0	1	0	1	2%
G	Monetary/Neutral/Past	0	2	1	0	0	3	6%
H	Monetary/Bad news/Past	2	1	1	0	1	5	10%
I	Monetary/Good news/Past	5	0	1	0	0	6	12%
J	Non monetary/Neutral/Past	0	0	0	1	0	1	2%
K	Non monetary/Bad news/Past	0	0	0	0	0	0	0%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	7	3	3	3	13	29	58%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	8	4	4	3	2	21	42%
	Total	15	7	7	6	15	50	
		30,00						
	% total	%	14,00%	14,00%	12,00%	30,00%		

Risk categorization matrix TITAN CEMENT COMPANY S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	1	0	0	1	1%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	4	0	0	1	5	5%
H	Monetary/Bad news/Past	1	14	16	0	4	35	32%
I	Monetary/Good news/Past	6	12	12	0	6	36	33%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	0	0	0	0	0	0	0%
L	Non monetary/Good news/Past	1	0	0	0	0	1	1%
	Total	8	30	29	0	11	78	71%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	10	6	13	1	2	32	29%
	Total	18	36	42	1	13	110	
		16,36						
	% total	%	32,73%	38,18%	0,91%	11,82%		

Risk categorization matrix ELLAKTOR S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	1	1	1%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	1	0	0	0	1	1%
E	Non monetary/Bad news/Future	2	1	0	0	1	4	6%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	0	0	1	4	5	7%
H	Monetary/Bad news/Past	8	0	0	0	7	15	22%
I	Monetary/Good news/Past	7	0	0	0	7	14	21%
J	Non monetary/Neutral/Past	0	0	0	0	1	1	1%
K	Non monetary/Bad news/Past	0	1	0	0	1	2	3%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	17	3	0	1	22	43	64%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	5	7	5	5	2	24	36%
	Total	22	10	5	6	24	67	
		32,84						
	% total	%	14,93%	7,46%	8,96%	35,82%		

Risk categorization matrix VIOHALKO S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	1	0	0	0	1	1%
F	Non monetary/Good news/Future	1	0	0	0	1	2	2%
G	Monetary/Neutral/Past	3	0	2	0	0	5	4%
H	Monetary/Bad news/Past	8	1	14	0	15	38	31%
I	Monetary/Good news/Past	9	3	9	0	16	37	31%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	0	0	0	0	0	0	0%
L	Non monetary/Good news/Past	2	0	0	0	0	2	2%
	Total	23	5	25	0	32	85	70%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	14	2	9	2	9	36	30%
	Total	37	7	34	2	41	121	
	30,58							
	% total	%	5,79%	28,10%	1,65%	33,88%		

Risk categorization matrix METKA S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	6	6	10%
B	Monetary/Bad news/Future	0	0	0	0	10	10	17%
C	Monetary/Good news/Future	0	0	0	0	8	8	13%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	2	0	2	1	1	6	10%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	2	0	0	0	2	3%
H	Monetary/Bad news/Past	2	0	3	0	0	5	8%
I	Monetary/Good news/Past	0	0	5	0	0	5	8%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	2	1	0	2	0	5	8%
L	Non monetary/Good news/Past	1	1	0	0	0	2	3%
	Total	7	4	10	3	25	49	82%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	6	1	2	0	2	11	18%
	Total	13	5	12	3	27	60	
		21,67						
	% total	%	8,33%	20,00%	5,00%	45,00%		

Risk categorization matrix FRIGOLASS S.A.I.C.

RE		Credit	Interest	Exchange	Market	Liquidity	Total	% of
F	Type of risks	risks	rate	rate	prices	Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	1	1	0	2	7%
F	Non monetary/Good news/Future	1	0	0	0	1	2	7%
G	Monetary/Neutral/Past	0	0	0	0	0	0	0%
H	Monetary/Bad news/Past	0	0	0	0	0	0	0%
I	Monetary/Good news/Past	0	0	0	0	0	0	0%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	1	2	2	0	0	5	18%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	2	2	3	1	1	9	32%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	6	2	4	2	5	19	68%
	Total	8	4	7	3	6	28	
		28,57			10,71			
	% total	%	14,29%	25,00%	%	21,43%		

Risk categorization matrix PIRAEUS PORT AUTHORITY SA

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	8	8	19%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	0	0	0	0	0	0%
H	Monetary/Bad news/Past	0	8	0	0	1	9	21%
I	Monetary/Good news/Past	6	10	0	0	0	16	38%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	1	1	0	0	0	2	5%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	7	19	0	0	9	35	83%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	3	2	1	0	1	7	17%
	Total	10	21	1	0	10	42	
		23,81						
	% total	%	50,00%	2,38%	0,00%	23,81%		

Risk categorization matrix COCA-COLA HBC AG

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	2	1	0	13	16	10%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	1	0	0	1	1%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	0	19	3	0	22	14%
H	Monetary/Bad news/Past	3	3	22	0	4	32	20%
I	Monetary/Good news/Past	2	2	38	1	4	47	30%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	4	1	0	0	0	5	3%
L	Non monetary/Good news/Past	0	2	0	0	0	2	1%
	Total	9	10	81	4	21	125	79%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	8	3	9	4	9	33	21%
	Total	17	13	90	8	30	158	
	% total	10,76%	8,23%	56,96%	5,06%	18,99%		

Risk categorization matrix JUMBO S.A.

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	2	2	2%
C	Monetary/Good news/Future	0	0	0	0	20	20	23%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	4	4	0	1	9	10%
H	Monetary/Bad news/Past	7	0	3	0	1	11	13%
I	Monetary/Good news/Past	5	0	4	0	8	17	20%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	0	1	0	0	0	1	1%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	12	5	11	0	32	60	70%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	6	2	3	1	14	26	30%
	Total	18	7	14	1	46	86	
		20,93						
	% total	%	8,14%	16,28%	1,16%	53,49%		

Risk categorization matrix FOLLI FOLLIE S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	prices			
					Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	8	8	31%
C	Monetary/Good news/Future	0	0	0	0	10	10	38%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	1	1	4%
G	Monetary/Neutral/Past	0	0	0	0	0	0	0%
H	Monetary/Bad news/Past	3	0	1	0	0	4	15%
I	Monetary/Good news/Past	0	0	1	0	0	1	4%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	0	0	0	0	0	0	0%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	3	0	2	0	19	24	92%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	0	0	0	0	2	2	8%
	Total	3	0	2	0	21	26	
		11,54						
	% total	%	0,00%	7,69%	0,00%	80,77%		

Risk categorization matrix GREEK ORGANISATION OF FOOTBALL PROGNOSTICS S.A.

RE		Credit	Interes	Exchang	Marke		Total	% of
F	Type of risks	risks	t rate	e rate	t	Liquidit	I	total
			risks	risks	prices	y Risks		
					Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	5	0	0	0	11	16	18%
C	Monetary/Good news/Future	0	0	0	0	14	14	16%
D	Non monetary/Neutral/Future	0	1	0	0	0	1	1%
E	Non monetary/Bad news/Future	0	2	0	0	4	6	7%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	0	0	0	2	2	2%
H	Monetary/Bad news/Past	8	0	0	0	3	11	13%
I	Monetary/Good news/Past	5	0	0	0	11	16	18%
J	Non monetary/Neutral/Past	0	0	1	0	0	1	1%
K	Non monetary/Bad news/Past	0	1	0	0	2	3	3%
L	Non monetary/Good news/Past	0	0	0	0	1	1	1%
	Total	18	4	1	0	48	71	81%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	6	0	1	0	10	17	19%
	Total	24	4	2	0	58	88	
		27,27						
	% total	%	4,55%	2,27%	0,00%	65,91%		

Risk categorization matrix INTRALOT S.A.

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	0	4	0	0	4	13%
H	Monetary/Bad news/Past	1	0	4	0	0	5	16%
I	Monetary/Good news/Past	0	0	8	0	0	8	26%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	0	0	1	0	0	1	3%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	1	0	17	0	0	18	58%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	3	3	5	0	2	13	42%
	Total	4	3	22	0	2	31	
		12,90						
	% total	%	9,68%	70,97%	0,00%	6,45%		

Risk categorization matrix HELLENIC TELECOM. ORG.

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	1	0	0	1	1%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	2	0	1	0	0	3	4%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	1	0	0	0	1	1%
H	Monetary/Bad news/Past	1	2	2	0	6	11	15%
I	Monetary/Good news/Past	4	4	1	0	19	28	38%
J	Non monetary/Neutral/Past	0	1	0	0	0	1	1%
K	Non monetary/Bad news/Past	6	1	0	0	0	7	10%
L	Non monetary/Good news/Past	0	0	0	0	1	1	1%
	Total	13	9	5	0	26	53	73%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	10	1	2	3	4	20	27%
	Total	23	10	7	3	30	73	
		31,51						
	% total	%	13,70%	9,59%	4,11%	41,10%		

Risk categorization matrix PUBLIC POWER CORPORATION SA

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	prices			
					Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	2	0	2	3	2	9	13%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	8	0	0	1	9	13%
H	Monetary/Bad news/Past	5	0	3	3	10	21	29%
I	Monetary/Good news/Past	3	0	0	0	8	11	15%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	3	1	0	0	7	11	15%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	13	9	5	6	28	61	85%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	4	2	1	1	3	11	15%
	Total	17	11	6	7	31	72	
		23,61						
	% total	%	15,28%	8,33%	9,72%	43,06%		

Risk categorization matrix TERNA ENERGY S.A.

RE		Credit	Interes	Exchang	Marke	Liquidit	Tota	% of
F	Type of risks	risks	t rate	e rate	t	y Risks	I	total
			risks	risks	Risks			
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	12	12	17%
C	Monetary/Good news/Future	0	0	0	0	4	4	6%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	5	0	0	5	7%
F	Non monetary/Good news/Future	0	0	0	0	0	0	0%
G	Monetary/Neutral/Past	0	3	2	2	0	7	10%
H	Monetary/Bad news/Past	1	2	6	0	2	11	15%
I	Monetary/Good news/Past	2	0	1	0	1	4	6%
J	Non monetary/Neutral/Past	0	0	0	0	0	0	0%
K	Non monetary/Bad news/Past	9	1	0	0	0	10	14%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	12	6	14	2	19	53	74%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	5	4	4	0	6	19	26%
	Total	17	10	18	2	25	72	
		23,61						
	% total	%	13,89%	25,00%	2,78%	34,72%		

Risk categorization matrix ATHENS WATER SUPPLY & SEWAGE Co.

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	6	0	0	0	0	6	17%
C	Monetary/Good news/Future	2	0	0	0	4	6	17%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	0	0	0	0	0	0%
F	Non monetary/Good news/Future	0	0	0	0	1	1	3%
G	Monetary/Neutral/Past	1	2	0	0	0	3	8%
H	Monetary/Bad news/Past	5	0	0	0	0	5	14%
I	Monetary/Good news/Past	2	0	0	0	0	2	6%
J	Non monetary/Neutral/Past	1	1	0	0	0	2	6%
K	Non monetary/Bad news/Past	3	3	0	0	0	6	17%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	20	6	0	0	5	31	86%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	2	1	1	0	1	5	14%
	Total	22	7	1	0	6	36	
	% total	61,11%	19,44%	2,78%	0,00%	16,67%		

Risk categorization matrix EUROBANK PROPERTIES REIC

REF	Type of risks	Credit risks	Interest rate risks	Exchange rate risks	Market prices Risks	Liquidity Risks	Total	% of total
A	Monetary/Neutral/Future	0	0	0	0	0	0	0%
B	Monetary/Bad news/Future	0	0	0	0	0	0	0%
C	Monetary/Good news/Future	0	0	0	0	0	0	0%
D	Non monetary/Neutral/Future	0	0	0	0	0	0	0%
E	Non monetary/Bad news/Future	0	2	1	1	0	4	10%
F	Non monetary/Good news/Future	0	1	0	0	0	1	3%
G	Monetary/Neutral/Past	3	0	1	0	3	7	18%
H	Monetary/Bad news/Past	1	0	0	0	7	8	21%
I	Monetary/Good news/Past	0	0	0	0	0	0	0%
J	Non monetary/Neutral/Past	1	1	0	0	0	2	5%
K	Non monetary/Bad news/Past	0	0	0	0	0	0	0%
L	Non monetary/Good news/Past	0	0	0	0	0	0	0%
	Total	5	4	2	1	10	22	56%
M	Non monetary/Neutral/non-time specific statements of financial risk management policy	3	3	4	2	5	17	44%
	Total	8	7	6	3	15	39	
	% total	20,51%	17,95%	15,38%	7,69%	38,46%		